

COAL INFRASTRUCTURE *REUSE REPORT STUDY*

PREPARED FOR:
THE NATURE CONSERVANCY
IN WYOMING



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COAL INFRASTRUCTURE REUSE STUDY:

Pathways to Reuse for Wyoming’s
Coal Industry Infrastructure

A STUDY SPONSORED BY:

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Wyoming Field Office
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DISCLAIMER

Although the authors have made every attempt to use the best information and data available, to provide transparency in the analysis, and solicited expert opinion and review, the readers need to be reminded that the Coal Infrastructure Reuse Study is an initial compilation of public source data intended to frame a strategic discussion. Alone it is not sufficiently designed, developed, and validated to be a tactical planning and decision tool. Even though the analysis does provide site specific references of property character, these factors are intended to serve only as contextual and subjective considerations.

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EXECUTIVE
SUMMARY

COAL MINING & POWER GENERATION
INDUSTRIES IN WY

Beginning in 1970 the Wyoming coal industry entered into a 38 year period of nearly uninterrupted growth experiencing an average annual growth rate exceeding 12% and attaining a peak production level of 466 millions tons in 2008 while supporting nearly 7,000 employees.

Development on an immense scale was required to facilitate the coal industry’s initial expansion, and an impressive array of infrastructure was developed in the state. There are more than 30 major industrial sites associated with coal mining and coal-fired power generation in Wyoming (see **Figure A.1 Wyoming Statewide Coal Fired Power Plants_With Mine Permits**), each one home to \$10’s to \$100’s of millions in infrastructure investment, including rail, materials handling facilities, large industrial maintenance, repair and fabrication buildings, offices, high capacity power lines and substations, water infrastructure, and more.

These sites have proven the capacity to support thousands of jobs. The property, improvements and infrastructure, and the product sales they enable, are taxed generating significant revenues to the Wyoming state budget.

During 2021, 238 million tons of coal moved by unit trains (single destination trains with up to 150 cars) to energy markets in 25 states across the country. Wyoming power plants consumed another 23 million tons during the year, and 4.7 million tons went to other industrial uses.

The vast majority of all of the coal mined in Wyoming is shipped via rail to destinations outside its borders to 25 other states. The top consumers of Wyoming coal are coal-fired power plants in Texas, Missouri, and Illinois.

There are six coal fired power facilities for market generation in Wyoming, and two coal fired power facilities for dedicated industrial power generation spread across eight geographic locations in the State of Wyoming considered in the Coal Infrastructure Reuse Study

The thirty-two unique coal fired boiler-generators installed in the state fall into four general categories: 19 units generating power to the market grid, 8 generating power for direct industrial use, and 5 retired but remaining under permit.

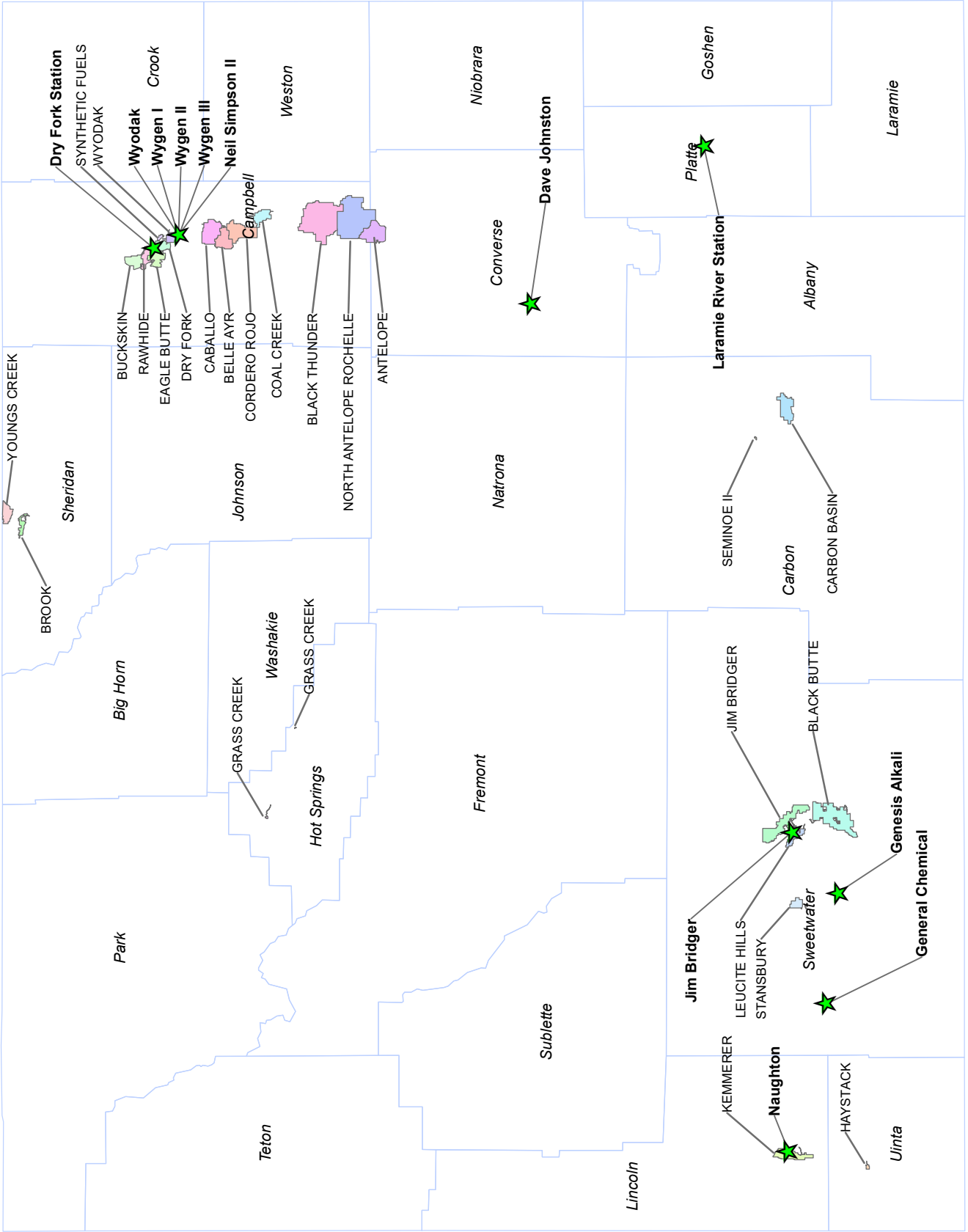
The total acreage dedicated to coal fired power plant operations in Wyoming is over 8,800 acres. The six primary grid tied generating facilities have a generating capacity of 7,205 MW.

Revenues from the coal industry, both mining and power generation during the period of growth, came to be relied upon as the most stable of the States three primary energy commodities, often contributing up to ⅓ of State revenues while its direct and first tier support employees typically earned nearly double the average wages of other business and industry sectors in the State.

The coal mining and power plant sectors now employ just over 5,100 workers. Coal industry jobs are among the best paying in the state with Wyoming coal sector workers collecting an average annual wage of \$93,905, excluding benefits. Coal sector workers take-home pay is almost twice the statewide average wage of \$49,756 per worker.

Estimates indicate that each coal industry position supports an additional two jobs in the service and supply sectors, bringing direct and indirect employment to more than 15,000 workers.

FIGURE 1.A WYOMING STATEWIDE COAL FIRED POWER PLANTS WITH MINE PERMITS



INFLUENCE & IMPACT

The drivers that primarily influence the Wyoming coal industry, both mining and power generation, originate from outside the geographic borders of Wyoming in the form of both regulation and market demands. These drivers are also outside of our ability for meaningful political or social influence.

Since 2008 coal production has been in steep decline having lost 228 million tons of production, a 49% reduction in gross quantity resulting in a loss of over 2,000 direct jobs. Similar to the drivers for the coal industry’s growth, forces causing decline are exerted from the outside, and again coming in the form of regulation and market demands.

THE COAL INFRASTRUCTURE REUSE STUDY

- This study was undertaken to:
- 1. present an Inventory of sites that have realistic potential for reuse post mining or coal fired power generation, and offer a perspective of their Valuation
 - 2. to identify and describe Prior Projects that have successfully employed a reuse strategy
 - 3. to describe the Pathways that exist in the current regulatory structure to seek an exception to demolition and reclamation, and;
 - 4. to identify Partnership and Funding Opportunities to enable a sensible and sustainable reuse strategy.

This compilation is intended to be immediately valuable to inform policy makers, regulators and industry participants facing decision points regarding retirement, decommissioning, and reclamation of valuable infrastructure associated with the coal industry.

Inventories for Mines and Power Plants are based on publicly available datasets from government, regulatory, academic and industry sources.

Obtaining relevant Valuations for Mines and Power Plants proved to be the most challenging aspect of the study. In keeping with the stated intent to identify, access and report reliable

and repeatable data sources for information presented in this report, publicly available tax assessment records were determined to be the most appropriate statements of value. (see **Table 1.B Reclamation Bond Amounts and Assessed Values for Wyoming Coal Mines**).

AT THE END OF ORIGINAL INTENDED USE

Current federal and state regulations default to demolition of all facilities and infrastructure and reclamation of the land to its prior (pre-industrial development) use and character at the closure of a mine or power plant.

If coal industry sites are fully reclaimed, they are unlikely to be targeted for renewed development. Legacy liabilities and geotechnical issues are likely obstructions. Industrial or energy projects that could have repurposed these sites would necessarily be constructed on greenfield sites elsewhere, leading to unnecessary impact to landscapes and wildlife across the state.

Implementation of reuse strategies for coal industry sites could provide displaced workers with new jobs, the state and county governments with new revenue, the state’s economy, and facilitate diversification of the state’s economy. Speed to market versus green fields would advantage reuse. Additional impacts of development on Wyoming’s landscapes and reclamation costs for coal industry companies closing their operations would be reduced or avoided.

Each of the twenty-four (24) mine sites and the twelve (12) power plant sites addressed in this report (see **Table 1.A Listing of Properties Considered in this Report**) represent an opportunity for post mining industrial reuse including low- impact development of the utility-scale renewable energy facilities.

FEDERAL AND STATE POLICY, PROJECTS AND FUNDING

Federal policy is serving to promote development of pathways, partnership and funding that supports reuse of mine lands. The Interagency Working Group on Coal and Power Plant Communities, Office of Clean Energy Demonstrations and other funding opportunities coming out of various offices of the Department of Energy and Economic Development Administration are advancing current policy.

Department of Energy and the Economic Development Administration, many other federal agencies and private markets are investing at unprecedented levels in the development of a variety of new clean energy technologies including carbon management, hydrogen, nuclear, grid scale batteries and advanced manufacturing, many of which offer opportunities for diversification of industry in Wyoming. The DOE’s \$500 million funding of the Clean Energy on Mine Lands (CEML) demonstrates a signal of policy and programmatic support for the concept of mine lands re-use.

The state government including the Wyoming Energy Authority and the Office of the Governor - Energy Policy Advisory Staff, the Wyoming Business Council, its Regional Director Staff and local Economic Development Organizations and the University of Wyoming - School of Energy Resources are similarly aligning with new energy technologies to diversify and strengthen the state’s economy while pledging to reduce the carbon intensity of our energy industries. Reuse of coal industry facilities represent near-ideal locations to support the development of pilot projects, demonstration sites, and commercial deployment of CO2 Storage and Hydrogen Energy Hubs.

SUCCESS STORIES:

A pathway to properly permit lands for reuse does exist in the current rules and Regulations of the WDEQ, in compliance and alignment with OSMRE requirements in: **SMRE Title 30, Subchapter B 715.13 Postmining use of land** and within Wyoming DEQ a process for a Land Use Change is in: **Land Use Change to Industrial/Commercial for Coal Mine Facilities, LQD Coal Chapter 2. Sec. 6(b)(x)(C).**

Examples of navigating the existing federal and state regulatory pathways to achieve reuse do exist (see **Chapter 3. Prior Projects: Re-use Examples on Mine Lands**).

- Four projects in Wyoming have sought to re-purpose mine lands with information provided in this report for:
- **Dave Johnson Mine** - Glenrock Rolling Hills Wind Energy
 - **Jacobs Ranch Mine** - Rail Utilization Complex
 - **Synthetic Fuels Mine** - Fort Union Industrial Park
 - **Kemmerer Mine** - Terra Power Natrium Nuclear Project

The environmental impact of the new businesses that reused these lands was lessened because no new land disturbance was necessary, no additional cultural or wildlife resources were impacted.

SITES, LAND AND VALUE - QUICK FACTS

- There are **24 coal mines in the State of Wyoming considered in the Coal Infrastructure Reuse Study**
 - 24 with open permits being administered by WDEQ-LQD
 - **17 with active an on-going mining production**
 - 5 in Reclamation status
 - 1 in Temporary Cessation status
 - 1 in Non-Development status
- Lands in Wyoming associated with coal mining comprise
 - **390,000 acres** within active mine permits
 - **245,000 acres privately** owned by mining companies within and proximal to permit boundaries
 - **170,000 acres in active or reclamation status**, in current or prior disturbance disturbance or undergoing some phase of reclamation
- There are 6 **distinct coal fired power facilities for market generation**, and 2 distinct coal fired power facilities for dedicated industrial power generation **at 8 geographic locations in the State of Wyoming considered in the Coal Infrastructure Reuse Study**
 - 32 boiler/generator units considered within all classes, permit and operational status
 - **19 individual boiler/generator units generating power to the market grid**
 - 8 individual boiler/generator units generating power for direct industrial use
 - 5 boiler/generator units having been retired but with remaining open permits
- Lands in Wyoming associated with coal fired power generation comprise. Approximately **9,000 acres owned by power generating companies** proximal to plant sites
- Bonding, reclamation reserve funds by class
 - **\$1.9 billion in Total mine reclamation bonds**
 - \$990 million in Area Bonds (*mostly dedicated to pit area backfill*)
 - **\$360 million in Incremental Bonds** (*includes infrastructure demolition funds*)
 - A typical mid-sized mine in the Powder River Basin will allocate \$4.5 to \$8.0 million dollars to infrastructure demolition

- Mines and Power Plants across the State commonly have facilities that include clerical offices, labs, professional engineering and management spaces, conference and training rooms, warehouses, and heavy industrial repair and fabrication shops. Even the smallest of the mine facilities are comprised of 40-50,000 square feet of total facilities with the largest being in excess of 200,000 square feet of total buildings of all classes.
- Assessed Values for Select Asset Categories and Types
 - **Public tax records indicate replacement costs in excess of \$980 million for Buildings, Site Improvements and Plant Machinery and Equipment**
 - **A differential cost approaching \$1.35 billion is indicated between demolition and reclamation of Buildings, Site Improvements and Plant Machinery and Equipment and the replacement of the same on a build ready greenfields site.**

TAKE AWAYS:

Efforts to develop a strategic framework that pursues policy, statute and regulation that result in reuse as a preferential pathway are encouraged to avoid unnecessary and regressive destruction of assets and infrastructure that would return lands to a lesser productive condition and value.

Presently coal mine and coal power plant owners must view disturbed lands, transportation infrastructure, permanent improvements and utilities as liabilities. A properly formed reuse strategy would allow the owners, communities and future industries to realize these as assets.

Wyoming’s workers, businesses, environment and financial bottom line would benefit from the reuse of coal mine and coal power plant lands, assets and infrastructure.

EXECUTIVE SUMMARY TABLE 1.A LISTING OF PROPERTIES CONSIDERED IN THE REPORT		
COAL MINES		
MINE NAME	COMPANY	COUNTY
Antelope	Navajo Transitional Energy Company, LLC	Converse
Belle Ayr	Eagle Speciality Materials, LLC	Campbell
Black Butte	Black Butte Coal Company	Sweetwater
Black Thunder	Thunder Basin Coal Company, LLC	Campbell
Brook	Brook Mining Company, LLC	Sheridan
Buckskin	Buckskin Mining Company	Campbell
Caballo	Peabody Caballo Mining, LLC	Campbell
Carbon Basin	Arch of WY LLC	Carbon
Coal Creek Mine	Thunder Basin Coal Company, LLC	Campbell
Cordero Rojo	Navajo Transitional Energy Company, LLC	Campbell
Dry Fork	Western Fuels WY, Inc.	Campbell
Eagle Butte	Contura Coal West, LLC	Campbell
Grass Creek	Spring Gulch Coal Co (The)	Hot Springs
Haystack	Westmoreland Haystack Mining, LLC	Uinta
Jim Bridger	Bridger Coal Company	Sweetwater
Kemmerer	Kemmerer Operations, LLC	Lincoln
Leucite Hills	Black Butte Coal Company	Sweetwater
North Antelope Rochelle	Peabody Powder River Mining, LLC	Campbell
Rawhide	Peabody Caballo Mining, LLC	Campbell
Seminole II	Arch of WY LLC	Carbon
Stansbury	Rocky Mountain Coal Company	Sweetwater
Synthetic Fuels Mine	Green Bridge Holdings, Inc.	Campbell
Wyodak	Wyodak Resources Development Corporation	Campbell
Youngs Creek	Navajo Transitional Energy Company, LLC	Sheridan
POWER PLANTS		
PLANT NAME	COMPANY	COUNTY
Dave Johnston	PacifiCorp	Converse
Dry Fork Station	Basin Electric Power Coop	Campbell
General Chemical	PacifiCorp	Sweetwater
Genesis Alkali	PacifiCorp	Sweetwater
Jim Bridger	PacifiCorp	Sweetwater
Laramie River	Basin Electric Power Coop	Platte
Naughton	PacifiCorp	Lincoln
Neil Simpson II	Black Hills Power Inc	Campbell
Wygen I	Black Hills Power Inc	Campbell
Wygen II	Black Hills Power Inc	Campbell
Wygen III	Black Hills Power Inc	Campbell
Wyodak	Black Hills Power Inc	Campbell

CHAPTER ONE

INTRODUCTION

The Coal Infrastructure Reuse Study (CIRS): Pathways to Reuse for Wyoming’ Coal Industry Infrastructure is intended to serve as an informational tool set that summarizes the coal industry’s assets and infrastructure across the State of Wyoming and to provide a base set of metrics as a starting point to consider the potential for reuse of coal mining and coal fired generation sites at the end of their original intended use.

A comprehensive listing of coal mining and power generation sites has been developed as the foundation for all subsequent tasks. This listing provides a framework for detailed inventory and categorization of assets including a GIS dataset and resulting mapping for each site. Each set of site specific data should serve as the platform to identify and quantify lands and infrastructure that could offer value within a reuse strategy.

Existing mine and power generation facilities are listed and their attributes cataloged by site. So that each site may be evaluated according to its character; land and infrastructure are described to provide some insight to prospective reuse scenarios. The methods employed should allow for considerations of values through three particular lenses: current use, utilization in place for other than present purposes, and replacement cost in an assumed greenfields scenario creating similar capacity. Analysis reflects items identified that are likely to provide value to a future reuse proposition and also those that should be considered as no longer offering any benefit beyond the original intended purpose.

Examples of prior projects that have employed coal industry assets for purposes outside of their original intent are described. Several

projects in Wyoming have already repurposed coal industry assets. Four of these have been summarized so that the reader may consider the process, challenges, and viability of repurposing additional coal industry lands and infrastructure in the future.

The current reclamation bonding requirements of the Office of Surface Mining and the Wyoming Department of Environmental Quality are reported for each site with the specific intention of calling out certain potential financial and regulatory barriers to repurposing assets, and spur ideas on how to overcome those barriers.

Potential partnerships and opportunities are considered from among those entities that may have an interest in supporting post mining reuse applications. Existing pathways through the current business, legal and regulatory fields, with particular focus on issues that might impede or prevent a sensible use model for these assets and infrastructure outside of the present coal industry model are discussed. Successful transitions to reuse are sure to require collaboration, and communities will benefit from strategic partnerships that together present opportunities for creation of unique value propositions in the evolving energy sector.

1.1 BACKGROUND

Wyoming is a state with a wealth of energy resources, including coal, oil, natural gas, and uranium. While a historical review of production and pricing metrics for each of these reveals both rational cyclic variations and striking unpredicted periods of volatility, it is coal that can be distinguished from the others as having been relatively immune to the well known boom and bust cycles of Wyoming’s energy industries.

Beginning in 1970 the Wyoming coal industry entered into a 38 year period of nearly uninterrupted growth, recording year-over-year losses of production only twice during that time. The sector experienced an average annual growth rate exceeding 12% having reached a peak production level of 466 millions tons in 2008 while supporting nearly 7,000 employees. Revenues from the coal industry, both mining and power generation, came to be relied upon as the most stable of the States three primary energy commodities, often contributing up to 1/3 of State revenues while its direct and first tier support employees typically earned nearly double the average wages of other business and industry sectors in the State. **See Figures B & C.**

This period of growth was driven in a very significant way by a factor that previously had not before exerted much influence on Wyoming’s coal mining or coal fired power generation industry - that is Federal environmental actions, particularly the evolution of the Clean Air Act regulations. With the Clean Air Act came an unanticipated advantage to Wyoming’s coal resource and the electricity it could produce. **Early on our State chose to take action in recognition of this new reality.**

So significant were the impacts of these actions that Wyoming surpassed the historic front

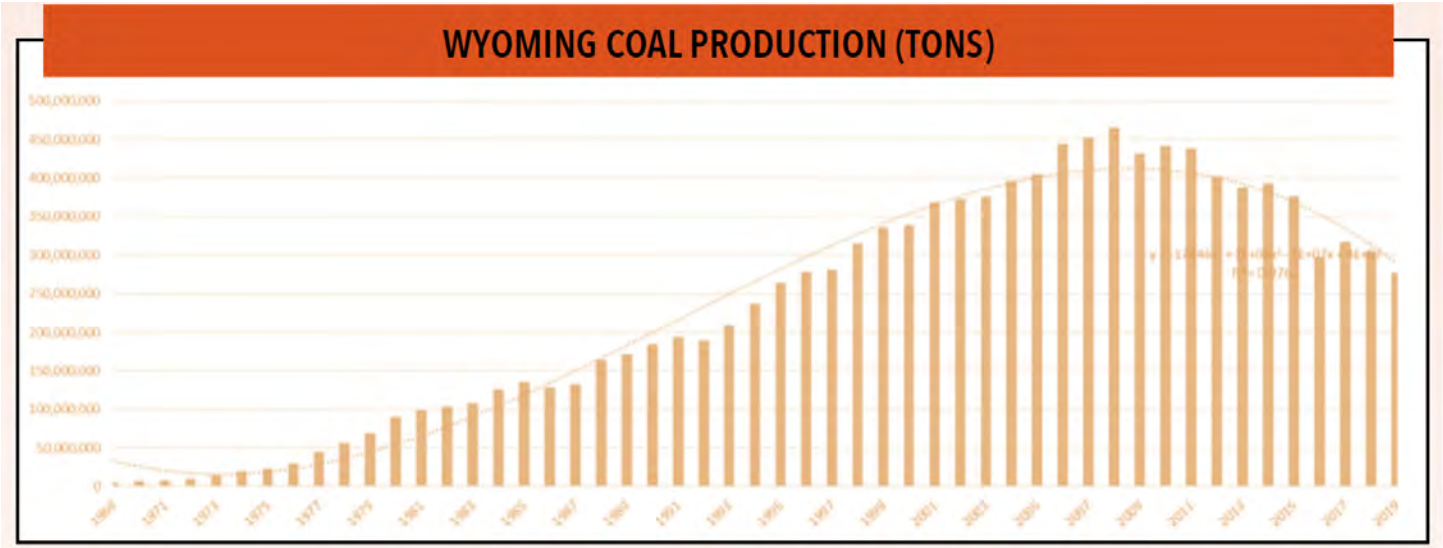
runners in coal production within 15 years of initiating a coal and coal fired power export strategy and has maintained that position to present. Along the way the mining and power generation sectors in Wyoming have established themselves as clear industry leaders in production, quality, operating costs and safety. The State is rightfully proud of our coal industry and its people, for their essential role in providing an outsized contribution to the nation’s energy needs and doing it in typical Wyoming fashion - with hard work and an independent mind set.

There must be a recognition though that essentially all of the actions within our State have been in response to demands that originated from the outside, in the form of both regulation and market demands. These drivers originated, and remain, not only outside of our geographic borders but outside of our ability for meaningful political or social influence.

Today our coal industries continue to be driven by influences outside of our control. Since 2008 coal production has been in steep decline having lost 228 million tons of production, a 49% reduction in gross quantity with that loss taking over 2,000 direct jobs with it.

Just as with the drivers for the coal industry’s growth, the down-pressures causing decline are exerted from the outside and again coming

FIGURE B
WMA CONCISE GUIDE TO WYOMING COAL - VOLUME TRENDS
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE 2020-2021



in the form of regulation and market demands. Wyoming’s low priced energy from coal has been challenged by historically underpriced natural gas and by subsidized wind and solar energy development. The once highly sought after emissions “super compliant” coal from the Powder River Basin has been overshadowed by its own colorless and odorless contributions

to atmospheric carbon dioxide levels. These factors of regulation and price now force decisions in the marketplace that put coal in a lagging position while global opinions and policy relating to climate change only serve to multiply the market realities leveraged against coal. **Once again, our State has an opportunity to take action in recognition of a new reality.**

FIGURE C- PART 1
WMA CONCISE GUIDE TO WYOMING COAL -
EMPLOYMENT & WAGES
SOURCED: WYOMING MINING ASSOCIATION COAL
CONCISE GUIDE 2020-2021

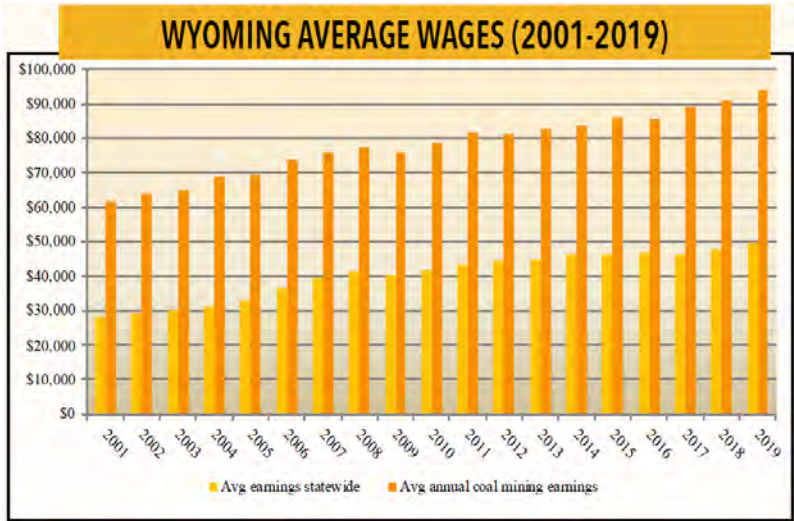
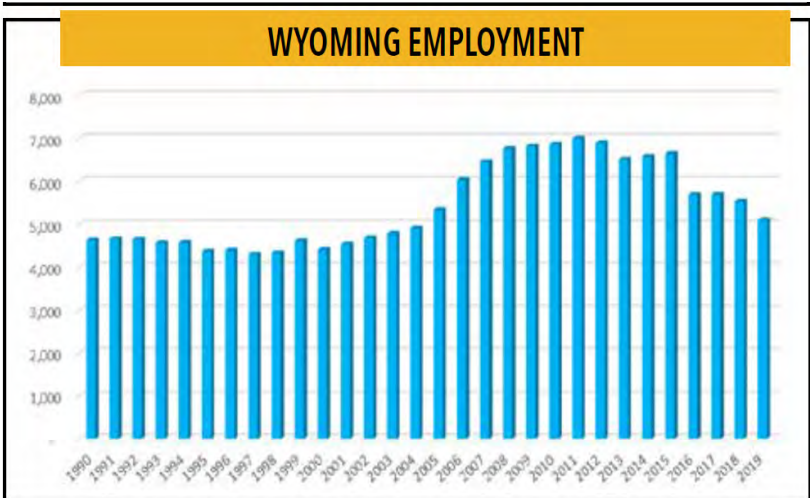


FIGURE C- PART 2
WMA CONCISE GUIDE TO WYOMING COAL - EMPLOYMENT & WAGES
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE
2020-2021



1.2. CONTEXT & SETTING

Development on an immense scale was required to facilitate the coal industry’s initial expansion, and an impressive array of infrastructure was developed in the state. There are more than 30 major industrial sites associated with coal mining and coal-fired power generation in Wyoming, each one home to \$10’s to \$100’s of millions in infrastructure investment, including rail, materials handling facilities, large industrial maintenance, repair and fabrication buildings, offices, high capacity power lines and substations, water infrastructure, and more. These sites have proven the capacity to support thousands of jobs. The property, improvements and infrastructure, and the product sales they enable, are taxed generating significant revenues to the Wyoming state budget. **See Figure D on previous page.**

Due to the current economic and environmental regulatory trends, coal mines and coal-fired power plants in Wyoming are likely to cease operations well ahead of the depletion of economically recoverable coal reserves. At the same time alternative energy industries, specifically solar and wind, are likely to see significant increases in generating capacity on the intrastate and interstate power grids through construction of new facilities in Wyoming.

Pacificorp, the parent company of Wyoming’s largest electric utility Rocky Mountain Power (RMP), publishes a biennial Integrated Resource Plan and their most recent has Wyoming’s last RMP-owned coal- fired generating unit retiring around 2040, with most retiring several years before that. Of Wyoming’s currently producing coal mines addressed in this report only one has announced a closure date, but the coal mine life cycle is entirely dependent on the undeniable trend in power plant closures in this state and across the nation. **See Figures E 1-5 on following page.**

Upon the closure of a coal mine or power plant, current federal and state regulatory requirements default to position of demolition of all facilities and infrastructure and reclamation of the land

to its prior (pre-industrial development) use and character.

Once these sites are fully reclaimed, they are unlikely to be targeted for new development due to legacy liabilities and geotechnical issues of new construction. New industrial facilities that could have re-purposed these sites would then likely be constructed on greenfield sites elsewhere, leading to unnecessary impact to landscapes and wildlife across the state and country.

Alternatively, re-use of these coal industry sites could provide displaced workers with new jobs, the state and county governments with new revenue, facilitate diversification of the state’s economy, while reducing the time for market entry versus greenfields development. Additional impacts of development on Wyoming’s landscapes and reclamation costs for coal industry companies closing their operations would be reduced or avoided.

Each of the twenty-four (24) mine sites and the twelve (12) power plant sites addressed in this report (**see Figures A.1, A.2, A.3, A.4 that follow**) represent an opportunity for post mining industrial reuse including low- impact development of the utility-scale renewable energy facilities. Renewable energy generation facilities have the potential to co-utilize land resources with certain compatible industries with many examples indicating that access to low-carbon energy has attracted other types of economic investment.

FIGURE E.1
 US COAL-FIRED GENERATING CAPACITY & PLANNED RETIREMENTS
 SOURCED: US ENERGY INFORMATION ADMINISTRATION, MONTHLY ELECTRIC GENERATOR INVENTORY

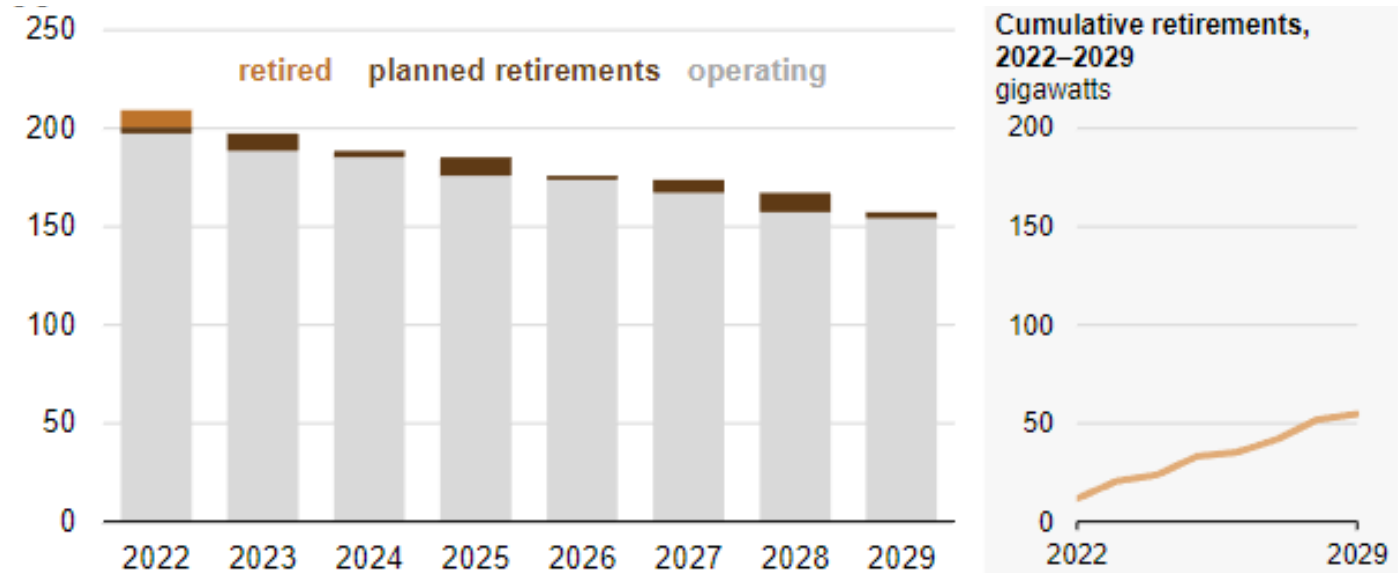


FIGURE E.2
 US UTILITY SCALE ELECTRIC GENERATING CAPACITY BY INITIAL OPERATING YEAR
 SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

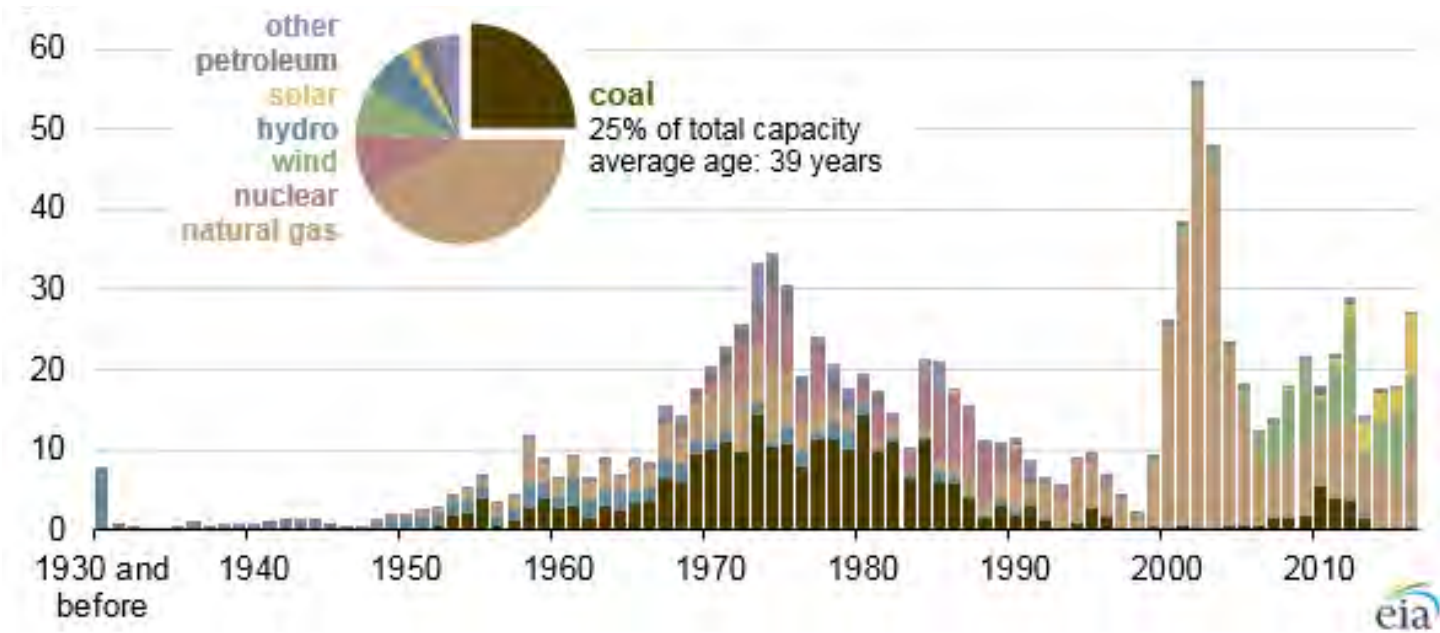


FIGURE E.3
 US UTILITY-SCALE COAL-FIRED ELECTRIC GENERATING CAPACITY BY INITIAL OPERATING YEAR
 SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

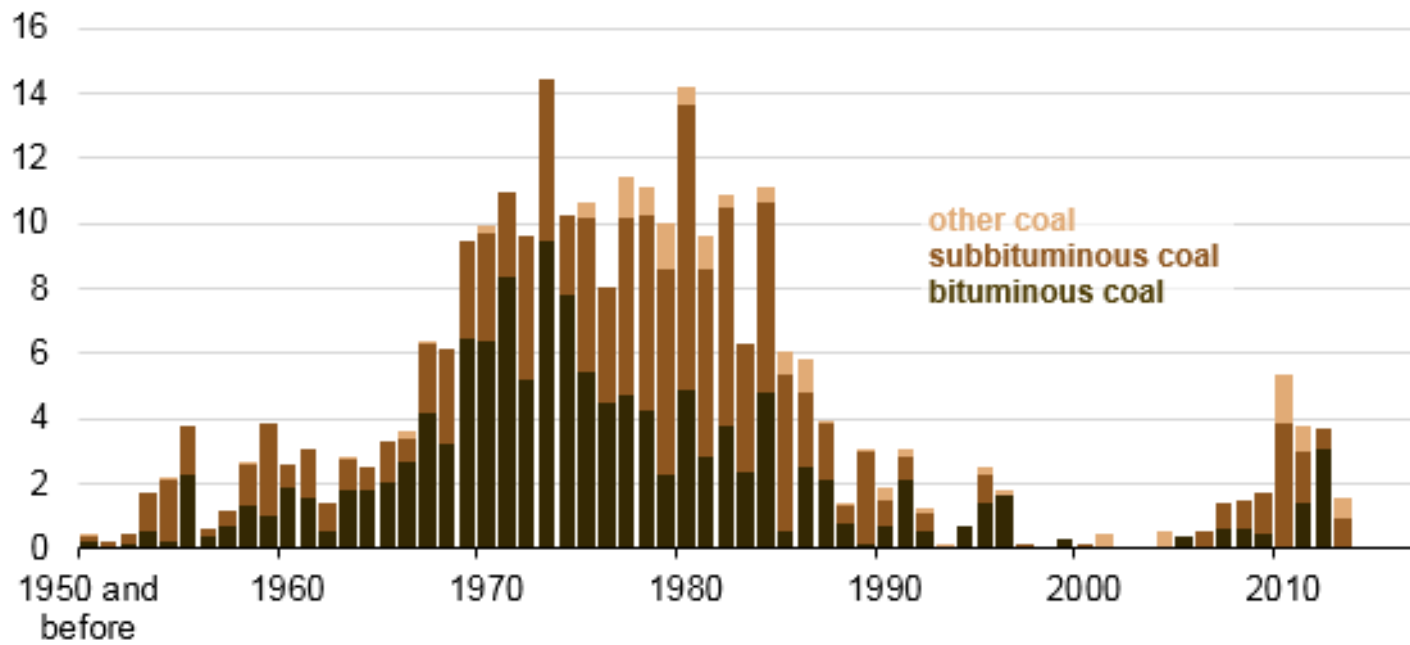


FIGURE E.5
 US COAL PLANT CAPACITY BY INITIAL OPERATING YEAR
 SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

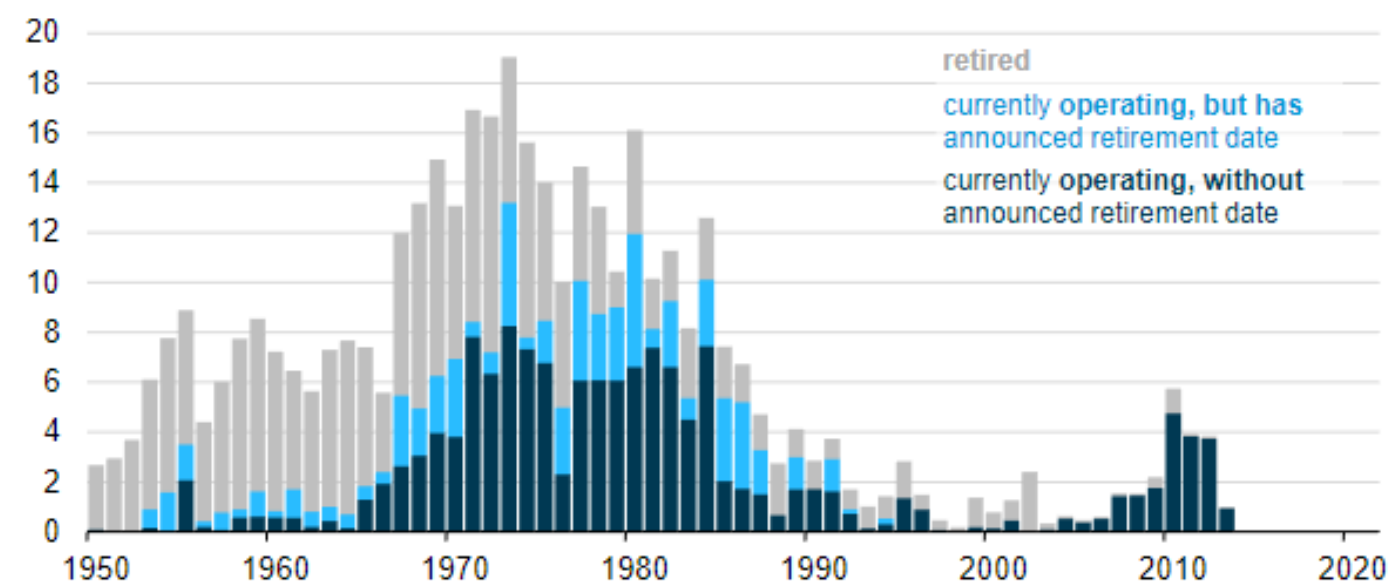


FIGURE A.2

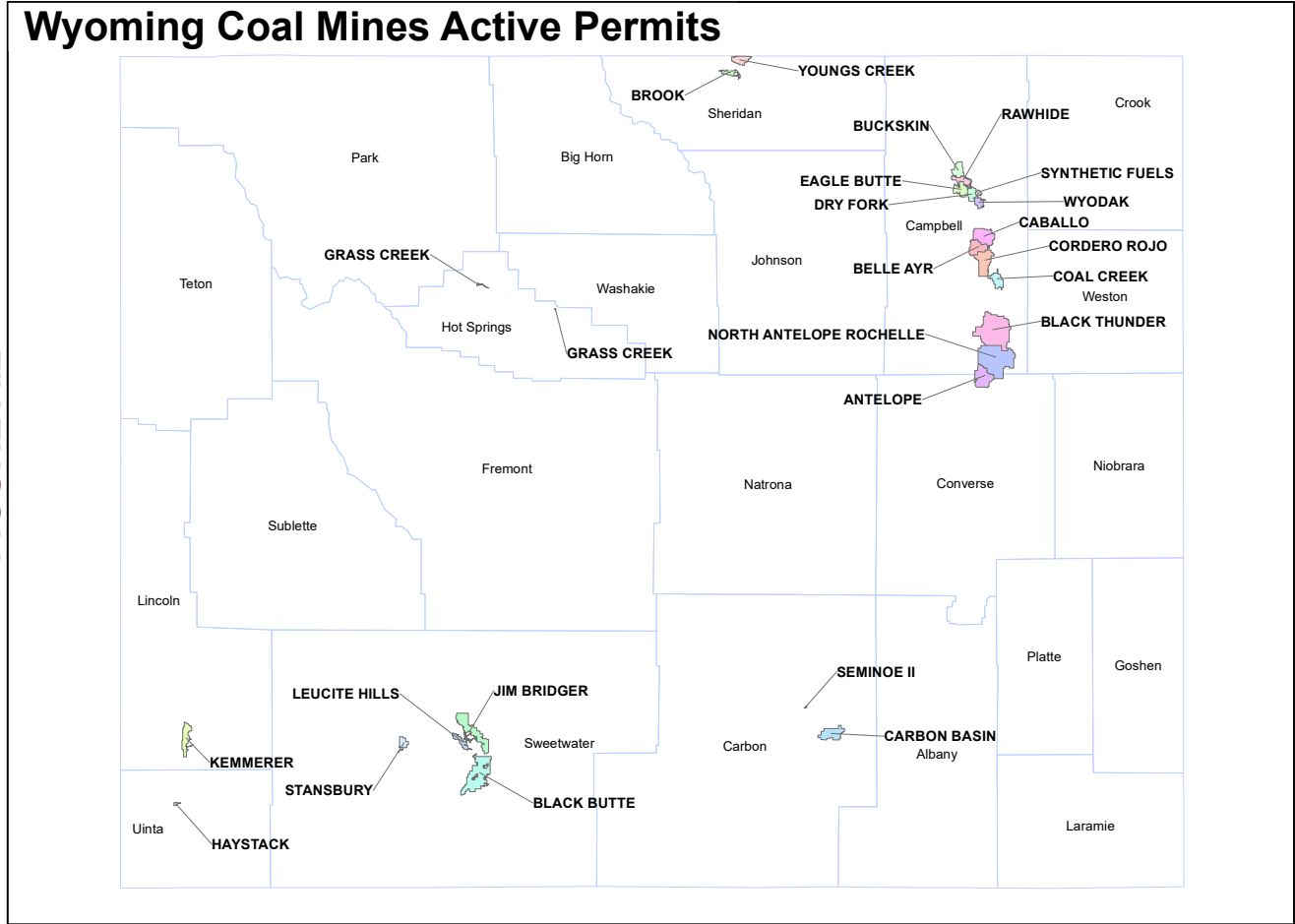


FIGURE A.3

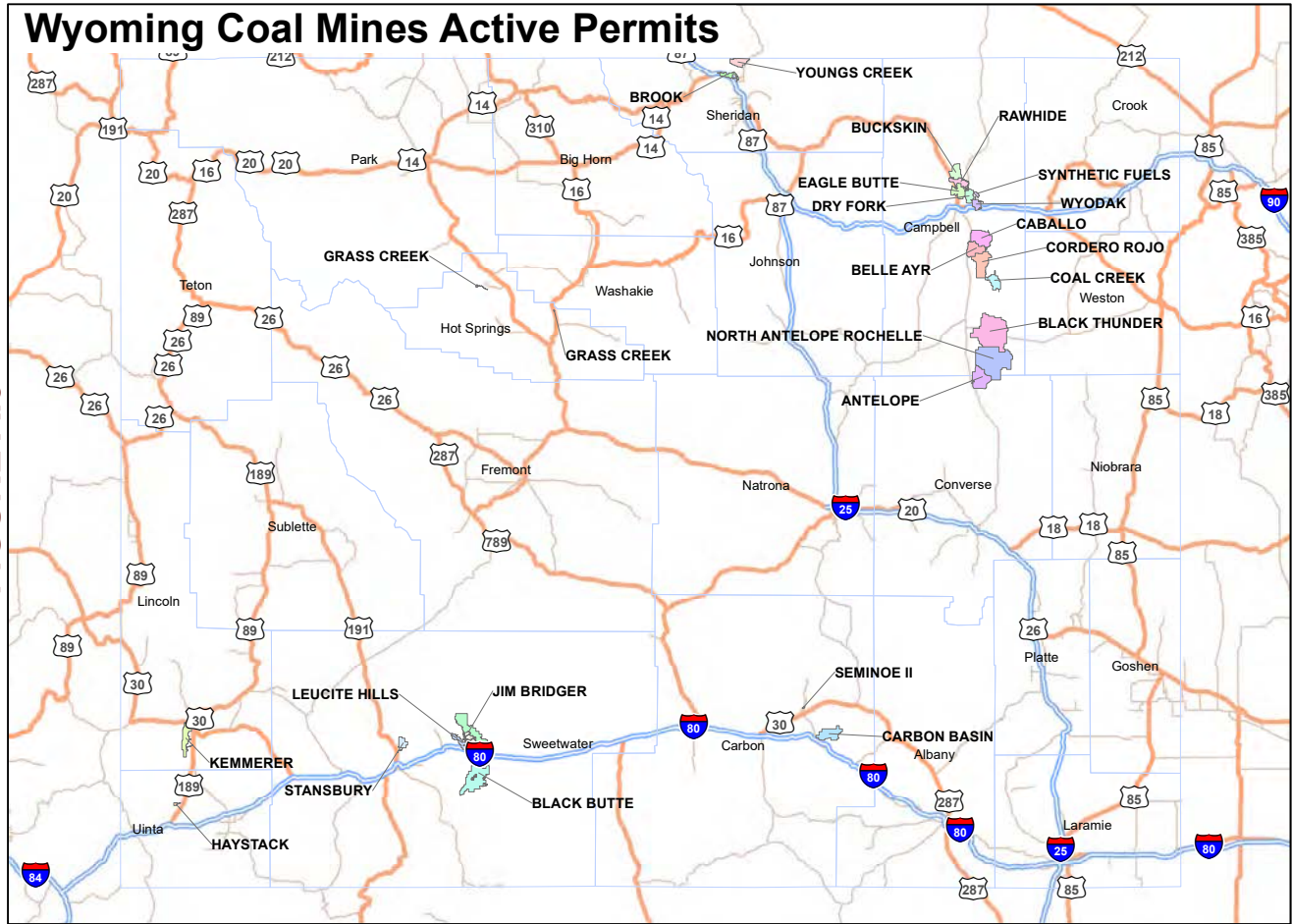


FIGURE A.4

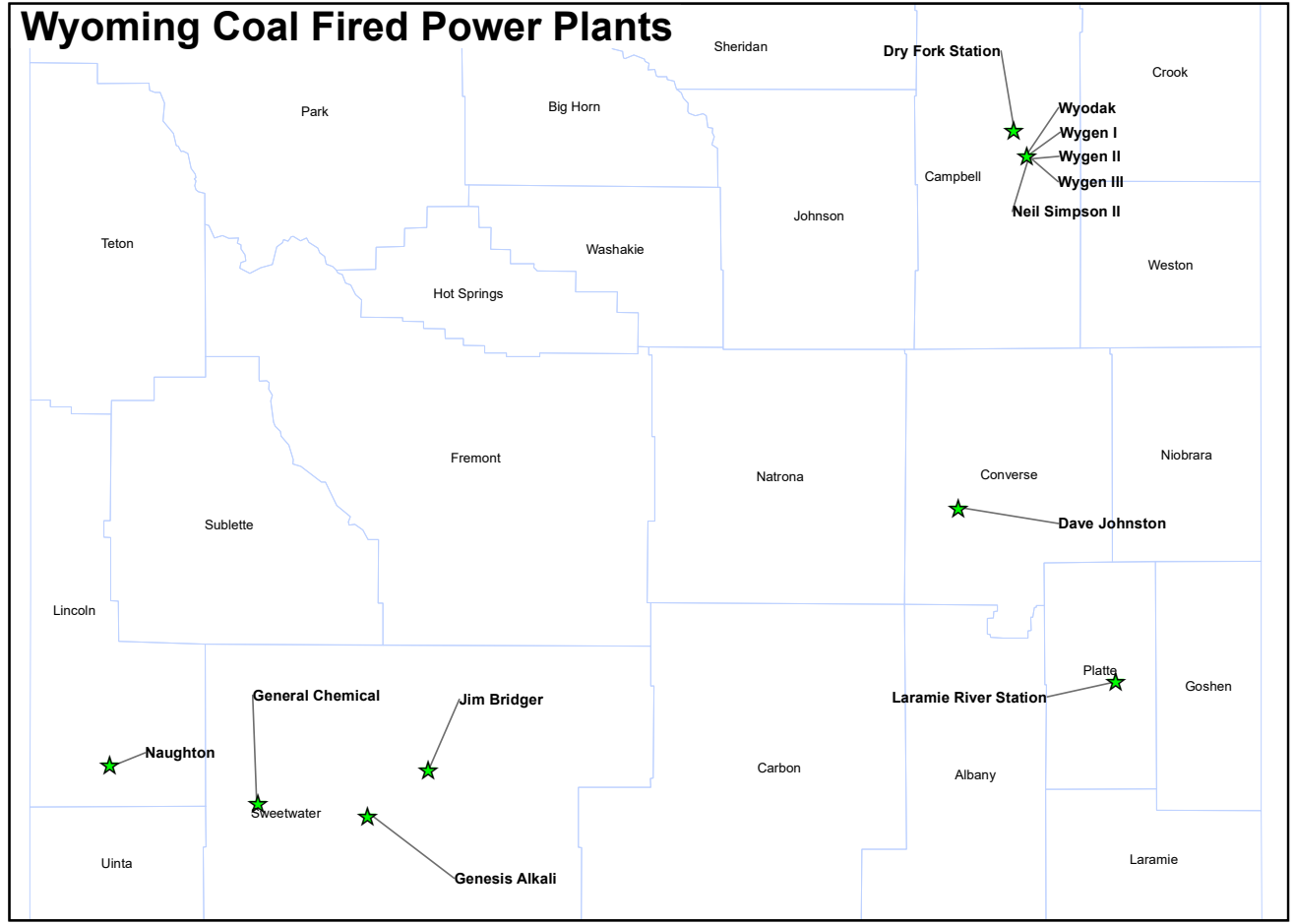


FIGURE A.5

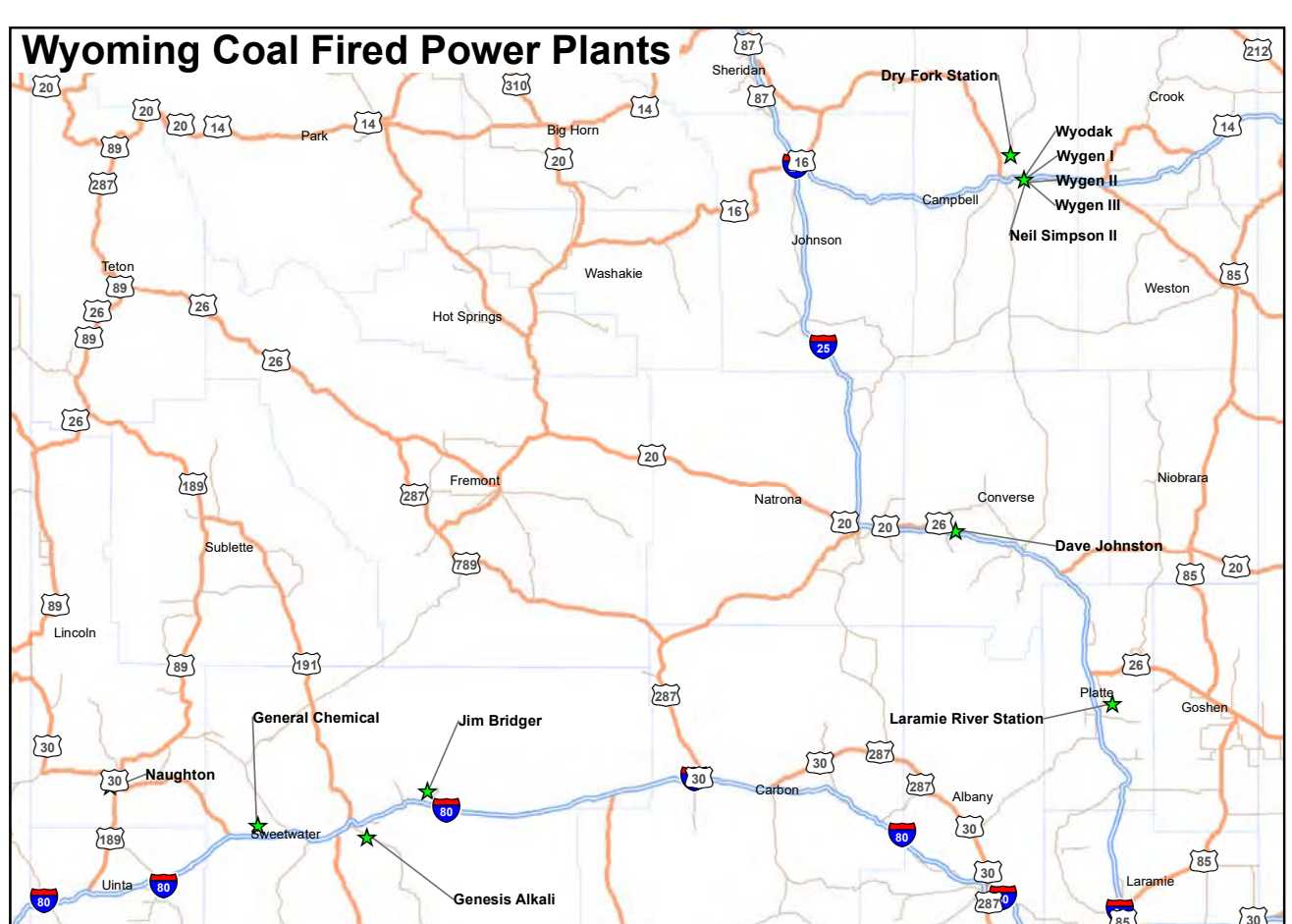
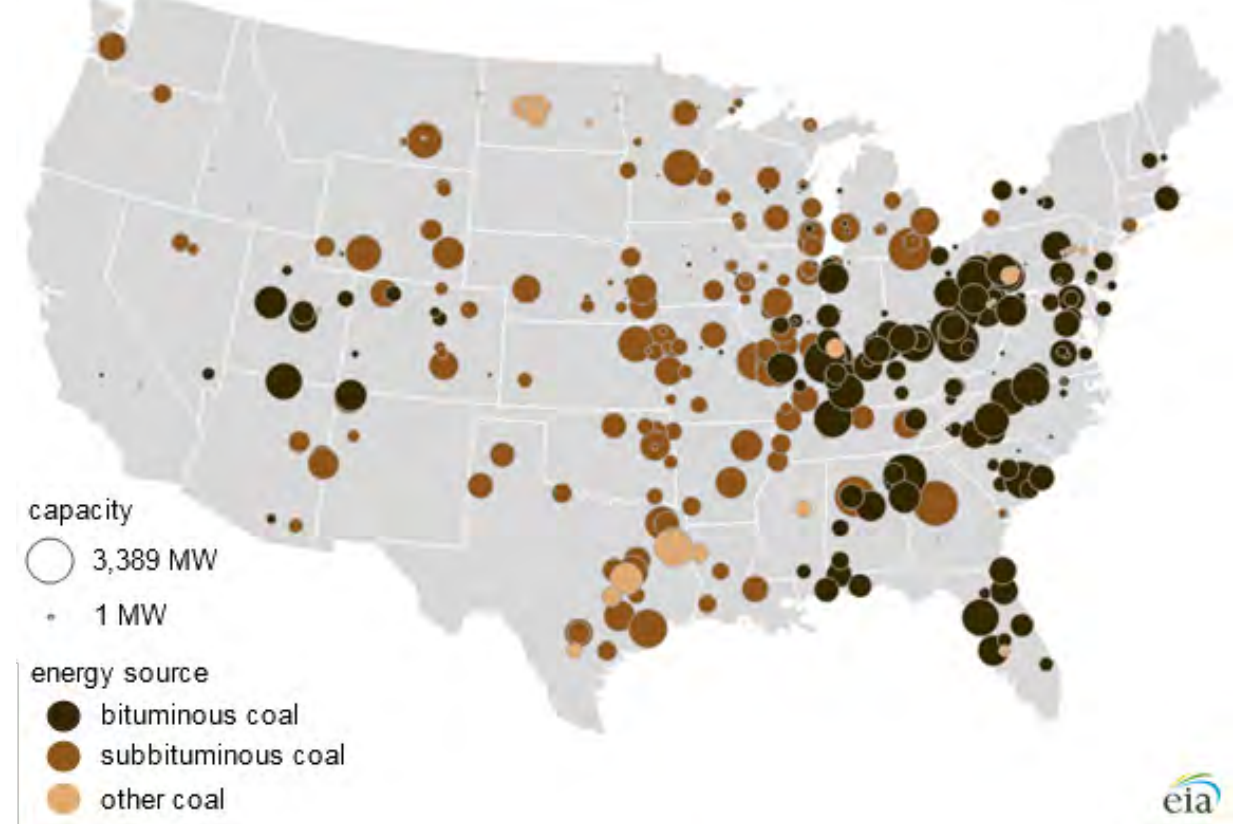


FIGURE E.4
DISTRIBUTION OF COAL PLANTS IN THE LOWER 48 STATES
SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY



1.3. PURPOSE & NEED

This study was undertaken to 1) present an Inventory of sites that have realistic potential for reuse post mining or coal fired power generation, and offer a perspective of their Valuation, 2) to identify and describe Prior Projects that have successfully employed a reuse strategy, 3) to describe the Pathways that exist in the current regulatory structure to seek an exception to demolition and reclamation, and 4) to identify Partnership and Funding Opportunities to enable a sensible and sustainable reuse strategy.

The report that follows is a compilation of a broad spectrum of information that intends to be immediately valuable to inform policy makers, regulators and industry participants facing decision points regarding retirement, decommissioning, and reclamation of valuable infrastructure associated with the coal industry. This content presented may offer insight to both general context and specific questions that are

being considered in every corner of the State; in the Capitol Building and by the Governor and the Legislature, in Managers offices and in the homes of coal industry workers.

Consideration of the issues presented to date has usually been undertaken within very narrow brackets, on an individual project or property level rather than a collective, broad spectrum and comprehensive approach that could begin to inform a Statewide policy and implementation strategy that could serve Wyoming during an energy transition that is likely to span decades.

Federal policy is serving to promote development of pathways, partnership and funding that supports reuse of mine lands. The Interagency Working Group on Coal and Power Plant Communities, Office of Clean Energy Demonstrations and other funding opportunities coming out of various offices of the Department of Energy and Economic Development Administration are advancing current policy.

Alongside the Department of Energy and the Economic Development Administration, many other federal agencies and private markets are investing at unprecedented levels in the development of a variety of new clean energy technologies including carbon management, hydrogen, nuclear, grid scale batteries and advanced manufacturing, many of which offer opportunities for diversification of industry in Wyoming. The DOE’s \$500 million funding of the Clean Energy on Mine Lands (CEML) demonstrates a signal of policy and programmatic support for the concept of mine lands re-use.

The state government including the Wyoming Energy Authority and the Office of the Governor - Energy Policy Advisory Staff, the Wyoming Business Council, its Regional Director Staff and local Economic Development Organizations and the University of Wyoming - School of Energy Resources are similarly aligning with new energy technologies to diversify and strengthen the state’s economy while pledging to reduce the carbon intensity of our energy industries. Reuse of coal industry facilities represent near-ideal locations to support the development of pilot projects, demonstration sites, and commercial deployment of CO2 Storage and Hydrogen Energy Hubs.

Wyoming’s workers, businesses, environment and financial bottom line would benefit from the reuse of coal mine and coal power plant lands, assets and infrastructure.

Efforts to develop a strategic framework that pursues policy, statute and regulation that result in reuse as a preferential pathway are encouraged to avoid unnecessary and regressive destruction of assets and infrastructure that would return lands to a lesser productive condition and value.

1.4. METHODOLOGY

1.4.1. DEFINITIONS & EXCLUSIONS OF COAL RELATED INFRASTRUCTURE

For this inventory of coal industry related infrastructure, coal mines within the state of Wyoming were examined as well as coal fired power plants within the state of Wyoming that provide electricity to the power grid in-state as well as exported out-of-state. Two coal-fired power plants were also examined that provide electricity as an independent power source to trona mines in the southwest part of the state, which is a significant portion of the economy and job market in that region. Coal mines that are currently in operation as well as those that have been closed and are in the process of reclamation or have been re-used are examined in detail, including maps of surface ownership and publicly available infrastructure (roads, rail, powerlines, pipelines).

The sources for determining which coal mines to include are the Wyoming Department of Environmental Quality – Land Quality Division, the Wyoming State Mine Inspector’s Office, the Wyoming State Geological Survey, and the Mine Safety and Health Administration. These sources provided data on surface ownership, permitting, coal production and employment. The sources for determining which power plants to include are the Wyoming Department of Environmental Quality – Air Quality Division and the United States Energy Information Administration. These sources provided data on plant ownership and operations, permitting, plant generating capacity and projected retirement dates.

Once the coal mines and power plants had been identified and located throughout the state, the types of infrastructure were narrowed to include those that, in the opinion of the author, would be attractive to potential re-use scenarios: land, roads, rail, power lines, pipelines and buildings. These types of infrastructure represent sunk costs for the current owners and operators of the

mines and power plants and are unlikely to be moved or sold to new owners, but would likely have to be scrapped in place or permanently removed for site reclamation. Personal property such as light duty vehicles, mobile equipment such as trucks, loaders, graders and shovels and draglines were not included as infrastructure suitable for re-use. ***See Table 1B on the following page.***

1.4.2.

INFORMATIONAL SOURCES

The intention of this inventory and valuation was to gather information from publicly available sources or directly from mine and power plant owners/operators and not to editorialize, opionate or otherwise generate new data. As such, wherever possible, original documents were sought out that had been filed with regulatory agencies or otherwise made publicly available by the mine or power plant owners. These original documents include annual reports, mine plans and adjudication files, power plant air quality permits, electrical utility Integrated Resource Plans and other published data from state regulatory agencies. Where original documents could not be found from the mine or power plant owners themselves, secondary sources were used to fill in gaps in data such as media reports on coal mine and power plant closures, employment numbers, and history of mine and power plant sites.

TABLE 1.B RECLAMATION BOND AMOUNTS AND SELECT ASSESSED VALUES FOR WYOMING COAL MINES				
COAL MINE	PERMIT #	COMPANY	COUNTY	MINE STATUS
Belle Ayr	PT0214	Eagle Speciality Materials, LLC	Campbell	Active
Black Thunder	PT0233	Thunder Basin Coal Company, LLC	Campbell	Active
Buckskin	PT0500	Buckskin Mining Company	Campbell	Active
Caballo	PT0433	Peabody Caballo Mining, LLC	Campbell	Active
Coal Creek Mine	PT0483	Thunder Basin Coal Company, LLC	Campbell	Active
Cordero Rojo	PT0237	Navajo Transitional Energy Company, LLC (NTEC)	Campbell	Active
Dry Fork	PT0599	Western Fuels WY, Inc.	Campbell	Active
Eagle Butte	PT0428	Contura Coal West, LLC	Campbell	Active
North Antelope Rochelle (NARM)	PT0569	Peabody Powder River Mining, LLC	Campbell	Active
Rawhide	PT0240	Peabody Caballo Mining, LLC	Campbell	Active
Synthetic Fuels Mine	PT0486	Green Bridge Holdings, Inc.	Campbell	In Reclamation
Wyodak	PT0232	Wyodak Resources Development Corporation	Campbell	Active
Carbon Basin	PT0730	Arch of WY LLC	Carbon	In Reclamation
Seminole II	PT0377	Arch of WY LLC	Carbon	Active
Antelope	PT0525	Navajo Transitional Energy Company, LLC (NTEC)	Converse	Active
Grass Creek	PT0211	Spring Gulch Coal Co (The)	Hot Springs	Active
Kemmerer	PT0379	Kemmerer Operations, LLC	Lincoln	Inactive
Brook	PT0841	Brook Mining Company, LLC	Sheridan	Non-Development
Youngs Creek	PT0407	Navajo Transitional Energy Company, LLC (NTEC)	Sheridan	Active
Black Butte	PT0467	Black Butte Coal Company	Sweetwater	Active
Jim Bridger	PT0338	Bridger Coal Company	Sweetwater	In Reclamation
Leucite Hills	PT0520	Black Butte Coal Company	Sweetwater	In Reclamation
Stansbury	PT0264	Rocky Mountain Coal Company	Sweetwater	Active
Haystack	PT0786	Westmoreland Haystack Mining, LLC	Uinta	Temporary Cessation

Notes: Area Bond, Incremental Bond and Total Bond amounts are sourced directly from the most recent Annual Report submitted to WDEQ – LQD by the facility operator or permit holder. Contingency/Miscellaneous have been adjusted slightly to account for variations in reporting standards and timing on annual calculation or reconciliation of bond releases.

Area Bond - the area bond specifies the costs associated with bringing the main coal pits up to the bond topography also known as the “Interim” post mining topography (PMT). Specifically, these costs include the equipment and materials for backfilling the pits and final grading of the backfill. Interim post-mining topography (PMT) is designed to maximize available backfill area and minimize the disturbance of lands that are in permanent reclamation and native borrow area.

Incremental Bond - the incremental bond specifies the costs associated with reclaiming all disturbed areas within the permit area except the main coal pit area which was calculated in the Area Bond. These costs include overburden redistribution, demolition of facilities, removal of monitoring structures, scarification of compacted surfaces, topsoil redistribution on all disturbed surfaces and revegetation of all disturbed lands. Also included in this section are monies to cover reclamation of the anticipated exploratory drilling program, miscellaneous items and contingencies.

Data Sources - Bond data from Current Coal Mine Annual Reports on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit. Assessed values from County level public tax records.

TABLE 1.B TABLE 1.B RECLAMATION BOND AMOUNTS AND SELECT ASSESSED VALUES FOR WYOMING COAL MINES (CONTINUED)						
RECLAMATION BOND - AMOUNTS				ASSESSED- SELECT ASSET CATEGORIES & TYPES		
TOTAL	AREA BOND	INCREMENTAL BOND	"CONTINGENCIES/ MISCELLANEOUS"	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH -
\$ 92,759,500	\$ 55,146,900	\$ 17,278,000	\$ 20,334,600	\$ 21,765,754	\$ 28,273,659	\$ 21,991,260
\$ 421,369,000	\$ 252,611,000	\$ 66,591,800	\$ 102,166,200	\$ 20,915,059	\$ 27,673,191	\$ 20,482,710
\$ 128,546,086	\$ 65,770,692	\$ 14,448,445	\$ 48,326,949	\$ 26,852,151	\$ 43,626,712	\$ 20,104,550
\$ 143,353,337	\$ 85,110,216	\$ 15,553,931	\$ 42,689,190	\$ 3,941,713	\$ 4,862,638	\$ 3,594,340
\$ 22,691,600	\$ 7,952,400	\$ 8,877,100	\$ 5,862,100	\$ 8,420,365	\$ 11,161,036	\$ 6,616,210
\$ 140,127,000	\$ 77,518,000	\$ 32,838,000	\$ 29,771,000	\$ 123,586,281	\$ 252,812,752	\$ 38,889,430
\$ 34,100,000	\$ 18,069,257	\$ 8,410,449	\$ 7,620,294	\$ 61,122,380	\$ 106,903,658	\$ 50,654,040
\$ 123,230,000	\$ 61,937,300	\$ 13,899,000	\$ 47,393,700	\$ 6,473,685	\$ 8,373,127	\$ 6,553,340
\$ 291,318,287	\$ 168,813,669	\$ 64,061,254	\$ 58,443,364	\$ 118,905,976	\$ 153,360,054	\$ 92,354,150
\$ 32,878,000	\$ 16,179,356	\$ 7,216,872	\$ 9,481,772	\$ 11,244,012	\$ 14,538,143	\$ 10,320,430
\$ 584,167	N/A	\$ 452,730	\$ 131,437	\$ 80,310	\$ 114,358	\$ 60,690
\$ 25,756,918	\$ 10,884,648	\$ 9,226,127	\$ 5,646,143	\$ 46,421,870	\$ 77,323,325	\$ 28,828,330
\$ 745,443	N/A	\$ 95,443	\$ 650,000	N/A	N/A	N/A
\$ 1,026,192	N/A	\$ 181,134	\$ 845,058	N/A	N/A	N/A
\$ 106,783,000	\$ 45,298,000	\$ 16,797,000	\$ 44,688,000	\$ 32,310,599	\$ 58,747,839	\$ 16,908,892
\$ 299,505	\$ 87,882	\$ 110,185	\$ 101,438	N/A	N/A	N/A
\$ 66,350,130	\$ 22,553,082	\$ 11,285,595	\$ 32,511,453	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 1,248,015	\$ 457,913	\$ 524,776	\$ 265,326	N/A	N/A	N/A
\$ 229,000	N/A	N/A	N/A	N/A	N/A	N/A
\$ 95,428,911	\$ 38,193,518	\$ 36,947,873	\$ 20,287,520	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 155,173,109	\$ 60,497,270	\$ 30,607,626	\$ 64,068,213	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 4,585,000	N/A	\$ 2,918,593	\$ 1,666,407	N/A	N/A	N/A
\$ 1,938,681	N/A	\$ 1,557,173	\$ 381,508	N/A	N/A	N/A
\$ 4,384,251	\$ 2,168,270	\$ 637,131	\$ 1,578,850	N/A	N/A	N/A
\$ 1,894,905,132	\$ 989,249,373	\$ 360,516,237	\$ 544,910,522	\$ 598,004,770	\$ 983,158,511	\$ 403,456,952

Notes: Area Bond, Incremental Bond and Total Bond amounts are sourced directly from the most recent Annual Report submitted to WDEQ – LQD by the facility operator or permit holder. Contingency/Miscellaneous have been adjusted slightly to account for variations in reporting standards and timing on annual calculation or reconciliation of bond releases.

Area Bond - the area bond specifies the costs associated with bringing the main coal pits up to the bond topography also known as the “Interim” post mining topography (PMT). Specifically, these costs include the equipment and materials for backfilling the pits and final grading of the backfill. Interim post-mining topography (PMT) is designed to maximize available backfill area and minimize the disturbance of lands that are in permanent reclamation and native borrow area.

Incremental Bond - the incremental bond specifies the costs associated with reclaiming all disturbed areas within the permit area except the main coal pit area which was calculated in the Area Bond. These costs include overburden redistribution, demolition of facilities, removal of monitoring structures, scarification of compacted surfaces, topsoil redistribution on all disturbed surfaces and revegetation of all disturbed lands. Also included in this section are monies to cover reclamation of the anticipated exploratory drilling program, miscellaneous items and contingencies.

Data Sources - Bond data from Current Coal Mine Annual Reports on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit. Assessed values from County level public tax records.

CHAPTER TWO

INVENTORY & VALUATION

2.1 OVERVIEW

Presented in this chapter of the report are inventories and valuations for operating coal mines and inventories for power plants in the state of Wyoming.

Inventories for Mines and Power Plants are based on publicly available datasets from government, regulatory, academic and industry sources to identify the occurrence of assets including land, permanent improvements, transportation infrastructure and utilities related to coal mining and coal-fired power generation and presented for each Mine and each Power Plant as Property Summaries in Sections 2.2 and 2.3 respectively. GIS based datasets were accessed and assembled for spatial identification of all critical property attributes and presented in **Appendix A** for each Mine and each Power Plant.

Provision of relevant Valuations for Mines and Power Plants proved to be the most challenging aspect of the study. In keeping with the stated intent to identify, access and report reliable and repeatable data sources for information presented in this report, publicly available tax assessment records were determined to be the most appropriate statements of value within the context of the study.

2.1.1. VALUATIONS

The following provides Context and Methodology for Valuations of Mines and Power Plants. Summaries of property tax assessment data for Mines were acquired from the Campbell County Assessor’s Office for the 12 coal mines that are currently operating in Campbell County, Wyoming. As information

relating to tax assessments provided by property owners or taxpayers is confidential, the values reported are at the Category and Type level as available through public facing tax records. This data provided the foundation of valuations for coal mines across the state. Reporting mine asset values from this basis, and in consideration of the stated intention to evaluate assets and infrastructure for post mining reuse scenarios, is further complicated due to inconsistencies in assessment practices employed; whether on cost or income approach and if economic obsolescence is considered in reported values. **Mine valuations follow in Appendix C.**

Tables are provided in **Appendix C** for each Mine considered in this report. State statute and subsequent regulatory policy creates assignment of four Property Categories:

- Taxable
- Fire Equipment
- Pollution Control
- Mining - Surface

Within these categories, three specific Property Types were identified as being pertinent to the aims of this report in that they can reasonably be envisioned to have a role in a non-mining reuse scenario, the selected Property Types reported are:

- Buildings
- Site Improvements
- Plant Machinery & Equipment.

Purposely excluded from reporting of the assessed value records were Property Types:

- Mobile Machinery and Equipment
- Vehicles
- All Other Personal Property
- Materials and Supplies
- Current Works in Progress as taxable assets of these Types are viewed by the author as having only narrow applicability to the traditional extractive coal mining industry with

no reasonable expectation of value in a post mining reuse scenario.

Category and Type subtotals and totals are presented for each subject Mine and aggregated for all Mines statewide.

Attempts to replicate the process standards and sources for statements of values for Power Plants were unsuccessful. In general, determining values for property employed specifically in Coal Mining or Coal Power Generation is difficult to obtain from outside the ownership and control structure of companies involved. Within the context of this study this has proven to be particularly true in reference to Power Plants valuation. Utilization scenarios of assets typical of coal Power Plants, particularly coal receipt and handling facilities and boiler and turbine equipment are difficult to ascertain outside of their original and current use.

Adding complexity to the process standard of reliance on assessed value data is the fact that typically the Wyoming State Department of Revenue is responsible for assessment of Power Plants where County Assessors are responsible for Coal Mines. The report author was unable to locate or access public facing assessed values for Power Plants within the scope of the study. As such, no statements of value are reported for Power Plants.

2.2 INVENTORY - COAL MINES

SUMMARIES FOR COAL MINES

The primary data acquisition element for the Coal Mine inventory aspect of this project was initiated by contacting the Wyoming Department of Environmental Quality Land Quality Division (WDEQ LQD) District 1 office in Cheyenne, Wyoming, with an inquiry about the availability of public records for active coal mines in the state of Wyoming.

The LQD office first provided a listing of all coal mines in Wyoming with active mining permits. This list indicated that there are 24 coal mines in the state with active mine permits on file with

the WDEQ LQD, 13 of which are in the Powder River Basin (PRB).

After review of the list of active mines in the state, a series of electronic requests were submitted to the WDEQ LQD Records and Data Management office to procure the current Annual Reports and Mine Plans for all 24 coal mines. Upon receipt of these documents, a thorough review of them was conducted, and the information and datasets that were pertinent to fulfilling the goals (tasks) of this project were identified and extracted. The Mine Permits or renewals thereof, Annual Reports and Mine Plans (with particular focus on Reclamation Plans) provided background information necessary to characterize and uniquely identify each facility. In addition to general information for a coal mine provided in the Annual Report, the facility infrastructure information most critical to this project was found in the Reclamation Performance Bond report section provided as an appendix, a subfolder or other similarly identified addendum, where reclamation bond calculation worksheets were found.

2.2.1. PROPERTY SPOTLIGHT

Coal Creek Mine is currently owned and operated by Thunder Basin Coal Company (a subsidiary of Arch Coal, Inc) is in Campbell County, Wyoming, located 18.2 miles north of the town of Wright, population 1,644 and 31 miles south of the town of Gillette, population 33,403. The past year mining capacity was 1,994,359 million tons per year with a workforce of 102 employees, having had peak production of 11,454,000 tons per year and maximum of 161 employees.

The Coal Creek Mine began operations in 1979 and is typical of Wyoming mines constructed during the significant build out of mining capacity spanning the decade beginning in the mid-1970's and ending in the mid-1980's. Coal Creek is notable in the context of this study as Arch publicly announced the intended closure of this mine in early 2021 stating that they would undertake "...commence full reclamation work in 2022, including the demolition of the facilities...". While significant efforts have been undertaken to hasten required pit reclamation, the complete closure of the mine has been delayed, for a time at least, due to increases in post pandemic demand and accompanying revenues.

Photos of select assets and infrastructure of the Coal Creek Mine that could reasonably be considered in a post mining industrial re-use scenario are presented here. These facilities are typical of the smallest class of mines, based on historic peak production levels, considered in this study.

PHOTOS 1 – 6: Guard Shack, Offices, and Crew Change Room - Exterior & Interior

Controlled Access with staffed Guard Shack and mine entrance. Office and Change Room building overall dimensions 100'W x 140'L x 14'H (14,000 sq.ft.). Steel frame construction with steel exterior cladding and roofing. Office section ~ 7,000 sq.ft. and Change Room section ~ 7,000 sq.ft.



#1 GUARD SHACK & OFFICE



#2 OFFICE INTERIOR, ENTRY, & MAIN HALLWAY



#3 OFFICE INTERIOR, ADMINISTRATION & ENGINEERING OFFICES



#4 OFFICE INTERIOR- CONFERENCE ROOM



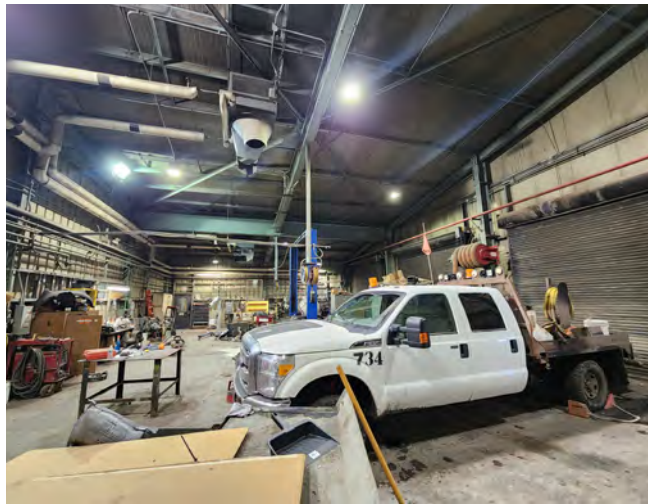
#5 CREW CHANGING ROOM



#6 CREW CHANGING ROOM



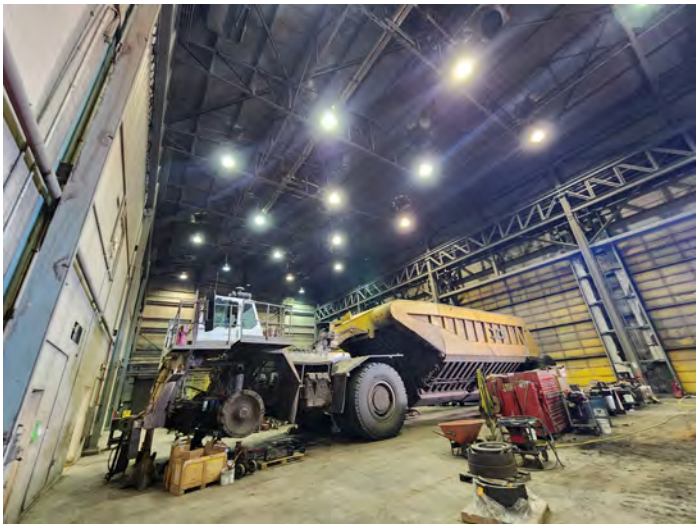
#7 WAREHOUSE & LIGHT DUTY SHOP



#10 LIGHT DUTY SHOPS, INTERIOR



#13 HEAVY INDUSTRIAL MAINTENANCE & REPAIR



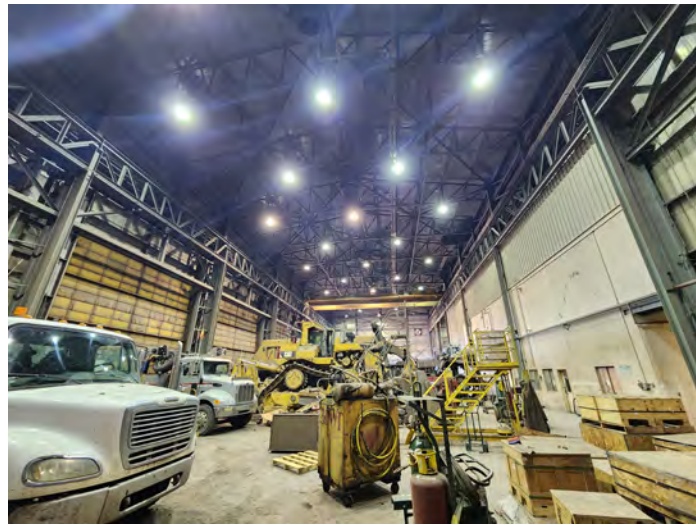
#16 HEAVY INDUSTRIAL MAINTENANCE & REPAIR, INTERIOR



#8 WAREHOUSE & LIGHT DUTY SHOP, FENCED STORAGE



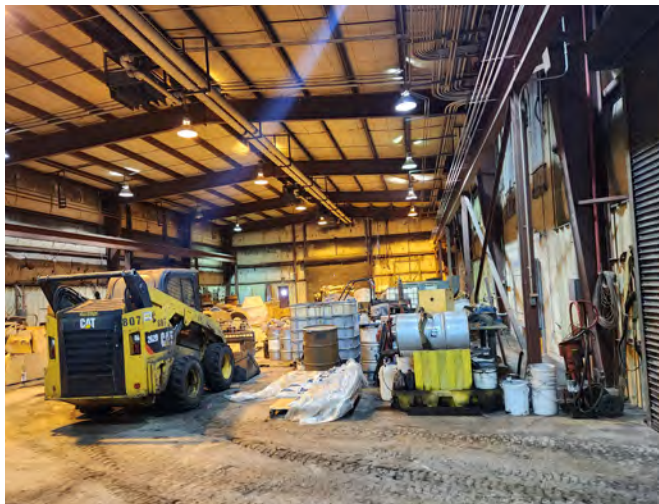
#11 LIGHT DUTY SHOPS, INTERIOR



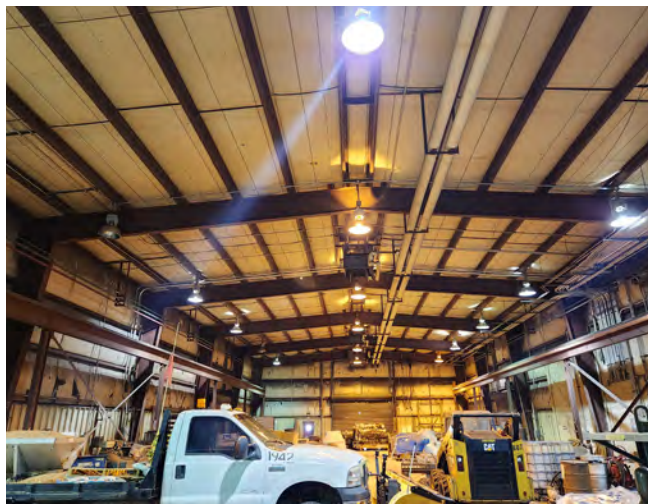
#14 HEAVY INDUSTRIAL MAINTENANCE & REPAIR, INTERIOR

PHOTOS 13 - 17: Heavy Industrial Maintenance and Repair – Exterior & Interior

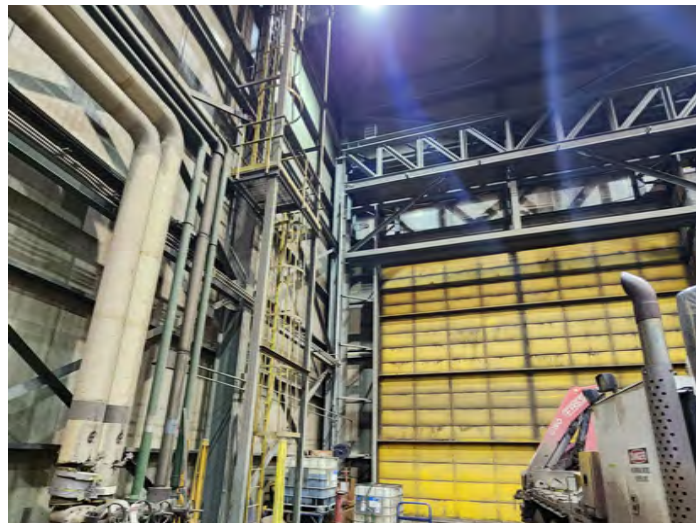
Heavy Industrial Maintenance and Repair shops 220'W (irregular) x 270'L x 54'H (max) (57,000 sq.ft.). Steel frame construction with steel exterior cladding and roofing. Multiple 32'H x 30'W O.H. doors. Extreme service footings, foundations and floors, 8" – 12" steel reinforced floors. Wash bay. Very well equipped with lights, electrical service, heat, venting, service air and bridge cranes.



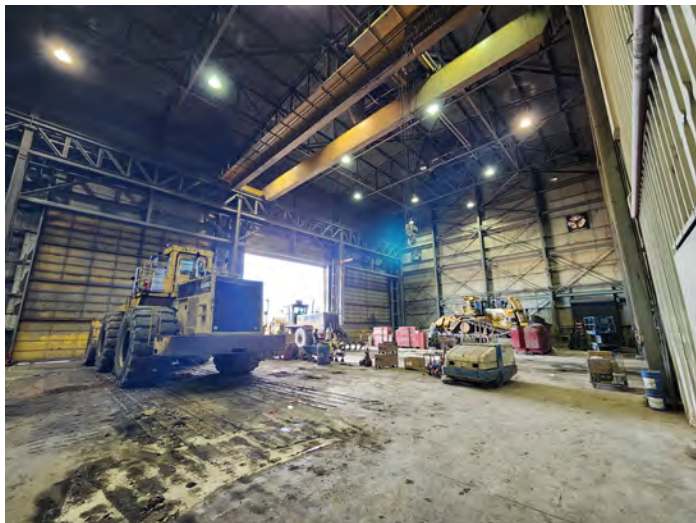
#9 WAREHOUSE INTERIOR



#12 LIGHT DUTY SHOPS, INTERIOR



#15 HEAVY INDUSTRIAL MAINTENANCE & REPAIR, INTERIOR



#17 HEAVY INDUSTRIAL MAINTENANCE & REPAIR, INTERIOR

PHOTOS 7 – 12: Warehouse, Light Duty Shops Interior & Fenced Storage

Warehouse and Light Duty Shops building overall dimensions 60'W x 220'L x 22'H (13,200 sq.ft.) Steel frame construction with steel exterior cladding and roofing. Multiple 12'H and 14'H O.H. doors. Heavy footings and foundations, 4' – 8" steel reinforced floors. Very well equipped with lights, electrical service, heat, venting, service air and bridge cranes. ~ 5.0 acres fenced outdoor storage.



#19 BULK FUEL STORAGE & DISPENSING



#21 COAL CONVEYING, STORAGE & RAIL LOAD-OUT



#18 ELECTRICAL SUBSTATION

PHOTO 18: Utility owned 69KV 30MW substation with 13,800/7,800 to 480 VAC three phase power.

PHOTO 19: Bulk Fuel Storage and Dispensing ~ 40,000 gallon bulk fuel storage and high flow dispensing.

PHOTO 20-21: Coal Crushing, Sampling, Conveying, Storage and Rail Load-Out Primary crushing from ROM to 2" minus with auto sampler and aggregator. Two x 12,000 ton silo storage, continuous weigh/batch load-out at ~ 14,000 TPH.



#20 COAL CRUSHING, SAMPLING & CONVEYING

2.2.2. TABLE 2. COAL MINE ACREAGE & DISTURBANCE							
PERMIT #	COAL MINE	COMPANY	COUNTY	MINE STATUS	"SURFACE OWNERSHIP"	"MINE PERMIT"	"DISTURBANCE - TOTAL MINE LIFE"
PT0214	Belle Ayr	Eagle Speciality Materials, LLC	Campbell	Active	11,577	13,408	7,716
PT0233	Black Thunder	Thunder Basin Coal Company, LLC	Campbell	Active	15,688	62,066	33,388
PT0500	Buckskin	Buckskin Mining Company	Campbell	Active	12,345	9,146	5,560
PT0433	Caballo	Peabody Caballo Mining, LLC	Campbell	Active	17,872	21,269	9,029
PT0483	Coal Creek Mine	Thunder Basin Coal Company, LLC	Campbell	Active	11,481	9,741	4,587
PT0237	Cordero Rojo	Navajo Transitional Energy Company, LLC	Campbell	Active	24,531	22,537	14,866
PT0599	Dry Fork	Western Fuels WY, Inc.	Campbell	Active	7,558	7,134	2,224
PT0428	Eagle Butte	Contura Coal West, LLC	Campbell	Active	10,141	10,667	5,856
PT0676	Izita	Thunder Basin Coal Company, LLC	Campbell	In Reclamation	None*	1,831	432
PT0569	North Antelope Rochelle	Peabody Powder River Mining, LLC	Campbell	Active	19,743	65,805	31,300
PT0240	Rawhide	Peabody Caballo Mining, LLC	Campbell	Active	7,911	9,231	4,296
PT0486	Synthetic Fuels Mine	Green Bridge Holdings, Inc.	Campbell	In Reclamation	653	930	447
PT0232	Wyodak	Wyodak Resources Development Corporation	Campbell	Active	3,054	4,974	2,166
PT0730	Carbon Basin	Arch of WY LLC	Carbon	In Reclamation	15,323	17,154	179
PT0377	Seminoe II	Arch of WY LLC	Carbon	Active	None*	211	3,702
PT0525	Antelope	Navajo Transitional Energy Company, LLC	Converse	Active	21,809	22,538	12,579
PT0211	Grass Creek	Spring Gulch Coal Co (The)	Hot Springs	Active	1,285	294	68
PT0379	Kemmerer	Kemmerer Operations, LLC	Lincoln	Inactive	8,313	13,441	5,116
PT0841	Brook	Brook Mining Company, LLC	Sheridan	Non-Development	3,787	4,549	0
PT0407	Youngs Creek	Navajo Transitional Energy Company, LLC	Sheridan	Active	4,750	7,822	141
PT0467	Black Butte	Black Butte Coal Company	Sweetwater	Active	28,369	43,384	13,343
PT0338	Jim Bridger	Bridger Coal Company	Sweetwater	In Reclamation	12,987	28,681	11,009
PT0520	Leucite Hills	Black Butte Coal Company	Sweetwater	In Reclamation	None*	6,729	2,217
PT0264	Stansbury	Rocky Mountain Coal Company	Sweetwater	Active	6,260	5,501	172
PT0786	Haystack	Westmoreland Haystack Mining, LLC	Uinta	Temporary Cessation	None*	773	205
				TOTAL ACRES =	245,437	389,817	170,598

* "None" as an entry in the Surface ownership column means that none of the surface acreage within the mine boundary is owned by the Coal Mine Company.

- SOURCES:
- Permit #, Coal Mine and Company name, County and Mine Status for Wyoming Coal Mines with active permits was provided by WDEQ Land Quality Division, District 1 - Cheyenne Office.
 - Ownership acreage sourced through the Wyoming Statewide Parcel Viewer and respective County Assessor records.
 - Mine Permit acreage sourced through WDEQ LQD Map Viewer.
 - Disturbance-Total Mine Life acreage from current Coal Mine Annual Report on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit.

2.2.3. TABLE 3. RECLAMATION BOND DETAILS								
PERMIT #	COAL MINE	COMPANY	COUNTY	MINE STATUS	TOTAL	AREA BOND	INCREMENTAL BOND	"CONTINGENCIES/ MISCELLANEOUS"
PT0214	Belle Ayr	Eagle Speciality Materials, LLC	Campbell	Active	\$ 92,759,500	\$ 55,146,900	\$ 17,278,000	\$ 20,334,600
PT0233	Black Thunder	Thunder Basin Coal Company, LLC	Campbell	Active	\$ 421,369,000	\$ 252,611,000	\$ 66,591,800	\$ 102,166,200
PT0500	Buckskin	Buckskin Mining Company	Campbell	Active	\$ 128,546,086	\$ 65,770,692	\$ 14,448,445	\$ 48,326,949
PT0433	Caballo	Peabody Caballo Mining, LLC	Campbell	Active	\$ 143,353,337	\$ 85,110,216	\$ 15,553,931	\$ 42,689,190
PT0483	Coal Creek Mine	Thunder Basin Coal Company, LLC	Campbell	Active	\$ 22,691,600	\$ 7,952,400	\$ 8,877,100	\$ 5,862,100
PT0237	Cordero Rojo	Navajo Transitional Energy Company, LLC (NTEC)	Campbell	Active	\$ 140,127,000	\$ 77,518,000	\$ 32,838,000	\$ 29,771,000
PT0599	Dry Fork	Western Fuels WY, Inc.	Campbell	Active	\$ 34,100,000	\$ 18,069,257	\$ 8,410,449	\$ 7,620,294
PT0428	Eagle Butte	Contura Coal West, LLC	Campbell	Active	\$ 123,230,000	\$ 61,937,300	\$ 13,899,000	\$ 47,393,700
PT0676	Izita	Thunder Basin Coal Company, LLC	Campbell	In Reclamation	\$ 454,680	\$ 216,000	\$ 216,000	\$ 22,680
PT0569	North Antelope Rochelle (NARM)	Peabody Powder River Mining, LLC	Campbell	Active	\$ 291,318,287	\$ 168,813,669	\$ 64,061,254	\$ 58,443,364
PT0240	Rawhide	Peabody Caballo Mining, LLC	Campbell	Active	\$ 32,878,000	\$ 16,179,356	\$ 7,216,872	\$ 9,481,772
PT0486	Synthetic Fuels Mine	Green Bridge Holdings, Inc.	Campbell	In Reclamation	\$ 584,167	N/A	\$ 452,730	\$ 131,437
PT0232	Wyodak	Wyodak Resources Development Corporation	Campbell	Active	\$ 25,756,918	\$ 10,884,648	\$ 9,226,127	\$ 5,646,143
PT0730	Carbon Basin	Arch of WY LLC	Carbon	In Reclamation	\$ 745,443	N/A	\$ 95,443	\$ 650,000
PT0377	Seminoe II	Arch of WY LLC	Carbon	Active	\$ 1,026,192	N/A	\$ 181,134	\$ 845,058
PT0525	Antelope	Navajo Transitional Energy Company, LLC (NTEC)	Converse	Active	\$ 106,783,000	\$ 45,298,000	\$ 16,797,000	\$ 44,688,000
PT0211	Grass Creek	Spring Gulch Coal Co (The)	Hot Springs	Active	\$ 299,505	\$ 87,882	\$ 110,185	\$ 101,438
PT0379	Kemmerer	Kemmerer Operations, LLC	Lincoln	Inactive	\$ 66,350,130	\$ 22,553,082	\$ 11,285,595	\$ 32,511,453
PT0841	Brook	Brook Mining Company, LLC	Sheridan	Non-Development	\$ 1,248,015	\$ 457,913	\$ 524,776	\$ 265,326
PT0407	Youngs Creek	Navajo Transitional Energy Company, LLC (NTEC)	Sheridan	Active	\$ 229,000	N/A	N/A	N/A
PT0467	Black Butte	Black Butte Coal Company	Sweetwater	Active	\$ 95,428,911	\$ 38,193,518	\$ 36,947,873	\$ 20,287,520
PT0338	Jim Bridger	Bridger Coal Company	Sweetwater	In Reclamation	\$ 155,173,109	\$ 60,497,270	\$ 30,607,626	\$ 64,068,213
PT0520	Leucite Hills	Black Butte Coal Company	Sweetwater	In Reclamation	\$ 4,585,000	N/A	\$ 2,918,593	\$ 1,666,407
PT0264	Stansbury	Rocky Mountain Coal Company	Sweetwater	Active	\$ 1,938,681	N/A	\$ 1,557,173	\$ 381,508
PT0786	Haystack	Westmoreland Haystack Mining, LLC	Uinta	Temporary Cessation	\$ 4,384,251	\$ 2,168,270	\$ 637,131	\$ 1,578,850
					\$ 1,895,359,812	\$ 989,465,373	\$ 360,732,237	\$ 544,933,202

NOTE: Area Bond, Incremental Bond and Total Bond values are sourced directly from the most recent Annual Report submitted to WDEQ – LQD by the facility operator or permit holder. Contingency/Miscellaneous have been adjusted slightly to account for variations in reporting standards and timing on annual calculation or reconciliation of bond releases.

Area Bond - the area bond specifies the costs associated with bringing the main coal pits up to the bond topography also known as the "Interim" post mining topography (PMT). Specifically, these costs include the equipment and materials for backfilling the pits and final grading of the backfill. Interim post-mining topography (PMT) is designed to maximize available backfill area and minimize the disturbance of lands that are in permanent reclamation and native borrow area.

Incremental Bond - the incremental bond specifies the costs associated with reclaiming all disturbed areas within the permit area except the main coal pit area which was calculated in the Area Bond. These costs include overburden redistribution, demolition of facilities, removal of monitoring structures, scarification of compacted surfaces, topsoil redistribution on all disturbed surfaces and revegetation of all disturbed lands. Also included in this section are monies to cover reclamation of the anticipated exploratory drilling program, miscellaneous items and contingencies.

SOURCES: All data from Current Coal Mine Annual Reports on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit.

2.2.4. CAMPBELL COUNTY

2.2.4.1 BELLE AYR COAL MINE

Belle Ayr Coal Mine is located in Campbell County, Wyoming, 18 miles south of the town of Gillette, population 33,403 and 31 miles north of the town of Wright, population 1,644. The mine is owned and operated by Eagle Specialty Materials and its current mining capacity is 14.4 million tons per year with a workforce of 256 employees.

The Belle Ayr Mine began operations in 1972 and is the oldest, non-captive mine in the Powder River Basin. The Belle Ayr mine has changed hands many times through mergers and sales. Previous owners include AMAX, Cyprus AMAX, RAG and Foundation Coal. The current owner, Eagle Specialty Materials LLC, is also the owner and operator of the Eagle Butte Mine located in Campbell County.

Mining is carried out primarily by truck/shovel, dozer and scraper equipment utilized to remove coal. Coal Production for the Annual Report year 2019-2020 submitted to the Wyoming Department of Environmental Quality (WDEQ) Land Quality Division (LQD) in Cheyenne was 10.7 million tons. The current storage capacity (processed) stands at 27,500 tons.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2031. A graphical representation for the Belle Ayr Coal Mine’s trends in annual production and employment are shown on charts presented in *Appendix B*.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Belle Ayr Mine is updated annually as part of the WDEQ reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus an additional area resulting from interim post-mining topography (PMT) disturbance. The estimate is separated into two

sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found *Appendix D*.

For 2021, the total Reclamation Bond calculation was \$92,759,500 and designed to cover required mine disturbance for the Annual Report period February 1, 2021 to January 31, 2022. The total bond cost represents a decrease of \$9.55 million from the 2020 approved bond of \$102,318,500 due almost exclusively to the reduction of native overburden removal and a slight reduction of some equipment costs.

PERMIT HISTORY

Surface Mining Permit No. 525 for the Belle Ayr Coal Mine was first issued by WDEQ on March 11, 1982. Permit renewals for coal mines in the State of Wyoming are submitted in maximum of five-year increments. 10 permit renewals for mine permit No. 525 have been approved over a 37-year period and the 525-T10 term renewal was approved by WDEQ on March 7, 2019.

Air Quality permits are issued to coal mine facilities by the Wyoming Air Quality Division, and in compliance with these permits, mining facilities are designed to minimize fugitive dust or vapor emissions to the extent technologically possible under Best Available Control Technology (BACT) criteria.

DESCRIPTION OF COAL RESERVE AND COAL QUALITY

Two minable coal seams are locally referred to as the Anderson and Canyon seams. The Anderson Seam outcrops on the eastern and northern parts of the Belle Ayr Coal Field. The Anderson seam thickness ranges from 18 to 44 feet and is thickest in the northern part of the field. The Canyon seam has a thickness of 30 to 36 feet but contains numerous splits in the southern half of the field, forming five separate and relatively thin seams. As of 12/31/2018, the Anderson and Canyon seams contain approximately 472,419,711 tons of remaining recoverable coal. The coal quality as reported in the current Mine Plan submitted to WDEQ LQD is obtained from coal seam composite samples

of both the Anderson and Canyon seams and has a reported caloric value of 7950-9296 BTU/lb. This coal quality is considered representative of in-situ coal throughout the lease areas.

WATER RESOURCES

Belle Ayr Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer. The Belle Ayr Mine permit has an area of approximately 21.1 square miles and will affect approximately 7 percent of the drainage area of Caballo Creek.

Therefore, the primary source of water for coal mine operations are groundwater supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Belle Ayr Coal Mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Belle Ayr coal mine is accessible by State Highway 59 coming north from Gillette or south from Wright and taking Bishop Road east for 5.9 miles until turning right (south) at the mine entrance sign. The road systems at coal mines consists of

primary and ancillary roads.

- **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Belle Ayr Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.

Transmission Lines

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

Pipelines

Appendix A pipeline data accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.

Groundwater

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

Streams

A map showing the surface water drainages (streams) coursing through the Belle Ayr mine property can be found in **Appendix A.7**.

Industrial Facilities Areas

- **Permanent Improvements:** the Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Belle Ayr Coal Mine, the area (square footage) for each can be found in **Appendix C** tables

which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

BELLE AYR COAL MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- 2020-2021 Annual Report to WDEQ, file name 2020_PT0214_AR Revised_22MAR2021.pdf
- WDEQ Mine Plan Series 300 documents, rev 2014

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Belle Ayr Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page>

Eagle Specialty Materials company website, Eagle Butte | Eagle Specialty Materials (pemining.com), <https://pemining.com/eagle-butte-1>

2.2.4.2 BLACK THUNDER

Black Thunder coal mine is in Campbell County, Wyoming, located 45 miles southeast of the town of Gillette, population 33,403 and 16 miles east of the town of Wright, population 1,644. The mine is owned and operated by Thunder Basin Coal Company, a subsidiary of Arch Coal, Inc. It’s current mining capacity is 59.4 million tons per year with a workforce of 949 employees. The Black Thunder Mine began operations in 1977 and was operated by ARCO Coal until it was acquired by Arch Coal in 1998. For most of its existence, Black Thunder has been the largest mine in the country by production until surpassed by North Antelope Rochelle Mine (NARM).

The Black Thunder Mine primarily uses draglines for overburden removal and shovels for the excavation of coal and loading of haul trucks for transport to the on-site material handling facilities. The Black Thunder coal handling facilities consists of receiving, crushing, conveying, storing, reclaiming, sampling, dust collecting and train loading equipment. Coal Production for the Annual Report year 2018-2019 was 72.5 million tons. Storage capacity (processed) stands at 258,000 tons. Black Thunder’s dragline excavator Ursa Major is the biggest working dragline in North America and the third largest ever made. It produces enough coal to load up to 20-25 trains per day. In all, Black Thunder operates six draglines.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2031. A graphical representation for the Black Thunder Coal Mine’s trends in annual production and employment are shown on charts presented in Appendix B.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Black Thunder Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report

period, plus additional area resulting from interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond.

For 2019, the total Reclamation Bond calculation was \$406,369,814 and designed to cover required mine disturbance for the Annual Report period December 3, 2018 to December 2, 2019.

PERMIT HISTORY

The State of Wyoming Permit to Mine No. 233 was issued to Atlantic Richfield Company effective December 3, 1974. Transfer of the State of Wyoming Permit to Mine No. 233 from Atlantic Richfield Company to Thunder Basin Coal Company was approved effective November 23, 1977. The 10th permit renewal application, 233-T10, was submitted in February 2020. Permit renewals for coal mines in the State of Wyoming are submitted in maximum five-year increments.

Air Quality permits are issued to coal mine facilities by the Wyoming Air Quality Division, and in compliance with these permits, mining facilities are designed to minimize fugitive dust or vapor emissions to the extent technologically possible under Best Available Control Technology (BACT) criteria.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Black Thunder works coal reserves in the Wyodak seam. Hosted in the Palaeocene Fort Union formation, which covers vast areas of Wyoming, Montana and the Dakotas, the seam at Black Thunder is gently dipping, 22m-thick and locally splits into the Anderson and Canyon beds separated by up to 18m of waste and has a reported caloric value of 8,800 Btu/lb.

WATER RESOURCES

Black Thunder Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and

measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are groundwater supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in *Appendix A* for the following Black Thunder Coal Mine property attributes:

- **Permit Boundaries** are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the *Appendix A maps, Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Black Thunder coal mine is accessible by State Highway 59 coming south from Wright, Wyoming, traveling 2.0 miles, turning left onto WY-450 E, traveling 11.9 miles, turning left and traveling 0.7 miles to the mine entrance. The Wyoming Highway Department has constructed State Highway 450 from Reno Junction to Newcastle. This highway crosses through the mine and is north of the main Black Thunder plant site. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading points are Thunder Junction, Thunder Junction West and Thunder Junction East, Campbell County Wyoming and the rail loading

- capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
 - **Groundwater**
In addition to the *Appendix A.6* map for groundwater supply wells, Appendix F lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
 - **Streams**
A map showing the surface water drainages (streams) coursing through the Black Thunder mine property can be found in *Appendix A.7*.
 - **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops
- For the buildings currently present at the Black Thunder Coal Mine, the area (square footage) for each can be found in *Appendix C* tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

BLACK THUNDER COAL MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2019_PT0233_AR_01MAY2020.pdf*
- *WDEQ Mine Plan Series 300 documents, rev 2017*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Black Thunder Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page>

Arch Resources, Inc (Thunder Basin Coal Company) company website, Operations - Arch Resources, Inc. (archrsc.com), <https://www.archrsc.com/our-business/operations/>

2.2.4.3 BUCKSKIN MINE

Buckskin coal mine is in Campbell County, Wyoming, located 11 miles North of the town of Gillette, population 33,403, and 2 miles east of Highway 14-16. The mine is owned and operated by Buckskin Mining Company and its current mining capacity is 10.6 million tons per year with a workforce of 178 employees.

Mining is carried out primarily by truck and shovel equipment utilized to remove overburden and coal. Coal Production for the Annual Report year 2020-2021 was 9.6 million tons. The current storage capacity (processed) stands at 61,500 tons.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2029. A graphical representation for the Buckskin Coal Mine’s trends in annual production and employment are shown on charts presented in *Appendix B*.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Buckskin Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in *Appendix D*.

For 2020, the total Reclamation Bond calculation was \$ 128,546,086 and designed to cover required mine disturbance for the Annual Report period February 1, 2020 to January 31, 2021.

PERMIT HISTORY

Surface Mining Permit 500-T1 for the Buckskin Coal Mine was first issued by WDEQ LQD in June 1980 and coal mining operations began in 1981. Based on the latest available data (2011

Mine Plan), 8 Permit 500 permit renewals will have been issued by WDEQ covering a 34-year period from 1982 to 2016.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

The Buckskin Mine is currently producing more than 10 million tons of coal per year from the Anderson and Canyon seams. The coal produced at this mine has a reported caloric value of 8,400 BTU/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Buckskin Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in Appendix A for the following Buckskin Coal Mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**

- **Roads** – Buckskin coal mine is accessible by State Highway 14-16 coming north from Gillette, Wyoming, traveling 11.2 miles, turning right at the entrance sign for Buckskin Mine. The road system at the mine consists of primary and ancillary roads.
- **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Buckskin Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Buckskin mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional

- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Buckskin Coal Mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

BUCKSKIN MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name 2020_PT0500_AR_30SEP2021.pdf• WDEQ Mine Plan Series 300 documents, rev 2021
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Buckskin Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide . page
Buckskin Mining Company/Kiewit Corporation company website, Buckskin Mining Company Kiewit Corporation, https://www.kiewit.com/projects/buckskin-mining-company/

2.2.4.4 CABALLO MINE
Caballo coal mine is in Campbell County, Wyoming, located 18.5 miles South of the town of Gillette, population 33,403. The mine is owned and operated by Peabody Caballo Coal LLC and its current mining capacity is 13,860,353 million tons per year with a workforce of 211 employees. The Caballo Mine began operations in 1997 (1978). The Caballo mine has changed hands 3 times through mergers and sales. The two prior owners have been Rio Tinto (1997) and Cloud Peak Energy (2010). The current owner, Peabody Caballo Coal, is also the owner and operator of the Rawhide Mine located in Campbell County.

Mining is carried out primarily by dragline, truck-shovel, dozer and scraper equipment utilized to remove coal. Caballo Mine is a surface coal mine that uses truck-shovel and dozer-push mining methods. Upper overburden benches are excavated and hauled to the backfill while the lower overburden benches are cast-blasted and pushed to the backfill. Scoria is mined for use at the mine. Coal Production for the Annual Report year 2020-2021 was 11.5 million tons. The current storage capacity (processed) stands at 46,000 tons.

MINE LIFE
Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2038. A graphical representation for the Caballo Coal Mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Caballo Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report

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submitted to WDEQ LQD and can be found in **Appendix D**.

For 2021, the total Reclamation Bond calculation was \$143,353,337 and designed to cover required mine disturbance for the Annual Report period April 1, 2020 to March 31, 2021.

PERMIT HISTORY
Surface Mining Permit 433-T1 for the Caballo Coal Mine was first issued by WDEQ LQD on June 21, 1976. 8 Permit 433 permit renewals have been approved over a 42-year period and the 433-T8 term renewal was approved by WDEQ-LQD on June 4, 2018.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
Coal at the Caballo mine is excavated from the Palaeocene Upper Wyodak-Anderson seam which has a thickness of 55 to 75 feet across the property and has a reported caloric value of 8,400 BTU/lb. This coal quality is considered representative of in-situ coal throughout the lease areas.

WATER RESOURCES
Caballo Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer. The Caballo Mine permit has an area of approximately 21.1 square miles and will affect approximately 7 percent of the drainage area of Caballo Creek.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

- Permit Boundaries are sourced from the most

recent GIS data available from WDEQ LQD.

- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

• **Surface Ownership**

In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.

• **Transportation**

- **Roads** – Caballo coal mine is accessible by State Highway 59 coming south from Gillette, Wyoming, traveling 10.6 miles, turning left (East) onto Bishop Road, traveling 7.6 miles to the main entrance. The road system at the mine consists of primary and ancillary roads.
- **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Caballo Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.

• **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

• **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.

• **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

• **Streams**

A map showing the surface water drainages (streams) coursing through the Caballo mine property can be found in **Appendix A.7**.

• **Industrial Facilities Areas**

• **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Caballo Coal Mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

CABALLO MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- 2020-2021 Annual Report to WDEQ, file name PT433_Caballo_2021_Annual_Report_V3.pdf
- WDEQ Mine Plan Series 300 documents, rev 2019

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Caballo Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page>

Peabody Caballo Coal LLC company website: Peabody - Caballo Mine ([peabodyenergy.com](https://www.peabodyenergy.com)), <https://www.peabodyenergy.com/Operations/U-S-Mining/Powder-River-Basin-Mining/Caballo-Mine>

2.2.4.5 COAL CREEK MINE

Coal Creek coal mine is in Campbell County, Wyoming, located 18.2 miles north of the town of Wright, population 1,644 and 31 miles south of the town of Gillette, population 33,403. The mine is owned and operated by Thunder Basin Coal Company (a subsidiary company of Arch Coal, Inc) and its current mining capacity is 1,994,359 million tons per year with a workforce of 102 employees.

Mining is carried out primarily by dragline, front-end loaders, excavators, electric shovels and haulage trucks. Coal Production for the Annual Report year 2020 was 2.14 million tons. The current storage capacity (processed) stands at 25,000 tons.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2041. A graphical representation for the Coal Creek Coal Mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Coal Creek Mine is updated annually as part of the Wyoming Department of environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in **Appendix 2** of the most current Annual Report.

For 2021, the total Reclamation Bond calculation was \$22,691,600 and designed to cover required mine disturbance for the Annual Report period August 1, 2021 to January 1, 2022.

PERMIT HISTORY

The Coal Creek Mine began operations in 1979, initially owned by the Atlantic Richfield Company. The permit to mine No. 483 was transferred to

the current owner, Thunder Basin Coal Company, in 1997. Thunder Basin Coal Company is also the owner and operator of the Black Thunder Mine located in Campbell County

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Three minable coal seams, known as the Wyodak-Anderson R-1, R-3 and R-5 seams (Upper Roland) are the primary target zones for coal mining at the Coal Creek Mine.

The coal quality has a reported caloric value of 8400 BTU/lb. This coal quality is considered representative of in-situ coal throughout the lease areas.

WATER RESOURCES

Coal Creek Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. The surface water drainages coursing through the mine permit area, Coal Creek and East Fork Coal Creek and unnamed tributaries to both, are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**

In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.

- **Transportation**
 - Railroads - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Coal Creek Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
 - Roads – Coal Creek Coal Mine is accessible by State Highway 59 coming north from Wright, Wyoming, traveling 7.2 miles, turning right onto Breene Road, 4.8 miles, turning left onto Hilight Road, 2.0 miles, turning right onto Hoadly Road, 2.0 miles, turn left, 3.7 miles and taking a right turn to arrive at the mine entrance. The road system at the mine consists of primary and ancillary roads.
- **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**

A map showing the surface water drainages (streams) coursing through the Coal Creek mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility

- buildings can be identified under one of the 3 categories below:
- Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Coal Creek Coal Mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

COAL CREEK MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• <i>2020-2021 Annual Report to WDEQ, file name 2020_PT0483_AR_16MAR2021.pdf</i>• <i>WDEQ Mine Plan Series 300 documents, rev 2021</i>
State of Wyoming State Mine Inspector's Office, Annual Report to the State Mine Inspector's Office for the Coal Creek Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide . page
Thunder Basin Coal Company website, Operations - Arch Resources, Inc. (archrsc.com) https://www.archrsc.com/our-business/operations/

- 2.2.4.6 CORDERO ROJO COAL MINE**
Cordero Rojo coal mine is in Campbell County, Wyoming, located 27.9 miles southeast of the town of Gillette, Wyoming, population 6,386.
- Cordero Rojo mine began coal mining operations in 1974. The permitted mining capacity is 65 million tons per year in conjunction with the Caballo Rojo loadout. Under the ownership of the Navajo Transitional Energy Company, hereafter referred to as NTEC, it has a current mining production of 30 million tons per year. Current mining involves dual seams with a coal seam thickness of 32 to 36 feet. Mining is carried out primarily by dragline operations, with truck/shovel operations utilized to remove coal. Coal Production for the Annual Report year 2018-2019 was 15.6 million tons. Storage capacity (processed) currently stands at 27,500 tons. The type of coal is 8,850 Btu/lb. thermal coal.
- The mine operator is Cordero Rojo Coal LLC. Navajo Transitional Energy Company currently owns and operates 2 other mines in the Powder River Basin (PRB), Antelope coal mine located in Converse County and Youngs Creek coal mine located in Sheridan County.
- MINE LIFE**
Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2047. A graphical representation for the Cordero Rojo coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.
- RECLAMATION BOND ESTIMATE**
The reclamation performance bond estimate for Cordero Rojo Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim PMT disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.
- 2.2.4.6 CORDERO ROJO COAL MINE**
Cordero Rojo coal mine is in Campbell County, Wyoming, located 27.9 miles southeast of the town of Gillette, Wyoming, population 6,386.
- Cordero Rojo mine began coal mining operations in 1974. The permitted mining capacity is 65 million tons per year in conjunction with the Caballo Rojo loadout. Under the ownership of the Navajo Transitional Energy Company, hereafter referred to as NTEC, it has a current mining production of 30 million tons per year. Current mining involves dual seams with a coal seam thickness of 32 to 36 feet. Mining is carried out primarily by dragline operations, with truck/shovel operations utilized to remove coal. Coal Production for the Annual Report year 2018-2019 was 15.6 million tons. Storage capacity (processed) currently stands at 27,500 tons. The type of coal is 8,850 Btu/lb. thermal coal.
- The mine operator is Cordero Rojo Coal LLC. Navajo Transitional Energy Company currently owns and operates 2 other mines in the Powder River Basin (PRB), Antelope coal mine located in Converse County and Youngs Creek coal mine located in Sheridan County.
- MINE LIFE**
Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2047. A graphical representation for the Cordero Rojo coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.
- RECLAMATION BOND ESTIMATE**
The reclamation performance bond estimate for Cordero Rojo Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim PMT disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

- For 2019, the total Reclamation Bond calculation is \$140,127,000 and is designed to cover required mine disturbance for the Annual Report period July 1, 2018 to September 30, 2019 plus additional as a result of the interim PMT disturbance.
- PERMIT HISTORY**
Surface Mining Permit 237 for the Cordero Rojo coal mine was first issued by WDEQ LQD on January 9, 1975. The original mine plan called for mine construction to commence in 1982, continue through 1983, with initial coal deliveries to begin in November, 1983. Based on the latest available data, 9 Permit 237 permit renewals will have been approved by WDEQ covering a 45-year period from 1975 to 2020.
- DESCRIPTION OF COAL RESERVE & COAL QUALITY**
The Cordero Rojo coal mine is currently producing more than 15.6 million tons of coal per year from the Wyodak-Roland seam which has an average thickness of 60 feet and has a reported caloric value of 8,400 Btu/lb. This coal quality is considered representative of in-situ coal throughout the lease areas.
- WATER RESOURCES**
Cordero Rojo Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.
- Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.
- PROPERTY ATTRIBUTES**
 - Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Cordero Rojo coal mine is accessible by State Highway 59 coming south from Gillette: Hwy 59 S 19.0 miles, take a left onto Haight Road 3.8 miles, continue onto T-7 Road, turn right at the mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF.2 The rail loading points are Rojo Junction for the North Facility and Cordero Junction for the South Facility, both located in Campbell County, Wyoming. The rail loading capacities are Full loop with a 4 unit-train capacity at the North Facility and a 3-unit train capacity at the South Facility.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**

A map showing the surface water drainages (streams) coursing through the Cordero Rojo mine property can be found in **Appendix A.7**.

- **Industrial Facilities Areas**
 - Permanent Improvements
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Cordero Rojo coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

CORDERO ROJO COAL MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- 2020-2021 Annual Report to WDEQ, Cordero Rojo Annual Report Permit 237-T10
- WDEQ Mine Plan Series 300 documents, rev 2020

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Cordero Rojo Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page>

Navajo Transitional Energy Company (NTEC) website, Cordero Rojo | A Navajo Transitional Energy Company Strategic Asset (navenergy.com), <https://navenergy.com/cordero-rojo/>

2.2.4.7 DRY FORK MINE

Dry Fork coal mine is in Campbell County, Wyoming, located 10.5 miles North of the town of Gillette, population 33,403, and 4.4 miles east of Highway 14-16. The mine is owned and operated by Western Fuels of Wyoming, Inc. and its current mining capacity is 3.7 million tons per year with a workforce of 56 employees.

A combination of scrapers, dozers, front end loaders, shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2020-2021 was 3.9 million tons. The type of coal is 8,050 – 8,200 Btu/lb. thermal coal.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2065. A graphical representation for the Dry Fork coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Dry Fork Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020, the total Reclamation Bond calculation was \$ 34,012,666 and designed to cover required mine disturbance for the Annual Report period January 1, 2020 to December 31, 2020.

PERMIT HISTORY

Surface Mining Permit 599 for the Dry Fork coal mine was first issued by WDEQ LQD in April 13, 1987. Based on the latest available data, 7 Permit 599 permit renewals will have been

approved by WDEQ covering a 35-year period from 1987 to 2022.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

The Dry Fork Mine is currently producing more than 3.7 million tons of coal per year from the Upper Wyodak-Anderson coal seam. The coal produced at this mine has a reported caloric value of 8,100 BTU/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Dry Fork Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

Property Attributes

In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Dry Fork coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.

- **Transportation**
 - Roads – Dry Fork coal mine is accessed from Gillette, WY, by taking US 14-16 north 1.6 miles, turning right on to Northern Drive, 4.0 miles, take left onto N Garner Lake Road, 4.0 miles, take left on Dry Fork mine road, 1.6 miles to the Dry Fork coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - Railroads - Rail service is provided by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Dry Fork Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**

A map showing the surface water drainages (streams) coursing through the Dry Fork mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Dry Fork coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

DRY FORK COAL MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name 2020_PT0599_AR_08APR2021.pdf• WDEQ Mine Plan Series 300 documents, rev 2019
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Dry Fork Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide . page
Western Fuels Wyoming, INC website, Dry Fork Mine – WESTERN FUELS-WYOMING, INC https://www.dryforkmine.com/

2.2.4.8 EAGLE BUTTE MINE
Eagle Butte coal mine is in Campbell County, Wyoming, located 6.4 miles North of the town of Gillette, population 33,403, adjacent to and west of Hwy 59 N. The mine is owned and operated by Eagle Specialty Materials, LLC and its current mining capacity is 13.5 million tons per year with a workforce of 222 employees.

A combination of scrapers, dozers, front end loaders, shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2020-2021 was 126.9 million tons. The current storage capacity (processed) stands at 48,000 tons. The type of coal is 8,350 Btu/lb. thermal coal.

MINE LIFE
The estimated date (year) of termination of the proposed mining operation was not stated in the available public resources for this mine, including the most current Annual Report and Mine Plan on file with the Wyoming Department of Environmental Quality Land Quality Division (WDEQ LQD). A graphical representation for the Eagle Butte coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Eagle Butte Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020-2021, the total Reclamation Bond calculation was \$ 123,230,000 and designed to cover required mine disturbance for the Annual Report period May 5, 2020 to May 5, 2021.

PERMIT HISTORY
Surface Mining Permit 428 for the Eagle Butte coal mine was first issued by WDEQ LQD in April 1987 and coal mining operations began in 1987. Based on the latest available data, 6 Permit 428 permit renewals will have been approved by WDEQ covering a 35-year period from 1987 to 2022.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
The Eagle Butte Mine is currently producing more than 13 million tons of coal per year from the Wyodak - Roland, Smith coal seams. The coal produced at this mine has a reported caloric value of 8,350 Btu/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Eagle Butte Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Eagle Butte coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

• **Surface Ownership**

In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.

• **Transportation**

• **Roads** – Eagle Butte coal mine is accessed from Gillette, WY, by taking Hwy 59 N 6.4 miles to the Eagle Butte coal mine entrance on the west side of the highway. The road system at the mine consists of primary and ancillary roads.

• **Railroads** - Rail service is provided by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Eagle Butte Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.

• **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

• **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.

• **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

• **Streams**

A map showing the surface water drainages (streams) coursing through the Eagle Butte mine property can be found in **Appendix A.7**.

• **Industrial Facilities Areas**

• **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end

of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Eagle Butte coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

EAGLE BUTTE MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2021_PT0428_AR_10MAY2021.pdf*
- *WDEQ Mine Plan Series 300 documents, 1983 w rev 1987-2015*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Eagle Butte Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide>. page

Eagle Specialty Materials website, Eagle Butte | Eagle Specialty Materials (pemining.com) <https://pemining.com/eagle-butte-1>

2.2.4.9 NORTH ANTELOPE ROCHELLE (NARM) MINE

North Antelope Rochelle (NARM) coal mine is in Campbell County, Wyoming, located 26.2 miles South of the town of Wright, population 1,644, and 8.5 miles east of highway WY 59. The mine is owned and operated by Peabody Powder River Mining, LLC and its current mining capacity is 62.8 million tons per year with a workforce of 1,348 employees.

A combination of dragline, scrapers, dozers, front end loaders, electric cable shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2019-2020 was 71.2 million tons. The current storage capacity (processed) stands at 165,000 tons. The type of coal is 8,800 Btu/lb. thermal coal.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves was currently not available through public resources. A graphical representation for the North Antelope Rochelle (NARM) coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for North Antelope Rochelle (NARM) Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2019-2020, the total Reclamation Bond calculation was \$ \$291,318,287 and designed to cover required mine disturbance for the Annual Report period October 1, 2019 to September 30, 2020.

PERMIT HISTORY

Surface Mining Permit 569 for the North Antelope Rochelle (NARM) coal mine was first issued by WDEQ LQD on December 6, 1984 and coal mining operations began in 1985. Based on the latest available data, 9 Permit 569 permit renewals will have been approved by WDEQ covering a 36-year period from 1984 to 2020.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

The North Antelope Rochelle (NARM) Mine is currently producing more than 71.2 million tons of coal per year from the Wyodak (Anderson-Canyon) coal seam with an average thickness of 72 feet. The coal produced at this mine has a reported caloric value of 8,800 Btu/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

North Antelope Rochelle (NARM) Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in Appendix A for the following North Antelope Rochelle (NARM) coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- **Surface Ownership**
In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – North Antelope Rochelle (NARM) coal mine is accessed from Wright, by taking highway WY 59 S 6.8 miles, then left onto Edwards Road 6.2 miles, continue onto Reno Road .5 mile, right onto Mackey Road 1.1 mile, keep right to continue on Antelope Road, continue onto Matheson Road 2.9 miles, turn left onto NARM Access Road and travel 3.7 miles to the North Antelope Rochelle (NARM) coal mine entrance. NARM can be accessed from either Antelope Road or Reno Road (north guard house). The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Nacco Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, Appendix F lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the North Antelope

mine property can be found in **Appendix A.7**.

- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the North Antelope Rochelle (NARM) coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

NORTH ANTELOPE ROCHELLE (NARM) MINE SOURCES

- State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:
- *2019-2020 Annual Report to WDEQ, file name 2020_PT569_NARM_2020_Annual_Report_V4.pdf*
 - *WDEQ Mine Plan Series 300 documents, rev 2018*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the North Antelope Rochelle Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide>. page

Peabody - North Antelope Rochelle Mine (peabodyenergy.com)
<https://www.peabodyenergy.com/Operations/U-S-Mining/Powder-River-Basin-Mining/North-Antelope-Rochelle-Mine>

2.2.4.10 RAWHIDE MINE
Rawhide coal mine is in Campbell County, Wyoming, located 13.7 miles NE of the town of Gillette, population 33,403. The mine is owned and operated by Peabody Caballo Mining Company and its current mining capacity is 11.6 million tons per year with a workforce of 131 employees.

A combination of scrapers, dozers, front end loaders, shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2020-2021 was 11.2 million tons. The current storage capacity (processed) stands at 71,000 tons. The type of coal is 8,300 Btu/lb. thermal coal.

MINE LIFE
Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is currently not available through public resources. A graphical representation for the Rawhide coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Rawhide Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020-2021, the total Reclamation Bond calculation was \$32,878,000 and designed to cover required mine disturbance for the Annual Report period November 1, 2020 to October 31, 2021.

PERMIT HISTORY
Surface Mining Permit 240 for the Rawhide coal

mine was first issued by WDEQ LQD on January 31, 1975 and coal mining operations began in 1977. Based on the latest available data, 8 Permit 240 permit renewals will have been approved by WDEQ covering a 47-year period from 1975 to 2022.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
The Rawhide Mine is currently producing more than 11.1 million tons of coal per year from the Wyodak - Upper Roland and Lower Smith coal seams, with the Upper Roland having an average coal seam thickness of 30 feet and the Lower Smith having an average coal seam thickness of 75 feet. The coal produced at this mine has a reported caloric value of 8,300 Btu/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Rawhide Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Rawhide coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- **Surface Ownership**
- In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - Roads – Rawhide coal mine is accessed from Gillette, WY, by taking highway U.S. 14-16 N 8.0 miles, turning right onto WY-59 for 4.5 miles and turning left, traveling 0.6 miles to the Rawhide coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - Railroads - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Rawhide Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Rawhide mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - Permanent Improvements
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling

facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Rawhide coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

RAWHIDE MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name: 2022_PT240_RAWHIDE_2022_Annual_Report_V2_2022JUN01.pdf• WDEQ Mine Plan Series 300 documents, rev 2019
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Rawhide Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide . page
Peabody website, Peabody - Rawhide Mine (peabodyenergy.com) https://www.peabodyenergy.com/Operations/U-S-Mining/Powder-River-Basin-Mining/Rawhide-Mine

2.2.4.11 SYNTHETIC FUELS MINE
Synthetic Fuels coal mine (formerly Fort Union coal mine) is in Campbell County, Wyoming, located 7.7 miles north of the town of Gillette, population 33,403. The mine is owned and operated by Green Bridge Holdings, Inc. and is currently in a total reclamation and active property conversion phases and development into an Industrial Park. The industrial park development currently has 3 tenants, Paintbrush Services, Black Bison Water Services and Synthetic Fuels. In addition, 35 acres of the former mine site were sold to Atlas Carbon, a coal to activated carbon production facility.

MINE LIFE
Coal mining activities ceased at the Synthetic Fuels Mine in 2007, and subsequent ongoing reclamation activities have been undertaken with the totally reclaimed areas opened to industrial siting for reuse as stated above.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Synthetic Fuels Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2019, the total Reclamation Bond calculation was \$584,167.00 and designed to cover required mine disturbance for the Annual Report period January 1, 2019 to December 31, 2019.

PERMIT HISTORY
Surface Mining Permit 486 for the Synthetic Fuels coal mine was first issued by WDEQ LQD on April 4, 1979 and coal mining operations began in 1981. Based on the latest available data, 7 Permit 486 permit renewals will have been approved by WDEQ covering a 40-year period from 1979 to 2019.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
The coal produced at this mine in the past had a reported caloric value of 8,200 Btu/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Synthetic Fuels Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Synthetic Fuels coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Synthetic Fuels coal mine can accessed from Gillette by taking U.S. 14-16 N 1.6 miles, turn right onto Northern Drive 4.1 miles, turn left on Garner Lake Road 2.9 miles, turn right on Innovation Drive to the Synthetic Fuels coal mine entrance. The

road system at the mine consists of primary and ancillary roads.

- **Railroads** – The Fort Union Rail Park is served by BNSF. The rail loading point is mile marker 6.0 on the Campbell Subdivision, Campbell County Wyoming and the rail loading capacities are 13,000 tons Full loop with a 1 unit-train capacity.

- **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

- **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.

- **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

- **Streams**

A map showing the surface water drainages (streams) coursing through the Synthetic Fuels mine property can be found in **Appendix A.7**.

- **Industrial Facilities Areas**

- **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Synthetic Fuels coal mine, the area (square footage) for each can be found in Appendix C

tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

SYNTHETIC FUELS MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2019_PT0486_AR_11MAR2020.pdf*
- *WDEQ Mine Plan Series 300 documents, rev 2004*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Synthetic Fuels Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

Burlington Northern Santa Fe (BNSF) Coal Mine Guide, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page>

Energy Capital Economic Development website, describing Green Bridge Holdings, Inc. Green Bridge Holdings, Inc. (energycapital.com) <https://www.energycapital.com/green-bridge-holdings-inc/>

2.2.4.12 WYODAK MINE

Wyodak coal mine is in Campbell County, Wyoming, located approximately 5 miles east of the town of Gillette, population 33,403, with mining activities and facilities located on both the north and south sides of the East to West running I-90 interstate highway. The mine is owned Black Hills Corporation and operated by Wyodak Resources Development Corporation and its current mining capacity is 3.5 million tons per year with a workforce of 59 employees.

Wyodak has been in operation since 1923 and is the oldest continuously operating surface coal mine in the United States and the oldest coal mine in the Powder River Basin. Wyodak is a surface coal mine set up as a mine-mouth operation, meaning that the coal produced at the mine is shipped directly to the adjacent power plant customers. Daily operations at the mine primarily supply coal to power plants at the adjacent Neil Simpson Complex.

A combination of scrapers, dozers, front end loaders, shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2019-2020 was 3.8 million tons. The type of coal is 8,850 Btu/lb. thermal coal.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2062. A graphical representation for the Wyodak coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Wyodak Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond.

Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2019-2020, the total Reclamation Bond calculation was \$ \$25,756,918.00 and designed to cover required mine disturbance for the Annual Report period October 1, 2019 to September 30, 2020.

PERMIT HISTORY

Surface Mining Permit 232 for the Wyodak coal mine was first issued by WDEQ LQD on November 26, 1974 and coal mining operations began in 1975. Based on the latest available data, 8 Permit 232 permit renewals will have been approved by WDEQ covering a 46-year period from 1974 to 2020. The original Wyodak, Clovis Point and East Gillette Mines were consolidated under Permit 232-T5 in 2001.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

The Wyodak Mine is currently producing more than 3.5 million tons of coal per year from the Wyodak formation upper and lower coal seams, averaging 80 feet thick, with variations of 20 feet up to a maximum of 100 feet. Average daily production is between 11,000 and 12,000 tons. The coal produced at this mine has a reported caloric value of 8,000 Btu/lb. The Black Hills Corporation website currently cites nearly 200 million tons of coal reserves. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Wyodak Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in Appendix A for the following Wyodak coal mine property attributes:

- **Permit Boundaries** are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Wyodak coal mine is accessed from Gillette by taking I-90 E 6.3 miles to Exit 132 toward Wyodak Road and turn right on American Road to the Wyodak coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided by BNSF, to the Central and Eastern distribution locations serviced by BNSF, shipping to other power and processing plants in the region.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently

permitted through the Wyoming State Engineers Office and their appropriated flow rates.

- **Streams**
A map showing the surface water drainages (streams) coursing through the Wyodak mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Wyodak coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

WYODAK MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name 2020_2020 Wyodak AR_CARF_R1.pdf• WDEQ Mine Plan Series 300 documents, rev 2018
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Wyodak Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page
Black Hills Corporation website, Wyodak Resources Black Hills Corporation https://www.blackhillscorp.com/utilities-businesses/energy-production/wyodak-resources

2.2.5. CARBON COUNTY

2.2.5.1 CARBON BASIN MINE

Carbon Basin coal mine is in Carbon County, Wyoming, located 53 miles northeast of Rawlins, population 8,221. The mine is owned and operated by Arch of Wyoming LLC.

The Carbon Basin Mine is in final reclamation, moving towards final mine closure. As such, there has been no coal production since 2011.

MINE LIFE

Coal mining activities ceased in 2012 and the mine property has entered into the final reclamation phases. In 2021, the final seeding of reclaimed areas was conducted.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Carbon Basin Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020-2021, the total Reclamation Bond calculation was \$ 745,433.00 and designed to cover required mine disturbance for the Annual Report period November 22, 2020 to November 21, 2021.

PERMIT HISTORY

Surface Mining Permit 730 for the Carbon Basin coal mine was first issued by WDEQ LQD on November 22, 2005 and coal mining operations began in 2006. Based on the latest available data, 4 Permit 730 permit renewals will have been approved by WDEQ covering a 16-year period from 2005 to 2021.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Carbon Basin Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation

coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Carbon Basin coal mine property attributes:

- **Permit Boundaries** are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Carbon Basin coal mine is accessed from Rawlins by taking Interstate I-80 E 43.6 miles to Exit 260, then north on Elk Mountain Medicine Bow Road for 9.6 miles to the Carbon Basin coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service was provided by UP, to eastern and western distribution locations serviced by UP.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the *Appendix A.6* map for groundwater supply wells, *Appendix F* lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Carbon Basin mine property can be found in *Appendix A.7*.
- **Industrial Facilities Areas**
- **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Carbon Basin coal mine, the area (square footage) for each can be found in *Appendix C* tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

CARBON BASIN MINE SOURCES

- State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:
- *2020-2021 Annual Report to WDEQ, file name 2021_PT0730_AR_2022MAR18_Revised.pdf*
 - *WDEQ Mine Plan Series 300 documents, rev 2008*
- State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Carbon Basin Mine, 2005-2021
- U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.5.2 SEMINOE II MINE
Seminole II coal mine is in Carbon County, Wyoming, located 9.3 miles north of Hanna, population 683, AND 41 miles east of Rawlins, population 8,221. The mine is owned and operated by Arch of Wyoming LLC. The Seminole II Mine is in final reclamation, moving towards final mine closure. As such, there has been no coal production since 2003. The mine entered reclamation work in 2005 and completed the job in 2015.

MINE LIFE
Seminole II coal mining activities ceased in DATE and the mine property has entered into the final reclamation phases. In 2021, the final seeding of reclaimed areas was conducted.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Seminole II Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in *Appendix D*.

For 2020-2021, the total Reclamation Bond calculation was \$1,026,192.00 and designed to cover required mine disturbance for the Annual Report period July 1, 2020 to June 30, 2021.

PERMIT HISTORY
Surface Mining Permit 377 for the Seminole II coal mine was first issued by WDEQ LQD on June 30, 1975 and coal mining operations began in 1975. Based on the latest available data, 7 Permit 377 permit renewals were approved by WDEQ covering a 30-year period from 1975 to 2005 (coal mining ceased in 2003).

DESCRIPTION OF COAL RESERVE & COAL QUALITY
Coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Seminole II Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from

summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in *Appendix A* for the following Seminole II coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the *Appendix A* maps, *Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Seminole II coal mine is accessed from Hanna, WY, by taking Hanna Draw Road north 9.3 miles to the reclaimed area for the Seminole II coal mine. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is by UP, to the eastern and western distribution locations serviced by UP.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from

publicly available resources and generally indicates natural gas, crude oil and finished product.

• **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

• **Streams**

A map showing the surface water drainages (streams) coursing through the Seminoe II mine property can be found in **Appendix A.7**.

• **Industrial Facilities Areas**

• **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Seminoe II coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

SEMINOE II MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2021_PT0377_AR_2022MAR30.pdf*
- *WDEQ Mine Plan Series 300 documents, rev 1997, 2012*

State of Wyoming State Mine Inspector's Office, Annual Report to the State Mine Inspector's Office for the Seminoe II Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

1970 - 2017: Arch Mineral Corporation and Arch of Wyoming at Hanna, Wyoming - Hanna History. com
<https://www.hannahistory.com/1970---2017-arch-mineral-corporation-and-arch-of-wyoming-at-hanna-wyoming.html>

2.2.6. CONVERSE COUNTY

2.2.6.1 ANTELOPE COAL MINE

Antelope coal mine is in Converse County, Wyoming, located 55 miles north of the town of Douglas, population 6,386 and approximately 24 miles south of the town of Wright, population 1,644.

Antelope mine began coal mining operations in 1985, with coal deliveries beginning on November 8, 1985 when Antelope Coal Mine loaded and shipped the first unit train. The current mining capacity is 42 million tons per year under the ownership of the Navajo Transitional Energy Company, hereafter referred to as NTEC. NTEC purchased the mine in August 2019 from Cloud Peak Energy. The mine operator is Antelope Coal LLC. Navajo Transitional Energy Company currently owns and operates 2 other mines in the Powder River Basin (PRB), Cordero Rojo coal mine located in Campbell County and Youngs Creek coal mine located in Sheridan County.

Mining is carried out primarily by dragline operations, with truck/shovel operations utilized to remove coal and storage capacity (processed) stands at 27,500 tons.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2047. A graphical representation for the Antelope coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Antelope Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two

sections, the Area Bond and Incremental Bond. Details are included in Section 5 of the current Annual Report.

For 2021, the total Reclamation Bond calculation was \$106,783,000 and designed to cover required mine disturbance for the Annual Report period February 1, 2021 to January 31, 2022 plus additional as a result of the interim PMT disturbance. The total bond cost represents a decrease of \$36.309 million from the November 6, 2020 approved bond of \$143.092 million due to lower fuel prices, fewer yards necessary to construct the interim PMT, and corrections in structure sizes and removal of duplicate structures in the facilities demolition calculation.

PERMIT HISTORY

Surface Mining Permit 525 for the Antelope Coal Mine was first issued by WDEQ LQD on March 11, 1982. The original mine plan called for mine construction to commence in 1982, continue through 1983, with initial coal deliveries to begin in November, 1983. In response to a customer’s decision to delay contracted coal deliveries, Antelope Coal Company revised development plans by reducing the scale of the mine facilities complex. Rather than constructing a large coal handling complex as originally planned, Antelope Coal Company sought approval of a significantly reduced scale facility, often referred to as the “One-Mine,” with a capacity of one million tons per year coal production.

10 Permit 525 permit renewals (T1-T10, 10 five-year terms) have been approved over a 37-year period and the 525-T10 term renewal was approved by WDEQ-LQD on March 7, 2019.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Two minable coal seams are locally referred to as the Anderson and Canyon seams. The Anderson Seam outcrops on the eastern and northern parts of the Antelope Coal Field. The Anderson seam thickness ranges from 18 to 44 feet and is thickest in the northern part of the field. The Canyon seam has a thickness of 30 to 36 feet but contains numerous splits in the southern half of the field, forming five separate

and relatively thin seams. As of 12/31/2018, the Anderson and Canyon seams contain approximately 472,419,711 tons of remaining recoverable coal.

The coal quality as reported in the obtained from coal seam composite samples of both the Anderson and Canyon seams and has a reported caloric value of 8,850 Btu/lb. This coal quality is considered representative of in-situ coal throughout the lease areas.

WATER RESOURCES

Antelope Mine is in a 12 to 13-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

- In addition to the water resources discussed above, maps can be found in Appendix A for the following Antelope coal mine property attributes:
- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - **Surface Ownership**
In addition to the *Appendix A* maps, *Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
 - **Transportation**
 - **Roads** – Antelope Mine can be accessed from Wright to the north or from Douglas to the south off highway WY-59. From

Wright, travel 24.3 miles south on WY-59, turn left onto Antelope Coalmine Road, travel 5.3 miles, turn left, go 2.9 miles to Antelope Mine entrance. From Douglas, travel 50.5 miles north on WY-59, turn right onto Antelope Coalmine Road, travel 5.3 miles, turn left, 2.9 miles to Antelope Mine entrance. The road system at the mine consists of primary and ancillary roads.

- **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Converse Junction, Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, *Appendix F* lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Black Thunder mine property can be found in *Appendix A.7*.

- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Antelope coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

ANTELOPE MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• <i>2020-2021 Annual Report to WDEQ, file name 2021_PT0525_AR_09MAR2021.pdf</i>• <i>WDEQ Mine Plan Series 300 documents, rev 2019</i>
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Black Thunder Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide.page
Navajo Transitional Energy Company website: Antelope Mine A Navajo Transitional Energy Company Strategic Asset (navenergy.com) https://navenergy.com/antelope-mine/

2.2.7. HOT SPRINGS COUNTY

2.2.7.1 GRASS CREEK MINE

Grass Creek coal mine is in Hot Springs County, Wyoming, located 51.4 miles west of Worland, population 4,733, AND 38 miles northwest of Thermopolis, population 2,725.

The Carbon Basin Mine is in final reclamation, moving towards final mine closure. There has been no coal production since 2014, the last year of mining operations, producing 12,900 tons of coal (3 employees).

MINE LIFE

Coal mining activities ceased in 2014 and the mine property has entered into the final reclamation phases. In 2021, the final seeding of reclaimed areas was conducted.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Grass Creek Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in Appendix D.

For 2019-2020, the total Reclamation Bond calculation was \$ 299,505.00 and designed to cover required mine disturbance for the Annual Report period July 1, 2019 to June 30, 2020.

PERMIT HISTORY

Surface Mining Permit 211 for the Grass Creek coal mine was first issued by WDEQ LQD on October 21, 1974 and coal mining operations began in 1975. Based on the latest available data, 7 Permit 211 permit renewals had been approved by WDEQ covering a 30-year period from 1974 to 2014.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Grass Creek Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Grass Creek coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – From Thermopolis, the Grass Creek coal mine is accessed by taking WY-120 W 26.2 miles, turn left onto WY-171 W 10.7 miles to the Grass Creek coal mine entrance. From Worland, the Grass Creek coal mine is accessed by taking WY-431 W 45.1 miles, turn right onto intersection with

WY-120 W 1.7 miles, turn left onto 4 Mile Road 4 miles, turn right onto Grass Creek Road, proceed to coal mine entrance. The road system at the mine consists of primary and ancillary roads.

- **Railroads** - Rail service is by UP, to the eastern and western distribution locations serviced by UP.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Grass Creek mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Grass Creek coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond

calculation worksheets submitted in the Annual Report to WDEQ.

GRASS CREEK MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- 2020-2021 Annual Report to WDEQ, file name 2020_PT0211_AR_20NOV2020.pdf
- WDEQ Mine Plan Series 300 documents, rev 2010, 2022

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Grass Creek Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

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2.2.8. LINCOLN COUNTY

2.2.8.1. KEMMERER MINE

Kemmerer coal mine is in Lincoln County, Wyoming, located 7.1 miles south and west of Kemmerer, population 2,415. The mine is owned and operated by Kemmerer Operations LLC and its current mining capacity is 2.5 million tons per year with a workforce of 248 employees.

The Kemmerer coal mine is a dragline, scraper and truck and shovel operation, used to remove overburden and extract coal. Coal Production for the Annual Report year 2020-2021 was 2.4 million tons. The type of coal is reported as sub-bituminous, low sulfur and of medium BTU.

MINE LIFE

The estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is 2031. However, in 2021, it was announced that TerraPower, a nuclear power innovation company founded by Bill Gates, will build a \$4B, 345-megawatt relatively small “Natrium” reactor nuclear power plant at the Naughton Power Plant, which is to the south and immediately adjacent to the Kemmerer coal mine. The Natrium plant will replace the two remaining coal-fired electrical units at the Naughton Power Plant scheduled to retire in 2025. This may influence the mine life of the Kemmerer coal mine.

A graphical representation for the Kemmerer coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Kemmerer Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT)

disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020-2021, the total Reclamation Bond calculation was \$ 66,350,130 and designed to cover required mine disturbance for the Annual Report period May 1, 2020 to April 30,2021.

PERMIT HISTORY
Surface Mining Permit 379 for the Kemmerer coal mine was first issued by WDEQ LQD on June 30, 1975 and coal mining operations began in 1976. Based on the latest available data, 9 Permit 379 permit renewals will have been approved by WDEQ covering a 45-year period from 1975 to 2020.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
The Kemmerer Mine is currently producing more than 2.5 million tons of coal per year from the Adaville No. 1 coal seam. The coal produced at this mine has been reported as sub-bituminous, low sulfur and of medium BTU. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Kemmerer Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in *Appendix A* for the following Kemmerer coal mine property attributes:

- **Permit Boundaries** are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the *Appendix A* maps, *Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Kemmerer coal mine is accessed from the town of Kemmerer by taking U.S.-189 S 4.1 miles, turn right onto Ekol Road, then right on Allemon Road and then a left turn on Naughton Road 2.5 miles to the Kemmerer coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is by UP, to the eastern and western distribution locations serviced by UP.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the *Appendix A.6* map for groundwater supply wells, *Appendix F* lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Kemmerer

mine property can be found in *Appendix A.7*.

- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Kemmerer coal mine, the area (square footage) for each can be found in *Appendix C* tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

KEMMERER MINE SOURCES

- State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:
- 2020-2021 Annual Report to WDEQ, file name 2021_PT0379_AR_04APR2022.pdf
 - WDEQ Mine Plan Series 300 documents, rev 2000, 2020
- State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Kemmerer Mine, 2005-2021
- U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.9. SHERIDAN COUNTY

2.2.9.1. BROOK MINE

Brook coal mine is in Sheridan County, Wyoming, located 9.2 miles north of Sheridan, population 18,737. The mine is owned and operated by Brook Mining Company. Outside of exploratory drilling, coal mining operations had not yet begun at the Brook Mine through the end of 2022.

MINE LIFE

As mining operations have not yet commenced at the Brook Mine, no estimates of mine life based on mine production rates are available through public resources.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Brook Mine will be updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in *Appendix D*.

For 2020-2021, the total Reclamation Bond calculation was \$1,248,015.00 and designed to cover required mine disturbance for the Annual Report period July 7, 2020 to July 6, 2021.

PERMIT HISTORY

Surface Mining Permit 841 for the Brook coal mine was first issued by WDEQ LQD on July 7, 2020 and coal mining operations have not begun through 2022.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Due to no mining activity to date at the Brook Mine, coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Brook Mine is in a 13 to 14-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May

through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in *Appendix A* for the following Brook coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the *Appendix A* maps, *Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Brook coal mine is accessed from Sheridan, WY, by taking Interstate I-25 N to the Brook coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided both by UP, to the western distribution locations serviced by UP, and by BNSF, to the Central and Eastern distribution locations serviced by BNSF. The rail loading point is Xxxx Junction, Campbell County Wyoming and the rail loading capacities are Full loop with a 4 unit-train capacity.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the *Appendix A.6* map for groundwater supply wells, *Appendix F* lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Brook mine property can be found in *Appendix A.7*.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Brook coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

BROOK MINE SOURCES	
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:	
<ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name PT0841_AR_21OCT2021.pdf• WDEQ Mine Plan Series 300 documents, rev 2019	
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Black Thunder Mine, 2005-2021	
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021	
Burlington Northern Santa Fe (BNSF) Coal Mine Guide, https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/coal-mine-guide . page	
Ramaco Carbon website, Facilities - Ramaco Carbon https://ramacocarbon.com/facilities/	

2.2.9.2. YOUNGS CREEK MINE
Youngs Creek coal mine is in Sheridan County, Wyoming, located 16.7 miles north and east of Sheridan, population 18,737. The mine is owned and operated by Navajo Transitional Energy Company (NTEC). NTEC acquired the mine in November 2017 from Cloud Peak Energy.

No coal mining activities have been conducted at the Youngs Creek Mine since 2051. Since that time, after active coal mining had ceased, all the disturbed lands have been permanently reclaimed or temporarily seeded at-grade. In 2012, Cloud Peak Energy had bought the mine from Chevron, which included 450 million tons of in-place coal and 38,800 acres, with the intent of resuming mining activities after a decades long period of no coal production but had not done so prior to selling the property to NTEC. To date, NTEC, after having purchased the mine property from Cloud Peak, has not resumed coal mining activities.

MINE LIFE
Although coal mining activities at the Youngs Creek Mine have ceased going back to 2051, an active Permit to Mine has been kept in place and renewed every 5 years, going back to 1977. As such, there is no practical estimate for the end of mine life with considerable coal reserves still in place and existing within the current mine permit boundaries.

RECLAMATION BOND ESTIMATE
The 2021 Annual Report stated that no new disturbances occurred during the Annual Report period and that the bond estimate of \$229,000 as calculated and accepted by the Wyoming Department of Environmental Quality (WDEQ) Land Quality Division (LQD) remains in place for the ensuing year(s).

PERMIT HISTORY
Surface Mining Permit 407 for the Youngs Creek coal mine was first issued by WDEQ LQD on January 19, 1977. Permit 407 was transferred from Youngs Creek Mining Company to NTEC on November 17, 2021. Based on the latest available data, 8 Permit 407 permit renewals will have been approved by WDEQ covering a 40-
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year period from 1976 to 2016.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
Coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Youngs Creek Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in Appendix A for the following Youngs Creek coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- **Surface Ownership**
In addition to the Appendix A maps, Table 2 details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Youngs Creek coal mine is accessed from Sheridan by taking Interstate I-90 W 2.7 miles, take exit 20 for WY-338/Decker Road, head north 10.1 miles, turn left onto Ash Creek Road/ Youngs Creek Road 3.6 miles to the

Youngs Creek coal mine entrance. The road system at the mine consists of primary and ancillary roads.

- **Railroads** - Rail service is by UP, to the eastern and western distribution locations serviced by UP.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Youngs Creek mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Youngs Creek coal mine, the area (square footage) for each can be found in **Appendix C** tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

YOUNGS CREEK MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name 2021_PT0407_AR_2022MAY02 Revised.pdf• WDEQ Mine Plan Series 300 documents, rev 209, 2016 and 2017
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Youngs Creek Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021
Navajo Traditional Energy Company website: Our Mines NTEC Locations in New Mexico, Montana & Wyoming (navenergy.com) https://navenergy.com/our-mines/

2.2.10. SWEETWATER COUNTY

2.2.10.1. BLACK BUTTE MINE

Black Butte coal mine is in Sweetwater County, Wyoming, located 31.7 miles east of Rock Spring, population 23,526 and 76.4 miles west of Rawlins, population 8,221. The mine is owned and operated by Black Butte Mining Company and its current mining capacity is 2.3 million tons per year with a workforce of 145 employees. Black Butte is a surface coal mine operation with draglines, a track hoe and dozers as the principal equipment for overburden and coal excavation. Coal Production for the Annual Report year 2020 was 2.3 million tons.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is currently not available through public resources. A graphical representation for the Black Butte coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Black Butte Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in Appendix D.

For 2020, the total Reclamation Bond calculation was \$95,428,911.00 and designed to cover required mine disturbance for the Annual Report period January 1, 2020 to December 31, 2020.

PERMIT HISTORY

Surface Mining Permit 467 for the Black Butte coal mine was first issued by WDEQ LQD on COAL INFRASTRUCTURE REUSE REPORT | CHAPTER TWO

December 27, 1977 and coal mining operations began in 1978. Based on the latest available data, 8 Permit 467 permit renewals will have been approved by WDEQ covering a 43-year period from 1977 To 2020.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

The Black Butte Mine is currently producing more than 2.3 million tons of coal per year from the Lance – Almond and Fort Union coal seams. Additional coal quality metrics, including caloric content of the coal produced at this mine, were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Black Butte Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Black Butte coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over

total mine life to date.

• **Transportation**

- **Roads** – Black Butte coal mine can be accessed from the east (Rawlins) or the west (Rock Springs, Point of Rocks) on Interstate I-80 by taking exit 136 and heading south on Black Butte Road 0.6 miles to the Black Butte coal mine entrance. The road system at the mine consists of primary and ancillary roads.
- **Railroads** - Rail service is provided both by UP, to the eastern and western distribution locations serviced by UP.

• **Transmission Lines**

Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.

• **Pipelines**

Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.

• **Groundwater**

In addition to the **Appendix A.6** map for groundwater supply wells, Appendix F lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.

• **Streams**

A map showing the surface water drainages (streams) coursing through the Black Thunder mine property can be found in **Appendix A.7**.

• **Industrial Facilities Areas**

• **Permanent Improvements**

The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:

- Office and Professional
- Warehouses and Light Duty Shops
- Heavy Industrial Shops

For the buildings currently present at the Black Butte coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

BLACK BUTTE MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2020_PT0467_AR_2021JAN06.pdf*
- *WDEQ Mine Plan Series 300 documents, rev , 2008, 2019*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Black Thunder Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.10.2. JIM BRIDGER MINE

Jim Bridger coal mine is in Sweetwater County, Wyoming and the Green River Basin mining district, located 33.1 miles east of Rock Springs, population 23,526. The mine is owned and operated by Bridger Coal Company and its current mining capacity is 1.2 million tons per year with a workforce of 206 employees at its surface mining operations and 3.1 million tons at its underground mining operations. Coal mined since 1974 at the Jim Bridger Mine has almost exclusively supplied fuel for the nearby 2,100-megawatt Jim Bridger Power plant.

A combination of scrapers, dozers, front end loaders, shovels and haul trucks are used for overburden removal and coal extraction. Coal Production for the Annual Report year 2020-2021 was 3.8 million tons. The type of coal is 9,000 Btu/lb. thermal coal.

MINE LIFE

Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is currently not available through public resources. A graphical representation for the Jim Bridger coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Jim Bridger Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2020-2021, the total Reclamation Bond calculation was \$ 155,173,109 and designed to cover required mine disturbance for the Annual Report period February 1, 2020 to January 31, 2021.

PERMIT HISTORY

Surface Mining Permit 338 for the Jim Bridger coal mine was first issued by WDEQ LQD on May 22, 1975 and coal mining operations began in 1975. Based on the latest available data, 8 Permit 338 permit renewals will have been approved by WDEQ covering a 45-year period from 1975 to 2020.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Coal at the Jim Bridger Mine is mined from the Fort Union formation, Deadman coal zone, with coal seam thicknesses up to 32 feet. The coal produced at this mine has a reported caloric value of 9,000 Btu/lb. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Jim Bridger Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

In addition to the water resources discussed above, maps can be found in Appendix A for the following Jim Bridger coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Jim Bridger coal mine is accessed from Rock Springs by taking Interstate I-80/ US-30 E 25.7 miles, take exit 130 onto WY-377 heading east, then north, 7.5 miles to the Jim Bridger coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is provided by BNSF, to the Central and Eastern distribution locations serviced by BNSF, shipping to other power and processing plants in the region.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Jim Bridger mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility

- buildings can be identified under one of the 3 categories below:
- Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Jim Bridger coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

JIM BRIDGER MINE SOURCES
State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division: <ul style="list-style-type: none">• 2020-2021 Annual Report to WDEQ, file name 2020_PT0338_AR_2022MAR24.pdf• WDEQ Mine Plan Series 300 documents, rev 2019
State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Jim Bridger Mine, 2005-2021
U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.10.3. LEUCITE HILLS MINE
Leucite Hills coal mine is in Sweetwater County, Wyoming and the Great Divide Basin mining district, located 28.9 miles northeast of Rock Springs, population 23,526. The mine is owned and operated by Black Butte Coal Company. The Leucite Hills Mine is in final reclamation, moving towards final mine closure. As such, there has been no coal production since 2009.

MINE LIFE
Estimated date (year) of termination of the proposed mining operation, based on current mining practices and estimated reserves is currently not available through public resources.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Leucite Hills Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in Appendix D.

For 2019-2020, the total Reclamation Bond calculation was \$ \$4,585,000 and designed to cover required mine disturbance for the Annual Report period October 22, 2019 to October 21, 2020.

PERMIT HISTORY
Surface Mining Permit 520 for the Leucite Hills coal mine was first issued by WDEQ LQD on October 21, 1981 and coal mining operations began in 1981. Based on the latest available data, 9 Permit 520 permit renewals will have been approved by WDEQ covering a 40-year period from 1981 to 2021.

DESCRIPTION OF COAL RESERVE & COAL QUALITY
Coal quality metrics were not available through the Mine Plan or Annual Report documents

provided by WDEQ.

WATER RESOURCES
Leucite Hills Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer. Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Leucite Hills coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
- **Transportation**
 - **Roads** – Leucite Hills coal mine is accessed from Rock Springs by taking US-191 N 11.7 miles, turn right onto Chilton Road 17.1 miles to the Leucite Hills coal mine entrance. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** – The Leucite Mine was served by the Union Pacific (UP) Railroad with coal transport to its eastern and western distribution locations.

- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the *Appendix A.6* map for groundwater supply wells, *Appendix F* lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Leucite Hills mine property can be found in *Appendix A.7*.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Leucite Hills coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

LEUCITE HILLS MINE SOURCES

- State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:
- *2020-2021 Annual Report to WDEQ, file name 2020_PT0520_AR_30OCT2020.pdf*
 - *WDEQ Mine Plan Series 300 documents, rev 2009*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Leucite Hills Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.10.4. STANSBURY MINE
Stansbury coal mine is in Sweetwater County, Wyoming and the and the Green River Basin mining district, located 11 miles north of Rock Springs, population 23,526. The Stansbury mine got its start in 1944. The mine is owned and operated by Rocky Mountain Coal Company. Active coal mining operations at the Stansbury mine ended subsequent to the 2006-2007 annual reporting period, a year when 2,550 tons of coal was produced with a workforce of 8 employees.

MINE LIFE
Coal mining activities ceased in 2007 and the mine property has entered into the final reclamation phases.

RECLAMATION BOND ESTIMATE
The reclamation performance bond estimate for Stansbury Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in Appendix D.

For 2018-2019, the total Reclamation Bond calculation was \$ 1, 938,681 and designed to cover required mine disturbance for the Annual Report period February 6, 2018 to February 5, 2019.

PERMIT HISTORY
Surface Mining Permit 264 for the Stansbury coal mine was first issued by WDEQ LQD on March 14, 1975 and coal mining operations began in 1975. Based on the latest available data, 6 Permit 264 permit renewals will have been approved by WDEQ covering a 35-year period from 1975 to 2010.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Coal at the Stansbury Mine was produced from the Mesaverde Group formations, on the northwest portion of the Rock Springs uplift. Additional coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES
Stansbury Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES
In addition to the water resources discussed above, maps can be found in Appendix A for the following Stansbury coal mine property attributes:

- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
- Permit boundaries are sourced from the most recent GIS data available from WDEQ LQD.

• **Surface Ownership**
In addition to the *Appendix A* maps, *Table 2* details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.

• **Transportation**

- **Roads** – Stansbury coal mine is accessed from Rock Springs by taking Exit 104 off Interstate I-80 onto US-191/Elk St heading north 2.9 miles, keeping right onto Reliance Road 0.5 miles, turn left on Winton Road 2.6 miles, then turn right, traveling 2.1 miles to the Stansbury coal mine entrance. The

road system at the mine consists of primary and ancillary roads.

- **Railroads** – The Leucite Mine was served by the Union Pacific (UP) Railroad with coal transport to its eastern and western distribution locations.
- **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
- **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
- **Streams**
A map showing the surface water drainages (streams) coursing through the Stansbury mine property can be found in **Appendix A.7**.
- **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
 - Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Stansbury coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

STANSBURY MINE SOURCES

- State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:
- 2020-2021 Annual Report to WDEQ, file name 2019_02 PT0264_AR_18FEB2020.pdf
 - WDEQ Mine Plan Series 300 documents, rev 1990, 1994, 2001

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Stansbury Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.2.11. UINTA COUNTY

2.2.11.1. HAYSTACK MINE

Haystack coal mine is in Uinta County, Wyoming, located 37.5 miles northwest of Lyman, population 2,145, AND X miles south of Kemmerer, population 2,415. The mine is owned and operated by Westmoreland Haystack Mining LLC.

When in operation, the coal and overburden will be removed utilizing a combination of hydraulic excavators, front-end loaders and haul trucks. Available public records show that coal has been produced in only one year thus far, 2013, in the amount of 45,100 tons with a workforce of 6 employees. The mine was closed shortly thereafter owing to challenging coal market conditions. In 2016, Haystack Coal Company submitted a request to the Wyoming Department of Environmental Quality (WDEQ) Land Quality Division (LQD) that the Haystack Mine be placed in Temporary Cessation of Operations while they continue to aggressively seek market opportunities for their coal.

MINE LIFE

According to the Mine Plan, first generated in 2012 and submitted to the WDEQ LQD, sufficient coal reserves existed for the coal mine to operate over a period of 13 years. However, no active coal mining activities at the mine have occurred since 2013 and Haystack mine status is regarded as in “Temporary Cessation” by WDEQ LQD. A graphical representation for the Haystack coal mine’s trends in annual production and employment are shown on charts presented in **Appendix B**.

RECLAMATION BOND ESTIMATE

The reclamation performance bond estimate for Haystack Mine is updated annually as part of the Wyoming Department of Environmental Quality reporting requirements. The current bond estimate is designed to cover required mine disturbance for each respective annual report period, plus additional area as a result of interim post-mining topography (PMT) disturbance. The estimate is separated into two

sections, the Area Bond and Incremental Bond. Details are included in the current Annual Report submitted to WDEQ LQD and can be found in **Appendix D**.

For 2019-2020, the total Reclamation Bond calculation was \$4,384,251 and designed to cover required mine disturbance for the Annual Report period August 1, 2019 to July 31, 2020.

PERMIT HISTORY

Surface Mining Permit 786 for the Haystack coal mine was first issued by WDEQ LQD on August 30, 2011. Based on the latest available data, 2 Permit 786 permit renewals will have been approved by WDEQ covering a 10-year period from 2011 to 2021.

DESCRIPTION OF COAL RESERVE & COAL QUALITY

Coal quality metrics were not available through the Mine Plan or Annual Report documents provided by WDEQ.

WATER RESOURCES

Haystack Mine is in a 11 to 12-inch precipitation zone with 65% of that precipitation coming from summer thunderstorms in the months of May through September. Surface water drainages coursing through the mine permit area are all ephemeral with the highest flow rates owing to Spring runoff and measurable flow in stream channels occurring in the months April up through October, dependent upon snowpack from the prior winter and spring and recharge owing to the frequency of thunderstorms throughout the summer.

Therefore, the primary source of water for coal mine operations are ground water supply wells and the same would hold true for future industrial and/or agricultural endeavors.

PROPERTY ATTRIBUTES

- In addition to the water resources discussed above, maps can be found in **Appendix A** for the following Haystack coal mine property attributes:
- Permit Boundaries are sourced from the most recent GIS data available from WDEQ LQD.
 - Permit boundaries are sourced from the

- most recent GIS data available from WDEQ LQD.
- **Surface Ownership**
In addition to the **Appendix A** maps, **Table 2** details the surface ownership acreage, mine permit acreage and disturbance acreage over total mine life to date.
 - **Transportation**
 - **Roads** – Haystack coal mine is accessed from Lyman by taking WY-413 N 2.8 miles to Interstate I-80 W 23.4 miles, taking exit 18 for US-189 N toward Kemmerer 8.4 miles, turn left on restricted road 2.5 miles to the Haystack coal mine entrance. The Haystack mine entrance can be approached from Kemmerer via US-189 S, a distance of 79.8 miles. The road system at the mine consists of primary and ancillary roads.
 - **Railroads** - Rail service is by UP, to the eastern and western distribution locations serviced by UP.
 - **Transmission Lines**
Appendix A data includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Pipelines**
Appendix A pipeline data is accessed from publicly available resources and generally indicates natural gas, crude oil and finished product.
 - **Groundwater**
In addition to the **Appendix A.6** map for groundwater supply wells, **Appendix F** lists the groundwater supply wells currently permitted through the Wyoming State Engineers Office and their appropriated flow rates.
 - **Streams**
A map showing the surface water drainages (streams) coursing through the Haystack mine property can be found in **Appendix A.7**.
 - **Industrial Facilities Areas**
 - **Permanent Improvements**
The Reclamation Bond section of a coal mine’s Annual Report submitted to WDEQ

- lists facility buildings, material handling facilities and support facilities to be removed in the reclamation process at end of mine life. In general, a coal mine’s facility buildings can be identified under one of the 3 categories below:
- Office and Professional
 - Warehouses and Light Duty Shops
 - Heavy Industrial Shops

For the buildings currently present at the Haystack coal mine, the area (square footage) for each can be found in Appendix C tables which were derived from the reclamation bond calculation worksheets submitted in the Annual Report to WDEQ.

HAYSTACK MINE SOURCES

State of Wyoming Department of Environmental Quality (WDEQ), Land Quality Division:

- *2020-2021 Annual Report to WDEQ, file name 2020_PT0786_AR_27AUG2020.pdf*
- *WDEQ Mine Plan Series 300 documents, rev 2012-2016*

State of Wyoming State Mine Inspector’s Office, Annual Report to the State Mine Inspector’s Office for the Haystack Mine, 2005-2021

U.S. Census Bureau, 2020 Census, as cited by State of Wyoming Administration and Information – Economic Analysis Division release, August 13, 2021

2.3. INVENTORY- POWER PLANTS

The Power Plant Summaries provide an overview of the plant as to its location, plant owner and operator, electrical generation capacity and planned retirement date if one has been publicly published. A brief plant history is included along with power generation specifics on how many generators are in each plant, their capacity and which coal mine they receive fuel from. Other attributes are listed if they are known, including access to roads and rail, utility services and maps that visually depict where the plant is located. Each of the power plants included in the inventory are currently operating under Title V air emissions permits under the authority of the Wyoming Department of Environmental Quality – Air Quality division, with some in various stages of revision or renewal. The author's understanding is that there is no requirement for power plant operators to have a reclamation bond for their site, so there is no data on the costs associated with returning these sites to their pre-industrial use and character.

2.3.1. TABLE 4. POWER PLANT AREA & GENERATING CAPACITY										
POWER PLANT	NO. OF UNITS	COMPANY	COUNTY	"PLANT STATUS"	"SURFACE OWNERSHIP"	"PLANT PERMIT"	"DISTURBANCE - POWER PLANT LIFE"	"UNIT CAPACITY (MW)"	YEAR ONLINE	RETIREMENT DATE
Dry Fork Station	1	Basin Electric Power Coop	Campbell	Active	585	N/A	N/A	484	2011	N/A
Neil Simpson I - retired	1	Black Hills Power Inc	Campbell	Retired	0	N/A	N/A	22	1969	2014
Neil Simpson II	1	Black Hills Power Inc	Campbell	Active	212	N/A	N/A	90	1995	N/A
Wygen I	1	Black Hills Power Inc	Campbell	Active	6	N/A	N/A	90	2003	N/A
Wygen II	1	Black Hills Power Inc	Campbell	Active	12	N/A	N/A	95	2008	N/A
Wygen III	1	Black Hills Power Inc	Campbell	Active	13	N/A	N/A	116	2010	N/A
Wyodak	1	PacifiCorp	Campbell	Active	36	N/A	N/A	402	1978	2039
Dave Johnston	4	PacifiCorp	Converse	Active	1,358	N/A	N/A			
Unit 1								134	1959	2027
Unit 2								134	1961	2027
Unit 3								255	1964	2027
Unit 4								400	1972	2027
Naughton	3	PacifiCorp	Lincoln	Active	1,259	N/A	N/A			
Unit 1								192	1963	2025
Unit 2								256	1968	2025
Unit 3 - retired								384	1971	2019
Laramie River Station	3	Basin Electric Power Coop	Platte	Active	2,003	N/A	N/A			
Unit 1								570	1971	2033
Unit 2								570	1971	2033
Unit 3								570	1972	2033
Jim Bridger	4	PacifiCorp	Sweetwater	Active	459	N/A	N/A			
Unit 1								608	1974	2023
Unit 2								617	1975	2023
Unit 3								608	1976	2037
General Chemical	2	General Chemical	Sweetwater	Active	84	N/A	N/A	N/A	1968	N/A
Osage - retired	3	Black Hills Power Inc	Weston	Retired	89	N/A	N/A	N/A	1948	2014

NOTE: Permit and disturbance acreages for the Power Plants are not reported as they are for Coal Mines.
Retirement dates obtained from Owner/Operator Integrated Resource Plan or data reported to United States EPA.

SOURCES: Ownership acreage sourced through the Wyoming Statewide Parcel Viewer and respective County Assessor records.
Power generation, number of units, unit capacities, year online and retirement dates sourced from Global Energy Monitor website.

2.3.2. CAMPBELL COUNTY

2.3.2.1. DRY FORK POWER STATION

Dry Fork Power Station is located in Campbell County, Wyoming, located approximately 13.5 miles north of the City of Gillette, population 33,403 (2020 census).

Dry Fork Power Station is majority-owned and fully operated by Basin Electric Power Cooperative and has been in commercial operation since 2011. Fuel source for the power station is subbituminous coal from the adjacent Dry Fork Mine. There is one (1) power generating unit with a capacity of 483.7 megawatts (MW). The projected retirement date of the power station is 2071.

PLANT HISTORY

Basin Electric is the majority owner and the operator. Wyoming Municipal Power Agency of Lusk, WY, has a 7.1-percent ownership share in the Dry Fork Station.

The need for the power plant was first identified in 2002. Studies projecting Basin Electric’s long-term power requirements showed a need for additional electrical generation to meet its members’ needs by 2011. On Oct. 17, 2007 construction on the power plant commenced. The Dry Fork Station experienced a peak construction work force of more than 1,300 construction workers from more than 36 states in September 2009. The work force amassed more than 6 million man-hours without a lost-time incident during construction. Commercial operation of the facility began May 18, 2011 and the \$1.35 billion plant reached its maximum production rate on July 10, 2011. Dry Fork Power Station currently employs eighty-one (81) full-time staff.

Currently, sub-bituminous coal is conveyed directly from the Dry Fork Mine via a conveyor system approximately one mile in length to a coal storage silo. From the silo, the coal is conveyed into storage bunkers which feed a 3,801 MMBtu/hr pulverized coal fired boiler. The coal is burned in the boiler to generate

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high pressure, high temperature steam. The steam is used to drive a steam turbine capable of generating 422 megawatts (MW) (gross) and 385 MW (net) of electricity. One megawatt of capacity is generally considered to be sufficient for 800 homes, so the Dry Fork Station’s output can provide enough electricity for about 308,000 homes.

A fabric filter baghouse is utilized to remove particulate matter (PM) from the boiler flue gas stream. A circulating dry scrubber (CDS) is used to control SO2 emissions. NOX emissions are controlled by selective catalytic reduction (SCR) with ammonia injection and low-NOX over-fire air burners. The material handling system for the DFS consists of coal handling, lime handling, and ash handling. Emissions from the coal, ash, and lime handling systems are controlled by fabric filters and a wet handling system for bottom ash.

Dry Fork Power Station is also the home of the Wyoming Integrated Test Center (ITC). Dry Fork Power Station provides flue gas from the plant to the ITC, allowing research teams to develop commercially viable uses for carbon dioxide emissions from power plants.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 1
- **Fuel source:** Subbituminous coal, direct mine fed from Dry Fork Mine
- **Nameplate capacity:** 483.7 MW (2019 data)
- **Net power generation:** 2,565,548 MWh (2019 data)
- **Projected Retirement Date:** 2071

PROPERTY ATTRIBUTES

- **Surface Area:** 353 acres
- **Utilities:**
 - **Electric:** Basin Electric
 - **Water:** On-site well field suitable for industrial use only; est capacity of 2100 ac-ft/yr for 60 yrs; potable water is delivered
 - **Sewer:** Unknown. Closest wastewater treatment plant is in Gillette, WY.
 - **Solid waste:** Campbell County Landfill
 - **Natural Gas:** Unknown within property

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- boundary; Black Hills Energy pipeline located directly north of plant property
- **Internet:** Unknown
 - **Roads:** Immediate access to WY-59; access to North Garner Lake Road approximately ½ mile away
 - **Rail Access:** No direct access to property but rail spur is adjacent, outside of property boundary.
 - **Maps** can be found in **Appendix A** for the following power plant attributes:
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit with an expiration date of June 9, 2025.

DRY FORK POWER STATION SOURCES
Sonal Patel. “Dry Fork: A Model of Modern U.S. Coal Power.” Power Magazine, August 1, 2018, https://www.powermag.com/dry-fork-a-model-of-modern-u-s-coal-power/ . January 8, 2023
“Generation Facilities: Dry Fork Station.” Basin Electric Power Cooperative, https://www.basinelectric.com/about-us/Generation/index?location=dryforkstation . January 8, 2023.
“Dry Fork Station.” Global Energy Monitor Wiki, April 30, 2021, https://www.gem.wiki/Dry_Fork_Station . January 8, 2023.
“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, https://openair.wyo.gov/facilities/homeFacilityProfile.jsf . January 8, 2023.
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“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities . October 17, 2022.
“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/sites/default/files/2021-05/power_plants_and_communities.xlsx . October 17, 2022.
“Coal.” United States Energy Information Administration, https://www.eia.gov/coal/data.php . October 17, 2022.
“Coal-fired electric power plants, Detailed EIA-860 for Year 2021.” United States Energy Information Administration, https://www.eia.gov/electricity/archive/capacity/xls/Coal%20Generators%202021.xlsx . October 17, 2022.

2.3.2.2. NEIL SIMPSON II POWER PLANT
Neil Simpson II Power Plant is located in Campbell County, Wyoming, approximately 7 miles east of the City of Gillette, population 33,403 (2020 census).

Neil Simpson II Power Plant is owned and operated by Black Hills Corporation and has been in commercial operation since 1995. Fuel source for the plant is subbituminous coal from the adjacent Wyodak coal mine. There is one (1) power generating unit with a total capacity of 130 megawatts (MW); 90 MW is from coal with an additional 40 MW from gas fired turbines. There is no currently projected retirement date for the power plant.

PLANT HISTORY
The Neil Simpson II power plant is a coal fired, electricity generating facility owned and operated by Black Hills Power Inc. Previously on the same location, the 21.7 MW Neil Simpson Power Plant I went online in 1959 and was retired in 2014. The 90 MW Neil Simpson II plant went online in late August 1995. The facility also has two (2) 40 MW natural gas-fired simple cycle combustion turbines and an emergency generator. It is co-located directly adjacent to the Wygen I power plant and shares control facilities and administration with Wygen I.

The plant uses an air-cooled condenser, which is much less water intensive than traditional power plants. This is due to the relatively cold winters in Northeast Wyoming, though there are significant load reductions on summer days, which can exceed 100oF.

A coal combustion waste ash impoundment is located west of the power plant, consisting of two cells (primary ash settling and clear water). The ash pond was built in 1977 and expanded in 1989. The ash pond is also used by four adjacent power units operated by Black Hills Energy and PacifiCorp.

The Neil Simpson II plant receives coal from the Wyodak coal mine, which started operations in 1923, making it the oldest surface coal mine in the United States. Coal is transported to the

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plant via enclosed conveyor belt from the mine.

The 2021 Integrated Resource Plan filed by Black Hills Corp. proposes the addition of 100 MW of renewable generation, the conversion of the 90 MW Neil Simpson II coal-fired plant to natural gas at the end of its original engineered life in 2025, and consideration of up to 20 MW of battery storage. These scenarios are the least-cost options for customers and support the company’s greenhouse gas emission reduction goal of 70% by 2040 from the 2005 baseline for electric operation.

Discussions are on-going about carbon capture technology to the plant to comply with a 2020 Wyoming law requiring that at least 20% of an electric utility’s portfolio be made up of coal-fired power plants equipped with carbon capture, utilization and storage, or CCUS, technology by 2030. Adding carbon capture to the Neil Simpson II plant, according Black Hills’ ongoing analysis, would increase rates for its customers in Wyoming by about 15%, as well as reduce electrical generation output at the plant by more than 30%, exposing ratepayers to additional costs for replacement power.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 1
- **Fuel source:** Subbituminous coal from adjacent Wyodak Mine.
- **Nameplate capacity:** 130 MW total (2019 data)
- **Net power generation:** 714,853 MWh (2019 data)
- **Projected Retirement Date:** No currently listed retirement date.

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 64 acres
- **Utilities:**
 - **Electric:** Black Hills Energy
 - **Water:** Service water is re-use water from the clear water cell of the ash pond. Unknown on potable water.
 - **Sewer:** Unknown whether this is City of Gillette or on-site leach field.
 - **Solid waste:** Campbell County Landfill.

- **Natural Gas:** Black Hills Energy
- **Internet:** Unknown
- **Roads:** Direct access to I-90 and WY-51; access to WY-59 in Gillette; access to I-25 in Douglas, WY which is 112 miles to the south.
- **Rail Access:** Immediately adjacent to BNSF mainline; abandoned rail spur on adjacent PacifiCorp Wyodak site that could be connected to mainline.
- **Maps** can be found in **Appendix A** for the following power plant attributes (listed under Wyodak, since Neil Simpson II is co-located on the same complex as Wyodak Power Plant):
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING

Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit; permit is undergoing renewal process with no listed expiration date.

NEIL SIMPSON II POWER STATION SOURCES

“Black Hills Corporation.” SourceWatch, February 25, 2020, https://www.sourcewatch.org/index.php/Black_Hills_Corporation. January 8, 2023.

“Neil Simpson Power Plants.” Global Energy Monitor Wiki, December 8, 2022, https://www.gem.wiki/Neil_Simpson_Power_Plants. January 8, 2023.

Benjamin Storrow. “Black Hills Corp. Closes Coal Unit at Wyodak Neil Simpson complex in Gillette.” Casper Star-Tribune, March 25, 2014, https://trib.com/business/energy/black-hills-corp-closes-coal-unit-at-wyodak-neil-simpson-complex-in-gillette/article_84284a04-7a0f-5ce2-9303-27610dc53375.html. January 8, 2023.

“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

“Applications and Permits.” Wyoming Department of Environmental Quality - Industrial Siting Division, <https://deq.wyoming.gov/industrial-siting-2/>. January 8, 2023.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>. October 17, 2022.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/sites/default/files/2021-05/power_plants_and_communities.xlsx. October 17, 2022.

“Coal.” United States Energy Information Administration, <https://www.eia.gov/coal/data.php>. October 17, 2022.

“Coal-fired electric power plants, Detailed EIA-860 for Year 2021.” United States Energy Information Administration, <https://www.eia.gov/electricity/archive/capacity/xls/Coal%20Generators%202021.xlsx>. October 17, 2022.

2.3.2.3. WYGEN I POWER STATION

Wygen I Power Station is located in Campbell County, Wyoming, approximately 7 miles east of the City of Gillette, population 33,403 (2020 census).

Wygen I Power Station is co-owned by Black Hills Electric Generation and Municipal Energy Agency and operated by Black Hills Energy; it has been in commercial operation since 2003. Fuel source for the plant is subbituminous coal from the adjacent Wyodak coal mine. There is one (1) power generating unit with a total capacity of 90 megawatts (MW). There is no currently projected retirement date for the power plant.

PLANT HISTORY

The Wygen I power plant is a coal fired, electricity generating facility owned and operated by Black Hills Wyoming, LLC. Commercial operation at the facility began January 23, 2003. Coal is conveyed directly from the Wyodak Mine to a coal storage silo. From the silo, the coal is conveyed to a pulverized coal-fired boiler. The coal is burned in the boiler to generate high pressure, high temperature steam, which is used to drive a steam turbine to generate electricity. A baghouse, spray dry absorber (SDA), selective catalytic reduction (SCR), and low nitrogen oxide (NOX) burners control particulate matter, sulfur dioxide (SO2), and NOX emissions, respectively. Emissions from the coal handling facilities are controlled with baghouses.

The plant uses an air-cooled condenser, which is much less water intensive than traditional power plants. This is due to the relatively cold winters in Northeast Wyoming, though there are significant load reductions on summer days, which can exceed 100oF.

Wygen I power station is owned by Black Hills Electric Generation (76.5%) and Municipal Energy Agency of Nebraska (23.5%). It is operated by Black Hills Energy. It is co-located directly adjacent to the Neil Simpson II power plant and shares control facilities and administration with NSII.

An agreement signed in 2020 will allow Black Hills Wyoming to continue to deliver 60 megawatts of base load capacity and energy to Cheyenne Light from its Wygen I power plant. The new agreement will commence on Jan. 1, 2022, replacing the existing power purchase agreement, and will continue for 11 years, ending Dec. 31, 2032.

A coal combustion waste ash impoundment is located west of the power plant, consisting of two cells (primary ash settling and clear water). The ash pond was built in 1977 and expanded in 1989. The ash pond is also used by four adjacent power units operated by Black Hills Energy and Pacificorp.

The Wygen I plant receives coal from the Wyodak coal mine, which started operations in 1923, making it the oldest surface coal mine in the United States. Coal is transported to the plant via enclosed conveyor belt from the mine.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 1
- **Fuel source:** Subbituminous coal from adjacent Wyodak Mine
- **Nameplate capacity:** 90 MW (2019 data)
- **Net power generation:** 703,377 MWh (2019 data)
- **Projected Retirement Date:** No retirement date currently listed.

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 64 acres
- **Utilities:**
 - **Electric:** Black Hills Energy
 - **Water:** Service water is re-use water from the clear water cell of the ash pond. Unknown on potable water.
 - **Sewer:** Unknown whether this is City of Gillette or on-site leach field.
 - **Solid waste:** Campbell County Landfill.
 - **Natural Gas:** Black Hills Energy
 - **Internet:** Unknown
- **Roads:** Direct access to I-90 and WY-51; access to WY-59 in Gillette; access to I-25 in Douglas, WY which is 112 miles to the south.
- **Rail Access:** Immediately adjacent to BNSF

mainline; abandoned rail spur on adjacent PacifiCorp Wyodak site that could be connected to mainline.

- **Maps** can be found in Appendix A for the following power plant attributes (listed under Wyodak, since Wygen I is co-located on the same complex as Wyodak Power Plant):
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING

Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit; permit is undergoing renewal process with no listed expiration date.

WYGEN I POWER STATION SOURCES

“Wygen I Power Station.” Global Energy Monitor Wiki, December 19, 2022, https://www.gem.wiki/Wygen_I_power_station. January 8, 2023.

“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

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“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>. October 17, 2022.

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2.3.2.4. WYGEN II POWER STATION

Wygen II Power Station is located in Campbell County, Wyoming, approximately 7 miles east of the City of Gillette, population 33,403 (2020 census).

Wygen II Power Station is owned by Cheyenne Light Fuel and Power Company and is operated by Black Hills Energy. It has been in commercial operation since 2007. Fuel source for the power station is subbituminous coal from the adjacent Wyodak Coal Mine. There is one (1) power generating unit with a capacity of 95 megawatts (MW). There is no currently projected retirement date for the plant.

PLANT HISTORY

The Wygen II power plant is a pulverized coal-fired, electricity generating utility (EGU) owned by Cheyenne Light Fuel and Power Company. Commercial operation of the facility began September 13, 2007 and the plant reached maximum production rate on November 23, 2007. Currently, coal is conveyed directly from the Wyodak Mine to a coal storage silo. From the silo, the coal is conveyed to a pulverized coal fired boiler and is burned in the boiler to generate high pressure, high temperature steam to generate electricity. A fabric filter baghouse is utilized to remove Particulate Matter (PM) from the boiler flue gas stream. A spray dry absorber (SDA) is used to control sulfur dioxide (SO2) emissions. Nitrogen oxide (NOX) emissions are controlled by selective catalytic reduction (SCR) with ammonia injection, low NOx burners and over-fire air. Emissions from the coal handling facilities are controlled with baghouses, passive enclosures (PECs), dry foggers, and an applied dust suppressant.

It is operated by Black Hills Energy. It is co-located directly adjacent to the Wygen III power plant and shares control facilities and administration with Wygen III. The plant uses an air-cooled condenser, which is much less water intensive than traditional power plants. This is due to the relatively cold winters in Northeast Wyoming, though there are significant load reductions on summer days, which can exceed 100oF.

A coal combustion waste ash impoundment is located southwest of the power plant, consisting of two cells (primary ash settling and clear water). The ash pond was built in 1977 and expanded in 1989. The ash pond is also used by four adjacent power units operated by Black Hills Energy and PacifiCorp.

The Wygen II plant receives coal from the Wyodak coal mine, which started operations in 1923, making it the oldest surface coal mine in the United States. Coal is transported to the plant via enclosed conveyor belt from the mine.

Discussions are on-going about carbon capture technology at the plant to comply with a 2020 Wyoming law requiring that at least 20% of an electric utility’s portfolio be made up of coal-fired power plants equipped with carbon capture, utilization and storage (CCUS) technology by 2030. Adding carbon capture to the Wygen II plant, according Black Hills’ ongoing analysis, would increase rates for its customers in Wyoming by approximately 15%, as well as reduce electrical generation output at the plant by more than 30%, exposing ratepayers to additional costs for replacement power.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 1
- **Fuel source:** Subbituminous coal from adjacent Wyodak Mine.
- **Nameplate capacity:** 95 MW (2019 data)
- **Net power generation:** 730,720 MWh (2019 data)
- **Projected Retirement Date:** No retirement date currently listed

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 24 acres
- **Utilities:**
 - **Electric:** Black Hills Energy
 - **Water:** Service water is re-use water from the clear water cell of the ash pond. Unknown on potable water.
 - **Sewer:** Unknown whether this is City of Gillette or on-site leach field
 - **Solid waste:** Campbell County Landfill

- **Natural Gas:** Black Hills Energy
- **Internet:** Unknown
- **Roads:** Direct access to I-90 and WY-51; access to WY-59 in Gillette; access to I-25 in Douglas, WY 112 miles south.
- **Rail Access:** Abandoned rail spur on adjacent PacifiCorp Wyodak site that could be connected to mainline.
- **Maps** can be found in **Appendix A** for the following power plant attributes (listed under Wyodak, since Wygen II is co-located on the same complex as Wyodak Power Plant):
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit. Permit is currently undergoing renewal; no expiration date for current permit is listed.

WYGEN II POWER STATION SOURCES

“Wygen II Power Station.” Global Energy Monitor Wiki, December 19, 2022, https://www.gem.wiki/Wygen_II_power_station. January 10, 2023.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>. October 17, 2022.

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“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

2.3.2.5. WYGEN III POWER STATION

Wygen III Power Station is located in Campbell County, Wyoming, approximately 7 miles east of the City of Gillette, population 33,403 (2020 census).

Wygen III Power Station is owned by Black Hills Power Incorporated and is operated by Black Hills Energy. It has been in commercial operation since 2010. Fuel source for the power station is subbituminous coal from the adjacent Wyodak Coal Mine. There is one (1) power generating unit with a capacity of 116 megawatts (MW). There is no currently projected retirement date for the plant.

PLANT HISTORY

The Wygen III power plant is a pulverized coal-fired, electricity generating utility (EGU) owned by Black Hills Power Incorporated. Commercial operation of the facility began in 2010. Construction cost of the plant was \$247 million.

Currently, coal is conveyed directly from the Wyodak Mine to a coal storage silo. From the silo, the coal is conveyed to a pulverized coal fired boiler and is burned in the boiler to generate high pressure, high temperature steam to generate electricity. A fabric filter baghouse is utilized to remove Particulate Matter (PM) from the boiler flue gas stream. A spray dry absorber (SDA) is used to control sulfur dioxide (SO2) emissions. Nitrogen oxide (NOX) emissions are controlled by selective catalytic reduction (SCR) with ammonia injection, low NOx burners and over-fire air. Emissions from the coal handling facilities are controlled with baghouses, passive enclosures (PECs), dry foggers, and an applied dust suppressant.

It is operated by Black Hills Energy. It is co-located directly adjacent to the Wygen II power plant and shares control facilities and administration with Wygen II. The plant uses an air-cooled condenser, which is much less water intensive than traditional power plants. This is due to the relatively cold winters in Northeast Wyoming, though there are significant load reductions on summer days, which can exceed 100oF.

A coal combustion waste ash impoundment is located southwest of the power plant, consisting of two cells (primary ash settling and clear water). The ash pond was built in 1977 and expanded in 1989. The ash pond is also used by four adjacent power units operated by Black Hills Energy and PacifiCorp.

The Wygen III plant receives coal from the Wyodak coal mine, which started operations in 1923, making it the oldest surface coal mine in the United States. Coal is transported to the plant via enclosed conveyor belt from the mine.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 1
- **Fuel source:** Subbituminous coal from adjacent Wyodak Mine.
- **Nameplate capacity:** 116 MW (2019 data)
- **Net power generation:** 762,334 MWh (2019 data)
- **Projected Retirement Date:** No retirement date currently listed.

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 24 acres

- **Utilities:**
 - **Electric:** Black Hills Energy
 - **Water:** Service water is re-use water from the clear water cell of the ash pond. Unknown on potable water.
 - **Sewer:** Unknown whether this is City of Gillette or on-site leach field.
 - **Solid waste:** Campbell County Landfill.
 - **Natural Gas:** Black Hills Energy
 - **Internet:** Unknown

- **Roads:** Direct access to I-90 and WY-51; access to WY-59 in Gillette; access to I-25 in Douglas, WY 112 miles south.
- **Rail Access:** Abandoned rail spur on adjacent PacifiCorp Wyodak site that could be connected to mainline.
- **Maps** can be found in Appendix A for the following power plant attributes (listed under Wyodak, since Wygen III is co-located on the same complex as Wyodak Power Plant):
 - **Surface ownership:** includes plant outline, plant surface ownership outside of

- plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
- **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - Pipelines: indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit with no expiration date currently listed.

WYGEN III POWER STATION SOURCES

“Wygen III Power Station.” Global Energy Monitor Wiki, December 19, 2022, https://www.gem.wiki/Wygen_III_power_station. January 8, 2023.

“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

“Applications and Permits.” Wyoming Department of Environmental Quality - Industrial Siting Division, <https://deq.wyoming.gov/industrial-siting-2/>. January 8, 2023.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>. October 17, 2022.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/sites/default/files/2021-05/power_plants_and_communities.xlsx. October 17, 2022.

“Coal.” United States Energy Information Administration, <https://www.eia.gov/coal/data.php>. October 17, 2022.

“Coal-fired electric power plants, Detailed EIA-860 for Year 2021.” United States Energy Information Administration, <https://www.eia.gov/electricity/archive/capacity/xls/Coal%20Generators%202021.xlsx>. October 17, 2022.

2.3.2.6. WYODAK POWER STATION
Wyodak Power Station is located in Campbell County, Wyoming approximately 7 miles east of the City of Gillette, population 33,403 (2020 census).

The Wyodak Power Station is jointly owned by PacifiCorp and Black Hills Energy. PacifiCorp is the majority owner with 80% and Black Hills owning 20%; the plant is operated solely by PacifiCorp. The plant is composed of one power generating unit and is located centrally in the Wyodak Complex which also includes power generating units owned and operated by Black Hills Energy (Neil Simpson II, Wygen I, Wygen II and Wygen III).

Fuel source for the plant is subbituminous coal from the adjacent Wyodak coal mine with the ability to also run on distillate fuel oil in the event of a coal shortage. There is one (1) power generating unit with a capacity of 402.3 megawatts (MW). The projected retirement date of the power station is 2039.

PLANT HISTORY
Unit 1 placed into service in 1978. Per the most recent PacifiCorp Integrated Resource Plan, the Wyodak coal unit is scheduled to be retired in 2039.

The plant is one of the world’s largest air-cooled power plants, which is much less water intensive than traditional power plants. This is due to the relatively cold winters in Northeast Wyoming, though there are significant load reductions on summer days, which can exceed 100oF.

Wyodak is the smallest and youngest of the PacifiCorp Wyoming fleet, and accounts for about 10 percent of the power generated by PacifiCorp operations in Wyoming. Its power is sold to customers in Wyoming, Idaho, Utah, Washington and California.

A coal combustion waste ash impoundment is located west of the power plant, consisting of two cells (primary ash settling and clear water). The ash pond was built in 1977 and expanded in 1989. The ash pond is also used

by four adjacent power units operated by Black Hills Energy. Water from the clear water cell is pumped back to the Wyodak plant for re-use as service water.

The plant was a candidate for TerraPower development of a novel sodium reactor, which was awarded to a sister PacifiCorp facility at Naughton Power Plant in Kemmerer, WY.

The Wyodak plant receives coal from the Wyodak coal mine, which started operations in 1923, making it the oldest surface coal mine in the United States. Coal is transported to the plant via enclosed conveyor belt from the mine.

- POWER GENERATION SPECIFICATIONS**
- **Total number of power generating units:** 1
 - **Fuel source:** Direct mine fed from adjacent Wyodak Mine; can also run on distillate fuel oil in case of coal shortage.
 - **Nameplate capacity:** 402.3 MW (2019 data)
 - **Net power generation:** 1,850,871 MWh (2019 data)
 - **Projected Retirement Date:** 2039

- PROPERTY ATTRIBUTES**
- **Surface Area:** est. 259 acres
 - **Utilities:**
 - **Electric:** PacifiCorp
 - **Water:** Service water is re-use water from the clear water cell of the ash pond. Unknown on potable water. Industrial siting council permit states there are surface water and groundwater monitor wells but no mention has been found in other sources.
 - **Sewer:** Unknown whether this is City of Gillette or on-site leach field
 - **Solid waste:** Campbell County Landfill
 - **Natural Gas:** Black Hills Energy
 - **Internet:** Unknown
 - **Roads:** Direct access to I-90 and WY-51; access to WY-59 in Gillette; access to I-25 in Douglas, WY 112 miles south.
 - **Rail Access:** Immediately adjacent to BNSF mainline; abandoned rail spur on site that could be connected to mainline.
 - **Maps** can be found in Appendix A for the

following power plant attributes:

- **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
- **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Streams:** may be adjacent or run within plant boundary
- **Transportation:** includes closest road and rail
- Pipelines: indicates natural gas, crude oil and finished product.
- **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING

Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit; permit is currently undergoing renewal with no listed expiration date.

WYODAK POWER STATION SOURCES

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Carmen. “Wyodak Power Plant, US.” Power Technology, January 13, 2022. <https://www.power-technology.com/marketdata/wyodak-power-plant-us/>. January 8, 2023.

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2.3.3. CONVERSE COUNTY

2.3.3.1. DAVE JOHNSON POWER STATION

Dave Johnston Power Station is located in Converse County, Wyoming, approximately 20 miles west of the City of Casper, population 59,038 (2020 census).

Dave Johnston Power Station is owned and operated by PacifiCorp and has been in commercial operation since 1958. Fuel source for the power station is subbituminous coal from mines in the Powder River Basin. There are four (4) power generating units with a capacity of 922.2 megawatts (MW). The projected retirement date of the power station is 2027.

PLANT HISTORY

The Dave Johnston Power Station is a coal-fired power plant built in 1958. It previously was fueled by an adjacent mine but it now receives coal from various mines in the Powder River Basin. Companies have also previously looked at the site as a candidate for carbon capture. Two companies, Jupiter Oxygen and Glenrock Petroleum, either have in the past or are currently working on a feasibility study for carbon capture, utilization and storage (CCUS) using one of the four power generating units.

The site was also a candidate for the company TerraPower for construction of a natrium reactor, which was instead awarded to the power plant in Kemmerer, WY in 2021. However, PacifiCorp announced in October 2022 that it is undertaking a joint study with TerraPower to evaluate the feasibility of deploying up to five additional natrium reactors and integrated storage systems

PacifiCorp has also developed and operates the existing Glenrock I, Glenrock III and Rolling Hills Wind Energy Projects, located approximately 15 miles north of Glenrock on the site of the former Dave Johnston Coal Mine. The projects were constructed primarily on reclaimed mine lands and has been in operation since December 2008 and upgraded in 2019. Current energy production of the project is 281.1 MW.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 4
- **Fuel source:** Subbituminous coal from North Antelope Rochelle Mine, Caballo Mine and Coal Creek Mine
- **Nameplate capacity:** 922.2 MW (2019 data)
- **Net power generation:** 4,686,379 MWh (2019 data)
- **Projected Retirement Date:** 2027

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 1,050 acres
- **Utilities:**
 - **Electric:** PacifiCorp
 - **Water:** Uses water from the North Platte River for cooling; unknown source for potable water.
 - **Sewer:** Unknown. Closest wastewater treatment plant is in Casper, WY.
 - **Solid waste:** Industrial waste to Glenrock Landfill. Coal combustion residue is disposed of on-site at Expansion Landfill.
 - **Natural Gas:** Unknown
 - **Internet:** Unknown
- **Roads:** Immediate access to Interstate 25 just south of the plant.
- **Rail Access:** Yes, all coal is currently delivered by rail.
- **Maps** can be found in Appendix A for the following power plant attributes:
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit. Permit is currently undergoing its third renewal; no expiration date for current permit is listed.

**DAVE JOHNSON POWER STATION
SOURCES**

“Dave Johnston Power Plant.” Global Energy Monitor Wiki, February 2, 2022, https://www.gem.wiki/Dave_Johnston_Power_Plant. January 10, 2023.

“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>. October 17, 2022.

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2.3.4. LINCOLN COUNTY

2.3.4.1. NAUGHTON POWER PLANT

Naughton Power Plant is located in Lincoln County, Wyoming, located approximately 3.7 miles southwest of the City of Kemmerer, population 2,404 (2020 census).

Naughton Power Plant is owned and operated by PacifiCorp and has been in commercial operation since 1963. Fuel source for the power station is bituminous coal from the adjacent Kemmerer Coal Mine. There are three (3) power generating units (2 coal-fired, 1 natural gas-fired) with a capacity of 832 megawatts (MW). The projected retirement date of the power station is 2025.

PLANT HISTORY

The PacifiCorp Naughton Plant is a coal fired power plant consisting of Unit #1 (160 MW), Unit #2 (220 MW) and Unit #3 (350 MW) which were constructed in 1963, 1968 and 1971, respectively. As of January 30, 2019, Unit 3 ceased burning coal and was fully converted to natural gas as of July 24, 2020.

In November 2021, TerraPower announced it had selected Kemmerer, Wyoming, near PacifiCorp’s retiring coal-fired Naughton Power Plant, as the site of its Natrium nuclear reactor demonstration project. The company anticipated submitting the demonstration plant’s construction permit application to the U.S. Nuclear Regulatory Commission in mid-2023, and planned to have the advanced reactor operational in 2028. The 2021 IRP showed the 500-MW Natrium demonstration project coming on line by summer 2028.

Naughton has six disposal areas regulated under the federal coal ash rule: FGD Pond 1 (41 acres), FGD Pond 2 (43 acres), FGD Pond 4 (30 acres), FGD Pond 5 (70 acres), North Ash Pond (149 acres), and South Ash Pond (118 acres). FGD Pond 1 and FGD Pond 2 became inactive in 2015. These disposal areas receive or have received in the past spent flue-gas desulfurization waste, bottom ash, and fly ash.

FGD Pond 2 had been given a significant hazard rating in 2009.

53 groundwater monitoring wells are located on site to monitor for contamination from the several ash ponds located at the facility. Monitoring wells did detect contamination in the groundwater above federal advisory levels. Groundwater at this site has tested higher than advisory levels for the following constituents: sulfate, lithium, selenium, cobalt, boron, molybdenum, radium, arsenic, thallium, lead, antimony, beryllium, cadmium, barium, chromium and fluoride.

It used approximately 7,500 acre-feet of water in 2020, supplied entirely by surface water rights owned directly by PacifiCorp with a total capacity of 14,480 acre-feet per year . All of Naughton Power Plant’s cooling water was surface water from the Ham’s Fork River.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 3 (2 coal, 1 natural gas)
- **Fuel source:** Bituminous coal, direct mine fed from adjacent Kemmerer Mine.
- **Nameplate capacity:** 832 MW (2019 data)
- **Net power generation:** 2,840,670 MWh (2019 data)
- **Projected Retirement Date:** 2025

PROPERTY ATTRIBUTES

- **Surface Area:** 1,120 acres
- **Utilities:**
 - **Electric:** PacifiCorp
 - **Water:** Viva Naughton Reservoir
 - **Sewer:** Kemmerer Wastewater Plant.
 - **Solid waste:** Industrial waste to Lincoln County Landfill southeast of Kemmerer.
 - **Natural Gas:** Unknown.
 - **Internet:** Unknown.
- **Roads:** Access to US-189 and US-30 is 4 miles away. US-189 runs 35 miles south to I-80. US-30 runs 55 miles east/southeast to I-80.
- **Rail Access:** Rail spur serving Kemmerer Mine is approximately 2.5 miles south of plant.
- **Maps** can be found in Appendix A for the

following power plant attributes:

- **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
- **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Streams:** may be adjacent or run within plant boundary
- **Transportation:** includes closest road and rail
- **Pipelines:** indicates natural gas, crude oil and finished product.
- **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING

Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit which is in the process of renewal and does not have a listed expiration date.

NAUGHTON POWER STATION SOURCES

Angus Theuermer Jr. “PacifiCorp details early Bridger, Naughton coal closures.” WyoFile, October 3, 2019, <https://wyofile.com/pacificorp-details-early-bridger-naughton-coal-closures/>. January 8, 2023.

“Naughton Power Plant.” Ashtracker.org, October 24, 2022, <https://ashtracker.org/facility/334/naughton-power-plant>. January 8, 2023.

“Naughton Power Plant.” Global Energy Monitor Wiki, December 8, 2022, https://www.gem.wiki/Naughton_Power_Plant. January 8, 2023.

“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

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2.3.5. PLATTE COUNTY

2.3.5.1. LARAMIE RIVER STATION POWER PLANT

Laramie River Station is located in Platte County, Wyoming, located approximately 7 miles northeast of the City of Wheatland, population 3,583 (2020 census).

Laramie River Station is owned by several power co-operatives, operated by Basin Electric Power Cooperative and has been in commercial operation since 1980. Fuel source for the power station is subbituminous coal from several mines in the Powder River Basin in Wyoming, including North Antelope Rochelle Mine, Antelope Coal Mine, Black Thunder Mine and Dry Fork Mine. There are three (3) power generating units with a total plant capacity of 1,710 megawatts (MW). The projected retirement date of the power station is 2033.

PLANT HISTORY

The Laramie River Station has three coal-based units: Unit 1 began operating in 1980; Unit 2 began operating in 1981; Unit 3 began operating in 1982. The power plant was built for \$1.6 billion. All three units are 570 MW capacity. It is the second largest coal-fired power plant in the state of Wyoming, second to Jim Bridger. Under the Missouri Basin Power Project, construction of the power plant began in 1974 and by July 1, 1980, the first coal-fired unit was finished and producing electric power. The station’s three coal-fired units were completed by1982. The same project also involved construction of the Grayrocks Dam, 11 miles east of the Laramie River Power Station.

Owned by Basin Electric (42.27%), Tri-State Generation and Transmission (27.13%), Western Minnesota Municipal Power Agency (16.47%), Lincoln Electric Systems (10.5%), Municipal Energy Agency of Nebraska (1.67%), Wyoming Municipal Power Agency (1.37%), other unspecified municipalities and co-ops (0.59%).

Laramie River is unique because it delivers electricity to two separate electrical grids. These

grids, which divide the United States into two sections, were developed independently and must be served separately.

Unit 1 is connected to the Eastern Interconnection and supplies its power to Western Minnesota Municipal Power Agency (281MW), Lincoln Electric Systems (178MW), Basin Electric Power Cooperative (100MW) and Municipal Energy Agency of Nebraska (9MW).

Unit 2 and Unit 3 are connected to the Western Interconnection and supply power to Basin Electric Power Cooperative (624MW), Tri-State Generation and Transmission (464MW), Wyoming Municipal Power Agency (23MW), Municipal Energy Agency of Nebraska (19MW) and other small owners (10MW).

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 3 (each one is 570 MW)
- **Fuel source:** Coal sourced from North Antelope Rochelle Mine, Antelope Coal Mine, Black Thunder Mine and Dry Fork Mine. All coal delivered by rail.
- **Nameplate capacity:** 1,710 MW (2019 data)
- **Net power generation:** 9,032,133 MWh (2019 data)
- **Projected Retirement Date:** 2033

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 1,450 acres
- **Utilities:**
 - **Electric:** Basin Electric
 - **Water:** Industrial water sourced from Grayrocks Dam on the Laramie River. Unknown on potable water.
 - **Sewer:** Unknown if private leachfield or connected to Wheatland sewer system.
 - **Solid waste:** Unknown; landfills in both Glenrock and Cheyenne.
 - **Natural Gas:** Unknown
 - **Internet:** Unknown
- **Roads:** Access to I-25 is 9 miles to the northwest or via the town of Wheatland.
- **Rail Access:** Rail loop and side spur both located on plant property. Access to main line is approximately 2 miles away from main plant facility.

- **Maps** can be found in Appendix A for the following power plant attributes:
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - Pipelines: indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit with an expiration date of 8/9/2027.

LARAMIE RIVER POWER STATION SOURCES
Laramie River Station.” Basin Electric Power Cooperative, https://www.basinelectric.com/about-us/Generation/index?location=laramieriverstation . January 8, 2023.
Camille Erickson. “Plant owner weighs closure; coal unit would be retired in 2033 under preferred proposal.” Gillette News-Record, December 17, 2020, https://www.gillette News-Record.com/news/wyoming/article_b2142dd1-836d-592d-b1a3-998e36a297dc.html . January 8, 2023.
“Laramie River Station.” Global Energy Monitor Wiki, April 30, 2021, https://www.gem.wiki/Laramie_River_Station . January 8, 2023.
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“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities . October 17, 2022.
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2.3.6. SWEETWATER COUNTY

2.3.6.1. GENERAL CHEMICAL POWER PLANT
General Chemical Power Station is located in Sweetwater County, Wyoming, located approximately 25 miles west of the City of Green River, population 11,786 (2020 census).

General Chemical Power Plant is owned and operated by General Chemical and provides power to General Chemical’s Green River soda ash facility. The power plant has been in operation since 1968 and is composed of two (2) power generating units with a capacity of 30.0 MW. Fuel source for the power plant is subbituminous coal. There is no projected retirement date of the power plant currently listed.

PLANT HISTORY
Green River Cogeneration Plant is a 30.0-megawatt (MW) coal-fired power station owned and operated by General Chemical near Green River, Wyoming. Unit 1 was completed in 1968 and Unit 2 was completed in 1977. The plant provides power to General Chemical’s Green River soda ash facility to refine trona ore into purified soda ash. The plant employs approximately 550 people.

The plant is divided into two major production lines; known as GR-I&II and GR-III. A single process building houses both the equipment designated with a GR-1 prefix (for the Green River Works original construction in 1968), and equipment designated with a GR-2 prefix (for equipment added during the first plant expansion in 1972). A second process building is designated as the GR-III unit, and contains equipment (GR-3 prefix) which was part of a third plant expansion which came on line in 1975.

Basic emission generating equipment used in the GR-I&II unit includes five gas-fired calciners, six steam tube dryers, and various ore and product handling housekeeping dust control systems.

Basic equipment in the GR-III unit includes two larger gas-fired calciners, six steam tube dryers, and several more ore and product handling dust control systems.

Plant steam and power demands are met by three utility boilers (two coal-fired and one gas-fired). Between 2017 and 2019, the facility installed new cold-side ESPs and an SO2 scrubber (DSI) on the C and D boilers. Two smaller gas fired boilers were installed with the original plant in 1968, and served as backup after the coal boilers were added. These two older gas fired units (“A” & “B”) were replaced in 1997 by a single new gas-fired boiler.

The plant gets its water exclusively from surface water rights owned by Tata Chemicals, totaling approximately 8,400 acre-feet of water each year.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 3 units, 2 generators
- **Fuel source:** Subbituminous coal
- **Nameplate capacity:** 30 MW (Unit 1: 15 MW, Unit 2: 15 MW) (2019 data)
- **Net power generation:** 218,963 MWh (2019 data)
- **Projected Retirement Date:** No retirement date currently listed

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 1600 acres
- **Utilities:**
 - **Electric:** Unknown
 - **Water:** Surface water
 - **Sewer:** Unknown.
 - **Solid waste:** Nearest landfill is in Green River, WY.
 - **Natural Gas:** Unknown
 - **Internet:** Unknown
- **Roads:** Access to Interstate 80 is 4.5 miles south of the plant.
- **Rail Access:** Rail spur on site. Access to main line is 1.5 miles to the north.
- **Maps** can be found in Appendix A for the following power plant attributes:

- **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
- **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
- **Streams:** may be adjacent or run within plant boundary
- **Transportation:** includes closest road and rail
- **Pipelines:** indicates natural gas, crude oil and finished product.
- **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit; permit is in the process of renewal with no listed expiration date.

GENERAL CHEMICAL POWER PLANT SOURCES

“General Chemical Green River Power Plant.” Global Energy Monitor Wiki, April 30, 2021, https://www.gem.wiki/General_Chemical_Green_River_Power_Plant. January 8, 2023.

“OpenAir Portal.” Wyoming Department of Environmental Quality - Air Quality Division, <https://openair.wyo.gov/facilities/homeFacilityProfile.jsf>. January 8, 2023.

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“Power Plants and Neighboring Communities.” United States Environmental Protection Agency, May 12, 2022, https://www.epa.gov/sites/default/files/2021-05/power_plants_and_communities.xlsx. October 17, 2022.

“Coal.” United States Energy Information Administration, <https://www.eia.gov/coal/data.php>. October 17, 2022.

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2.3.6.2. GENESIS ALKAI “WESTACO FACILITY” POWER PLANT
Genesis Alkali Power Station is located in Sweetwater County, Wyoming, located approximately 25 miles west of the City of Green River, population 11,786 (2020 census).

The Genesis Alkali power plant, also known as the Westvaco Facility, is owned and operated by Genesis Alkali and has been in commercial operation since 1948. Fuel source for the power station is subbituminous coal. There are 7 power generating unit with a capacity of 41 megawatts (MW). There is no projected retirement date of the power plant currently listed.

PLANT HISTORY
The Westvaco facility was established in 1948. It is one of the lowest-cost, natural soda ash operations in the world. Genesis Alkali employs approximately 950 people at eight processing plants and an underground mining operation that is 1,600 feet below the Earth’s surface.

Genesis Alkali operates a multi-faceted mining and production facility in Green River, Wyoming, supplying some of the best-known products used around the globe.

- POWER GENERATION SPECIFICATIONS**
- **Total number of power generating units:** 7
 - **Fuel source:** Subbituminous coal
 - **Nameplate capacity:** 41 MW (2019 data)
 - **Net power generation:** 286,445 MWh (2019 data)
 - **Projected Retirement Date:** No retirement date currently listed.

- PROPERTY ATTRIBUTES**
- **Surface Area:** estimated 2,438 acres
 - **Utilities:**
 - **Electric:** Unknown
 - **Water:** Surface water
 - **Sewer:** Unknown
 - **Solid waste:** Nearest landfill is in Green River, WY.
 - **Natural Gas:** Unknown
 - **Internet:** Unknown
 - **Roads:** Access to Interstate 80 is 6.5 miles

- south.
- **Rail Access:** Rail spur on site. Access to main line is immediately adjacent to the north.
 - **Maps** can be found in Appendix A for the following power plant attributes:
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - Pipelines: indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit with an expiration date of 1/24/2027.

GENESIS ALKALI POWER PLANT SOURCES

Genesis Alkali, September 23, 2021, <https://alkali.genesisenergy.com/>. January 8, 2023.

“Genesis Alkali.” MAPSearch, <https://www.mapsearch.com/power-plant/genesis-alkali/>. January 8, 2023.

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2.3.6.3. JIM BRIDGER POWER PLANT

Jim Bridger Power Plant is located in Sweetwater County, Wyoming, located approximately 33 miles east of the City of Rock Springs, population 23,481 (2020 census).

Jim Bridger Power Plant is jointly owned by PacifiCorp (67%) and Idaho Power (33%) and operated by PacifiCorp. The power plant has been in commercial operation since 1974. Fuel source for the power station is subbituminous coal from nearby mines Bridger surface mine and Black Butte Mine; coal was also received from the Bridger underground mine prior to its closure in 2021. There are four (4) power generating units with a capacity of 2441.90 megawatts (MW). The projected retirement date of the power station is 2023 for Units 1 and 2 and 2037 for Units 3 and 4.

PLANT HISTORY

In 1969, PacifiCorp and Idaho Power jointly proposed a new power generating plant in Wyoming. Construction of the Jim Bridger Plant began in the 1970s. Unit 1 was completed in 1974 and was followed by Unit 2 in 1975 and Unit 3 in 1976. Unit 4 came online in 1979. Jim Bridger Power Plant is one of the largest coal-fired power plants in the Western United States. Power generation capacity of the units is as follows: Unit 1: 608.3 MW, Unit 2: 617.0 MW, Unit 3: 608.3 MW, Unit 4: 608.3 MW. The power produced at the Jim Bridger facility is primarily exported to the Northwest, including Utah, Idaho, Oregon, Washington and parts of Northern California.

According to PacifiCorp’s July 2019 draft Integrated Resource Plan (IRP), Units 1 and 2 were scheduled for retirement at the end of 2028 and 2032 respectively. The company’s final 2019 IRP, released in September 2019, planned for unit 1 to be retired in 2023, unit 2 in 2028, and units 3-4 in 2037. However, a deal reached between the State of Wyoming, Pacificorp and the EPA will have Units 1 and 2 converted to natural gas in 2024. Until the conversion, Units 1 and 2 will be operated at lower capacities in order to emit fewer regional haze-contributing pollutants.

In August 2022, a prolonged drought along the Colorado River was causing states to make critical decisions about water use. Dozens of coal plants, including the Jim Bridger Steam Plant, were at risk of being cut off from the water supply and therefore forced to shut down. While retirement was still not slated until 2037, the planned updates to the plant’s technology would use significantly more water than before. Even with the current technology, it was unknown whether there was enough water to keep the operation online over the long term.

The power plant used 21,800 acre-feet, while the mines used an estimated 200 acre-feet. The water rights are owned by the same company (PacifiCorp), making it difficult to parse out which specific rights are used at which facility. In total, PacifiCorp owns a mix of surface water and groundwater rights associated with the Bridger facilities entitling it to about 130,000 acre-feet each year. All of this water comes from the Green River, which has been largely adjudicated.

POWER GENERATION SPECIFICATIONS

- **Total number of power generating units:** 4
- **Fuel source:** Subbituminous coal from nearby mines: Bridger surface and Black Butte
- **Nameplate capacity:** 2441.90 MW (2019 data)
- **Net power generation:** 11,254,989 MWh (2019 data)
- **Projected Retirement Date:** Units 1-2: 2023; Units 3-4: 2037

PROPERTY ATTRIBUTES

- **Surface Area:** estimated 2,182 acres
- **Utilities:**
 - **Electric:** PacifiCorp
 - **Water:** Industrial water from Green River via 50 mile pipeline; unknown on potable water.
 - **Sewer:** Unknown whether this is municipal or leach field. Closest wastewater treatment plant is in Rock Springs, WY.
 - **Solid waste:** Sweetwater County landfill (42 miles southeast)
 - **Natural Gas:** Unknown
 - **Internet:** Unknown

- **Roads:** Access to Interstate 80 in Point of Rocks, WY, 10 miles south of plant
- **Rail Access:** Rail loop and spur on site. Access to main line is estimated 4.5 miles to the south.
- **Maps** can be found in Appendix A for the following power plant attributes:
 - **Surface ownership:** includes plant outline, plant surface ownership outside of plant outline and residential, commercial, agricultural or exempt ownership within a 2 mile buffer of the plant location.
 - **Transmission Lines:** includes high voltage interstate and intrastate transmission lines, substations and local distribution lines at reduced voltages.
 - **Streams:** may be adjacent or run within plant boundary
 - **Transportation:** includes closest road and rail
 - **Pipelines:** indicates natural gas, crude oil and finished product.
 - **Primary plant structures:** satellite imagery of structures located within main plant boundary

ENVIRONMENTAL PERMITTING
Currently permitted by Wyoming Department of Environmental Quality Air Quality Division with a Title V air emissions permit with an expiration date of 1/31/2025.

JIM BRIDGER POWER PLANT SOURCES

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CHAPTER THREE

PRIOR PROJECTS

3.1. OVERVIEW

ENERGY DEVELOPMENT OF PREVIOUS MINE LANDS

Wyoming can point to several examples in recent history of post mining reuse of lands and infrastructure to take advantage of investments that otherwise would become retrospective costs (sunk costs) of development and lost upon reclamation - perhaps even repeated were a reclaimed site to be bought and redeveloped under a new purpose. The intentions behind efforts to reuse aligns with the State’s long history of environmental protection through judicious land use rather than simply to set aside lands and resources to comparatively unproductive status at the conclusion of their initial intended use. The re-use of coal mine lands is a concept that has been successfully demonstrated outside of Wyoming as well, examples include the Montana’s Silver Bow Creek/Butte, New Mexico’s Chevron Questa, and South Carolina’s Henry’s Knob facilities. These projects in other states re-purposed former mine lands as recreational facilities, solar energy capture and new wetlands development respectively.

The Silver Bow Creek project is located in and around Butte, MT. Beginning in the late 1800s, mine waste had been dumped into streams and wetlands and smelters had emitted air pollutants including arsenic and heavy metals. The area was added to the National Priority List by the U.S. Environmental Protection Agency in 1983. Cleanup of immediate human health and environmental risks in the area occurred from 1988 to 2005, and additional cleanup actions are still on-going. The project is a fairly large area, comprising over 1400 acres of contaminated tailings and soils along 22.6 miles of Silver Bow Creek. The reclaimed area has been turned

into a greenway, with trails, rest areas and other improvements along with floodplain revegetation and wetland restoration accomplishing needed rehabilitation of the lands while also purposely creating recreation opportunities.

The Chevron Questa Mine Superfund Site in Taos County, New Mexico is the site of a former molybdenum mine and milling facility. The mine operated intermittently between 1920 and 2014 before being permanently closed. Mine operations and waste disposal contaminated soil, sediment, surface water and groundwater. The project area is located on approximately 4.5 square miles that include the former mine and milling facility as well as tailing impoundments. The site was added to the National Priorities List by the U.S. Environmental Protection Agency in 2011. Clean-up actions include excavation and off-site disposal of contaminated soil, covering and revegetation of tailing impoundments, and removal of contaminated soils from riparian areas. Remediation is projected to take several more decades, and Chevron is planning to construct a concentrated photovoltaic solar panel facility consisting of 175 solar panels on 20 acres of land, which would be one of the largest solar concentrated photovoltaic facilities in the country. The electricity generated would be sold to the power grid through a local co-operative.

The Henry’s Knob area in York County, South Carolina was an open pit kyanite mine that operated from 1947 to 1970 and produced kyanite, which is used in high-temperature materials such as porcelain, ceramic and refractory. The mining process contaminated groundwater of private landowners as well as prevented revegetation of over 37 acres of soil. Clean-up of a pilot portion of the site was performed from 2013 to 2017, with four areas being successfully revegetated. This has allowed the area to become an attractive

ecological habitat and improved surface water and groundwater in the area. Clean-up efforts continue with the goal of continuing to improve the soils, surface water and groundwater. Additional economic development and reuse impacts are being evaluated.

These projects in other states are worth noting for two important reasons. First, that reuse of mine lands has gained social, political and regulatory acceptance in historic and activer mining districts across the country. Second, Wyoming’s coal mine and power plant projects originated in a time with increased environmental sensitivities and have generally have maintained strict compliance with regulations and avoided pollution of the lands they occupy which will expand the opportunities for reuse.

Four projects in Wyoming have been identified in this report for their successful implementation of reuse strategies to support industry in Wyoming. The projects cited in this report are:

- **DAVE JOHNSON MINE - GLENROCK ROLLING HILLS WIND ENERGY**
 - A 13,800 acre wind farm located on the fully reclaimed site of the Dave Johnston coal mine, which closed in 2000. The wind farm is composed of 158 wind turbines with a capacity to generate 281 MW of electrical power.
- **JACOBS RANCH MINE - RAIL UTILIZATION COMPLEX**
 - A rail facility repurposed from serving only coal exports to one serving to transload petroleum products and freight including frac sand. The site is located on the former Jacob’s Ranch Coal Mine, which closed in 2009 and was incorporated into the adjacent Black Thunder Coal Mine.
- **SYNTHETIC FUELS MINE - FORT UNION INDUSTRIAL PARK**
 - A multi-use I-2 Zoned (Heavy Industries) and subdivided 460 acre industrial park. Fort Union currently hosts value added coal-to-products operations manufacturing activated carbon and rail transload operations. The industrial park is located on the former Fort Union Coal Mine, which

closed in 2008.

- **KEMMERER MINE - TERRA POWER NATRIUM NUCLEAR PROJECT**
 - A planned nuclear reactor to replace mine mouth coal-fired electrical generation capacity. The reactor will be located adjacent to the Kemmerer Coal Mine and Naughton Power Plant, which is scheduled to close in 2025.

These four projects have been developed on locations that were once productive and profitable coal mines and are now contributing to various other industry sectors by utilizing the infrastructure developed by the coal industry. Industries undertaking development by pursuing reuse strategies view certain key infrastructure such as roads, railroads, electrical service infrastructure and buildings as an alternative to greenfields development and new construction.

The environmental impact of these businesses that chose to repose assets was lessened because no lands were disturbed, no cultural or archaeological resources impacted, and no additional wildlife were impacted in those areas. These four projects will be discussed in more detail and should serve as examples for Wyoming as the state faces significant declines in its coal industry sector.

3.1.1. DAVE JOHNSON MINE

GLENROCK ROLLING HILLS WIND ENERGY PROJECT

The Glenrock Rolling Hills Wind Energy Project (“The Project”) is composed of three separate wind energy fields located approximately 15 miles north of the City of Glenrock, Wyoming in Converse County. The individual projects are Glenrock I, Glenrock III and Rolling Hills Wind Energy Projects and currently consist of 158 individual turbines that generate a combined 281.1 megawatts (MW) of wind-generated power. The project was constructed on reclaimed mine land from the adjacent Dave Johnston coal mine, which closed in 2000 and produced coal for over 42 years totaling approximately 104 million tons.

The Project is owned by PacifiCorp, an electric utility that provides power to over 2 million customers across 6 states. PacifiCorp currently generates over 70% of its power in Wyoming from thermal sources (coal and natural gas) but has committed to reducing this and in turn increasing the power generated by renewables with the goal of completely retiring all fossil fueled power generation by 2040. This goal was set forth in the company’s 2021 Integrated Resource Plan and includes plans to reduce coal-fueled generation by 4,000 MW and gas-fueled generation by 1,500 MW, to be replaced by 3,600 MW of new wind power and 5,600 MW of new solar, as well as 6,700 MW of storage

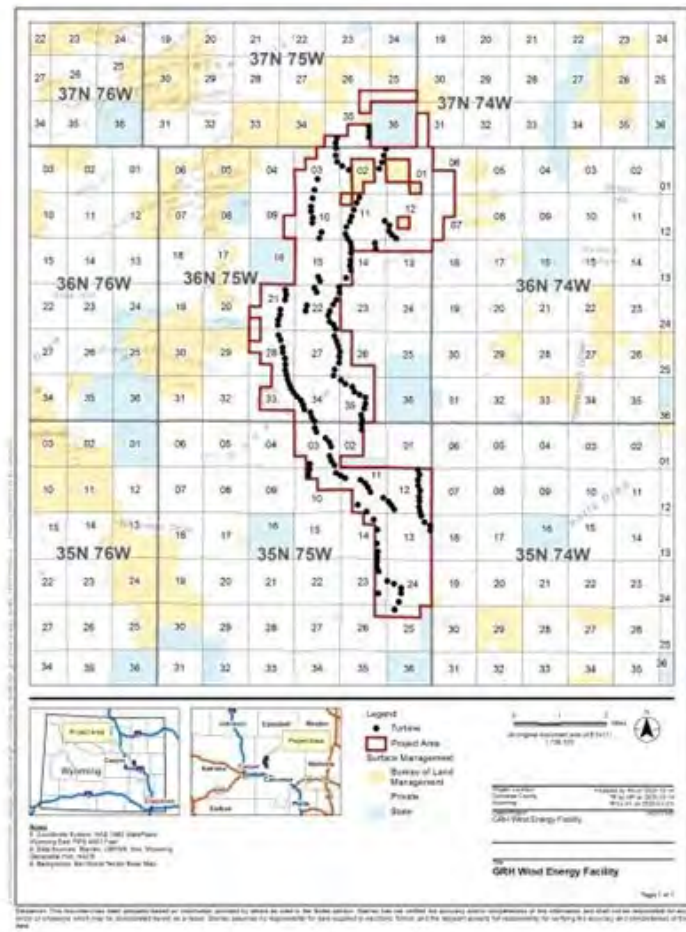
capacity. This plan would include the addition of new transmission lines to bring the power from the generators to the power grid and customers.

The Project is constructed on 13,801 acres of primarily reclaimed mine land, covering a roughly 9-mile stretch of land that was fully restored in 2005. The site was chosen for a wind farm after PacifiCorp realized that a significant amount the infrastructure to support a wind farm was already in place as well as the ideal location, topography and prevailing wind conditions. Chief among the infrastructure installed and then added on to were the high-voltage transmission lines, including a 13 mile long, 230-kilovolt overhead line, as well as access roads and a collection system (underground and overhead) that sends power from the Project to the Dave Johnston Power Plant in Glenrock, where it is sent out to the main electrical grid. Electricity from the project was first sent out to customers in 2008 and 2009.

The cost of the project was approximately \$500 million in total. Each wind turbine costs approximately \$2 million and has an expected service life of 20 to 30 years, with roughly 85% of the components able to be recycled or reused. The wind turbines installed were unique at the time in that they are able to “seek” wind, rotating the head of the turbine to find the optimal wind direction and continue to produce power; previous generations of wind turbines had fixed heads and were therefore inefficient when the wind direction changed. Each turbine



Aerial view of the former Dave Johnston Mine:
(<https://www.cnet.com/pictures/photos-wind-farm-rises-up-from-former-coal-mine/2/>)



Rolling Hills Wind Energy Project Boundary Map:
(<https://www.fws.gov/project/glenrock-rolling-hills-wind-energy-project>)

can individually produce 1.5 to 1.85 MW, though this is limited by windspeed, as speeds over 60 mph can damage the units and therefore they are shut down when speeds are in excess of this upper limit.

There have been problems noted with the Project, including bird kills of bald and golden eagles. The U.S. Fish and Wildlife Service has worked with the Project on an Incidental Eagle Take Permit, which can be issued to companies that take all practical measures to avoid and minimize eagle kills as well as completing compensatory mitigation. This permit is valid for 30 years and was issued by the USFWS to PacifiCorp in 2020 for the existing 158-turbine project. The Project also has a tremendous footprint compared to traditional coal power systems; each turbine is a minimum of a half-mile apart from east to west and 600 feet from north to south, in order to minimize wind vortexes coming from the blades that affect the wind flow

of adjacent turbines. This equates to 0.02 MW/acre for the whole project area. Compared to the remaining coal-fired power plant at Dave Johnston, which produces 922 MW from an estimated 1,050 acres of disturbed land, which equates to 0.87 MW/acre. In addition, due to the variation in wind speed and direction, electricity is not produced continuously, resulting in an approximate 40% capacity factor with winter months having typically higher production rates than summer months.

GLENROCK ROLLING HILLS WIND ENERGY SOURCES

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“Glenrock Rolling Hills Wind Energy Project.” U.S. Fish and Wildlife Service, <https://www.fws.gov/project/glenrock-rolling-hills-wind-energy-project>. February 22, 2023.

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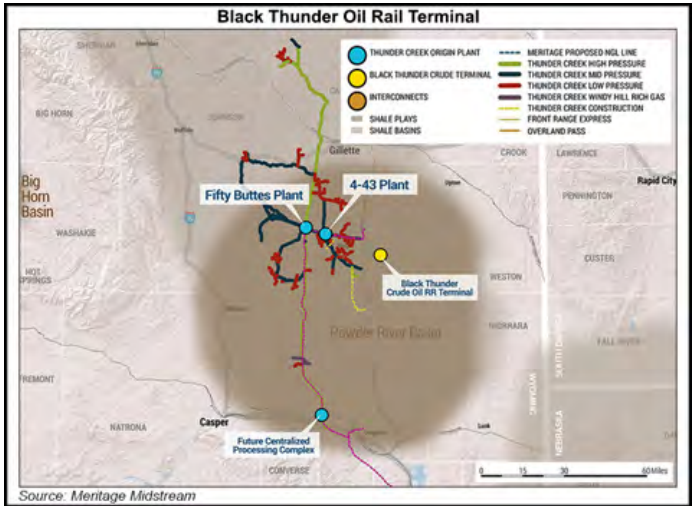
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3.1.2. JACOBS RANCH RAIL UTILIZATION

The Jacobs Ranch Mine was acquired by Arch Coal in 2009 and was merged with the adjacent Black Thunder Mine, creating the largest coal mine complex in the world at the time with a capacity to produce over 140 million tons of coal per year.

Following the idling of the Jacobs Ranch rail facilities a petroleum products export rail terminal, named Black Thunder Terminal, LLC, was jointly developed on the site of the mining complex by Denver-based Meritage Midstream Services and Arch Coal, owner of Black Thunder Coal Mine complex. The first shipment of crude oil was shipped from the facility in June 2014. The rail terminal is serviced by BNSF and Union Pacific and can load and ship unit trains of crude oil directed to refineries primarily in the East and Mid-Continent regions.



The oil rail terminal is part of a larger pipeline system owned by Meritage and operated by Thunder Creek NGL Pipeline. The pipeline system receives high-pressure natural gas liquids (NGLs) at a receipt point located at Thunder Creek’s 50 Buttes Gas Plant in Campbell County and sends them to the rail facility or the Steamboat Processing Complex located outside of Douglas, WY in Converse County. The terminal is developed for both transload for export of crude petroleum and products and, and utilization of the surplus rail capacity for storage, blending and rail loading

services for crude oil and condensate. Primary storage is crude oil with listed storage capacity of 500,000 bbls.



The Jacobs Ranch site has also been utilized for import materials transloading for frac sand, tubular goods and diesel. The terminal is accessible by both rail and road and is currently utilized by Granite Peak Industries which provides material handling, transloading, storage, warehousing, and inventory management services across The Black Thunder Terminal is one of several locations used by Granite Peak in Wyoming, including Casper, Rock Springs, Cheyenne, and north of Gillette at the Fort Union Industrial Park.



JACOBS RANCH RAIL UTILIZATION SOURCES

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- <https://www.hartenergy.com/sites/default/files/exclusive/2019/02/meritage-dugbakken-04-02-14.pdf>
- <https://www.offshore-technology.com/marketdata/powder-river-basin-liquids-storage-terminal-the-us/>
- <https://www.thegranitepeakgroup.com/post/transloading-2022>

3.1.3. SYNTHETIC FUELS MINE

FORT UNION INDUSTRIAL COMPLEX

The Fort Union Industrial Complex is located approximately 4 miles north of the City of Gillette, WY in Campbell County. The Complex is located on the site of the former Synthetic Fuels/ Fort Union Coal Mine and is composed of 460 acres of I-2 Zoned (Heavy Industrial District) and Subdivided land offers the largest private commercial (non coal company owned) rail in Campbell County. the Fort Union site is served by the BNSF Railway. All high capacity industrial utilities are in place including electric power, natural gas, water and communications. The subdivided lots range from 5 acres to over 100 acres.

The Fort Union Coal employed the Powder River Basin's customary surface strip mining techniques beginning in 1981. In the mid 1990's the company Evergreen Energy KFx Inc. purchased the mine and developed a proprietary method of coal beneficiation which increased the thermal value of the coal through a drying process. Unfortunately, their finished product had many issues with long-term stability and was not able to find a foothold in the power generation market. The coal upgrading facility was idled in 2008, and Evergreen fell into bankruptcy in 2009 with the entire mine property remaining under the regulatory authority of the Wyoming DEQ - Land Quality Division.

Green Bridge Holdings, Inc. of Dallas, TX (unrelated to Evergreen Energy / KFx) acquired the property in 2011 and undertook the reclamation of the mine pit area and parallel development of the rail served industrial park. The industrial park is home to current owners/ tenants including Paintbrush Industrial Services, a municipal solid waste handling company; Expedition Water Solutions, an oil-field waste water disposal facility; Atlas Carbon, which produces activated carbon from coal; and Granite Peak Transloading, which transfers frac sand from rail to truck- trailers for final mile delivery for oil and gas well completions fields.

The site is also the location for another coal-to-products demonstration by the company Clean Coal Technology.

Most recently Fort Union Industrial park has partnered with Energy Capital Economic Development, Campbell County and the City of Gillette to develop the Wyoming Innovation Center (WylC). The WylC is a public-private partnership that has deployed over \$4 million to create a unique facility designed to host demonstration and pre-commercial construction and operation of technologies and processes to produce non-fuel products from coal. The United States Department of Energy's National Energy Technology Lab is the first tenant of the WylC and will demonstrate a novel method to extract and concentrate rare earth elements from coal ash in



2023 and 2024.

The University of Wyoming - School of Energy Resources recently announced that the Fort Union site will be the location of their coal refining demonstration in cooperation with Atlas Carbon and Wood Engineering.

Infrastructure located on site include an underground coal storage silo and truck dump for truckloads of coal, transfer belts to two (2) 120' tall, 40' diameter concrete storage silos and an additional 130' tall, 53' diameter concrete storage silo. These silos are still operational, with the 40' diameter silos being used by Atlas Carbon and the 53' diameter silo not being currently used. Other infrastructure repurposed by Atlas includes, warehouses, maintenance shops, thermal oxidizer and emissions stack, light duty material and process buildings, and an office and lab building. All of these are currently being used by Atlas Carbon.

One very unique and attractive feature of the Fort Union Complex is the availability of a unit train capable rail loop around the entire complex with direct access to the BNSF mainline a short distance away. This rail loop is currently being utilized by Granite Peak for moving frac sand into the oil and gas fields. Frac sand is delivered in hopper cars to the Fort Union Rail Park, where Granite Peak employees use portable conveyor belts to unload the train cars and load the sand into trailer mounted hoppers, which are towed out to the oil production fields. The empty hoppers come back and are refilled, and the process repeated. Empty train cars are moved down the loop to the spur that allows access to the mainline, where eventually all of the empty cars will be picked up by a locomotive and hauled back to the frac sand manufacturer to be refilled. This rail loop can accommodate various types of loads and allows immediate access from rail to road, with North Garner Lake immediately

adjacent to the complex and connecting to Highway 59 and Interstate 90 in Gillette.

Regarding existing tenants of the Fort Union Industrial Complex, Atlas Carbon is one of the most unique in that it produces activated carbon from locally sourced coal from adjacent mines, including Eagle Butte and Wyodak. The coal is sent through a patented calcination process that drives the water and volatiles off of the coal, leaving behind a porous carbon material that has more internal surface area in one gram than an entire basketball court. The final product is milled down to the consistency of ink toner and sold to power plants and water treatment facilities for pollution control, including mercury, hazardous vapors and noxious odors. Atlas is currently producing 8-10 million pounds of activated carbon per year with a retail market value that can reach \$1,000 per ton.



3.1.4. KEMMERER MINE

TERRA POWER - NATRIUM NUCLEAR REACTOR

The Naughton Power Plant is located approximately 3.7 miles from Kemmerer, WY in Lincoln County. The power plant has been providing electricity since 1963, is currently owned and operated by PacifiCorp and is slated to be retired from service in 2025. It receives coal from the adjacent Kemmerer Coal Mine and produces 832 megawatts (MW) of electricity. The impending closure of the power plant and subsequent threat to the coal mine would affect close to 500 employees and a town of 2,400. However, in 2021, Kemmerer and the Naughton plant were chosen by TerraPower as the preferred site for the development and installation of a Natrium reactor. TerraPower anticipates submitting the application for a construction permit to the Nuclear Regulatory Commission (NRC) in 2023 and become operational by 2028. The project as designed would generate 345 MW of energy and employ 250 people.

TerraPower is a privately owned company founded in 2008 as a nuclear innovation

company with the goal of creating technologies that “provide safe, affordable and abundant carbon-free energy.” In 2020, they were awarded \$80 million from the U.S. Department of Energy to demonstrate the Natrium reactor and have collaborated with GE Hitachi Nuclear Energy to develop Natrium technology, which is described as a “sodium fast reactor combined with a molten salt energy storage system.” The reactor is described as capable of 345 MW of electrical production with storage that can boost the output to 500 MW for 5.5 hours on demand. The project team that TerraPower assembled includes engineering companies such as Bectel and Hitachi; electric production and utility companies such as Duke Energy, Energy Northwest and PacifiCorp; and federal laboratories such as Argonne National Laboratories, Idaho National Laboratory, Oak Ridge National Laboratory and Los Alamos National Laboratory.

TerraPower and PacifiCorp chose the location in Kemmerer after also considering locations in Gillette, Rock Springs and Glenrock. The location was chosen to take advantage of existing integration into the electrical grid as well as utilizing a highly skilled local workforce that is already trained in electrical generation. TerraPower projects that construction of the

project will employ 2,000 people and day-to-day operations will require 250 personnel. TerraPower is also partnering with the University of Wyoming and community colleges to train future skilled workers to work in the nuclear energy field.

In November of 2022, PacifiCorp and TerraPower announced that they are assessing the feasibility of deploying up to five additional Natrium reactors with integrated energy storage by 2035; coincidentally, PacifiCorp is planning to retire the coal-fired power plants at Dave Johnston (in 2027), Jim Bridger (in 2037) and Wyodak (in 2039) totaling 3,766 MW. However, in December 2022, TerraPower said that the demonstration date of the Naughton site is being pushed back two years to 2030, with the war in Ukraine being the main factor; Russia is currently the only commercial supplier of the highly enriched uranium needed for the plant to operate. One silver lining to this delay is that it may give a boost to the Wyoming uranium industry to source the fuel, and TerraPower is working with U.S. Congress and the Department of Energy to develop a fuel cycle solution.

KEMMERER SOURCES

- <https://www.terrapower.com/natrium-demo-kemmerer-wyoming/>
- <https://www.terrapower.com/our-work/natriumpower/>
- <https://www.powermag.com/coal-plant-site-unveiled-for-500-mw-natrium-advanced-nuclear-pilot/>
- <https://www.wyomingpublicmedia.org/natural-resources-energy/2022-12-14/the-opening-of-terrapowers-nuclear-plant-in-kemmerer-will-be-delayed-by-two-years>

3.2. SUMMARY

REUSE EXAMPLES ON MINE LANDS

Energy production in Wyoming has been a key contributor to the growth, development and sustainment of Wyoming’s economy and population. Coal mining in particular has been a crucial part of the energy economy. Starting with coal mining to support railroads and moving to coal mining to support power plants across the country, coal has been synonymous with Wyoming. However, also synonymous with Wyoming have been busts and transitions, and the state is currently facing another one as the country moves away from coal power to alternative electrical generation. Wyoming has been proactive in acknowledging this threat, from legislative actions to workforce education to the four projects mentioned. A concurrent thread to this new transition is to protect the environment and limit the amount of further impact that new industry will have.

Coal mining requires a large amount of land use and infrastructure. The infrastructure used to mine coal, including roads, railroads, pipelines, and large scale utilities including electrical service and buildings, are assets that can be used by a future company without the time and additional cost of new development. Reuse of the infrastructure also reduces the impact on the environment and is a solution agreed upon by both energy companies, environmental groups and the United States Environmental Protection Agency. Projects on abandoned mine lands have been successful in other regions of the U.S. and within Wyoming.



CHAPTER FOUR

PATHWAYS TO RE-USE

Commentary and Analysis provided by the Office of Economic Transformation - Gillette College Foundation

4.1 PATHWAYS

“An exploration of policy and programmatic pathways to preservation of these infrastructure assets. The current structure of the Office of Surface Mining’s (OSM) and Wyoming Department of Environmental Quality’s (WYDEQ) reclamation and bonding procedures rightly incentives return of the sites to pre-mining use. This represents a challenge to their reuse for new industrial purposes. Liability concerns, bonding transfers, and the extension of reclamation dates into the future need to be examined.”

EXCERPT FROM TNC PATHWAYS TO REUSE FOR WYOMING’S COAL INFRASTRUCTURE

Current regulatory structures governing coal mine operations are enforced by the Wyoming Department of Environmental Quality – Land Quality Division, including Mine Permits and periodic renewals thereof, Annual Reports, Mine Plans including Mine Reclamation Plans. A foundational understanding and requirement of the mining permits is that all lands encompassed in the Reclamation Plan, including supporting infrastructure that is used for mine operations, will be returned to the stated pre-development use and character.

The pre-mining use of land is determined to be the uses of the land previously supported if the land had not been involved in any aspect of mining and had been properly managed for that use.

The regulatory body authorized to establish reclamation requirements for any lands having

a Federal ownership nexus is the Federal Office of Surface Mining Reclamation and Enforcement (OSMRE), Department of the Interior. The Wyoming Department of Environmental Quality (DEQ), Land Quality Division (LQD) has the mandate to enforce the OSMRE requirements for mine reclamation.

Current rules and Regulations of the WDEQ, in compliance and alignment with OSMRE requirements, does offer an existing pathway for alternative postmining uses of land and associated assets. The language for alternative postmining land use is summarized below.

UNDER SMRE TITLE 30, SUBCHAPTER B 715.13 POSTMINING USE OF LAND.

- **General:** All disturbed areas shall be restored in a timely manner
 - to conditions that are capable of supporting the uses which they were capable of supporting before any mining, or
 - to higher or better uses achievable under criteria and procedure of paragraph (d) of this section.
- **Criteria for approving alternative postmining use of land:** An alternative post mining land use shall be approved by the regulatory authority, after consultation with the landowner or the land-management agency having jurisdiction over State or Federal lands, if the following criteria are met.
 - The proposed land use is compatible with adjacent land use and, where applicable, with the existing local, State or Federal land use policies and plans. A written statement of the views of the authorities with statutory responsibilities for land use policies and plans shall accompany the request for approval. The permittee shall obtain any required approval of local, State or Federal

land management agencies, including any necessary zoning or other changes necessarily required for the final land use.

- Specific plans have been prepared which show the feasibility of the proposed land use as related to needs, projected land use trends, and markets and that include a schedule showing how the proposed use will be developed and achieved within a reasonable time after mining and be sustained. The regulatory authority may require appropriate demonstrations to show that the planned procedures are feasible, reasonable, and integrated with mining and reclamation, and that the plans will result in successful reclamation.
- Provision of any necessary public facilities is assured as evidenced by letters of commitment from parties other than the permittee, as appropriate, to provide them in a manner compatible with the permittee’s plans.
- Specific and feasible plans for financing attainment and maintenance of the post mining land use including letters of commitment from parties other than the permittee as appropriate, if the post mining land use is to be developed by such parties.
- The plans are designed under the general supervision of a registered professional engineer, other appropriate professional, who will ensure that the plans conform to applicable accepted standards for adequate land stability, drainage, and vegetative cover, and aesthetic design appropriate for the postmining use of the site.
- The proposed use or uses will neither present actual or probable hazard to public health or safety nor will they pose any actual or probable threat of water flow diminution or pollution.
- The use or uses will not involve unreasonable delays in reclamation.
- Necessary approval of measures to prevent or mitigate adverse effects on fish and wildlife has been obtained from the

regulatory authority and appropriate State and Federal fish and wildlife management agencies.

- Proposals to change premining land uses of range, fish and wildlife habitat, forest land, hay land, or pasture to a postmining cropland use, where the cropland would require continuous maintenance, such as seeding, plowing, cultivating, fertilization, or other similar practices to be practicable or to comply with applicable Federal, State, and local laws, shall be reviewed by the regulatory authority.
- The regulatory authority has provided by public notice not less than 45 days nor more than 60 days for interested citizens and local, State and Federal Agencies to review and comment on the proposed land use.

THE WYOMING DEQ OPERATES UNDER A PROCESS FOR A LAND USE CHANGE AS FOLLOWS:

- **Land Use Change to Industrial/Commercial for Coal Mine Facilities:** The permittee can apply for a land use change to industrial/commercial from the approved post mine land use as provided in LQD Coal Chapter 2. Sec. 6(b)(x)(C) which states that an application needs to demonstrate the following:
 - The proposed alternative land use is equal to or higher than previous use;
 - There is a reasonable likelihood for achievement of the use.
 - (Demonstrated proof (development vs. stranded asset))
 - The use does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution.
 - The use will not: be impracticable, or unreasonable; be inconsistent with applicable land use policies or plans: involve unreasonable delay in implementation; or cause or contribute to a violation of federal, state, or local law.

Successful examples of navigating the existing federal and state regulatory pathways to post mining reuse do exist and are available (see Chapter 3. Prior Projects: Re-use Examples on Mine Lands) for consideration of the sufficiencies or inadequacies of the existing process. Casual review of these projects do reveal certain challenges in timeliness and practical implementation land use change applications when contrasted to development timelines of lands not under the administrative authority of OSMRE or WDEQ-LQD.

Following is an actual example of a multi-step timeline, within the existing process pathway, to receive the approvals necessary for land use change (from Mining to Permanent Industrial) for approximately 460 acres within a particular Powder River Basin mine permit. In this example five individual land use changes were required over a four-year period to obtain final WDEQ-AQD and OSMRE approvals.

Ultimately the goal of land use change requests is to reach a Termination of Jurisdiction (TOJ) of the federal and state authority and enforcement of the Reclamation requirements of the Mine Permits. Simply put, to achieve TOJ is to have removed the reclamation obligation allowing the land and assets owner to use the land in a way that is equal to any other private lands outside of mining statutes, rules and regulations of the OSMRE and WDEQ-LQD.

CHALLENGES WITH CURRENT LAND USE CHANGE REQUIREMENTS (INDUSTRIAL/ COMMERCIAL RE-USE)

Timeliness of current land use change requirements and Marketability- Many of the most obvious and highest and best use scenarios for post mine reuse are for heavy industrial applications. The infrastructure capabilities of coal industrial sites are valuable and feasible for many heavy industrial applications. However, the marketability and coordination of offering site availability while seeking Termination of Jurisdiction poses a difficult management issue for mine owners or Economic Development offices. Economic Development focused site selection would have

to consider that there is a process to pursue relief from reclamation responsibilities, but not guaranteed in time or result. One potential scenario that could satisfy the use requirements of the current process could be for an owner to pursue Zoning to an Industrial classification by the County. Formal definition within Planning and Zoning regulations could serve as both a significant statement of endorsement from the public and local governing body for post mining re-use.

Establishment of a defined Industrial Development, properly Zoned and potentially subdivided could be marketed for use without risk of a reclamation responsibility for subsequent buyers or lessees. Economic Development, third party site selectors and individual developers would require a predictable outcome and a predictable timeline for reuse scenarios to be of interest. Absent a clear pathway and assured timeline, mine or power plant reuse would be disadvantaged versus sites not under the jurisdiction of the OSMRE or WDEQ-LQD even when considering the value of these sites’ superior infrastructure.

BOUNDARY/OWNERSHIP ISSUE

One of the most obvious opportunities in coal producing regions are technologies that enable processes for production of value added coal-based products. Infrastructure reuse within a former coal mine would be a natural fit. A scenario worthy of consideration is one where a third party coal-based products company (if they were receiving coal from the mine mouth or from outside providers) would need to have a clear custody transfer of feedstock materials to meet the non-mining use requirement under current rules and regulations and Termination of Jurisdiction of the lands containing the reused infrastructure. However, if the owner of the coal mining company continued export operations separate and unique from the mine mouth feedstock utilization a conflict could arise around lands and infrastructure.

UNKNOWN POST MINE USE VS. POPULATION CHANGES

As mining companies developed minerals in “mostly rural” areas, they bring with them high paying jobs and a population growth rate that was not known at the time of the mine beginning. Whether that increase in population due to mining is 2,000 people such as Colstrip, Montana or 45,000 people such as Campbell County, Wyoming, the growth of the mining sector in that area is very unknown. The markets are known at the time and the foreseeable future, but the regulation that was created 4-5 decades ago, could not have predicted the infrastructure reuse or post mine use potential. Creating a more streamlined method for post mine use of infrastructure, is a larger need to eliminate the socioeconomic vulnerability that comes with mine closure. While a large mine operation or many in the same area are wonderful for communities to flourish and grow, the unknown when the mine life expires, coupled with the difficulty in timely reuse methods create even more economic vulnerability within a community or region.

STRANDED INFRASTRUCTURE ASSETS

Infrastructure assets that could be part of a large industrial park area that are unused or not timely used could be an issue. If the site is still under the jurisdiction of the reclamation authority, these would not be assets and be the responsibility of the mine permit holder and be included in the reclamation plan. If the jurisdiction is terminated in a large “industrial park” area and infrastructure is unused or hasn’t been used in a timely manner, it creates an issue for the property owner. The issue is really the deterioration of infrastructure to a point that it needs upgrades and/or in severe cases could be abandoned. In abandonment the property would be turned over to the authority in that jurisdiction, it is assumed it would be a county government. That county government would then go through the process of selling or auctioning the property to move that property to another owner. The liability to the county would be if the property did not sell, the likelihood of this scenario is unknown.

Possible streamlined solution

In areas where the county is the approved

regulatory authority, zoning industrial infrastructure areas as “heavy industrial” would answer many of the LQD terms for reuse. The county being the approved regulatory authority, would be working with the landowner to designate the area in which the landowner would like to zone heavy industrial. This process includes input from surrounding landowners, stakeholders and public, 45 day public comment, review by the County Planning Commission, and a public hearing by the Board of County Commissioners. This would give the best opportunity to the landowner, county, State and all economic development entities for predictable outcomes.

CHAPTER FIVE

FUNDING & PARTNERSHIPS

Commentary and Analysis provided by the Office of Economic Transformation - Gillette College Foundation

5.1 FUNDING & PARTNERSHIPS

“...the report should identify and discuss opportunities for the re-purposing of these sites. This should include highlighting the Office of Clean Energy Demonstration, an overview of industries for which Wyoming may be uniquely attractive (direct air carbon capture, carbon manufacturing, hydrogen production), and suggesting a plan for alternative development as a default use of closing facilities. This section of the report should also discuss possible funding options for these industries and projects, and suggest possible partners where appropriate.”

EXCERPT FROM TNC PATHWAYS TO REUSE FOR WYOMING’S COAL INFRASTRUCTURE

FEDERAL PARTNERSHIP

The opportunity for collaboration and partnership to further the interests and discussion of infrastructure reuse has never been better. While the current owners or operators of mine sites are the obvious partner participants in partnerships, many other possibilities have arisen. In January 2021, President Joe Biden announced the establishment of the Interagency working group for coal and power plant reliant communities (IWG). The IWG brings a whole-of-government approach to create good-paying union jobs, spur economic revitalization, remediate environmental degradation, and support energy workers in coal, oil and gas, and power plant communities across the country as the U.S. prepares to undergo a historic energy evolution to a carbon emission-free electricity sector by 2035 and economy-wide net-zero emissions by 2050. U.S. Department

of Commerce’s Economic Development Administration (EDA) announcement to allocate \$300 million in American Rescue Plan funds to coal communities. The Coal Communities Commitment is the largest dedicated support for funding of coal communities in the history of the EDA. The coal commitment is 10% of the EDA’s broader announcement of \$3 billion from the American Rescue Plan to invest in American communities, aimed at helping different economies recover and improve resiliency. This has been combined with recent announcements of the Funding Opportunity for the Clean Energy on Mine Lands, (CEML), and the IRS tax incentives with 48 (c) New Clean Energy Manufacturing Tax Credit which states that projects must be located in energy communities, and 48 (e) which is a Clean Energy Investment Credit which has an increased tax credit rate for investments in energy communities. This opportunity for outside investment, coupled with an easier method for infrastructure reuse, could lessen the economic and socio-economic vulnerability of coal and power plant reliant communities. The federal government will be the most critical as a partner, as they will ultimately be the last entity that releases the obligation of reclamation in a reuse area.

LOCAL GOVERNMENT ENTITY PARTNERSHIP

As mentioned with zoning, the local government entities are very important partners for reuse of industrial sites. County zoning will be imperative in the process. The cities and towns are also very important as they provide the housing for the workforce that would be used at these areas, as well as all the services that go along with maintenance of important infrastructure and daily maintenance such as law enforcement and fire protection and services not as well know such as snow removal and right of way mowing. Another very important item that cities, towns and

counties provide is “placemaking”. Placemaking is the practice of enhancing a community’s assets to improve it’s overall attractiveness and livability. The reason this is very important is that energy communities have built very nice communities, due to taxation generated at the location where minerals are severed. Many of these communities offer amenities that are unmatched in other communities of similar size. Some examples of this would be in Campbell County; the recreation center in Gillette and Town of Wright, Children’s Developmental Services, Cam-Plex multievent center, Gillette College, Gillette College Area 59, Energy Capital Sports Complex and the Campbell County School Districts Aquatic Center. These areas also boast low crime rates, short commute times, good health and education systems and an economy that make a community very attractive to live in.

The education system is also an important part of the local government partnership. K-12 education is critically important to the overall livability of a community and improves placemaking. Secondary education is equally important in coal and power plant communities. As transformation and transition away from thermal coal increases, so does the need for workforce training. Having a good secondary education system as a partner helps train and develop skills for a new workforce as industry changes or evolves. Secondary education also serves to be the mechanism for much of the research and development that is happening to potentially use mineral resources for non-thermal or carbon neutral products.

STATE PARTNERSHIPS

Importance of Wyoming State government in the industrial reuse issue is critical. Partnership with DEQ is vital during the process of reuse. LQD relationship and partnership will most likely determine not only the length of time the reuse process happens, but also the achievable measures required to accomplish the final reuse. Other state partnerships with infrastructure reuse will be, University of Wyoming School of Energy Research, Wyoming Energy Authority, Wyoming Business Council and Wyoming State Workforce

services. All of these play a large role in the potential reuse of these sites, through different workforce, marketing, or economic development opportunities. It will also be very helpful for the Wyoming state legislature and Governor’s office to have an overall supportive stance on the infrastructure reuse issue. They will not only fund potential research and development at University of Wyoming, but they will also set policy going forward that will impact investment and technology into the future for Wyoming. Power Cooperative Partnerships One of the underplayed partnerships available is the power cooperatives that are very important in all infrastructure sites. They supply vast amounts of power to the existing infrastructure and would like to continue to provide power to those sites with new tenants. They could offer utility quantities and rates that may be very affordable to new tenants. They also may have ideas and contacts for potential tenants and/or be a partner in the reuse with the new tenants (clean energy on mine land for example).

NON-GOVERNMENTAL ORGANIZATIONS (NGO) OR NON-PROFIT ORGANIZATION PARTNERSHIPS

A very promising and welcome partner to the infrastructure reuse issue is the NGO’s. NGO’s are very interested in the reuse issue as it offers the opportunity to use existing sites for continued use, and not construct new sites on virgin ground. Once a site is fully reclaimed, it would be highly unlikely to be targeted for new development due to legacy liabilities and geotechnical issues of new construction. New facilities that could have been repurposed on these sites would then likely be constructed on greenfield sites elsewhere, leading to unnecessary impacts on landscapes, communities, and wildlife.

COMBINED PARTNERSHIPS

The federal government is investing in new clean energy technologies including carbon management, hydrogen, nuclear, rare earth and critical minerals mining and processing, and advanced manufacturing, many of which are an excellent fit for Wyoming. The opportunity for partnership for local government, state

government, private business and educational facilities to join the investment from the federal government has never been better. These coal industry facilities represent near ideal locations for the development of pilot projects, demonstration sites, and 'Energy Hub' type facilities. Some of the timelines that these infrastructure sites may be abandoned, solar and wind energy projects are expected to see a tenfold increase in generating capacity on the grid which overlaps with many of the state's coal sites. Ideas for these sites represent an opportunity to repurpose Wyoming's legacy industrial sites using multiple partnerships. These partnerships would help to provide displaced workers with new jobs, new state and county revenue, and reduce the impact of development on landscapes, communities, and wildlife. Public private partnerships are likely to be the best to advance Wyoming into a level energy State. At this moment in time, it seems like the stars have aligned, rarely does an opportunity come that makes partnerships across all entities a positive situation.

COAL INFRASTRUCTURE *REUSE REPORT*

PREPARED FOR:
THE NATURE CONSERVANCY
IN WYOMING



APPENDIX A MAPS & FIGURES

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MAPS - SELECT SERIES, GUIDE AND DESCRIPTIONS
Disclaimer - The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. The GIS data is an approximation of the real world, it is not survey grade data and should not be treated as such. Waypoints Wyoming makes no warranties or guarantees as to the completeness or accuracy thereof.

ANNUAL AVERAGE WIND AT 80 METERS ABOVE SURFACE LEVEL: WYOMING COAL MINE PERMIT LOCATIONS, WYOMING POWER PLANT LOCATIONS
In this figure coal Fired power plant locations and coal mine permits are displayed over the top of Annual Average Wind Speed at 80 meters above Surface Level raster data. Power Plant Locations are displayed as points denoted by a green star, and coal mine permits are displayed according to their individual polygons.

The entire U.S. map of wind speed is displayed in the NE corner of the map in order to provide context for the wind speeds at the mine and power generation sites in Wyoming, in comparison to the rest of the nation.

The Annual Average Wind Speed at 80 meters above Surface Level raster data was obtained from the NREL website. The raster values were divided into 9 groups and then colored to match the “Wind Resource of the United States – Annual Average wind Speed at 80 Meters above Surface Level” map produced by NREL.

SOLAR
In this figure power plant locations and coal mine permits are displayed over the top of U.S. Annual Direct Normal Solar Irradiance. Power Plant Locations are displayed as points denoted by a green star, and coal mine permits are displayed according to their individual polygons.

The entire U.S. map of direct normal solar irradiance is displayed in the NE corner of the map in order to provide context for the solar irradiance at the mine and power generation sites in Wyoming, in comparison to the rest of the nation.

The U.S. Annual Direct Normal Solar Irradiance raster data was obtained from the NREL website. The raster values were divided into 9 groups and then

colored to match the “Direct Normal solar Irradiance - National Solar Radiation Database Physical Solar Model” map produced by NREL.

STATEWIDE
In this map set, power plant locations (WYGISC – Power Generation) and active coal mine permits (WYOMING ACTIVE COAL PERMIT BOUNDARIES MARCH 2022) are displayed within the context of Wyoming, the counties of Wyoming, and major highways (USA Major Highways).

- Map Set:**
- **Figure A.1** Wyoming Statewide Coal Fired Power Plants_With Mine Permits
 - **Figure A.2** Wyoming Statewide Active Coal Mine Permits
 - **Figure A.3** Wyoming Statewide Active Coal Mine Permits_With Highways
 - **Figure A.4** Wyoming Statewide Coal Fired Power Plants
 - **Figure A.5** Wyoming Statewide Coal Fired Power Plants_With Highways

LOCATION MAPS COAL MINE ACTIVE PERMITS
A.1 – Permit Boundaries
The individual permit outline (*WYOMING ACTIVE COAL PERMIT BOUNDARIES MARCH 2022*) for each mine is displayed over ESRI aerial imagery. Two arbitrary rectangular polygons, a minimum extent and a maximum extent, were drawn around the Industrial Facilities in order to highlight the location of the primary structures within the mine permit that are likely to be of use after the mine pit is reclaimed. The minimum extent polygon was drawn by exploring the ESRI aerial imagery within the mine permit outline and drawing a rectangle that closely fit what appeared to be the primary structures such as buildings, silos, parking lots, and rail spurs. The maximum extent polygon was drawn in the same manner, by exploring the ESRI aerial imagery within the permit outline and drawing a rectangle that included the minimum extent as well as broader structures such as ponds, roads, and rail.

A.2 – Surface Ownership
This map set displays the surface ownership within a two mile buffer of the coal mine permit. The minimum and maximum extent rectangles described in A.1 permit boundaries are included in order to highlight the Industrial Facility locations.

Individual tax parcel information was obtained from each county containing a coal mine permit. Four

layers were derived from the county tax parcel data. The first layer is tax parcel lines, no definition query was applied. The second is, state ownership, the parcel data was queried to only display state owned parcels. The state ownership layer was colored according to the BLM Map Ownership Matrix for state ownership (RGB 179-227-238) and made 50% transparent. The third layer is Federal ownership, the parcel data was quired to only display federally owned parcels. The federal ownership layer was colored according to the BLM Map Ownership Matrix for federal ownership, Bureau of Land Management, (RGB 254-230-121) and made 50% transparent. The fourth layer is Surface Ownership within 2 mi of the Mine Permit Boundary. The purpose of the Surface Ownership within 2 mi of the Mine Permit Boundary layer is to give an idea of the number of surface owners, the type of surface ownership, and the complexity of surface ownership directly associated with each coal mine permit.

Utilizing ArcGIS, a 2 mile buffer polygon was drawn around each coal mine permit. This buffer was then used to clip the tax parcel data surrounding, and within, the coal mine permit. The clipped parcel data became its own data set separate from the original parcel data set. The new parcel data retains all of the same fields but is reduced to only the parcels, or portions of parcels, within the 2 mi buffer. In general, the individual parcels were too small and too numerous to be labeled according to the surface owner. For this reason a field entitled ‘Surface Ownership Group’ was added to each individual clipped parcel data set. This field was used to provide an arbitrary identification number for surface owners of 40 acres or greater. For surface owners less than 40 acres each parcel was assigned either the category of residential, commercial, exempt, agricultural, or unassigned. All of the parcel data sets, except Campbell county, contained these designations with in a field entitled something along the lines of ‘Account Type’. In these cases, the designation within the parcel data set was applied to the individual records within the surface ownership group field, for the parcels under 40 acres. For the Campbell County parcel data sets, the categories were manually assigned to each parcel record based on location, location over aerial imagery, and reference to the Campbell County Assessor's website. In both cases the designation of the parcels is only to give a general understanding of the use of land in association with the coal mine permit, and should not be considered a true and accurate description of the land use. In all cases land

ownership will need to be validated at the time of interest. In the case of parcels greater than 40 acres, the parcels were sorted Alphabetically by owner and a number assigned in order.

The background table for each coal mine Surface Ownership within 2 mi of the Mine Permit Boundary layer was exported to excel. A map reference table, for use as a key, to identify the numbered parcels in the surface ownership map was produced by taking a copy of the background table and reducing it to two fields, Surface owner, and surface ownership group which was renamed to ‘Identifier’. The table was further reduced by removing all records without a number identifier, and then removing all duplicates, so that each surface owner greater than 40 acres was represented one time and identified with a unique number identifier.

The unlabeled parcels smaller than 40 acres were symbolized with a color according to the category assigned. Parcels designated ‘unassigned’ were excluded because they generally represented roads and did not have an owner assigned. Labeled parcels (greater than 40 acres) were assigned an arbitrary color based on surface ownership group number, in order to visually differentiate and group the “large” surface owners.

In cases where it made sense, when the surface ownership within the 2 mile buffer was not as extensive, if parcels displayed large enough to be labeled, then parcels smaller than 40 acres were assigned a surface ownership group number and labeled on the map.

A.3 – Transportation
This Map set displays USA Railroads and highways (World Transportation) in proximity to coal mine permit locations. Layers are displayed over ESRI aerial Imagery.

A.4 – Transmission Lines
This map series displays transmission line data (WYregion_TransmissionLines_DHS2021) and substations point data (WYregion_Substations_DHS2021) in relation to individual coal mine permit outlines. The layers are displayed over ESRI aerial imagery. The transmission line data and substation point data were downloaded from the Brightfields Energy Siting Initiative (BESI) map tool, which obtained the data from Homeland Infrastructure Foundation-Level Data (HIFLD) geoplatform.

A.5 – Pipelines

This map set displays pipelines in association with the coal mine permit boundary. The layers are displayed over the ESRI gray canvas base layer. Pipeline data for the state of Wyoming is available to be viewed on the Enhanced Oil Recovery Institute (EORI) website (<https://www.eoriwyoming.org/map-gallery>), however the EORI does not provide shape files for this data for security purposes. Upon request, on a case by case basis, the EORI will allow users to connect to the EORI map server through ArcGIS, which allows access to the pipeline data in the form of a PNG image with a transparent background. This method allows for the pipeline data to be displayed as a layer, but does not allow for any control over the symbology. This link to the EORI map server provides the pipeline layers for this map set.

A.6 – Groundwater Wells

This map set displays WSEO permitted groundwater wells pertaining to, and located within, individual coal mine permits. The minimum and maximum extent rectangles described in A.1 permit boundaries are included in order to highlight the Industrial Facility locations.

Ground water wells within Wyoming are permitted by the Wyoming State Engineers Office (WSEO). The data for these wells is housed within a database that can be accessed through the WESO e-Permit portal (<http://seoweb.wyo.gov/e-Permit/Common/Login.aspx>). Lat long coordinates are included with the records, however the WSEO does not provide a GIS data set. The Wyoming State Geological Survey (WSGS) has compiled the WSEO ground water well permits into a comprehensive Geodatabase. This data set from the WSGS was used for this map set. Utilizing ArcGIS, the WY_Wells_Permits feature class was clipped using each coal mine permit. The clipped well data became its own data set separate from the original well data set. The new groundwater well data retains all of the same fields but is reduced to only the wells within the individual coal mine permit. The records within each coal mine groundwater well data set was then filtered utilizing definition queries in order to reduce the wells down to only those wells pertaining to the mine permit itself.

In general, the definition query progression was to sort by complete or fully adjudicated wells; then by use, removing stock wells, monitoring wells, and coal bed methane wells; then by company; and final, if necessary, by total depth. The individual wells displayed on each map, and within the associated

water wells table, represent what appear to be the WSEO permitted groundwater wells associated with coal mine permit based on the data available within the WY_WELLS_PERMITS table, location within the coal mine permit, and comparison of the well locations to ESRI aerial Imagery. This data is provided to give a general understanding of the potential WSEO permitted wells that may exist within, and be pertinent to, the coal mine permit outline. No warranty is made regarding the correctness of this data. Further investigation of each individual water well permit would be necessary to validate the wells. After filtering, Seminoe II did not have any associated water well permits.

After definition queries were applied, the background table for each coal mine water well permit feature class was exported to excel. The fields within each table were reduced to WR Number, WR Status, Company, Facility Name, Use, Flow, Total Depth, Lat and Long. Each table is included along with the associated WSEO Ground Water Well Permit Map. A.7 – Streams – This map set displays streams in association with individual coal mine permit outlines. Layers are displayed over top of ESRI aerial imagery. A.8 – Industrial Facility Areas – This map set focuses on the buildings, structures, and facilities that are likely to be of use after the coal mine itself has been reclaimed.

LOCATION MAPS COAL FIRED POWER PLANTS

A.1 – Primary Parcel Outline

Power Plants do not have a permit boundary in the way that coal mines do. In the case of power plant locations, the tax parcel, or parcels, that immediately contain the power plant facilities was used to denote the outline for each power plant site, as a proxy for the coal mine permit boundary used in the corresponding map set for coal mines.

The individual site outline for each power plant site is displayed over ESRI aerial imagery. An arbitrary rectangular polygon was drawn around the Industrial Facilities in order to highlight the location of the primary structures of each power plant. The polygon was drawn by exploring the ESRI aerial imagery within the site outline and drawing a rectangle that closely fit what appeared to be the primary structures such as buildings, silos, parking lots, and rail spurs.

A.2 – Surface Ownership

This map set displays the surface ownership within a two-mile buffer of the power plant site outline

described in A.1 Primary Parcel Outline. The extent rectangle described in A.1 Primary Parcel Outline is included in order to highlight the Industrial Facility locations.

Individual tax parcel information was obtained from each county containing coal fired power plants. Four layers were derived from the county tax parcel data. The first layer is tax parcel lines, no definition query was applied. The second is, state ownership, the parcel data was queried to only display state owned parcels. The state ownership layer was colored according to the BLM Map Ownership Matrix for state ownership (RGB 179-227-238) and made 50% transparent. The third layer is Federal ownership, the parcel data was queried to only display federally owned parcels. The federal ownership layer was colored according to the BLM Map Ownership Matrix for federal ownership, Bureau of Land Management, (RGB 254-230-121) and made 50% transparent. The fourth layer is Surface Ownership within 2 mi of the Primary Plant Parcel. The purpose of the Surface Ownership within 2 mi of the Primary Plant Parcel layer is to give an idea of the number of surface owners, the type of surface ownership, and the complexity of surface ownership directly associated with each power plant.

Utilizing ArcGIS, a 2 mile buffer polygon was drawn around each primary parcel. This buffer was then used to clip the tax parcel data surrounding, and within, the power plant primary parcel. The clipped parcel data became its own data set separate from the original parcel data set. The new parcel data retains all of the same fields but is reduced to only the parcels, or portions of parcels, within the 2 mi buffer. In general, the individual parcels were too small and too numerous to be labeled according to the surface owner. For this reason, a field entitled ‘Surface Ownership Group’ was added to each individual clipped parcel data set. This field was used to provide an arbitrary identification number for surface owners of 40 acres or greater. For surface owners less than 40 acres each parcel was assigned either the category of residential, commercial, exempt, agricultural, or unassigned. All of the parcel data sets, except Campbell county, contained these designations within a field entitled something along the lines of ‘Account Type’. In these cases, the designation within the parcel data set was applied to the individual records within the surface ownership group field, for the parcels under 40 acres. For the Campbell County parcel data sets, the categories were manually assigned to each parcel record

based on location, location over aerial imagery, and reference to the Campbell County Assessors website. In both cases the designation of the parcels is only to give a general understanding of the use of land in association with the power plant and should not be considered a true and accurate description of the land use. In all cases land ownership will need to be validated at the time of interest. In the case of parcels greater than 40 acres, the parcels were sorted Alphabetically by owner and a number assigned in order.

The background table for each power plant Surface Ownership within 2 mi of the Primary Plant Parcel layer was exported to excel. A map reference table, for use as a key, to identify the numbered parcels in the surface ownership map was produced by taking a copy of the background table and reducing it to two fields, Surface owner, and surface ownership group which was renamed to ‘Identifier’. The table was further reduced by removing all records without a number identifier, and then removing all duplicates, so that each surface owner greater than 40 acres was represented one time and identified with a unique number identifier.

The unlabeled parcels smaller than 40 acres were symbolized with a color according to the category assigned. Parcels designated ‘unassigned’ were excluded because they generally represented roads and did not have an owner assigned. Labeled parcels (greater than 40 acres) were assigned an arbitrary color based on surface ownership group number, in order to visually differentiate and group the “large” surface owners.

In cases where it made sense, when the surface ownership within the 2 mi buffer was not as extensive, if parcels displayed large enough to be labeled, then parcels smaller than 40 acres were assigned a surface ownership group number and labeled on the map.

For both Dave Johnston and Laramie River Station, there were ‘blank’ areas where the power plants are located in the parcel data sets obtained from Converse County and Platte County respectively. In both cases the County Assessor was contacted to confirm surface ownership.

A.3 – Transportation

This Map set displays USA Railroads and highways (World Transportation) in proximity to power plant locations. Layers are displayed over ESRI aerial

Imagery.

A.4 – Transmission Lines

This map series displays transmission line data (WYregion_TransmissionLines_DHS2021) and substations point data (WYregion_Substations_DHS2021) in relation to individual power plant site outlines. The layers are displayed over ESRI aerial imagery. The transmission line data and substation point data were downloaded from the Brightfields Energy Siting Initiative (BESI) map tool, which obtained the data from Homeland Infrastructure Foundation-Level Data (HIFLD) geoplatform.

A.5 – Pipelines

This map set displays pipelines in association with the power plant site outline. The layers are displayed over the ESRI gray canvas base layer.

Pipeline data for the state of Wyoming is available to be viewed on the Enhanced Oil Recovery Institute (EORI) website (<https://www.eoriwyoming.org/map-gallery>), however the EORI does not provide shape files for this data for security purposes. Upon request, on a case-by-case basis, the EORI will allow users to connect to the EORI map server through ArcGIS, which allows access to the pipeline data in the form of a PNG image with a transparent background. This method allows for the pipeline data to be displayed as a layer but does not allow for any control over the symbology. This link to the EORI map server provides the pipeline layers for this map set.

A.6 – Groundwater Wells

This map set displays WSEO permitted groundwater wells pertaining to, and located within, individual power plant site outlines. The extent rectangle described in A.1 – Primary Parcel Outline are included, in order to highlight the Industrial Facility locations.

Ground water wells within Wyoming are permitted by the Wyoming State Engineers Office (WSEO). The data for these wells is housed within a database that can be accessed through the WESO e-Permit portal (<http://seoweb.wyo.gov/e-Permit/Common/Login.aspx>). Lat long coordinates are included with the records, however the WSEO does not provide a GIS data set. The Wyoming State Geological Survey (WSGS) has compiled the WSEO ground water well permits into a comprehensive Geodatabase. This data set from the WSGS was used for this map set.

Utilizing ArcGIS, the WY_Wells_Permits feature class

was clipped using each power plant site outline. The clipped well data became its own data set separate from the original well data set. The new groundwater well data retains all of the same fields but is reduced to only the wells within the individual power plant site outlines. The records within each power plant groundwater well data set was then filtered utilizing definition queries in order to reduce the wells down to only those wells pertaining to the power plant itself.

In general, the definition query progression was to sort by complete or fully adjudicated wells; then by use, removing stock wells, monitoring wells, and coal bed methane wells; then by company; and final, if necessary, by total depth. The individual wells displayed on each map, and within the associated water wells table, represent what appear to be the WSEO permitted groundwater wells associated with power plant based on the data available within the WY_WELLS_PERMITS table, location within the coal mine permit, and comparison of the well locations to ESRI aerial Imagery. This data is provided to give a general understanding of the potential WSEO permitted wells that may exist within, and be pertinent to, the power plant site outline. No warranty is made regarding the correctness of this data. Further investigation of each individual water well permit would be necessary to validate the wells.

After filtering, Genesis Alkali and Naughton did not have any associated WSEO ground water well permits.

After definition queries were applied, the background table for each coal mine water well permit feature class was exported to excel. The fields within each table were reduced to WR Number, WR Status, Company, Facility Name, Use, Flow, Total Depth, Lat and Long. Each table is included along with the associated WSEO Ground Water Well Permit Map.

A.7 – Streams

This map set displays streams in association with individual power plant site outlines. Layers are displayed over top of ESRI aerial imagery. A.8 – Industrial Facility Areas – This map set focuses on the buildings, structures, and facilities of the power plant itself.

REFERENCES

ANNUAL AVERAGE WIND SPEED AT 80 METERS ABOVE SURFACE LEVEL RASTER DATA
Data Source: National Renewable Energy Laboratory
Description: Contiguous United States – U.S. Multi Year Average Wind Speeds at All Heights
Link: <https://www.nrel.gov/gis/wind-resource-maps.html>
Method: The Annual Average Wind Speed at 80 meters above Surface Level raster data was obtained from the NREL website. The raster values were divided into 9 groups and then colored to match the “Wind Resource of the United States – Annual Average wind Speed at 80 Meters above Surface Level” map produced by NREL.
Date: September 2017
Disclaimer: This data was developed by the National Renewable Energy Laboratory (“NREL”), which is operated by the Alliance for Sustainable Energy, LLC for the U.S. Department of Energy (“DOE”). The user is granted the right, without any fee or cost, to use, copy, modify, alter, enhance and distribute this data for any purpose whatsoever, provided that this entire notice appears in all copies of the data. Further, the user of this data agrees to credit NREL in any publications or software that incorporate or use the data. Access to and use of the data shall further impose the following obligations on the User. The names DOE/ NREL may not be used in any advertising or publicity to endorse or promote any product or commercial entity using or incorporating the data unless specific written authorization is obtained from DOE/ NREL. The User also understands that DOE/ NREL shall not be obligated to provide updates, support, consulting, training or assistance of any kind whatsoever with regard to the use of the data. THE DATA IS PROVIDED "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL DOE/ NREL BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM AN ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE ACCESS OR USE OF THE DATA.

DIRECT NORMAL SOLAR IRRADIANCE RASTER DATA
Data Source: National Renewable Energy Laboratory
Description: U.S. Annual Solar Direct Normal Irradiance
Link: <https://www.nrel.gov/gis/solar-resource-maps.html>
Method: The U.S. Annual Direct Normal Solar Irradiance raster data was obtained from the NREL website. The raster values were divided into 9 groups and then colored t match the “Direct Normal solar Irradiance - National Solar Radiation Database Physical Solar Model” map produced by NREL.
Date: Feb. 22, 2018
Disclaimer: This data was developed by the National Renewable Energy Laboratory (“NREL”), which is operated by the Alliance for Sustainable Energy, LLC for the U.S. Department of Energy (“DOE”). The user is granted the right, without any fee or cost, to use, copy, modify, alter, enhance and distribute this data for any purpose whatsoever, provided that this entire notice appears in all copies of the data. Further, the user of this data agrees to credit NREL in any publications or software that incorporate or use the data. Access to and use of the data shall further impose the following obligations on the User. The names DOE/ NREL may not be used in any advertising or publicity to endorse or promote any product or commercial entity using or incorporating the data unless specific written authorization is obtained from DOE/ NREL. The User also understands that DOE/ NREL shall not be obligated to provide updates, support, consulting, training or assistance of any kind whatsoever with regard to the use of the data. THE DATA IS PROVIDED "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL DOE/ NREL BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO CLAIMS ASSOCIATED WITH THE LOSS OF DATA OR PROFITS, WHICH MAY RESULT FROM AN ACTION IN CONTRACT, NEGLIGENCE OR OTHER TORTIOUS CLAIM THAT ARISES OUT OF OR IN CONNECTION WITH THE ACCESS OR USE OF THE DATA. Direct Normal Solar Irradiance raster data

WYOMING ACTIVE COAL PERMIT BOUNDARIES MARCH 2022
Data Source: Wyoming Department of Environmental Quality, Land Quality Division, March 7, 2022.
Description: This shapefile contains permit boundaries for all coal mines with active permits and research and development (R&D) licenses in Wyoming. The boundaries are current as of March 7, 2022. The shapefile was created by the Land Quality Division (LQD) of the Wyoming Department of Environmental Quality (WDEQ) from information provided by coal mining companies. These data are for display purposes only and do not represent survey grade information. Users are referred to individual mine permits for more detailed information. The WDEQ/ LQD makes no warranties as to the validity, and assumes no liability associated with the use or misuse of this information. Permit boundaries were obtained from the mines, usually in CAD drawing file format, and then converted to ESRI shapefile format. The exception to this process was the permit boundaries for the Grass Creek and Izita mines, which were digitized using georeferenced scanned maps from the permit. LQD has also digitized additional areas at other mines to reflect the current extent of permit boundaries. The accuracy of the permit boundaries was checked in several ways. First, the boundaries were visually compared against current maps in the permit and annual reports. Second, the boundaries were checked against the legal description information in Appendix C of the adjudication file for each permit. Finally, the boundaries were checked against the most recent Public Land Survey System (PLSS) information in the Geographic Coordinate Database (GCDB). Using the legal description information in Appendix C in the adjudication file of each permit, most of the permit boundaries were adjusted to match against the current county GCDB. In cases where the existing permit boundary matched very closely to the GCDB (generally within 10 feet), or the acres calculated in GIS matched the actual permit acres, the boundary was not adjusted. Boundaries were also not adjusted in cases where the legal description in Appendix C was not tabulated by PLSS. It should be noted that some users may notice that the permit boundaries do not match exactly with section lines depicted on different versions of the PLSS, such as USGS Digital Raster Graphics (DRG) topographic maps or older versions of the GCDB. The GCDB data used for this evaluation was presumed to be the most up to date and accurate PLSS data available. However, it should be noted that the BLM cautions that the GCDB dataset has no legal significance and cannot be used as a substitute for a legal boundary survey. Further information on GCDB is available in the metadata for each Wyoming county dataset. The scale of the boundaries used in this compilation varied by mine. LQD guidelines recommend map scales from 1 inch equal to 400 feet to 1 inch equal to 2,000 feet, depending on the purpose of the map. The most common scale used in this compilation was 1 inch equal to 500 feet used in coal mine annual reports, but some maps or submittals were at other scales. In cases where the permit boundary was supplied by the mining company via a CAD file, the scale was not provided. Users should note that coal mine permit boundaries in Wyoming can frequently change due to incidental boundary revisions (IBRs), amendment areas, and bond release. The permit boundaries in this shapefile are considered current as of March 7, 2022. The most up to date information on permit boundaries and acreages can be obtained by checking Appendix C in the adjudication file of each mine permit.
Link: <https://deq.wyoming.gov/land-quality/map-resources/>
Date: 5/4/2022

WELLS AND SPRINGS
Data Source: Wyoming State Geological Survey - Public data accessed from e-Permit website <http://seoweb.wyo.gov/e-Permit/Common/Login.aspx>

Description: PUBLICATION DATE: 3/31/2022CURRENTNESS: Data downloaded via e-Permit on 3/28/2022ACCURACY: variable, see WSEO website for informationDATUM: NAD83PROJECTION: WGS_1984_Web_Mercator_Auxiliary_SphereDATA AUTHOR: Wyoming State Engineer's OfficeCONTACT INFORMATION: Wyoming State Engineer's OfficeWebsite: <http://seo.wyo.gov>/Address: 122 West 25th Street, Herschler Building, 2nd Floor West, Cheyenne, Wyoming 82002Telephone: 307-777-6163 (Groundwater Division) PROCESSES:Downloaded from e-Permit in 35 parts (all well permits) Consists of all permits with Water Right Parameters Diversion Type "Groundwater" Does not include CBM facilitiesDoes not include well permits without a county designationCompiled and converted to spatial dataNo alterations made to data
Link: <https://www.wsgs.wyo.gov/pubs-maps/gis.aspx>
Date: 3/18/2022

Disclaimer: Users of this map are cautioned against using the data at scales different from those at which the map was compiled. Using these data at a larger scale will not provide greater accuracy and is a misuse of the data. The Wyoming State Geological Survey (WSGS) and State of Wyoming make no representation or warranty, expressed or implied, regarding the use, accuracy, or completeness of the data presented herein, or of a map printed from these data. The act of distribution shall not constitute such a warranty. The WSGS does not guarantee the digital data or any map printed from the data to be free of errors or inaccuracies. The WSGS and State of Wyoming disclaim any responsibility or liability for interpretations made from, or any decisions based on, the digital data or printed map. The WSGS and State of Wyoming retain and do not waive sovereign immunity. The use of or reference to trademarks, trade names, or other product or company names in this publication is for descriptive or informational purposes only, or is pursuant to licensing agreements between the WSGS or State of Wyoming and software or hardware developers/vendors, and does not imply endorsement of those products by the WSGS or State of Wyoming.

USA COUNTIES GENERALIZED

Data Source: Esri, TomTom, U.S. Department of Commerce, U.S. Census Bureau
Description: USA Counties (Generalized) provides 2017 boundaries for the counties of the United States in the 50 states and the District of Columbia. The linework has been generalized for increased performance and best viewed at smaller scales. Attribute fields include estimated 2017 total population, 2010 U.S. Census demographic information, and 2012 Census of Agriculture information for the USA counties
Link: https://services.arcgis.com/P3ePLMYs2RVChkJx/arcgis/rest/services/USA_Counties_Generalized/FeatureServer
Date: 6/16/2021

WYREGION_TRANSMISSIONLINES_DHS2021

Data Source: Brightfields Energy Siting Initiative map tool; original source, Homeland Infrastructure Foundation-Level Data (HIFLD) geoplatform
Description: Line data depicting electric power transmission lines
Link: <https://www.nature.org/besimap>
Date: June 2021

WYREGION_SUBSTATIONS_DHS2021

Data Source: Brightfields Energy Siting Initiative map tool; original source, Homeland Infrastructure Foundation-Level Data (HIFLD) geoplatform
Description: Point data depicting electric substations
Link: <https://www.nature.org/besimap>
Date: July 2021

DATA SOURCE: UNIVERSITY OF WYOMING’S DEPARTMENT OF GEOGRAPHY, THE WYOMING STUDENT ATLAS ONLINE
Description: U.S. Geological Survey National Water Information System and Wyoming State Geological Survey, with streams edited and added by Wyoming Geographic Information Science Center (2017) using the ESRI Topography base map. Approximately 1:100,000 scale. The Wyoming Student Atlas Online is a Project of the University of Wyoming’s Department of Geography, Wyoming Geographic Information Science Center, and Wyoming Geographic Alliance.
Link: https://services4.arcgis.com/3Gy6zyvWSR2Q8akX/arcgis/rest/services/streams_rivers/FeatureServer

Date: 10/16/2017
Disclaimer: This data was collected as part of the University of Wyoming's Wyoming Student Atlas project. The University of Wyoming shall not be held liable for improper or incorrect use of this data.

USA MAJOR HIGHWAYS

Data Source: Esri, TomTom
Description: U.S. Major Highways represents the major highways of the United States. These include interstates, U.S. highways, state highways and major roads. This dataset is a subset of the Streets dataset. It contains all Class 1 and 2 roads segments plus any other road segments necessary to provide network connectivity for the Class_Rte field.
Link: Download from ArcGIS online
Date: Not Applicable

WORLD TRANSPORTATION

Data Source: Esri, HERE, Garmin, © OpenStreetMap contributors
Description: This map presents transportation data, including highways, roads, railroads, and airports for the world. The map was developed by Esri using Esri highway data; Garmin basemap layers; HERE street data for North America, Europe, Australia, New Zealand, South America and Central America, India, select countries in Africa, and most of the Middle East. Data from OpenStreetMap contributors in select countries in Africa. For more information on this map, including our terms of use, visit us online at
Link: http://goto.arcgisonline.com/maps/Reference/World_Transportation
Date: Not Applicable

USA RAILROADS

Data Source: Federal Railroad Administration (FRA), Esri
Description: USA Railroads is a comprehensive database of the nation's railway system at 1:24,000 to 1:100,000 scale. The data set covers all 50 States plus the District of Columbia.
Link: https://services.arcgis.com/P3ePLMYs2RVChkJx/arcgis/rest/services/USA_Railroads_1/FeatureServer
Date: 5/10/2017

WORLD IMAGERY

Data Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Description: World Imagery provides one meter or better satellite and aerial imagery in many parts of the world and lower resolution satellite imagery worldwide. The map includes 15m TerraColor imagery at small and mid-scales (~1:591M down to ~1:288k) for the world. The map features Maxar imagery at 0.3m resolution for select metropolitan areas around the world, 0.5m resolution across the United States and parts of Western Europe, and 1m resolution imagery across the rest of the world. In addition to commercial sources, the World Imagery map features high-resolution aerial photography contributed by the GIS User Community. This imagery ranges from 0.3m to 0.03m resolution (down to ~1:280 in select communities). For more information on this map, including the terms of use, visit us online.
Link: ArcGIS base map
Date: Not Applicable

EORI PIPELINE DATA

Data Source: Enhanced Oil Recovery Institute
Description: EORI does not provide shape files for this data for security purposes. Upon request, on a case-by-case basis, the EORI will allow users to connect to the EORI map server through ArcGIS, which allows access to the pipeline data in the form of a PNG image with a transparent back ground. This method allows for the pipeline data to be displayed as a layer but does not allow for any control over the symbology.
Link: <https://www.eoriwyoming.org/map-gallery>
Method: Not Applicable
Date: Not Applicable

TAX PARCEL DATA

BIG HORN COUNTY, MONTANA

Data Source: Montana.gov Montana Cadastral website
Description: This parcel data set was downloaded from the Montana.gov Montana Cadastral website
Link: <http://svc.mt.gov/msl/mtcadastral> <https://ftpgeoinfo.msl.mt.gov/Data/Spatial/MSDI/Cadastral/>
Date: 2/21/2023

CAMPBELL COUNTY

Data Source: Campbell County GIS Department
Description: This data set was requested through the GIS data request form located on the Campbell County web site.
Link: <https://www.campbellcountyny.gov/FormCenter/Public-Works-15/GIS-Data-Request-Form-121>
Date: 9/16/2022

CARBON COUNTY

Data Source: Carbon County website
Description: This parcel data set was downloaded from the Carbon County Website
Link: <https://greenwoodmap.com/carbon/>
Date: 1/18/2023

CONVERSE COUNTY

Data Source: Convers County Website
Description: This data set was downloaded from the convers county website.
Parcel Ownership- This data file represents taxable private surface ownership to the best of Converse County's ability. It may not show State, Federal or other exempt ownership. You can always contact the Converse County Assessor's for clarification. Some of the parcel data surrounding the Dave Johnston power plant was blank. Dixie Huxtable with the County Assessors Office was contacted to confirm surface ownership.
Link: <https://maps.greenwoodmap.com/converse/download/?>
Date: 8/2/2022

HOT SPRINGS COUNTY

Data Source: Hot Springs County website
Description: This parcel data set was downloaded from the Hot Springs County Website
Link: <https://maps.greenwoodmap.com/hotsprings/mapserver/>
Date: 1/13/2023

LINCOLN COUNTY

Data Source: Lincoln County website
Description: This data set was downloaded from the Lincoln County website.
Link: https://www.lincolncountyny.gov/government/gis___it/index.php
Date: 9/16/2022

PLATTE COUNTY

Data Source: Platte County Assessors Office
Description: This data set was requested via email (deppel@plattecountynyoming.com). The parcel immediately surrounding Laramie River Station was missing ownership information. Danette Epple with the Platte County Assessors office was contacted to verify the ownership.
Link: <https://www.plattecountynyoming.com/departments/Assessor/gis-information>
Date: 9/16/2023

SHERIDAN COUNTY

Data Source: Sheridan County GIS Department
Description: This data set was requested via email (gis@sheridancountyny.gov)
Link: <https://www.sheridancounty.com/depts/information-technology/gis-and-interactive-mapping/>
Date: 9/16/2022
Disclaimer: Ownership of the data stays with Sheridan County and distributing or permitting access to this data requires consent of Sheridan County GIS Dept. The GIS data is an approximation of the real world, it is not survey grade data and should not be treated as such. The data provided is on an “as is” basis without warranties of any kind. Sheridan County assumes no liability for actions taken by users based on the data therein. Any user of this data assumes all responsibility for use thereof, and further agrees to hold Sheridan County harmless from and against any damage, loss, or liability arising from any use of this data. While this information is intended to be accurate, any manifest errors are unintentional and subject to correction.

SWEETWATER COUNTY

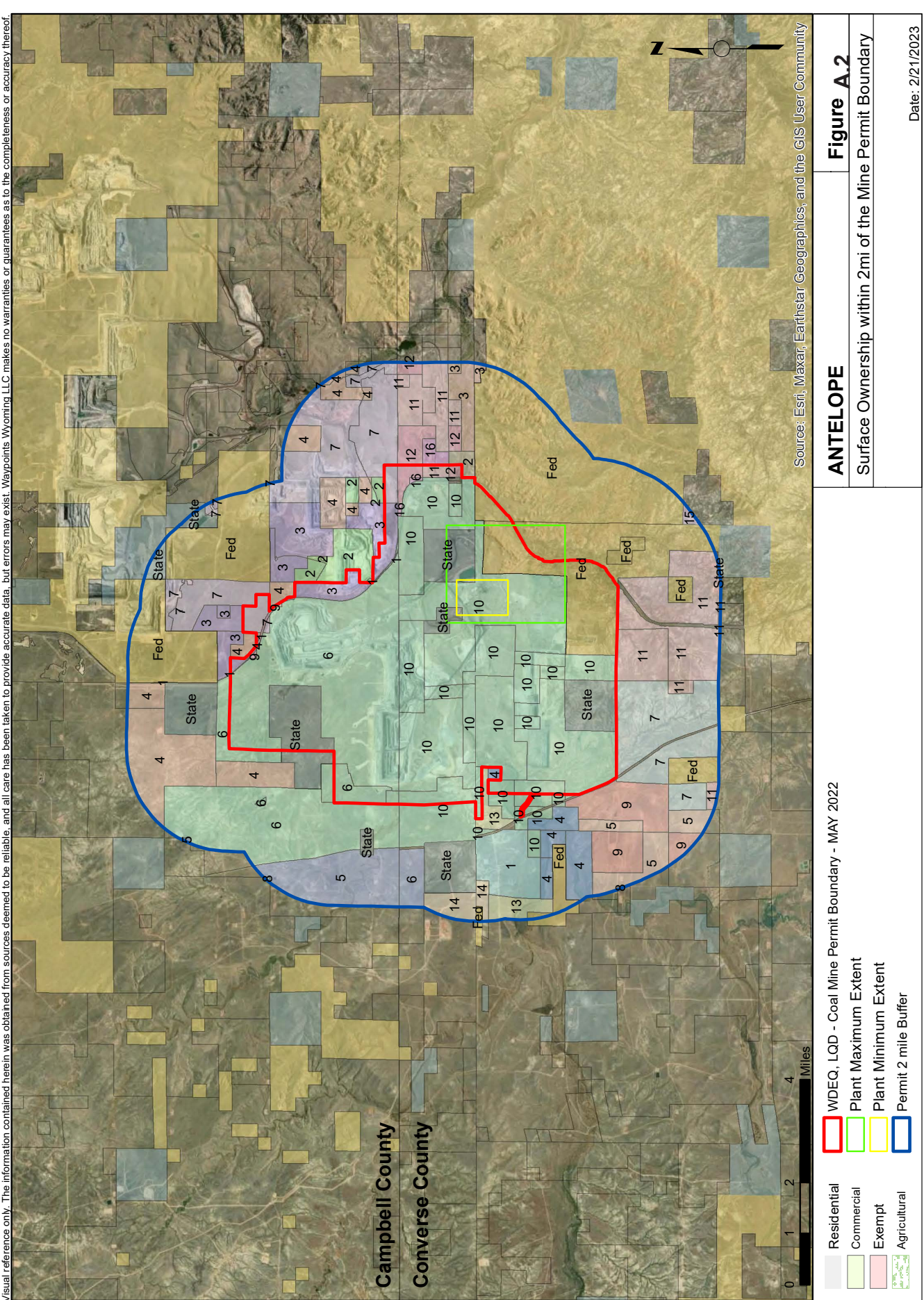
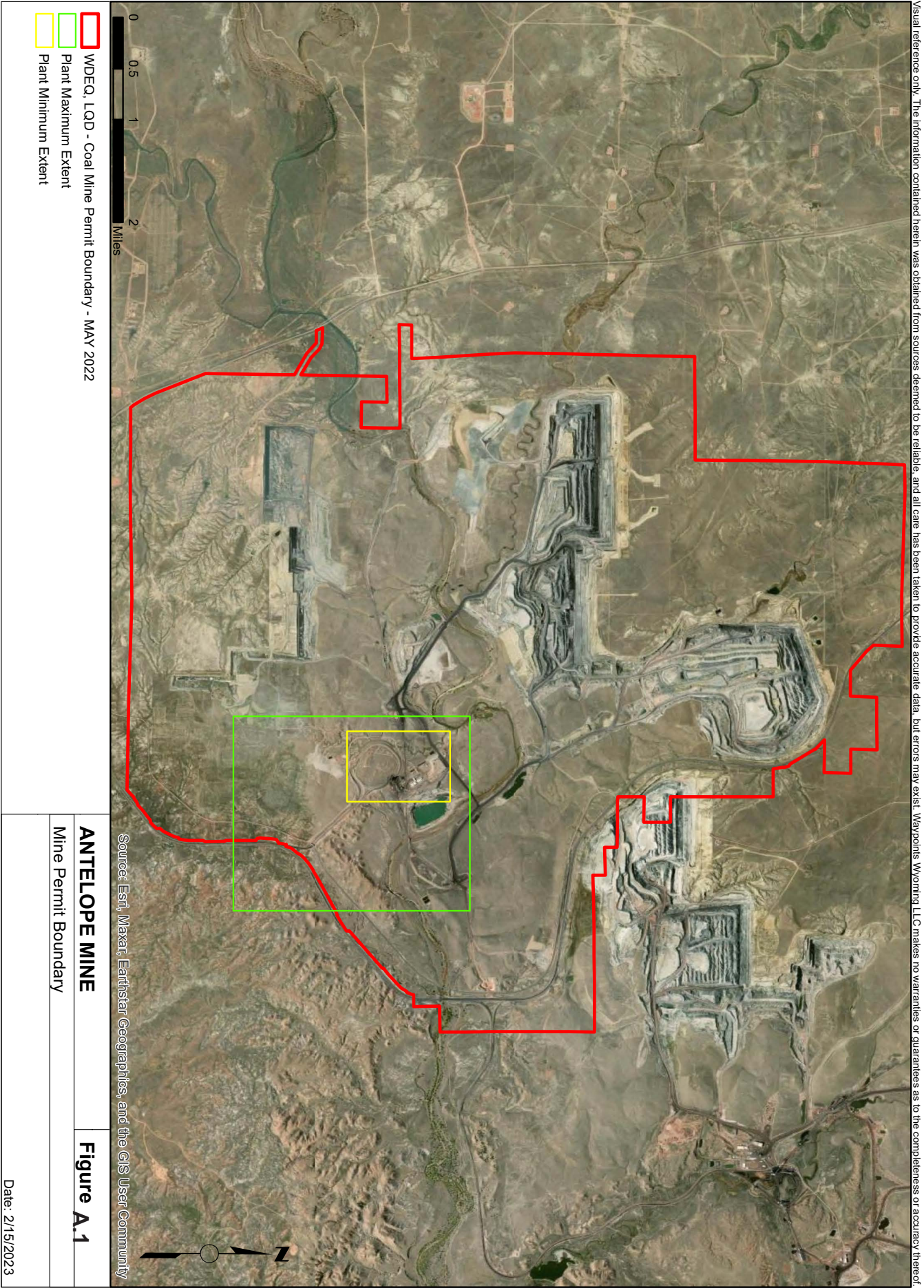
Data Source: Sweetwater County website
Description: This data set was downloaded from the Sweetwater County website
Link: <https://maps.greenwoodmap.com/sweetwater/>
Date: 9/16/2022

UINTA

Data Source: Uinta County GIS department
Description: Available through ArcGIS Online via search “Uinta County Parcels” feature service by gawelling.
Link: Not Applicable
Date: 1/10/2023

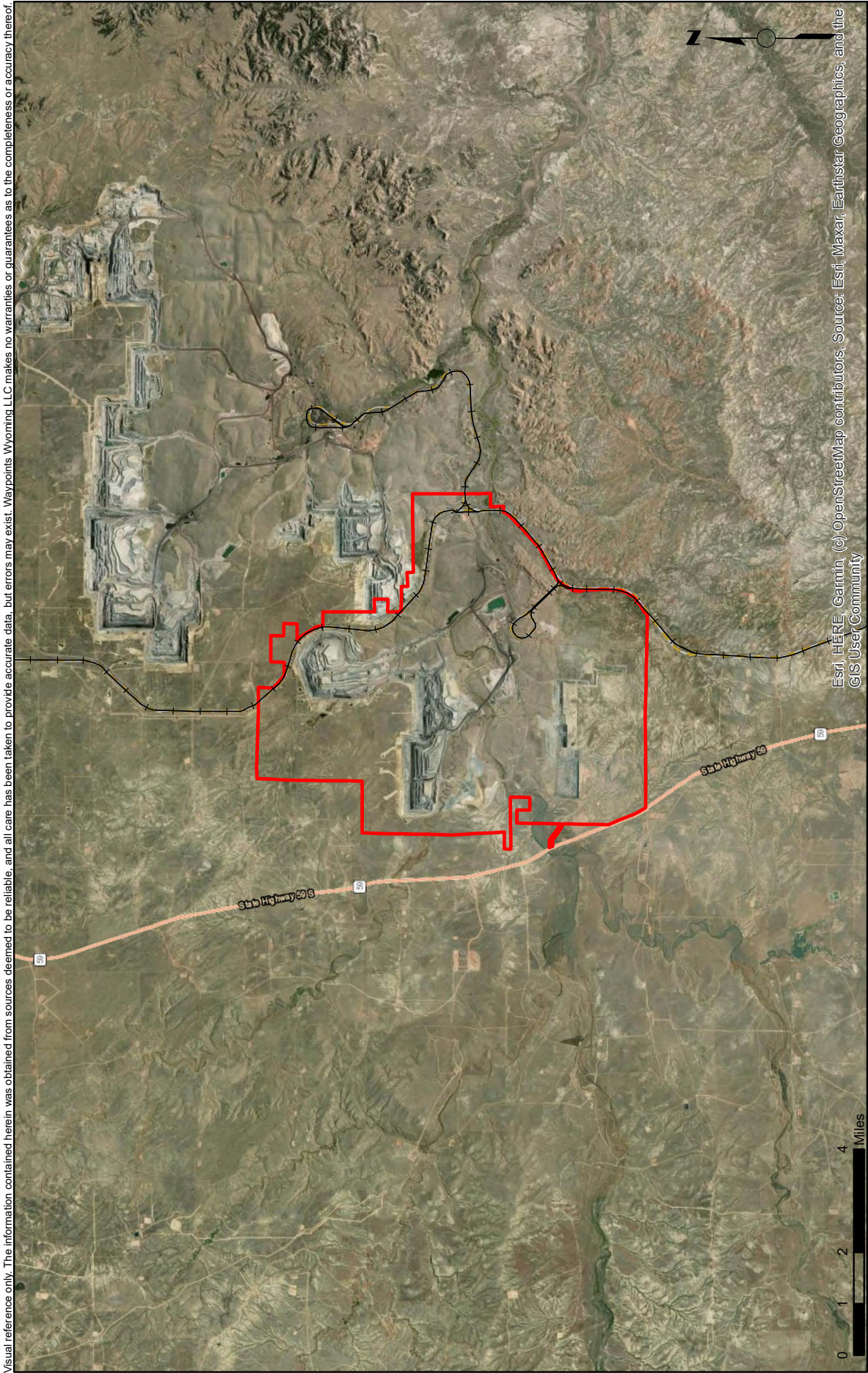
WASHAKIE COUNTY

Data Source: Statewide Parcel Viewer
Description: The Wyoming Statewide Parcel Viewer accessed through ArcGIS Online was used to provide this parcel data set.
Link:https://services3.arcgis.com/r0iJ85SKZ4zAzz3P/arcgis/rest/services/Wyoming_Parcels_for_2022/FeatureServer
Method: A definition query was used to reduce the full state data set to only Washakie County.
Date: 6/22/2023

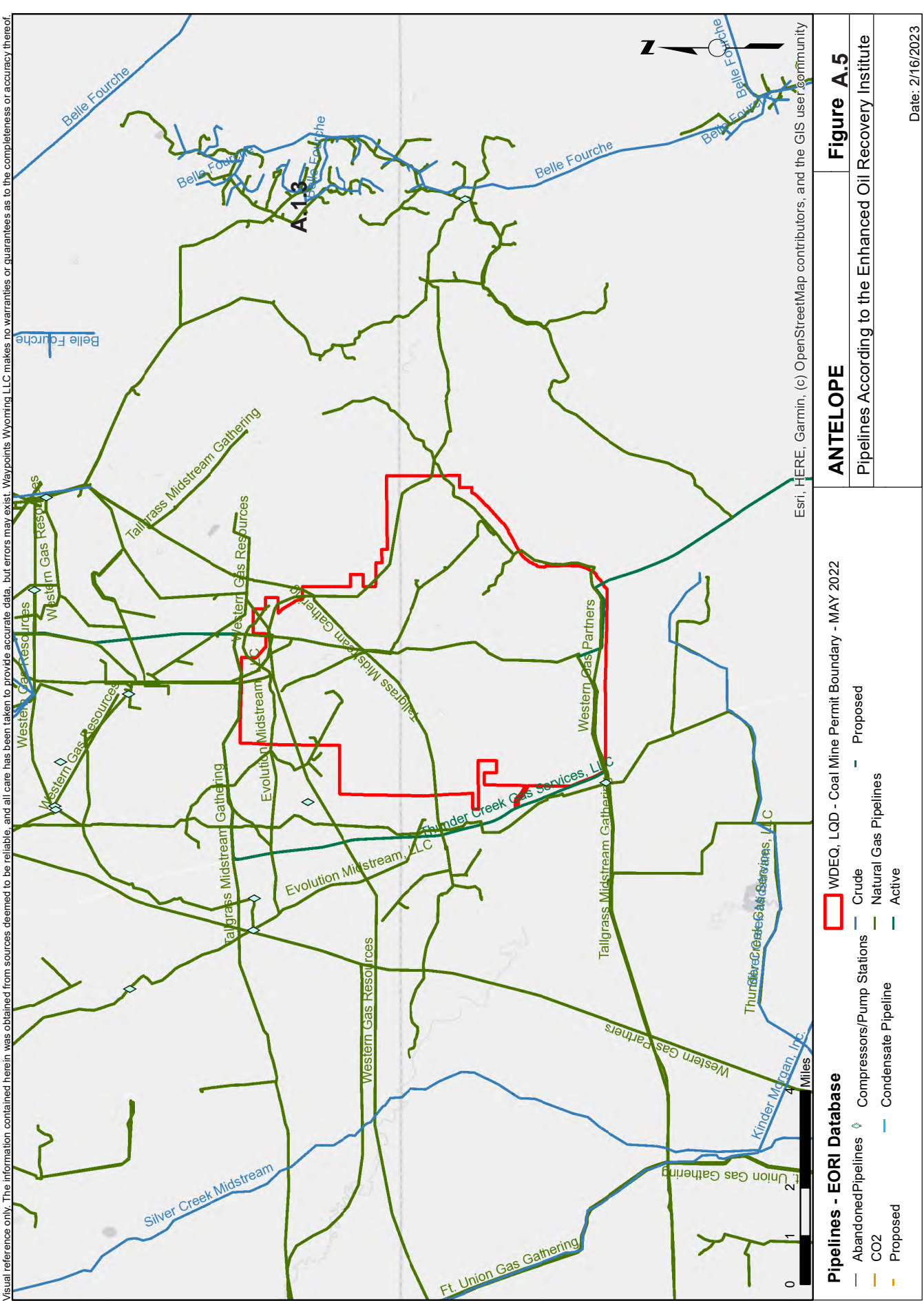
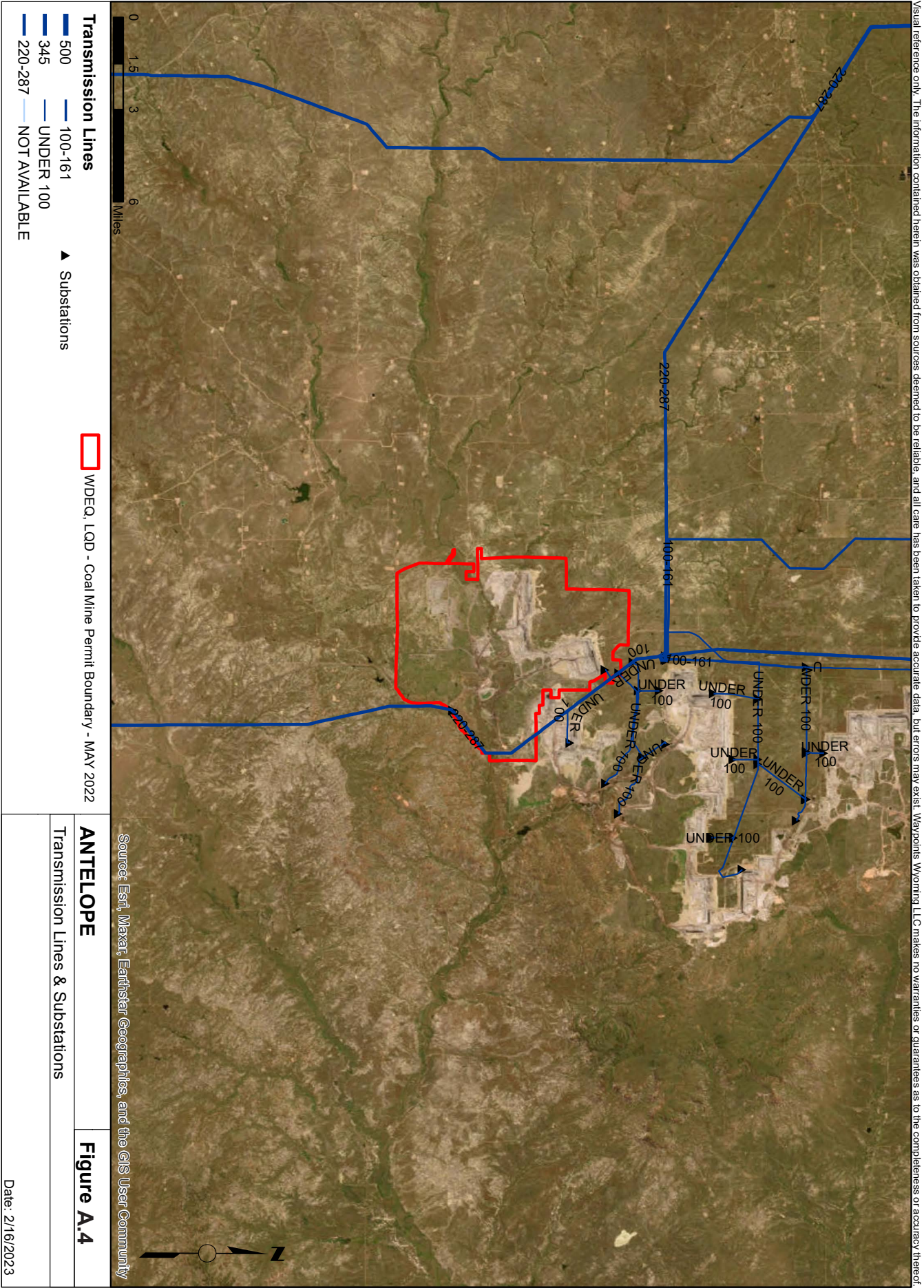


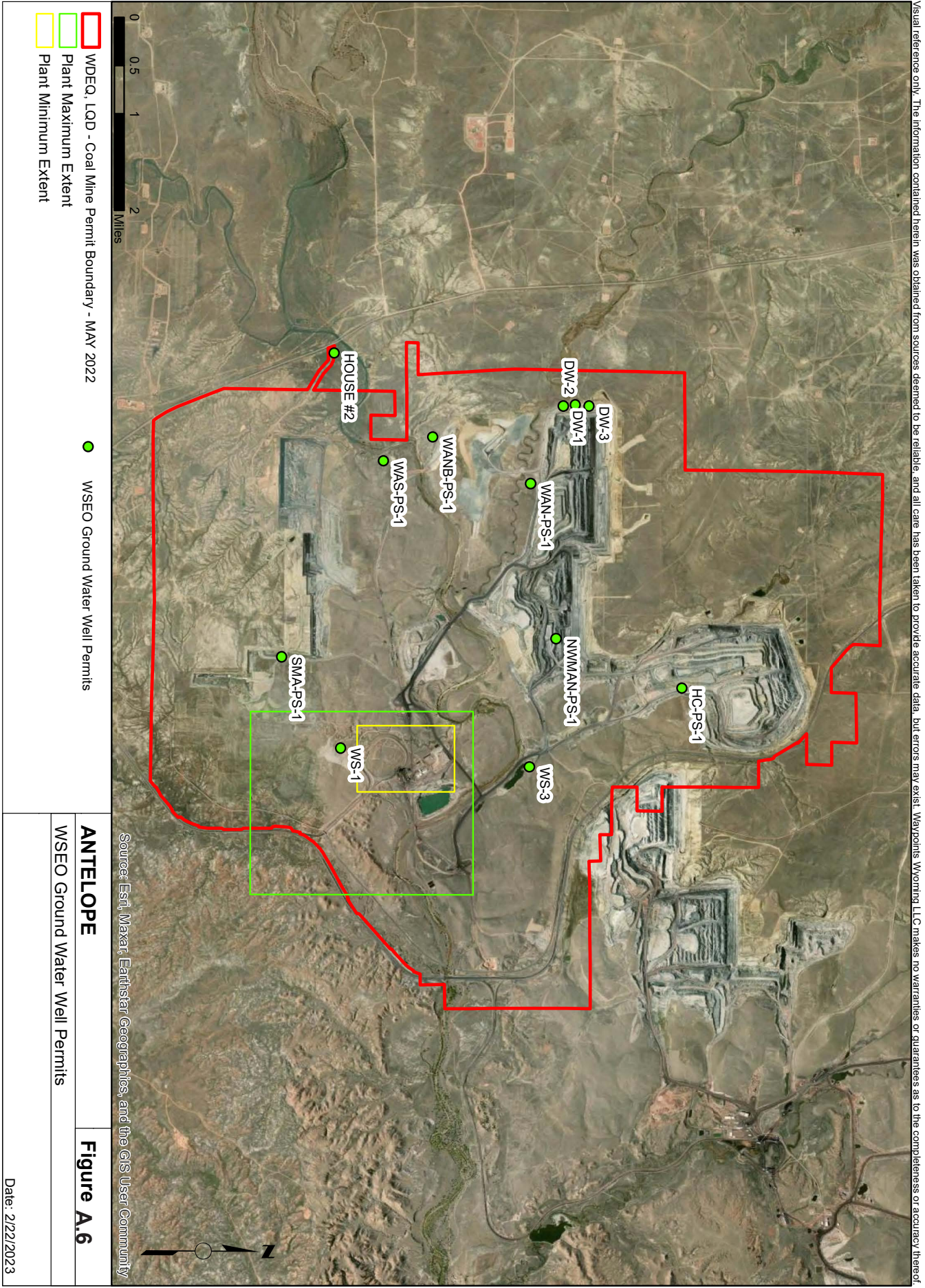
ANTELOPE MINE- CAMPBELL COUNTY - SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
BNSF RAILWAY COMPANY	1
BRIDLE BIT RANCH COMPANY	2
BTU WESTERN RESOURCES INC	3
DILTS BRANDON J FAM LIMITED PARTNERSHIP	4
ISENBERGER LAND LLC	5
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	6
PEABODY POWDER RIVER MINING LLC	7
SIOUX RANCH INC	8
WESTERN RR PROPERTIES INC &	9

ANTELOPE MINE- CONVERSE COUNTY - SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ANTELOPE COAL, LLC ATTN: TAX DEPARTMENT	1
BRANDON J DILTS FAMILY LMTD PARTNERSHIP	2
DILTS FAMILY LMTD. PTSHP. ATTN: JERRY DILTS	3
DILTS RANCH COMPANY	4
HAEFELE, ROGER R. ET AL	5
ISENBERGER LAND, LLC ATTN: PAT LITTON	6
J.F.W. CORPORATION	7
JENNE MILLER RANCH COMPANY	8
MICHELE HAEFELE TRUST ET AL	9
NAVAJO TRANSITIONAL ENERGY CO LLC	10
POWDER RIVER COAL COMPANY	11
POWDER RIVER COAL, LLC	12
POWDER RIVER COAL, LLC ATTN: PEABODY DEVELOPMENT CO.	12
RENO, FLOYD C. & SONS INC.	13
SIOUX RANCH, INC.	14

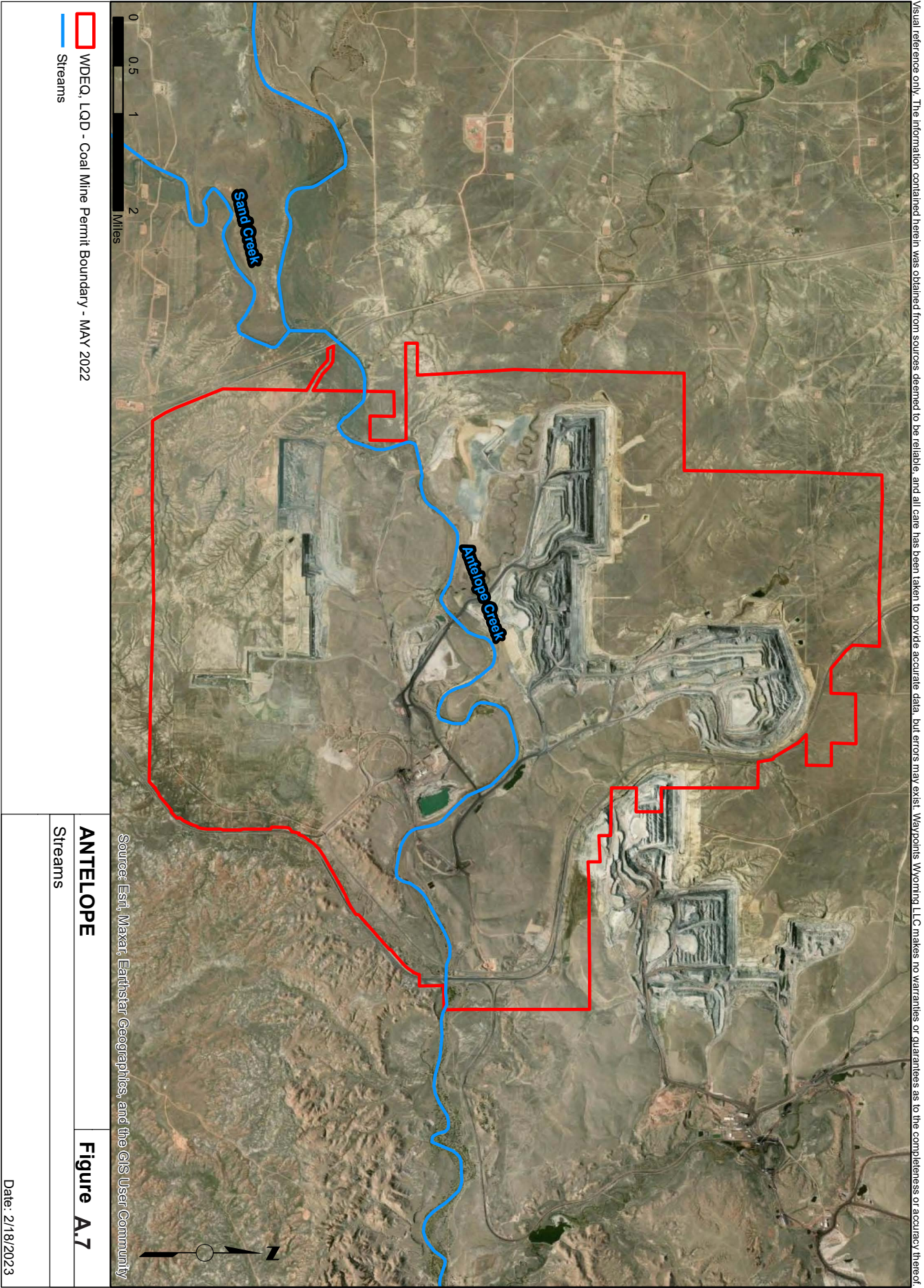


WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022	ANTELOPE	Figure A.3
USA Railroads	Transportation	
Date: 2/16/2023		





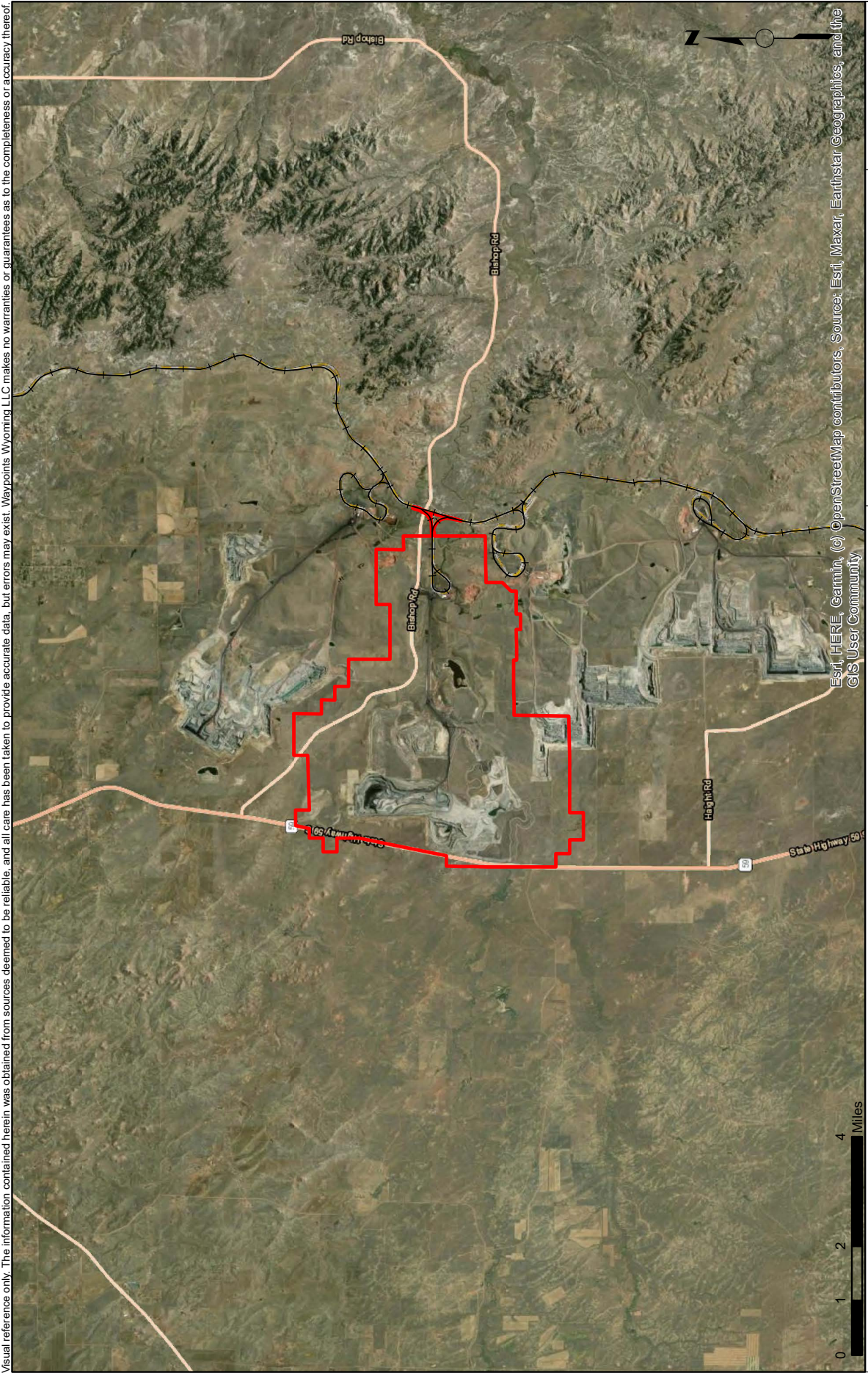
Antelope Mine - A.6. Water Rights Table							
WR Number	Summary WR Status	Company	Facility Name	Uses	Total Flow CFS Appropriation	Total Depth (ft)	Longitude Latitude
P198848.0W	Complete	Navajo Transitional Energy Co	HC-PS-1	MIS	500	1	-105.364014 43.515178
P210478.0W	Complete	Navajo Transitional Energy Co	DW-1	MIS	50	100	-105.422092 43.497194
P210479.0W	Complete	Navajo Transitional Energy Co	DW-2	MIS	75	160	-105.422378 43.498961
P210480.0W	Complete	Navajo Transitional Energy Co	DW-3	MIS	125	173	-105.422142 43.501022
P198407.0W	Complete	Navajo Transitional Energy Co	WS-1	MIS	300	2620	-105.351364 43.463961
P198843.0W	Complete	Navajo Transitional Energy Co	WAS-PS-1	MIS	500	1	-105.410581 43.470197
P198844.0W	Complete	Navajo Transitional Energy Co	WANB-PS-1	MIS	500	1	-105.415567 43.477542
P198845.0W	Complete	Navajo Transitional Energy Co	WAN-PS-1	MIS	500	1	-105.406031 43.492331
P198846.0W	Complete	Navajo Transitional Energy Co	NWMAN-PS-1	MIS	500	1	-105.3741 43.496297
P198847.0W	Complete	Navajo Transitional Energy Co	SMA-PS-1	MIS	500	1	-105.370131 43.455064
P209047.0W	Complete	Navajo Transitional Energy Company	WS-3	MIS	120	3382	-105.347556 43.492333
P59883.0W	Complete	Navajo Transitional Energy Co	HOUSE #2	DOM_GW	25	1275	-105.43276 43.46271



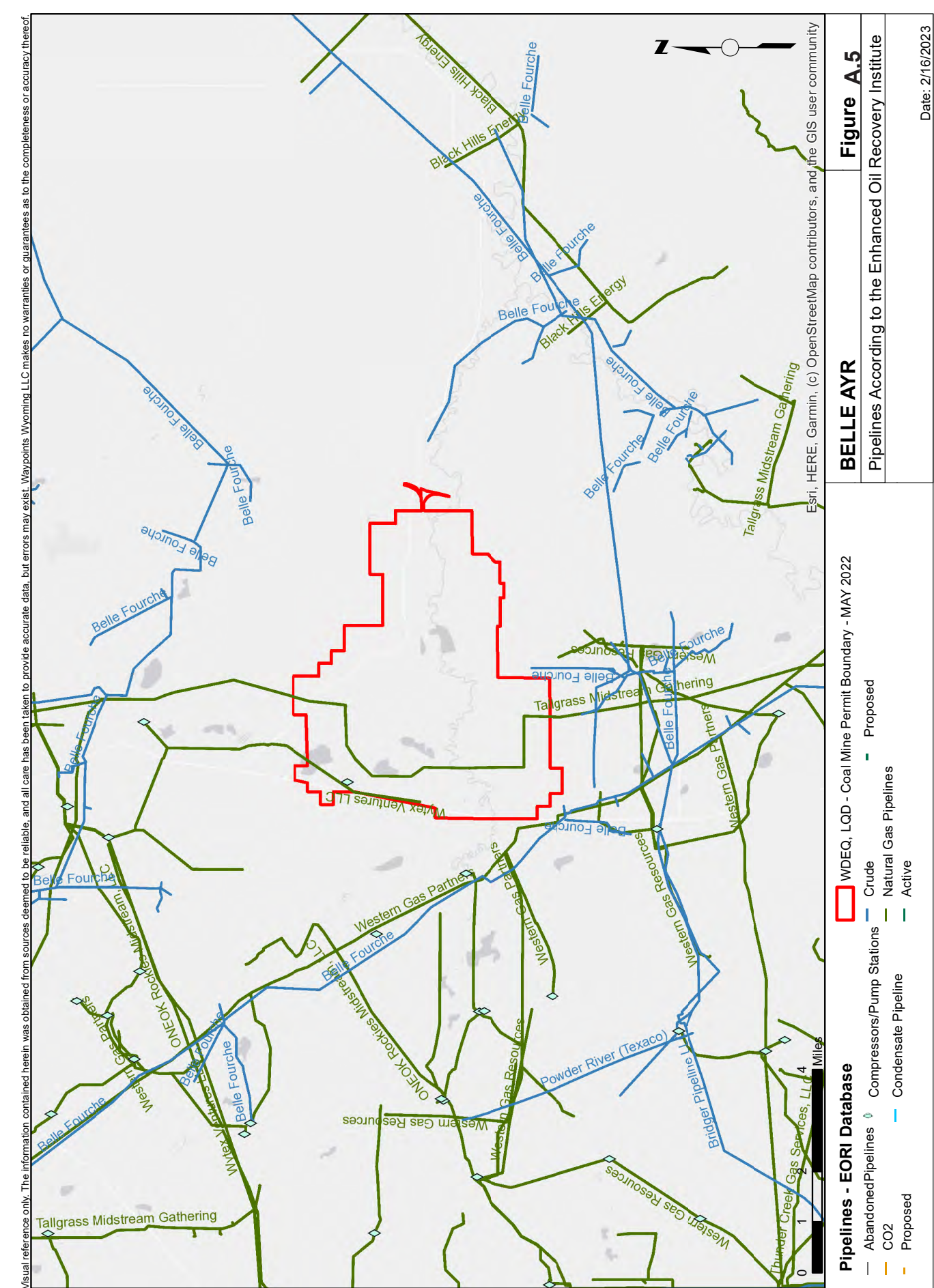
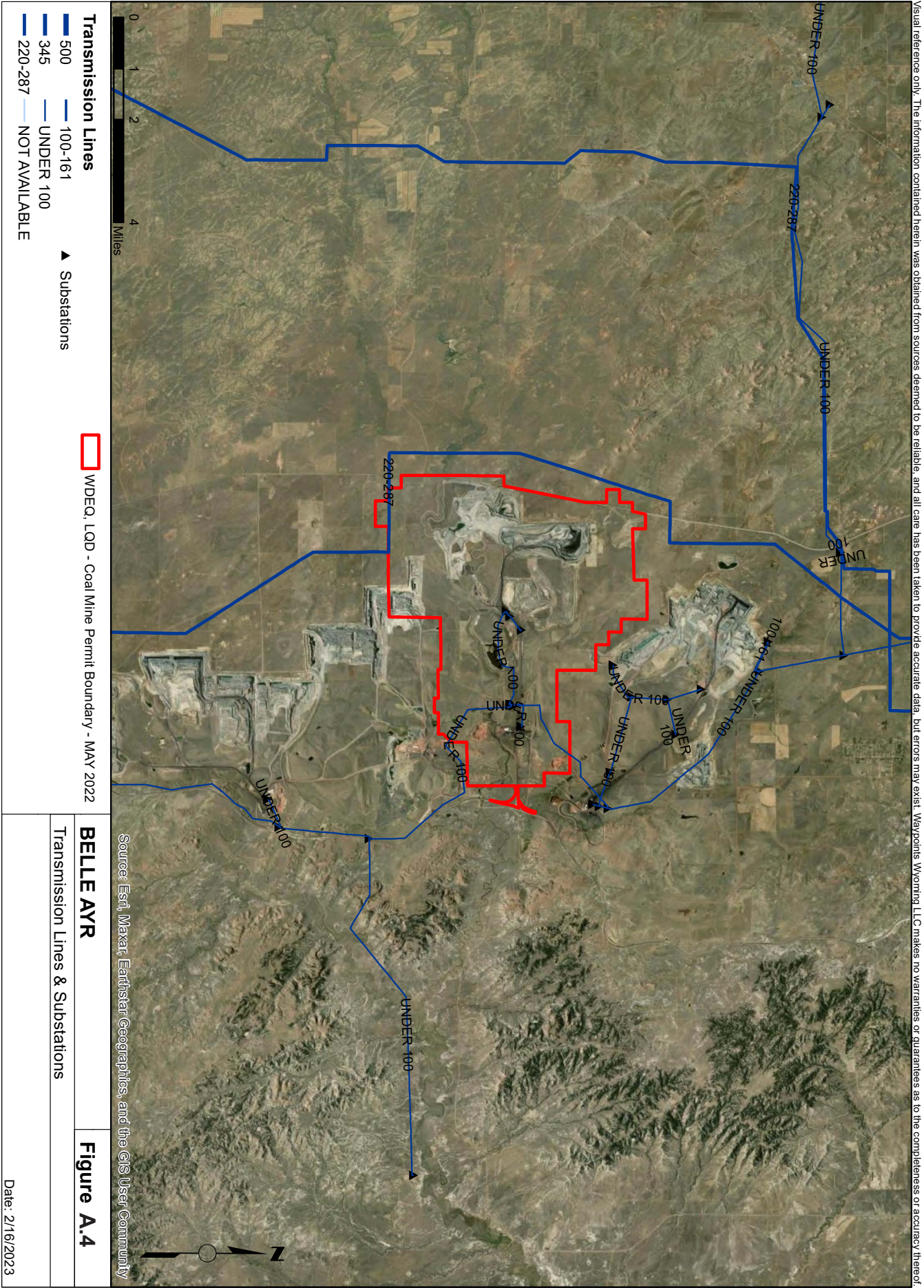
ANTELOPE	Figure A.8
Primary Plant Structures	
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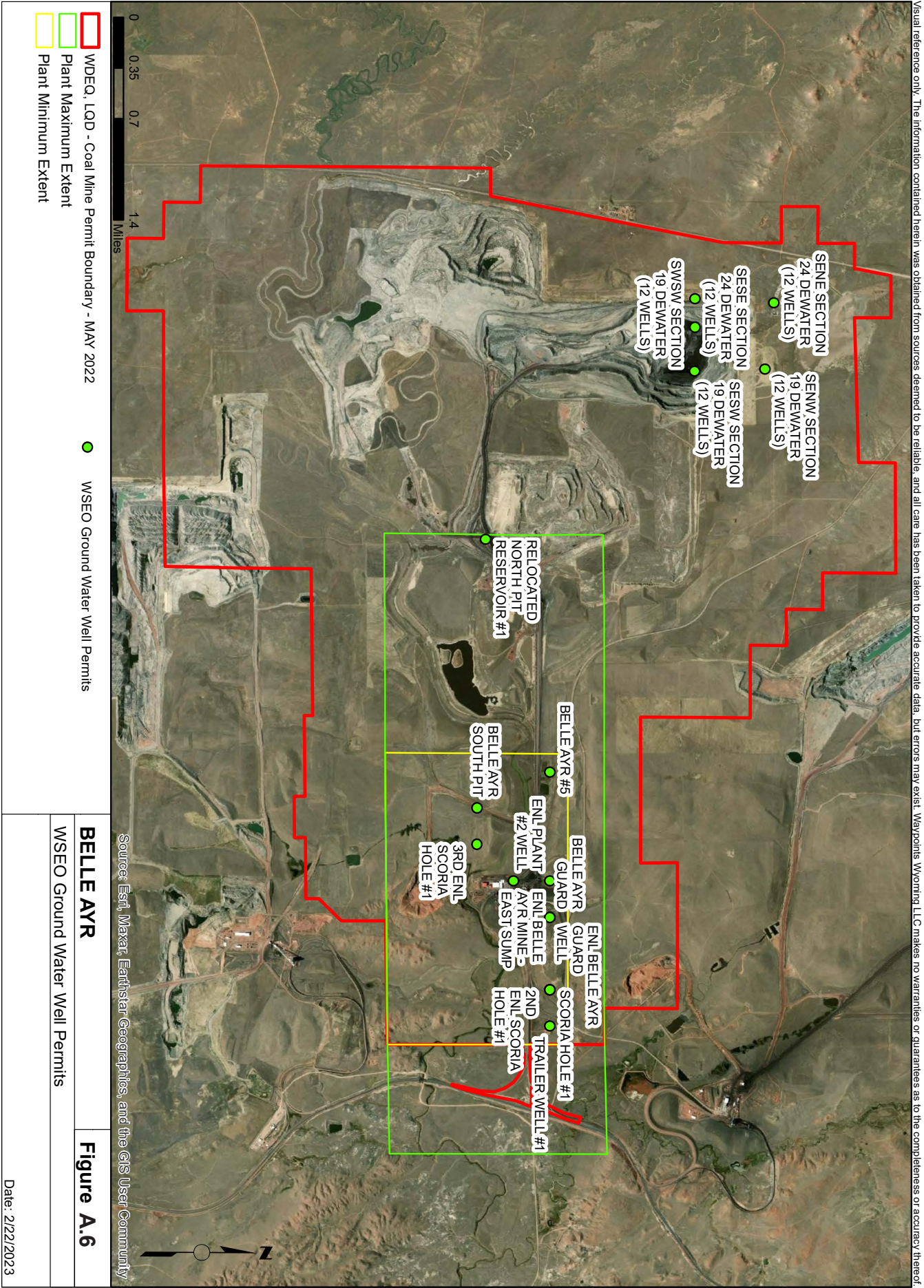


BELLE AYR MINE- CAMPBELL COUNTY - SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
APPEL CHARLES JR & CHRISTOPHER E &	1
APPEL MARY ELLEN &	2
BERTALOT DUSTY	3
BERTALOT KENNETH K & ANGELA	4
BISHOP LAND & LIVESTOCK CO INC	5
BNSF RAILWAY COMPANY	6
BTU WESTERN RESOURCES INC	7
CABALLO COAL COMPANY	8
CARTER JOHN D REV TRUST	9
CORDERO MINING LLC	10
DEPT OF INTERIOR/BLM	Fed
DUVALL KENNETH R & NORMA L TRUSTS	11
DUVALL NORMA L TRUST	12
EAGLE SPECIALTY MATERIALS LLC	13
GALLATIN FUELS INC &	14
GREER RANDY C	15
HOCHHALTER BONNIE A REV TRUST	16
JOHNSON STEVEN E & DEBORA R	17
KNOTTS MARSHALL D	18
KRUSE WAYNE & RONITA JO	19
LAWSON BEVERLY J REV TRUST	20
LAWSON KYLE R	21
MANGUS NATHAN CARL	22
MILLER GARY D & PATTY	23
MILLER GLENN E & SUSAN C MIRICH	24
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	25
NBMS LAND HOLDINGS LLC	26
NBMS LAND HOLDINGS LLC	26
PAHASHA RANCH LIMITED PARTNERSHIP	27
PEABODY CABALLO MINING LLC	28
ROURKE LINDA A TRUST	29
ROURKE RANCH LLC	30
SEELY GLENDA K &	31
STATE OF WYOMING	State
T 7 RANCH LLP	32
TAYLOR CALVIN & SHERRY	33

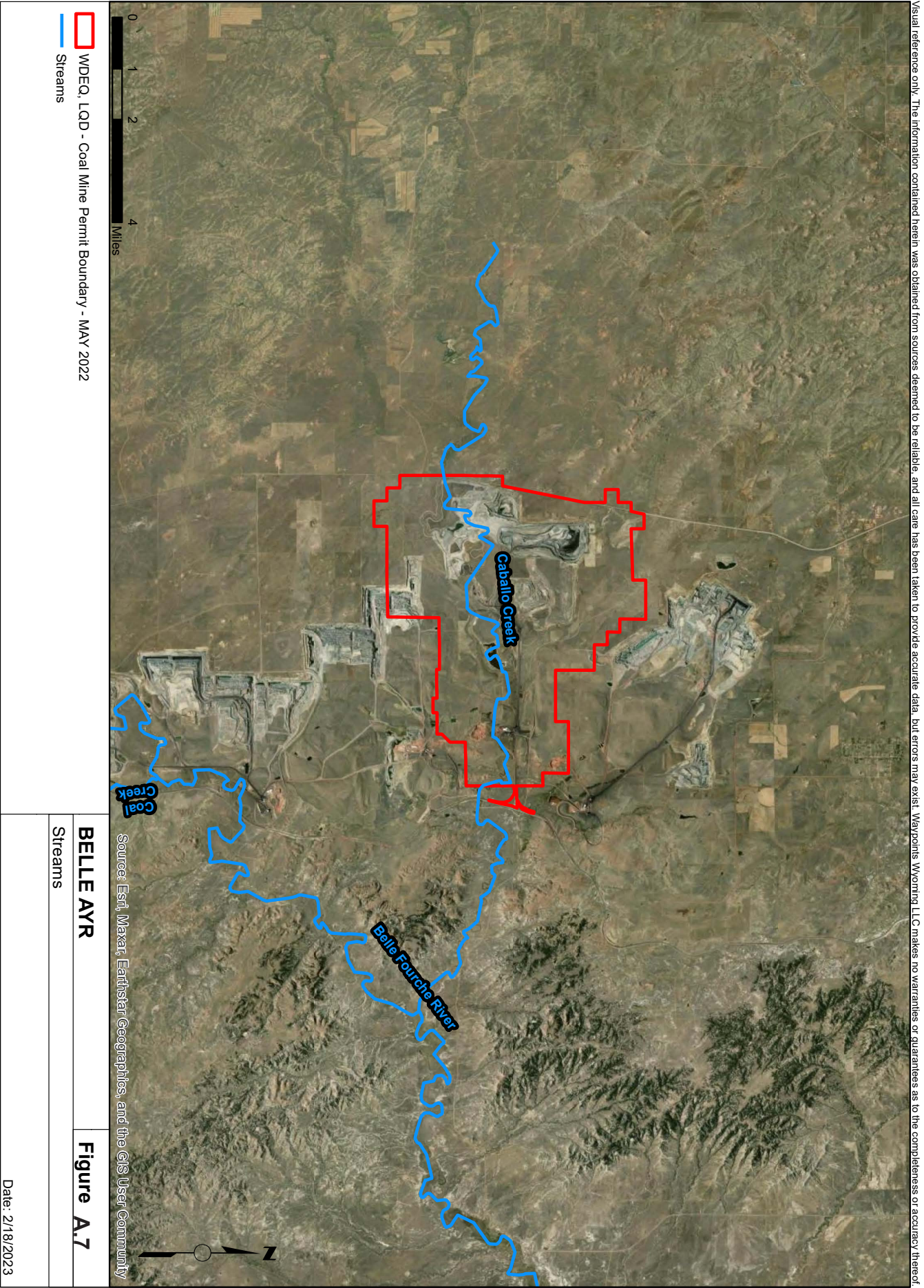


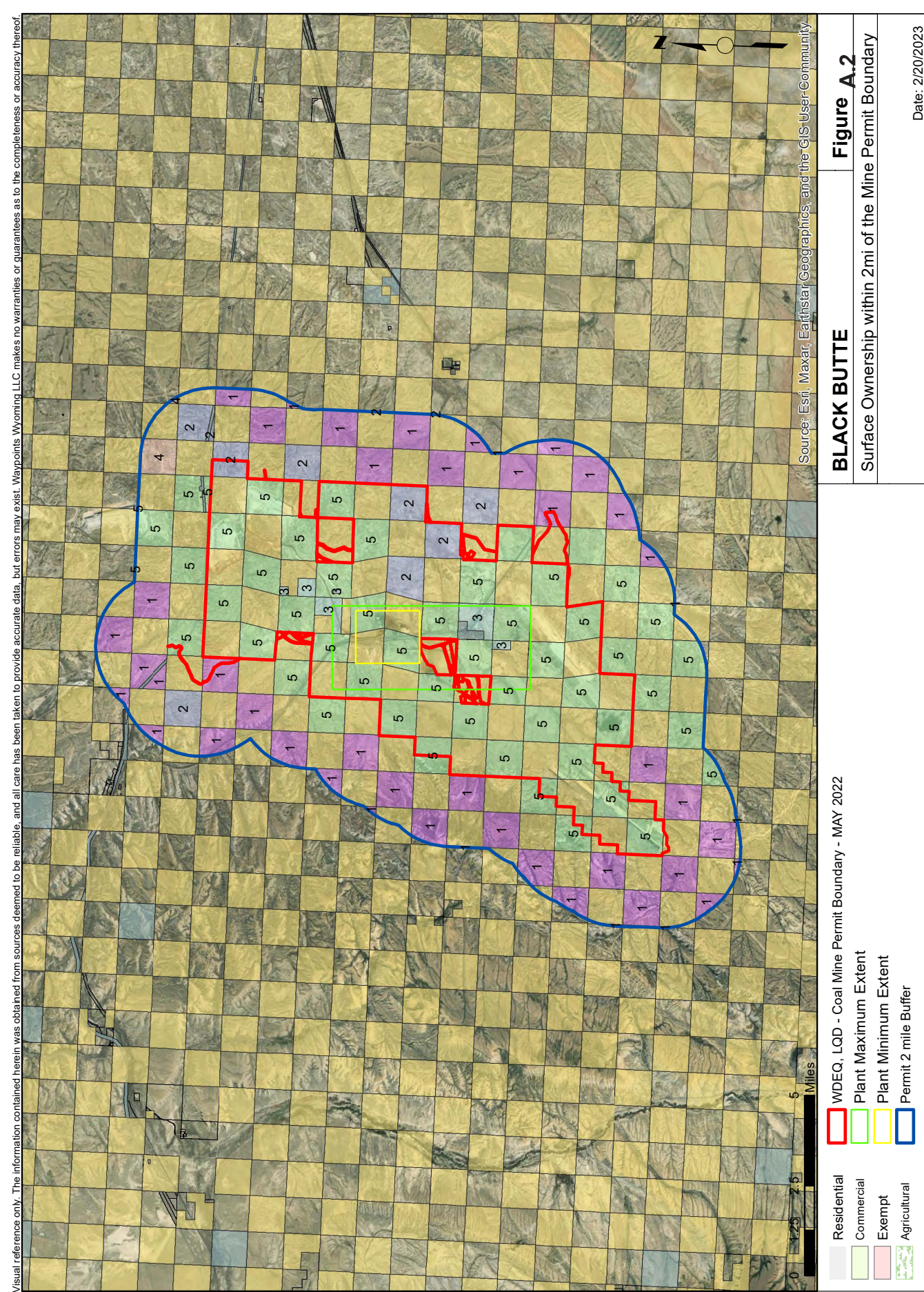
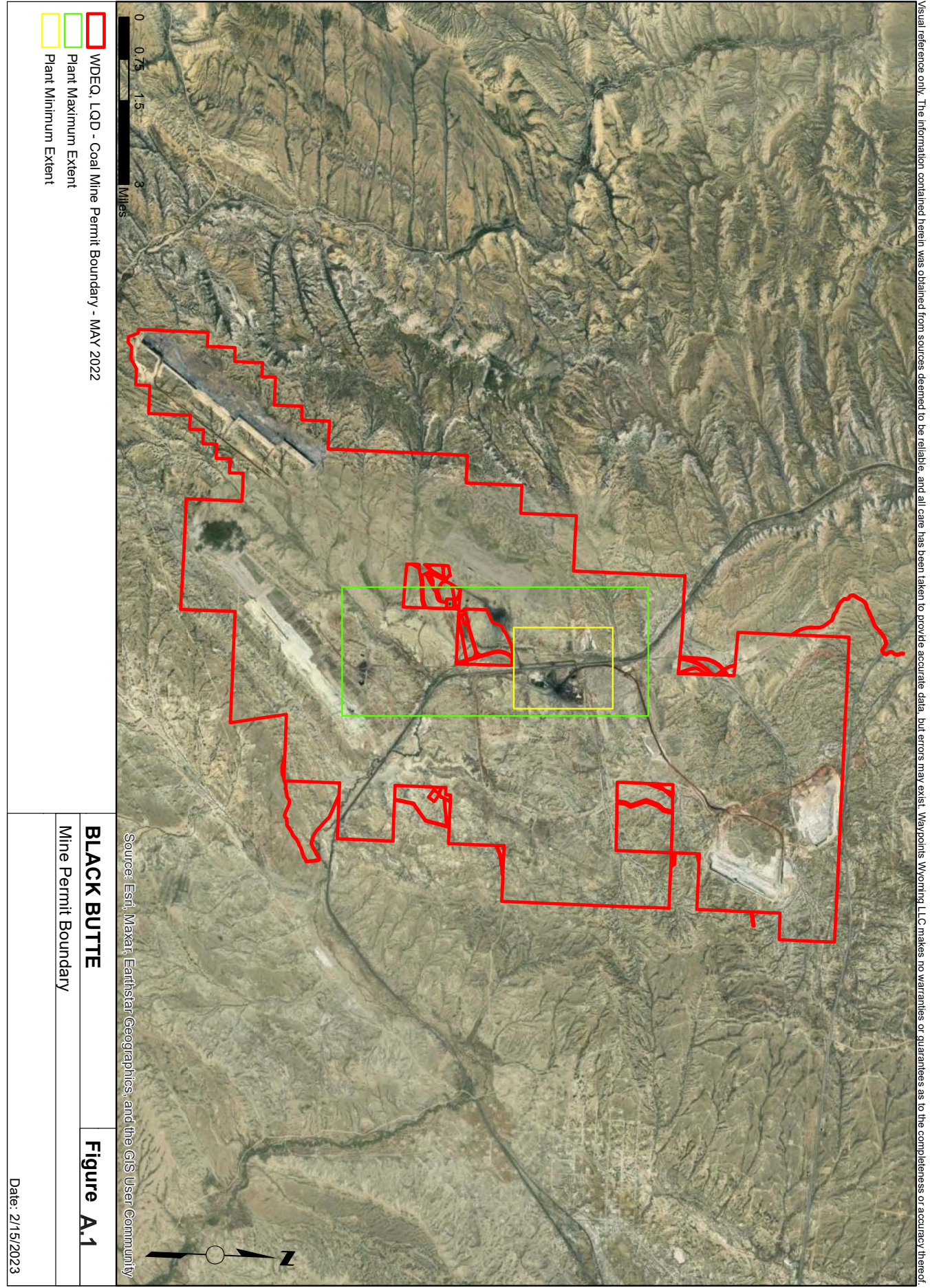
BELLE AYR Transportation	Figure A.3
	Date: 2/16/2023



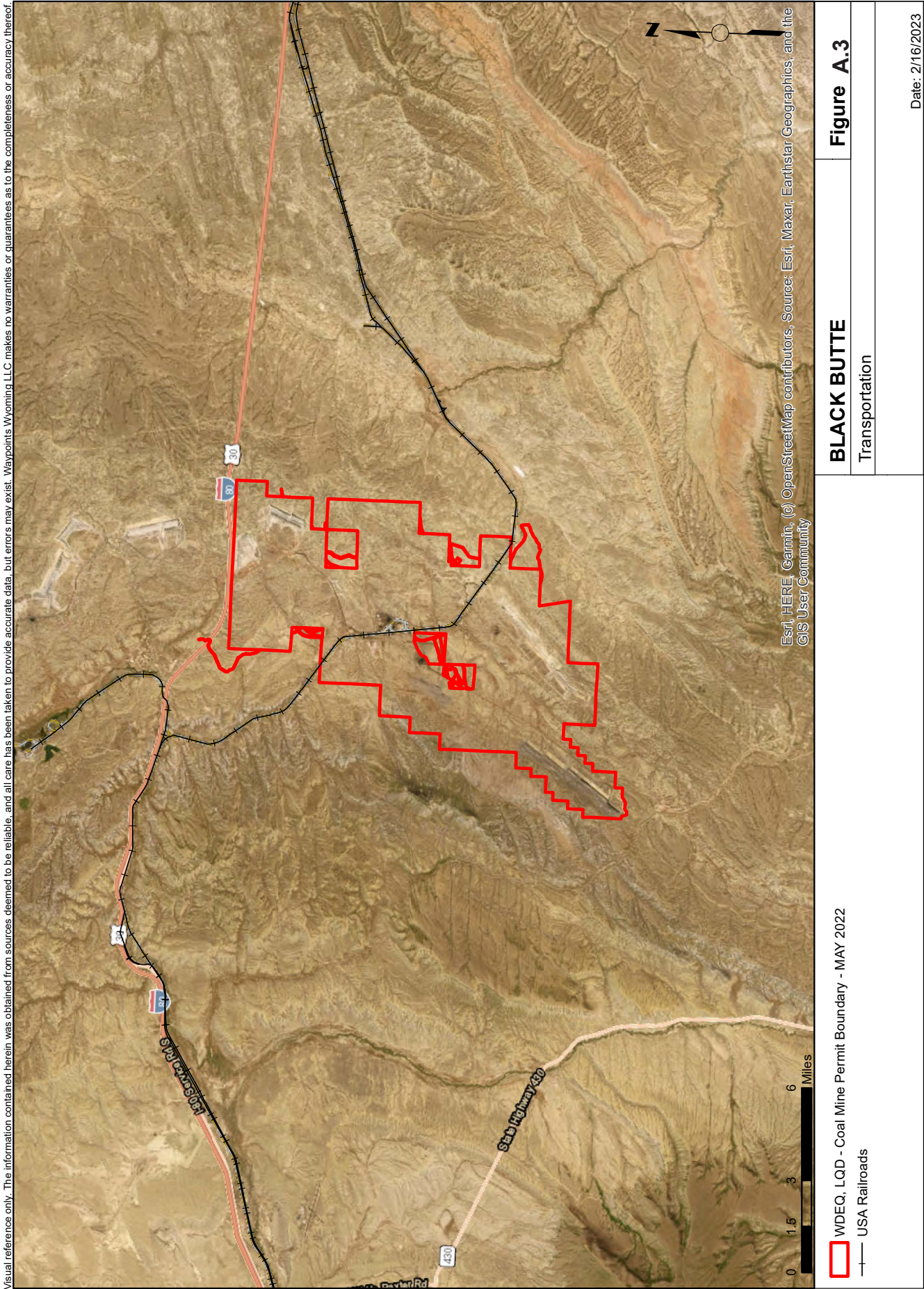


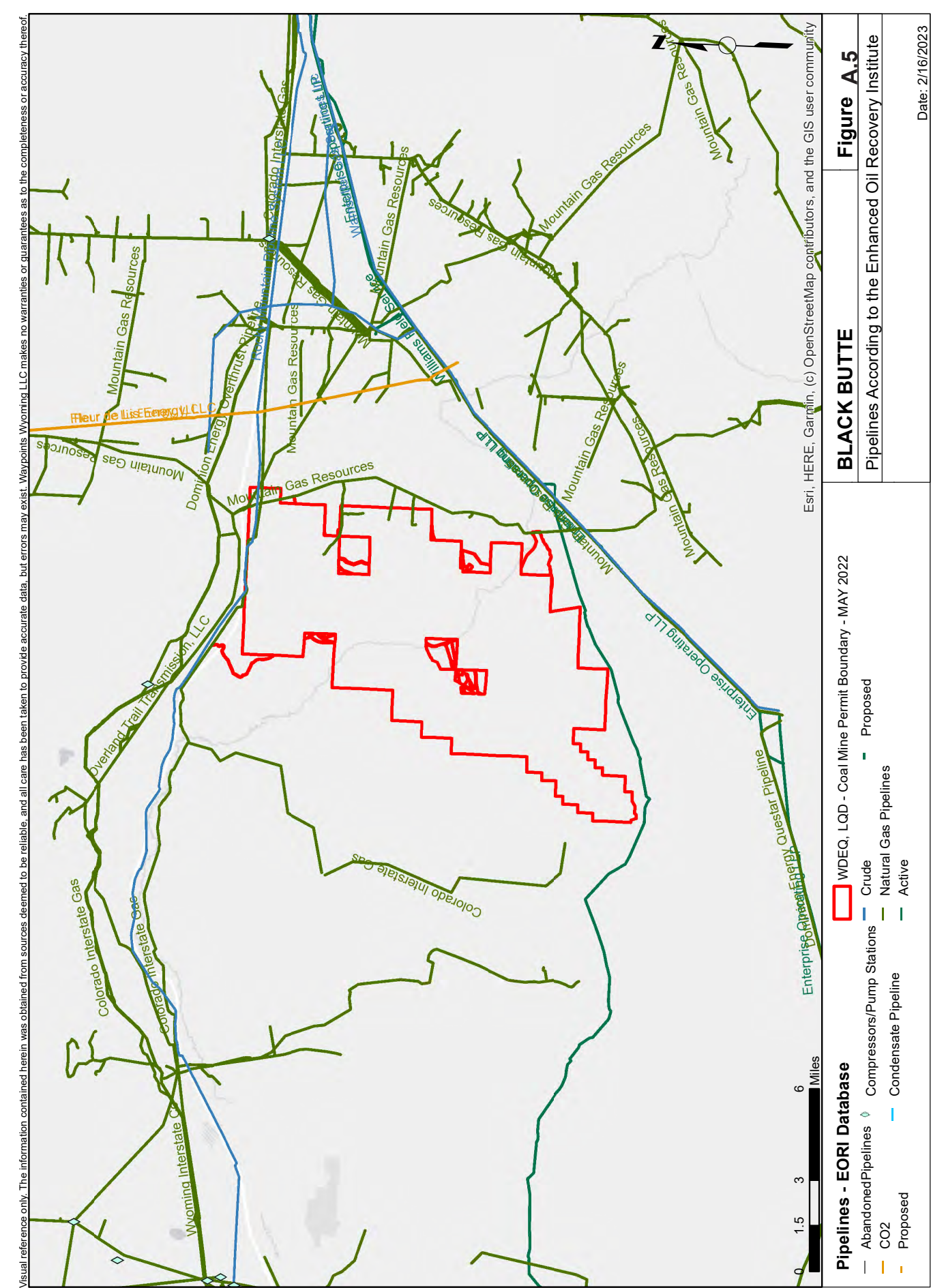
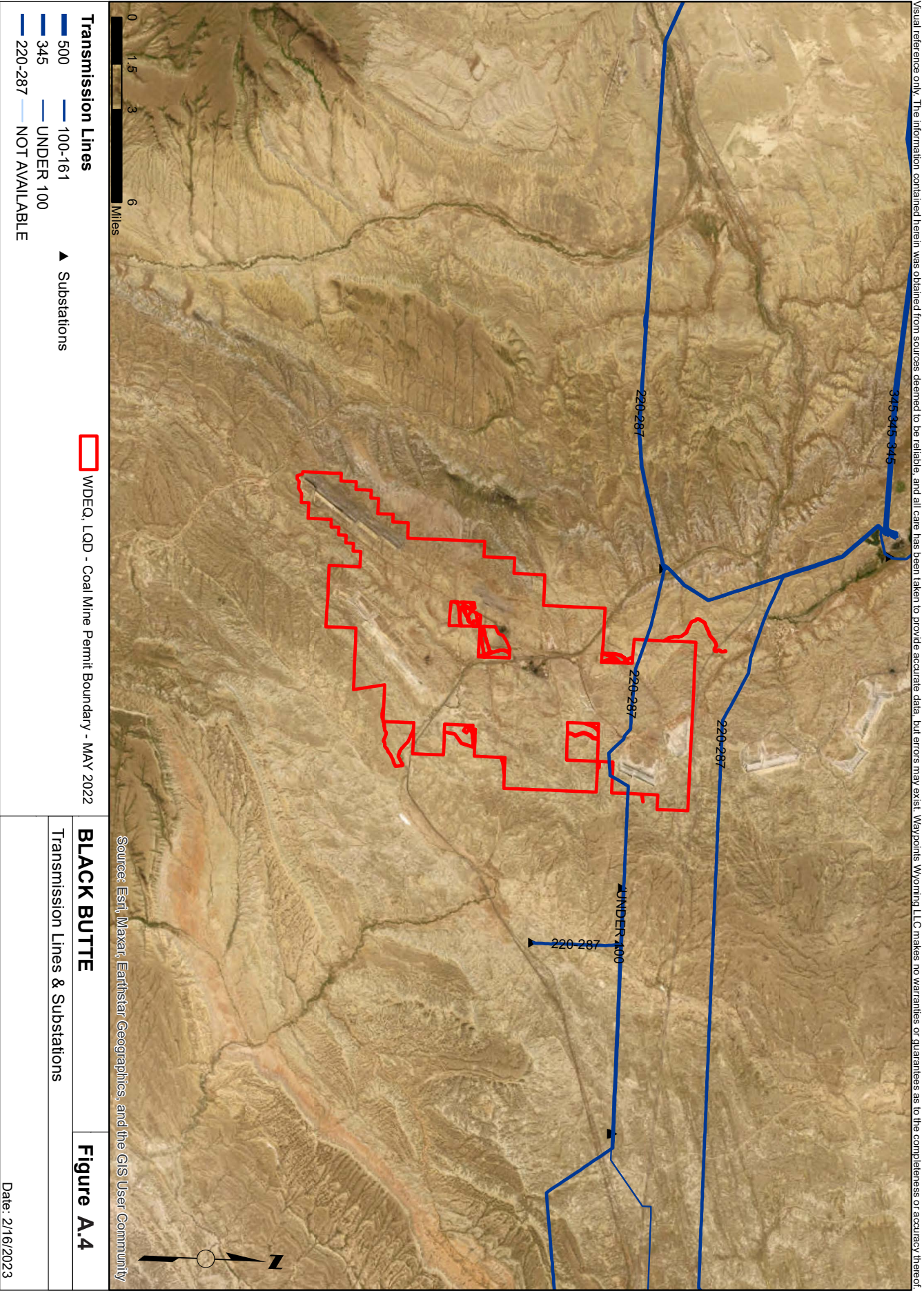
BELLE AYR MINE - A.6. WATER RIGHTS TABLE									
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE	
P162280.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	BELLE AYR #5	MIS	450	4070	-105.38105	44.103619	
P207098.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SESE SECTION 24 DEWATER (12 WELLS)	MIS	25	415	-105.4468	44.1179	
P207101.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SWSW SECTION 19 DEWATER (12 WELLS)	MIS	25	418	-105.4429	44.1179	
P207102.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SESW SECTION 19 DEWATER (12 WELLS)	MIS	25	360	-105.4368	44.1179	
P210101.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SENE SECTION 24 DEWATER (12 WELLS)	MIS	396	415	-105.446311	44.125778	
P210103.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SESW SECTION 19 DEWATER (12 WELLS)	MIS	900		-105.4371	44.12493	
P29416.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	SCORIA HOLE #1	MIS	80	15	-105.35085	44.10371	
P30345.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	BELLE AYR SOUTH PIT	MIS	80	110	-105.37603	44.09634	
P33493.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	2ND ENL SCORIA HOLE #1	IND_ GW_ MIS	600	15	-105.35085	44.10371	
P33980.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	TRAILER WELL #1	DOM_ GW_	25	612	-105.34582	44.10373	
P65874.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	3RD ENL SCORIA HOLE #1	MIS	0	15	-105.37098	44.09635	
P81322.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	RELOCATED NORTH PIT RESERVOIR #1	MIS	440	260	-105.413297	44.097086	
P83664.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	BELLE AYR GUARD	MIS	15	313	-105.36091	44.10368	
P85118.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	ENL BELLE AYR MINE - EAST SUMP	MIS	0	150	-105.36594	44.10366	
P85119.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	ENL BELLE AYR GUARD WELL	MIS	10	313	-105.36091	44.10368	
P85120.0W	Complete	EAGLE SPECIALITY MATERIALS LLC	ENL PLANT #2 WELL	MIS	0	1230	-105.36593	44.10001	

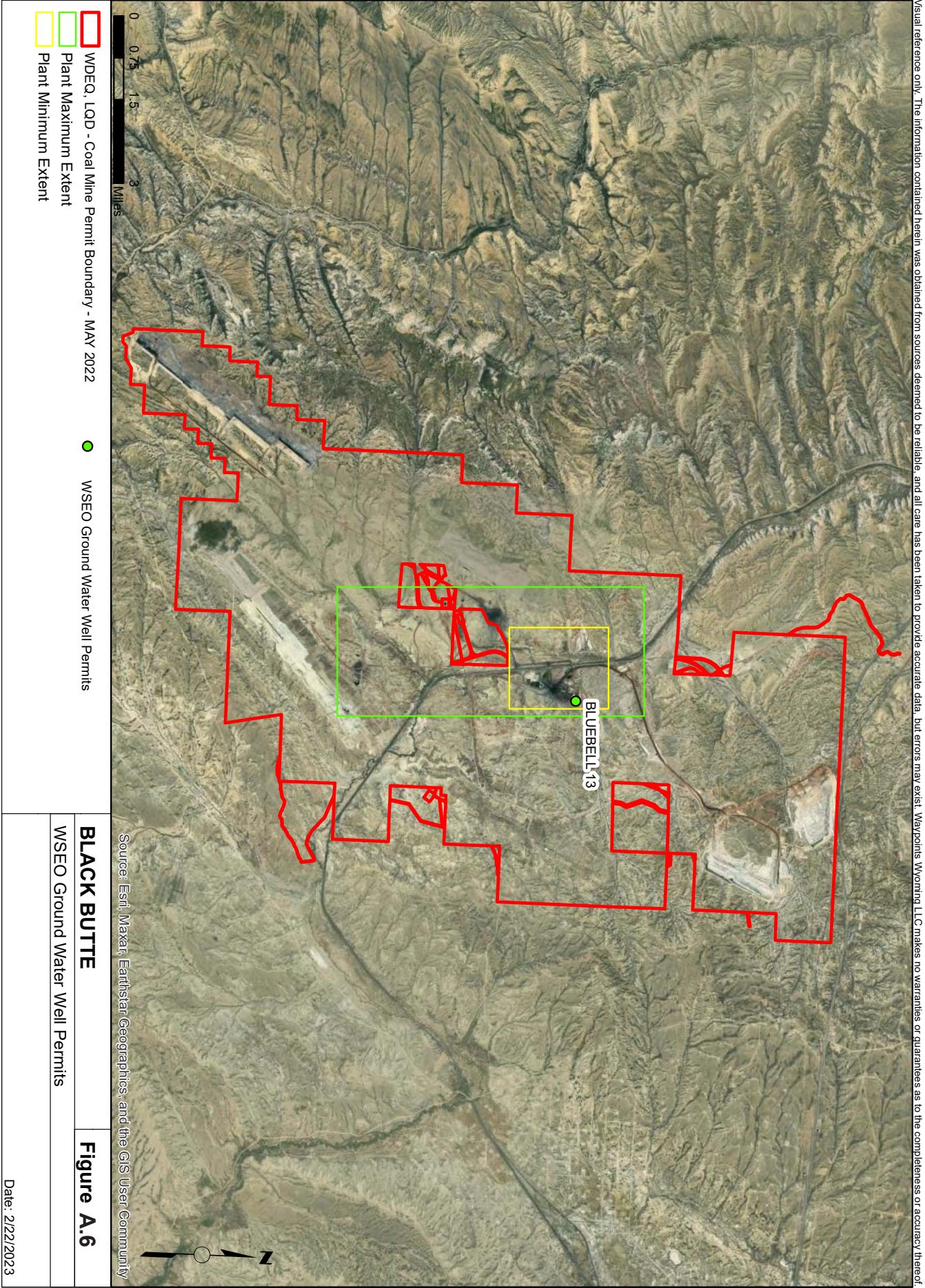




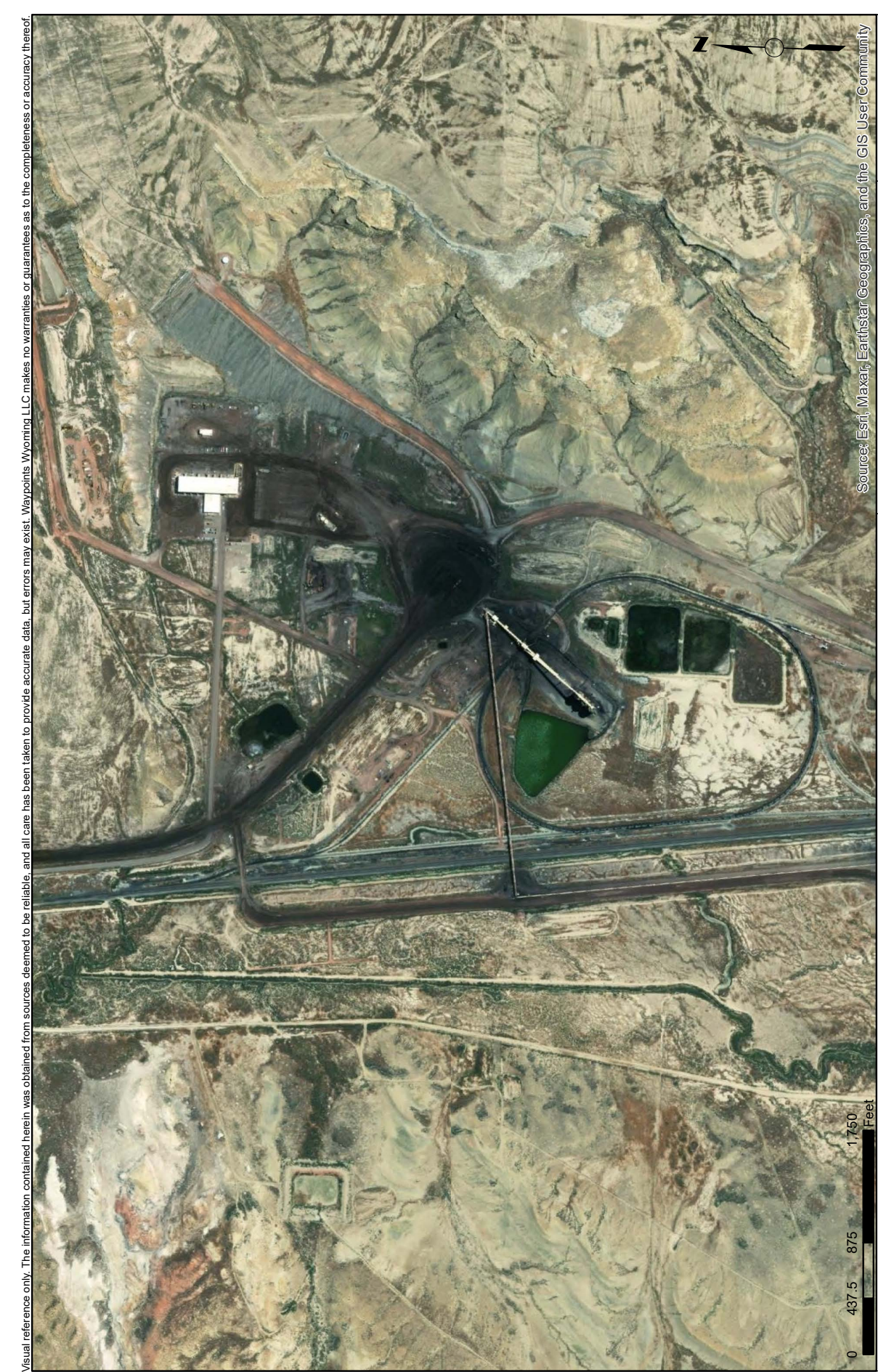
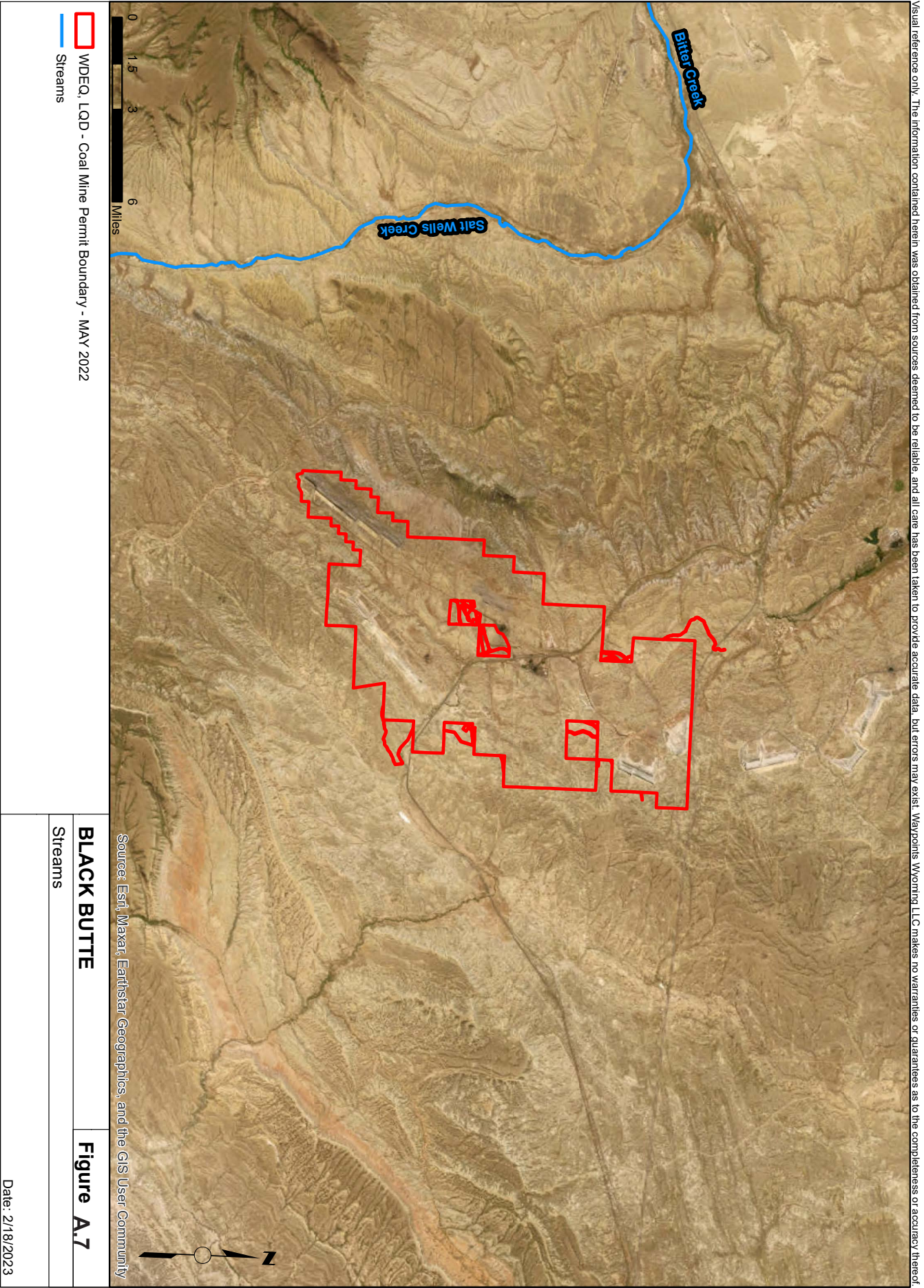
BLACK BUTTE MINE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ANADARKO LAND CORP	2
BLM	Fed
LIGHTHOUSE RESOURCES INC (BLACK BUTTE MINE) BLYTHE MASON	3
ROCK SPRINGS GRAZING ASSN	4
STATE OF WY	State
WILDCAT COAL LLC	5

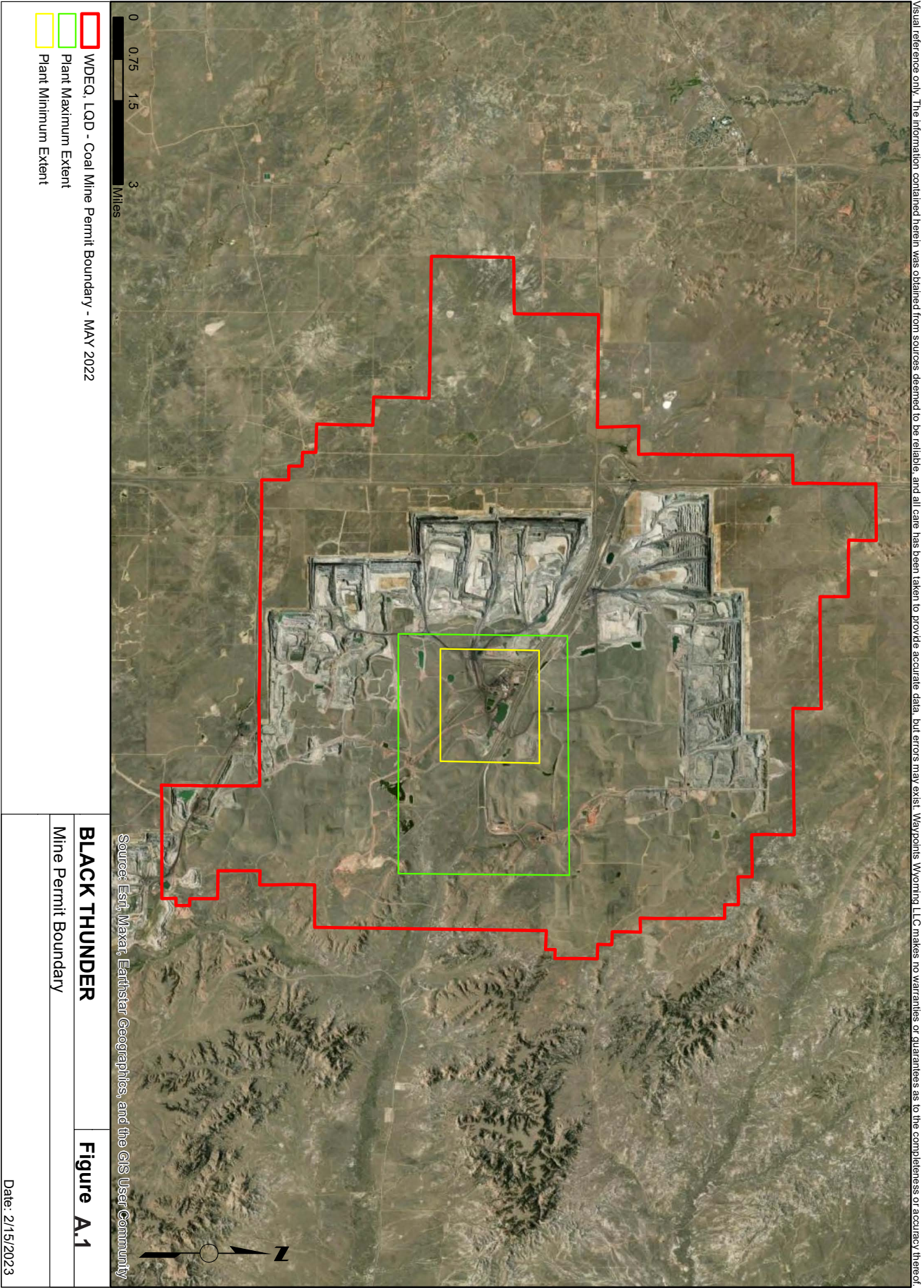






BLACK BUTTE MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P204942.0W	Complete	BLACK BUTTE COAL COMPANY	BLUEBELL 13	MIS	230	1219	-108.689444	41.576667

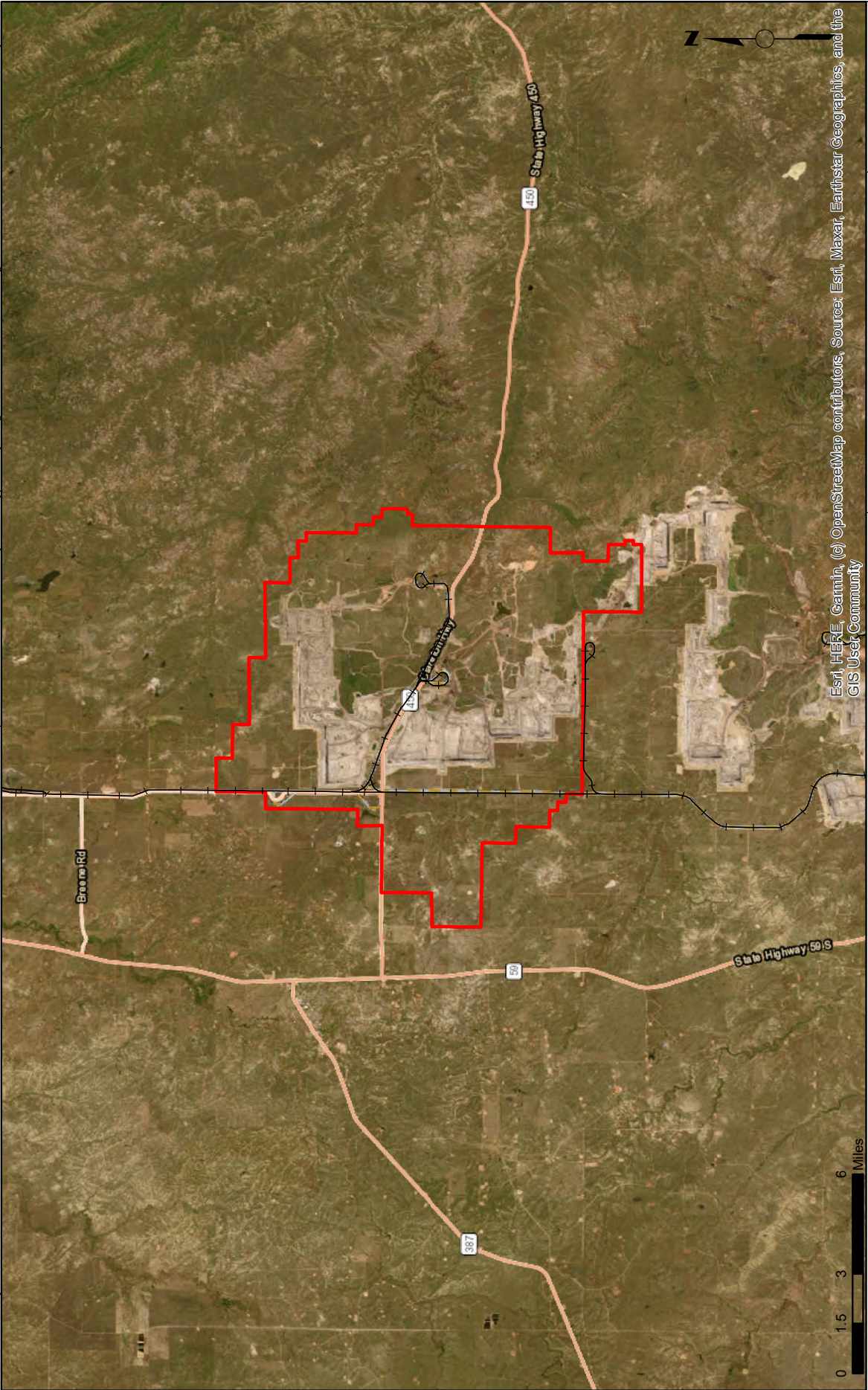




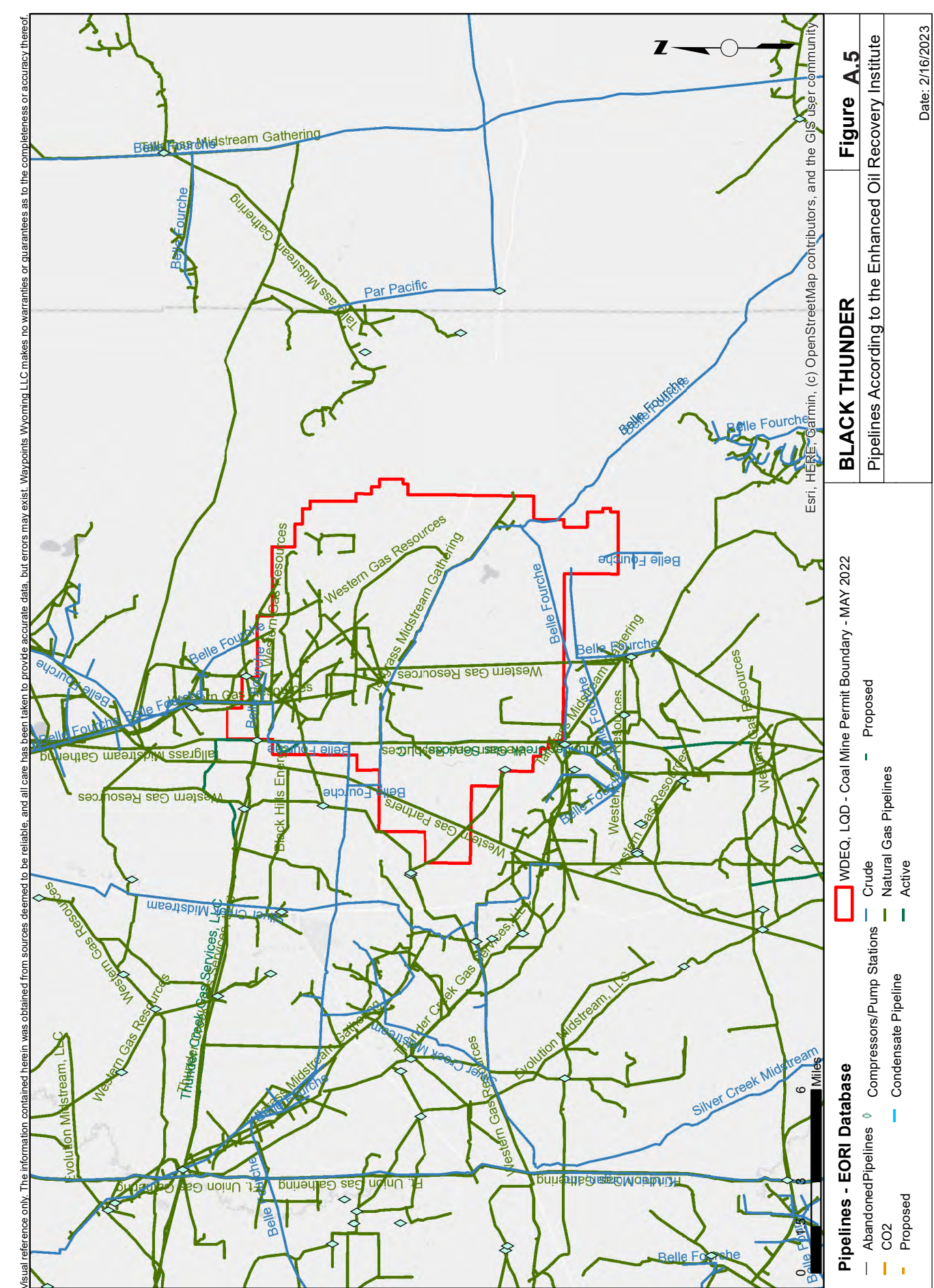
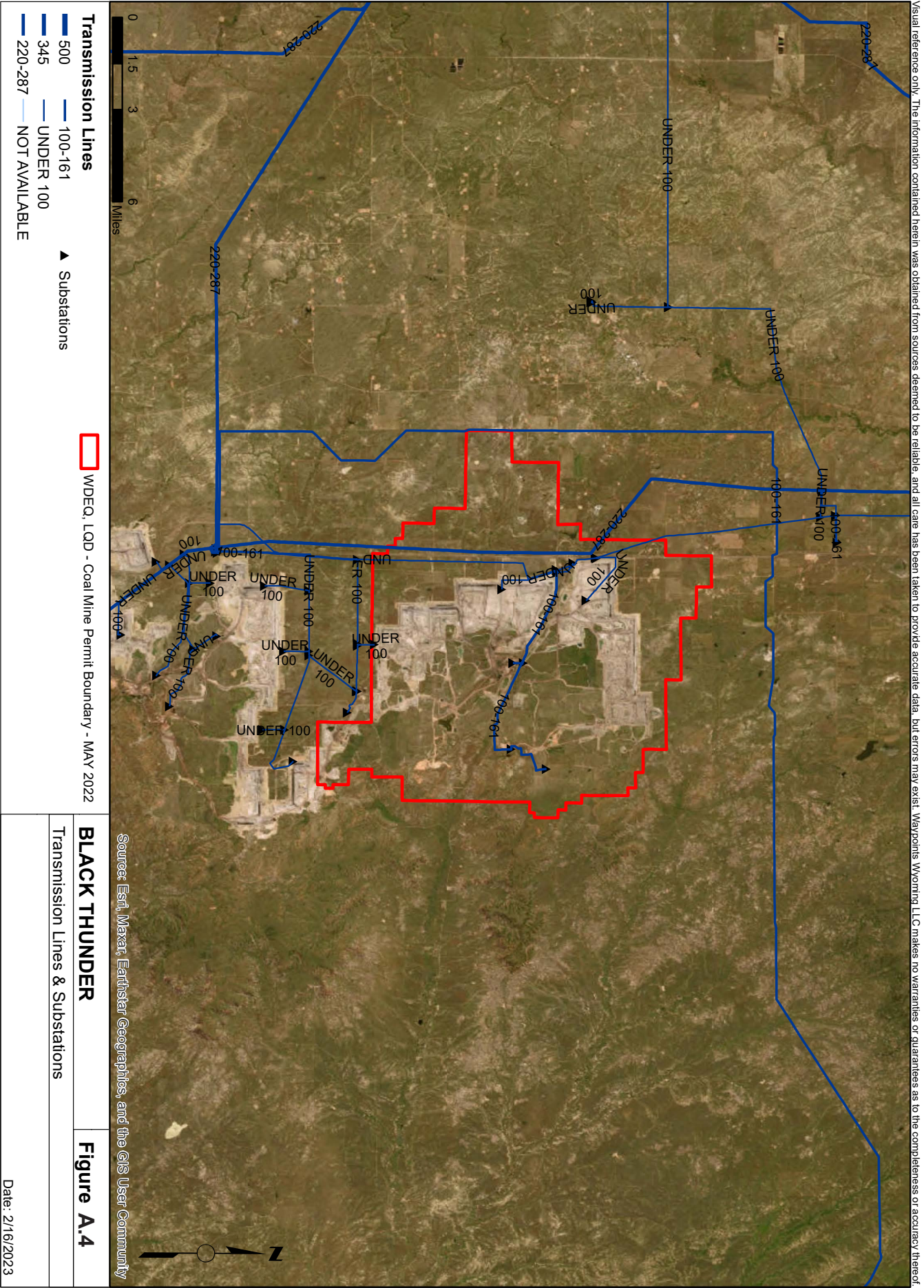
BLACK THUNDER MINE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
	1
3D HOLDINGS LLC	2
ARK LAND COMPANY	3
BERTAGNOLE KARL R & TONYA K TRUSTS	4
BERTRAND GLEN R & COLETTE R	5
BNSF RAILWAY COMPANY	6
BOLLER-MILLS RANCH L P	7
BRIDLE BIT RANCH CO	8
BTU WESTERN RESOURCES INC	9
CARLSON KAREN A & LAURAA TRUSTS &	10
CHAPA NANCY JUNE ETAL	11
CHITTENDEN WILLIAM M & LOIS R	12
CLARETON LLC	13
COSNER CORP	14
DILTS BRANDON J FAM LIMITED PARTNERSHIP &	15
EAGLE SPECIALTY MATERIALS LLC	16
EDWARDS JUSTIN & HEATHER LIVING TRUST	17
EDWARDS LINDA J	19
EDWARDS TED J LIVING TRUST	20
EOG RESOURCES INC	21
ERRINGTON ALEX C ETAL	22
HAY CREEK SURFACE LLC	23
J L TRACY RANCH LLC	24
KEELINE RANCH CO	25
LEADBETTER LINDA & BETH	26
LITTLE CRIPPLE CREEK LLC	27
MILLS BILLY H & VICKI L FAMILY TRUST	28
MILLS BROTHERS	29
MILLS JODY G & CORETTA M A FAMILY TRUST	30
MORGAN FARREN E & SHERYL A	31
NORTH AMERICAN LAND & LIVESTOCK LLC	32
NORTH KEELINE RANCH LLC	33
PEABODY POWDER RIVER MINING LLC	34
PRIEWE DORAN E	35
PRIEWE DORAN E	36
PRIEWE ROBERT H	37
SCHEELER GEORGE C & LAURIE A TRUST	38
STATE OF WYOMING	State
STURGES THOMAS M & JUNE S	39
SWINGHOLM ROBERT N & JAMIE L	40
TALLGRASS MIDSTREAM LLC	41
THUNDER BASIN COAL COMPANY LLC	42

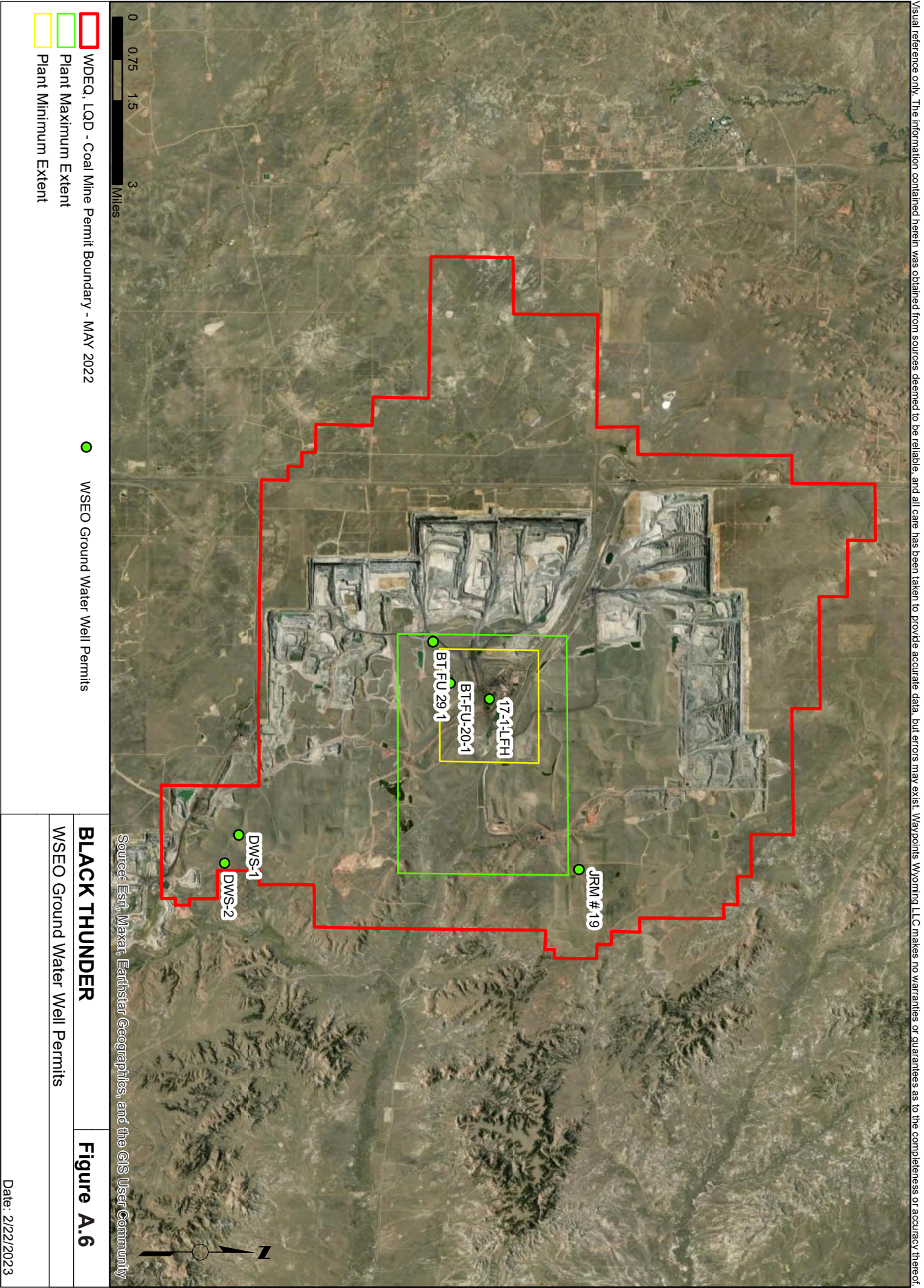
BLACK THUNDER MINE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
TLE RANCH INC	43
TRANDAHL THOMAS J & ROBYN R	44
TRIGG ALLEN & KAREN C/O	45
TRITON COAL COMPANY	46
TWO ELK GENERATION PARTNERS LP	47
USDA - FOREST SERVICE	Fed
WESTERN RR PROPERTIES INC &	48
WILKINSON JERRY N & RHONDA L	49
WILLIAMS DOUGLAS D & CONNIE J	50
WRIGHT WATER & SEWER DISTRICT	51

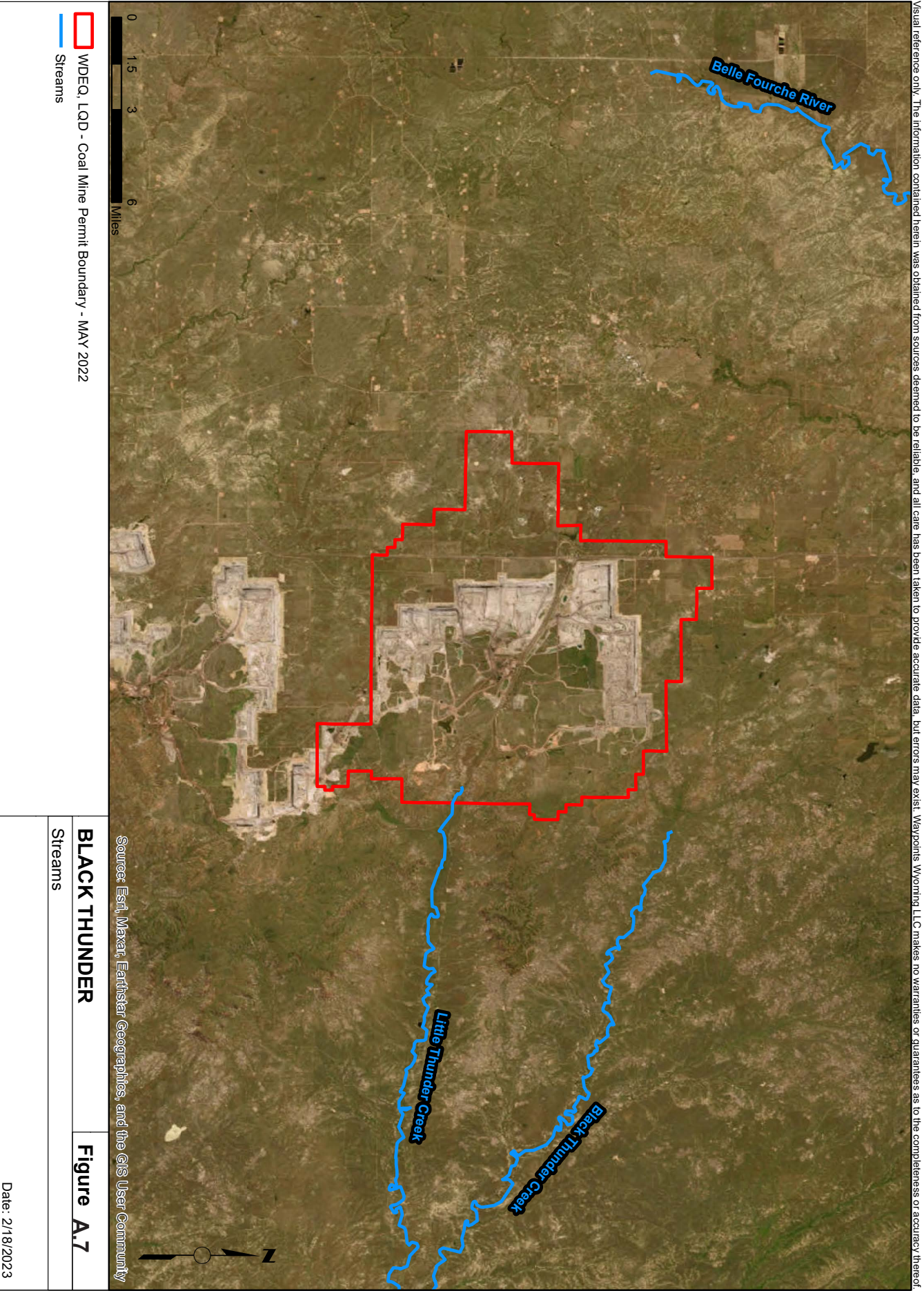
Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.

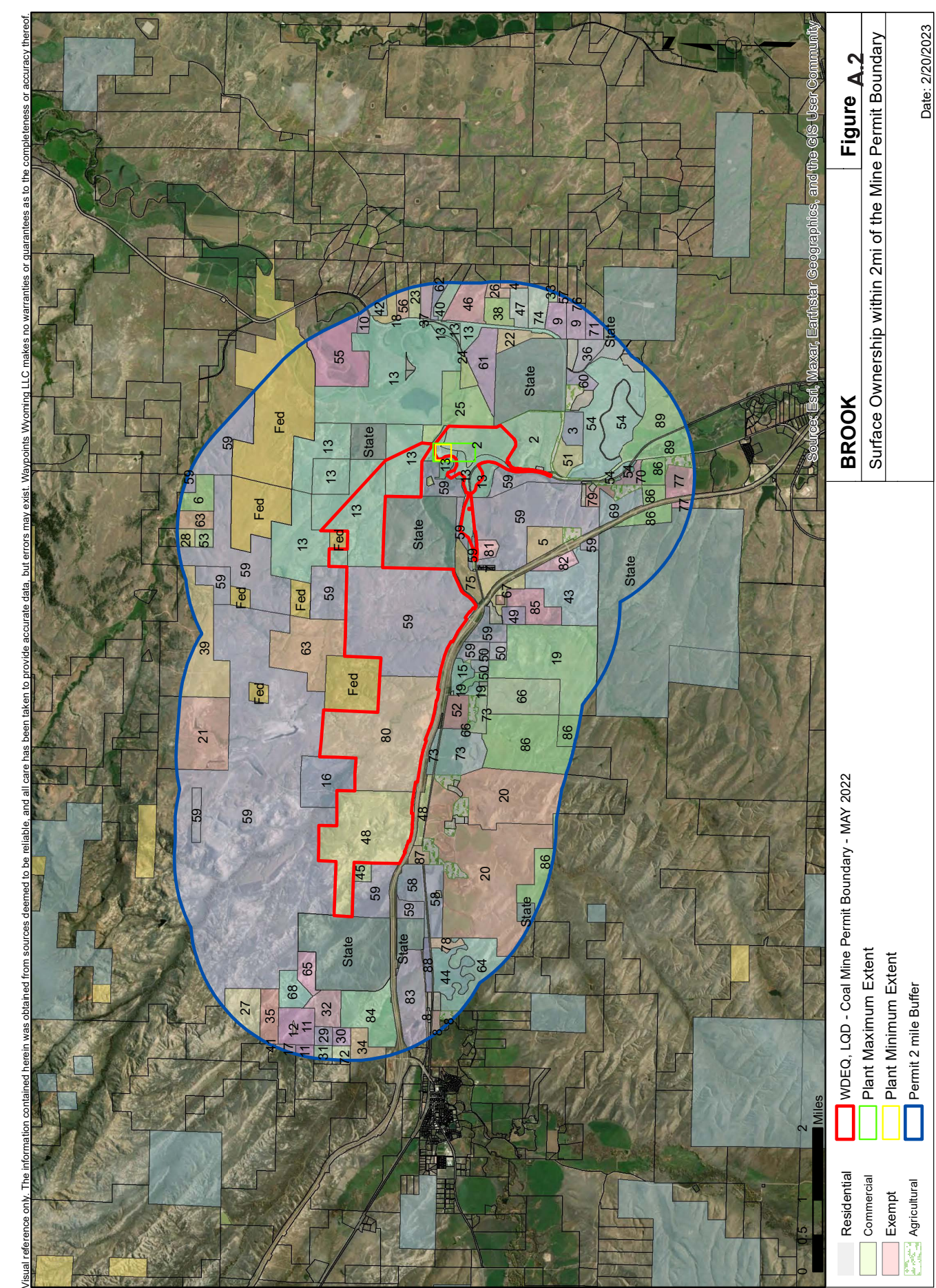
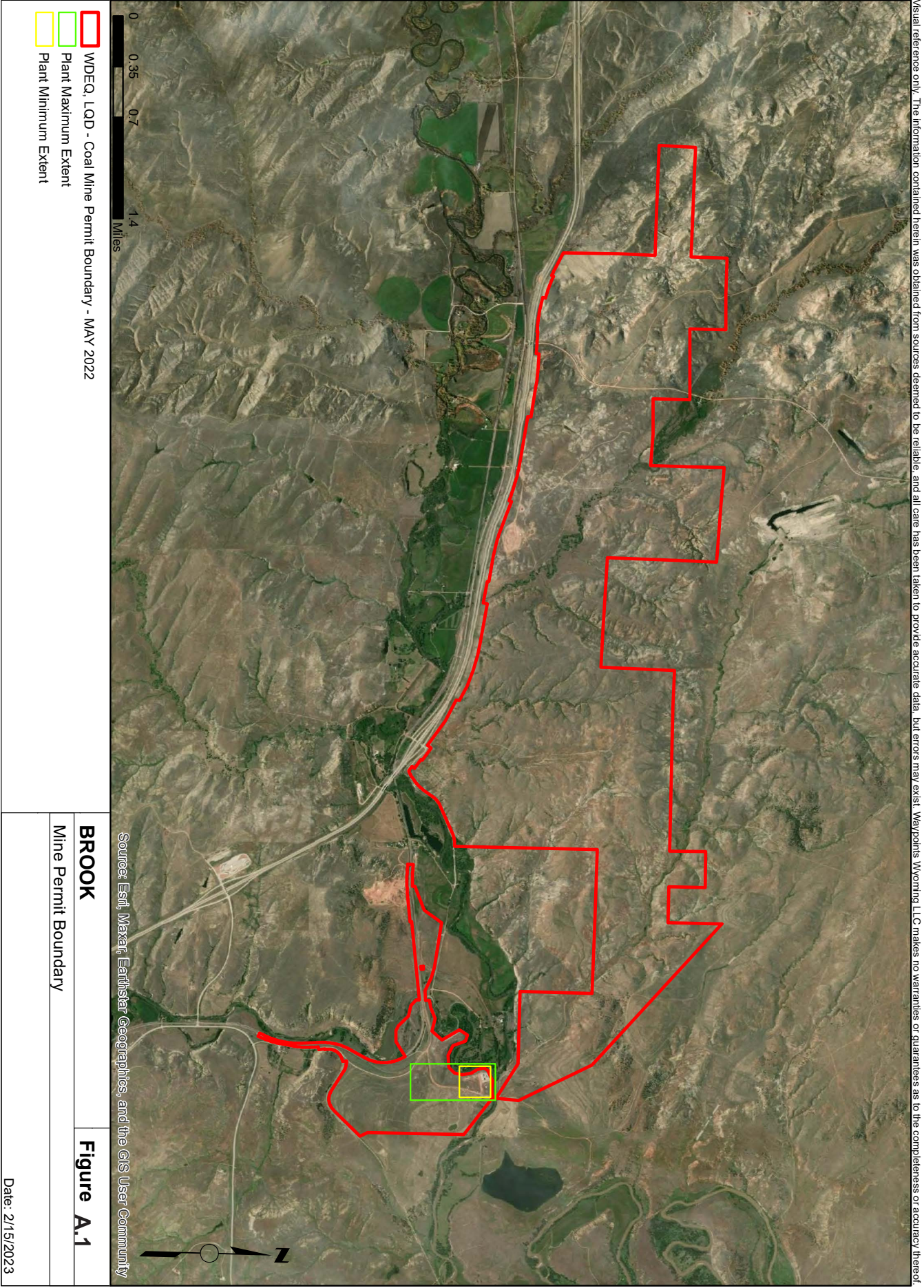


BLACK THUNDER		Figure A.3
Transportation		
WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022		
USA Railroads		
		Date: 2/16/2023





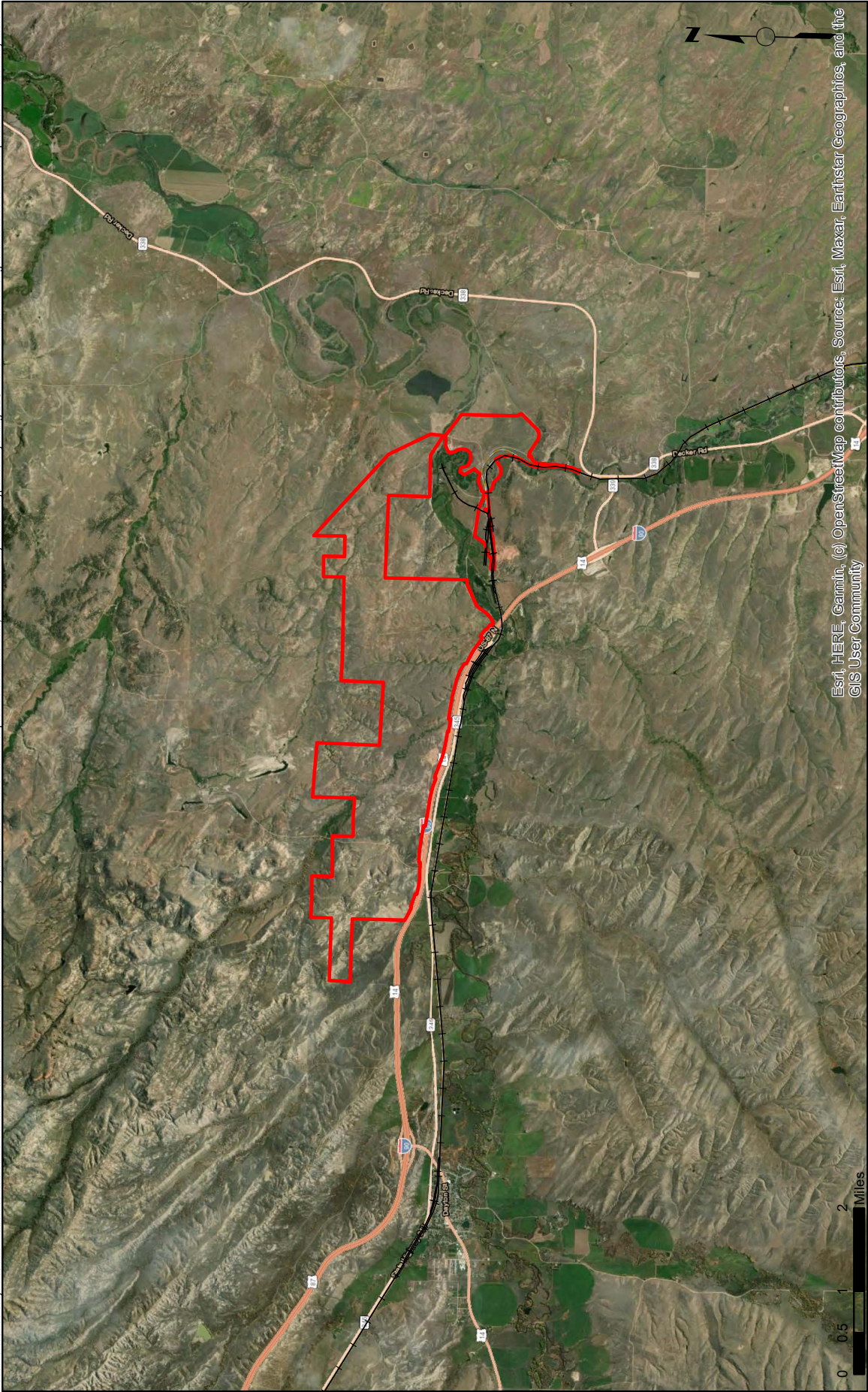




BROOK MINE- SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ANDERSON, MARK P & JANICE M	1
ANKNEY, TANA	2
ASH INVESTMENTS LLC	3
BAINBRIDGE, DANIEL & LAURA	4
BAKER, WADE A & VICKY D	5
BAKER, WALTER RAY & PATRICIA ANN	6
BARBULA, JOHN E & SHELLEY	7
BARNEY BROS LAND & LIVESTOCK INC C/O BARNEY, GARY A	8
BASTROM, WADE A & STEPHANIE J	9
BB PROPERTIES LLC	10
BELISH FAMILY TRUST BELISH, ANNIE E & ELBERT DEAN CO-TRSTES	11
BELISH, EL & SUE TRUSTEES BELISH, EL & SUE LIVING TRUST	12
BLACK GOLD LAND COMPANY LLC	13
BLEA, MATT BLEA, KELLY	14
BLM LAND	Fed
BOCEK LLC	15
BOCEK, DARRELL TRUSTEE BOCEK FAMILY REVOCABLE LIVING TRUST DTD DEC 30 2021	16
BOMAR, RANDY P	17
BONTRAGER, BRYAN C & BETHANY M	18
BUYOK, JOHN P & VANESSAA	19
CARROLL, P SEAN & KELLIE A	20
CHASE, JANE C	21
COLEMAN, JEFFREY & COURTNEY	22
CONNOLLY, BENJAMIN P & CORTNEY H	23
DELAPP, JILL	24
DELAPP, NEIL E TRUSTEE DELAPP MARITAL TRUST DTD 12/20/2005	25
DOERR, GARY T DOERR, NATHAN T	26
EARLY CREEK LLC ET AL	27
F & M PROPERTY HOLDINGS LLC	28
FAIRBANKS, ANTHONY A & MALINDA R	29
FAIRBANKS, ANTHONY A & MALINDA R	30
FAIRBANKS, BRADY & JENNIFER	31
FERRO, JOSEPH & SHABON	32
FLYIN C TRUCKING LLC	33
GERLACH, JULIA ANN & TERRY, MURRAY LANCE & TERRY, MICHAEL WILLIAM CO-TRUSTEES	34
GILL, BARBARANN	35
GILL, LAWRENCE G III TRUSTEE GILL, LAWRENCE G III REV TR DTD APR 9 2010	36
GOLDEN BUNGALOW PROPERTIES LLC	37
GRIMM, JUSTIN ZACHARY & JEANETTE JOSHU	38
HALLWORTH, JAMES EDWARD	39
HAYWARD, GREGORY & PATRICIA	40
HAYWORTH, OWEN P	41
JOHNSON, CURTISS W & LINDA M	42
JORGENSEN LAND COMPANY LLC C/O CHARLES & VICKI JORGENSEN	43
KAWULOK ENTERPRISES LLC	44
KAWULOK, FRANK J III	45

BROOK MINE- SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
KIEHL, ANDREW & JENNIFER PROPP, RONALD	46
LAUMBACH, RANDALL & JOLENE	47
LAYA, THOMAS CHARLES TRUSTEE THE LAYA LAND TRUST DTD JUN 3 2013	48
LEGERSKI, GLADYS JEAN LEGERSKI, GERALD DEAN	49
LONG, WILLIAM TRUSTEE C/O CHRISTOPHER TYLER	50
MADDEN, GLEN SHAWN TRUSTEE SHAWN G MADDEN TRUST DTD 11/15/2004	51
MCCLOY, RODNEY R	52
MOMMSEN, MARY B	53
NORTH SHERIDAN LAND COMPANY LLC	54
NORTHERN CHEYENNE TRIBE OF THE NORTHERN CHEYENNE NATION	55
NORTHROP, TYLER P & TABITHA A	56
OWINGS, COLLEEN R	57
PACIFIC POWER & LIGHT COMPANY PROPERTY TAX DEPT	58
PADLOCK RANCH COMPANY INC	59
PARROTT, TEAGAN JAMES	60
PATTY, LARSON & HANNAH (UND 1/7 INT) PATTY, DAVID W & CESLIE F TRUSTEES (UND 6/7	61
PEER, NIR	62
POESCHL, ANTHONY J & DEBRA L TRUSTEES POESCHL FAMILY REVOCABLE TRUST	63
PORDEN, MARK B & SUSAN L	64
POWERS, KRISTOPHER M & AMBER M	65
PRESTON, JAMES C & PENNY	66
RAMACO WYOMING COAL CO, LLC	67
RAYMOND, DANNY G & CARRIE E	68
REDINGER, LOGAN S	69
REDINGER, SWAYNE & KRISTA	70
REIMERS, ANDREW J; REIMERS, MISTIE R KEELER, ALAN I	71
RICKER, JACOB L	72
RIVER BIRCH HOLDINGS LLC	73
ROSENLUND, TAD & DEVONA	74
SHERIDAN COUNTY	75
SIMMONS, JEFFREY LYLE & TAMERA MARAE	76
SINGS WITH THE EAGLE LLC	77
SOLTIS, THOMAS K TRUSTEE	78
STATE LAND	State
STERBENZ, FRANK A JR TRUSTEE STERBENZ, JANICE T TRUSTEE	79
TAYLOR INVESTMENTS, LLC C/O TAYLOR, LEROY	80
TONGUE RIVER STONE, INC	81
TRANSPORTATION COMMISSION OF WYOMING	82
TSCHIRGI, LORETTA J & CHARTER B	83
TSCHIRGI, LORETTA J & CHARTER B	84
VINE, RICHARD L ET AL C/O JOHN M VINE RANCH	85
WHITE RANCH LLC	86
WILLIAMSON, ALAN MAX & LORI LYNN	87
WILSON, BRADLEY D & CARRIE K HOLDERS TRUSTEES SCOTT, DARWIN & KAREN TRUST DTD JAN	88
WRENCH UNIT LLC	89

Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.



BROOK

Transportation

Figure A.3

WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022

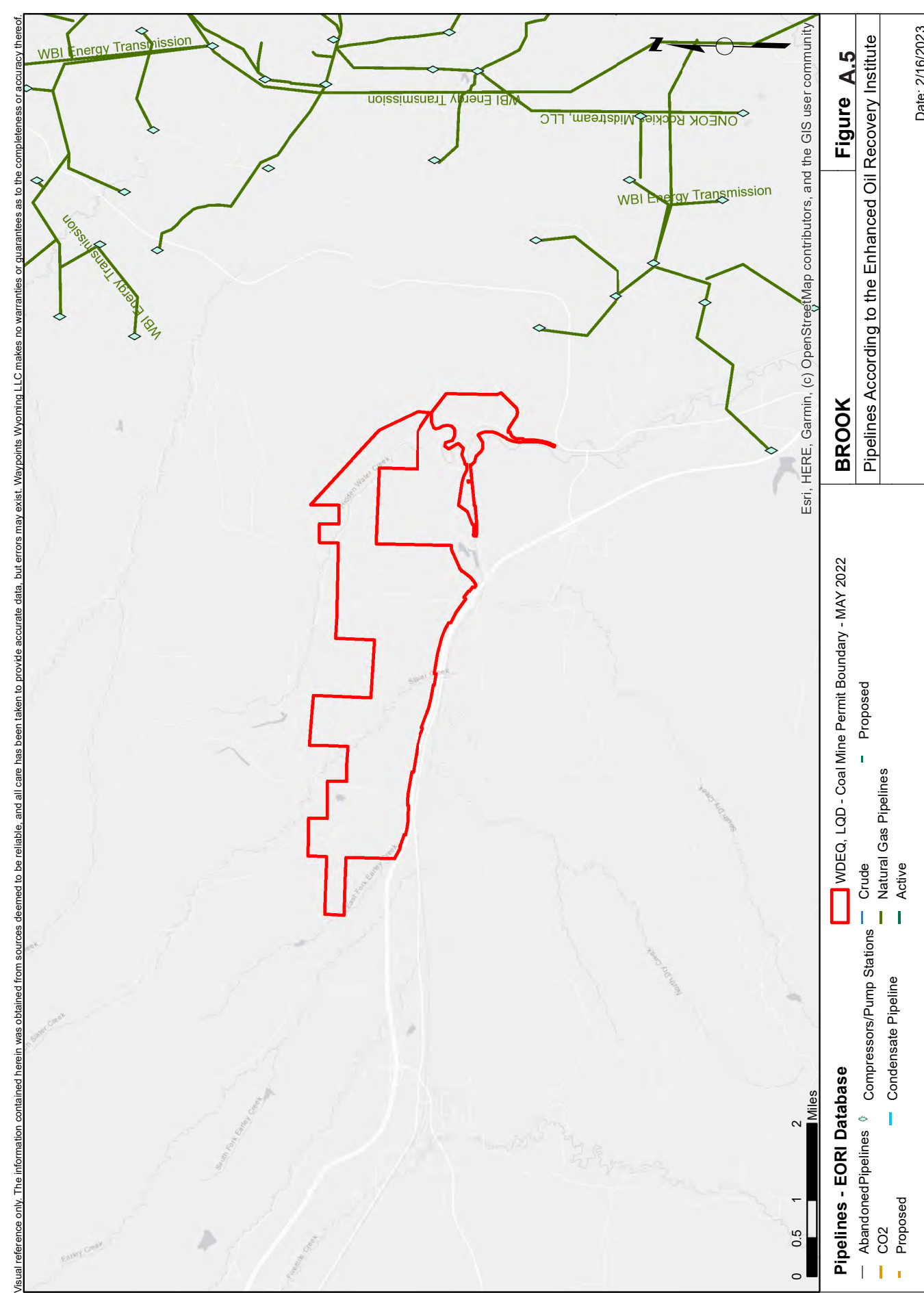
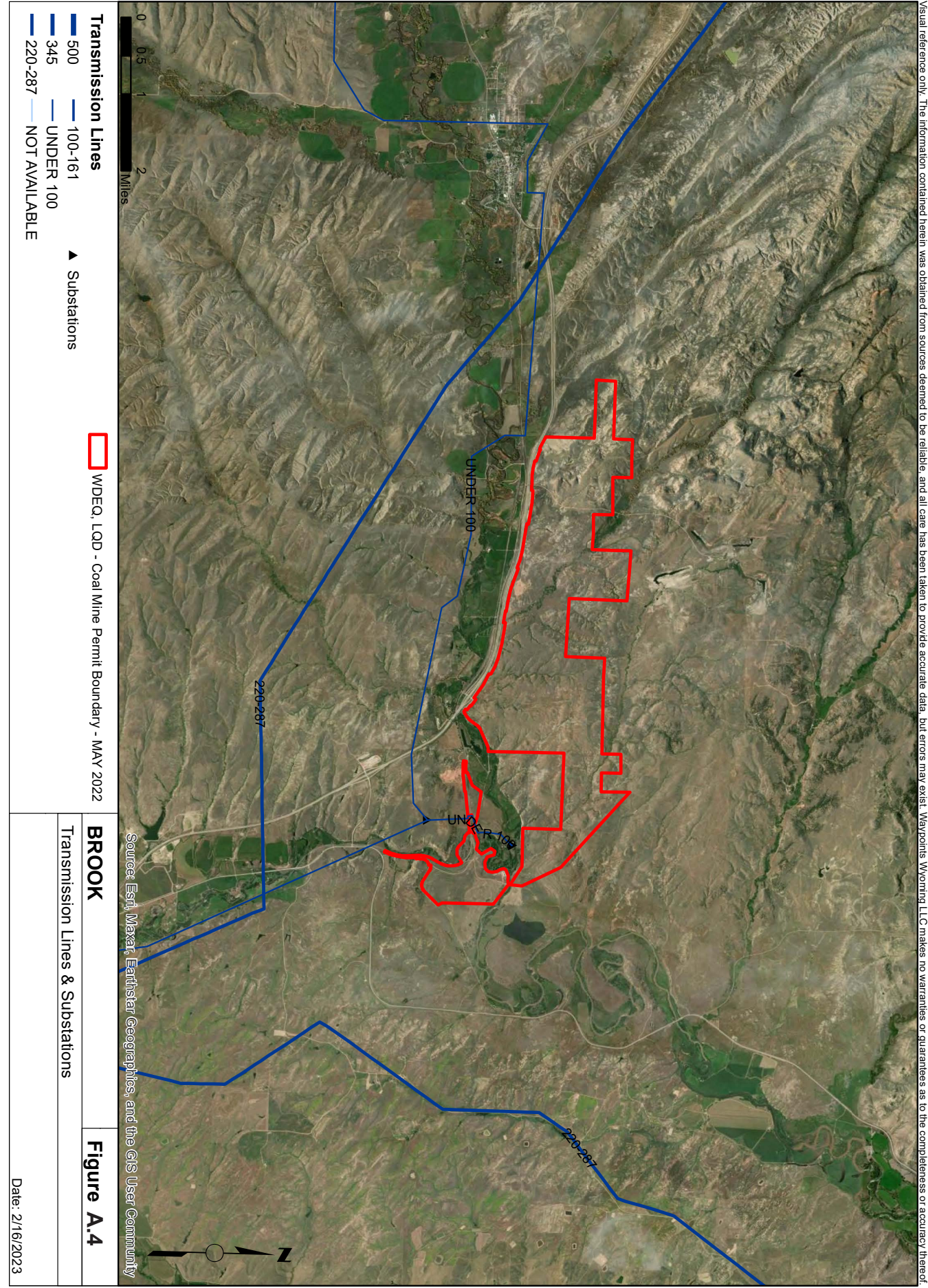
USA Railroads

Date: 2/16/2023

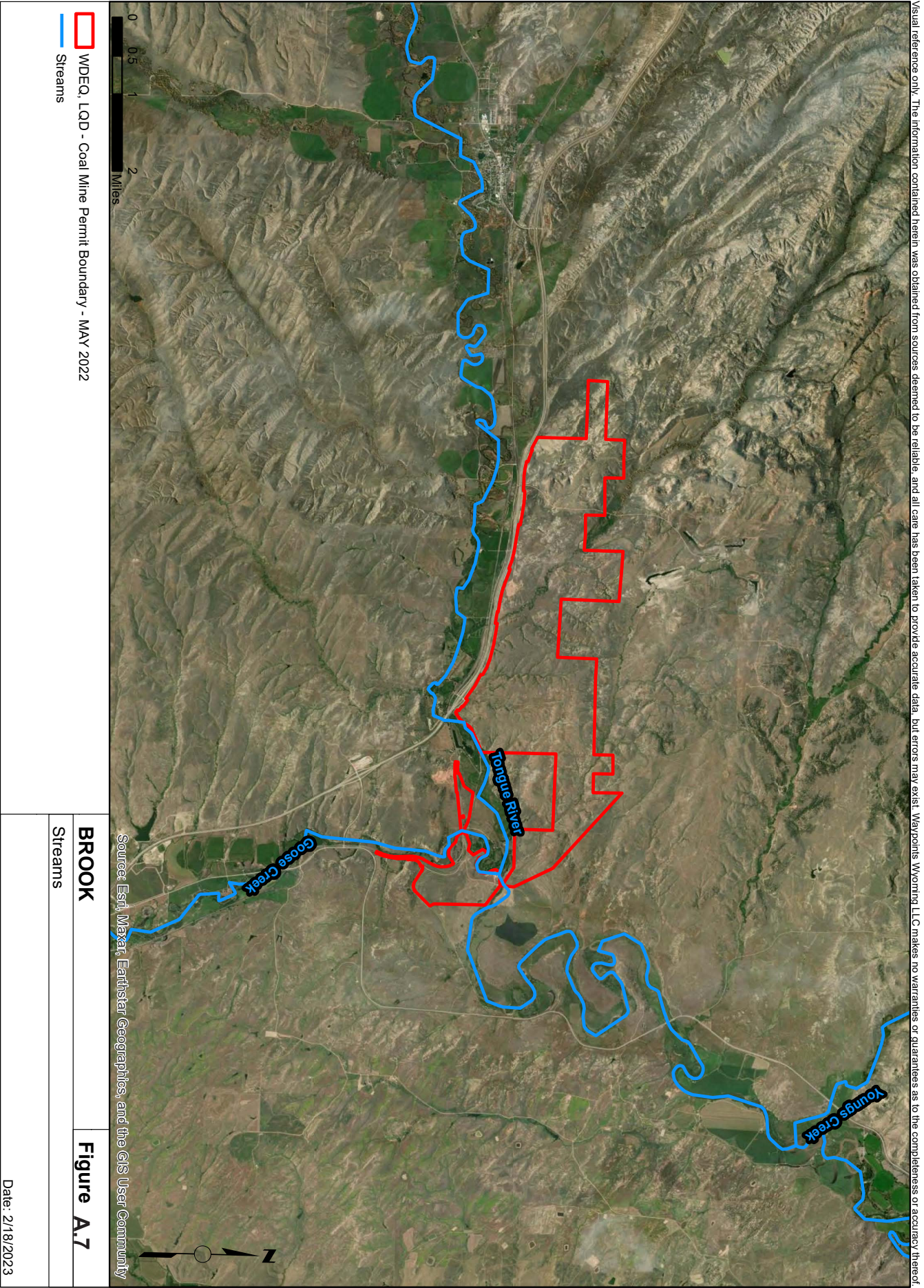
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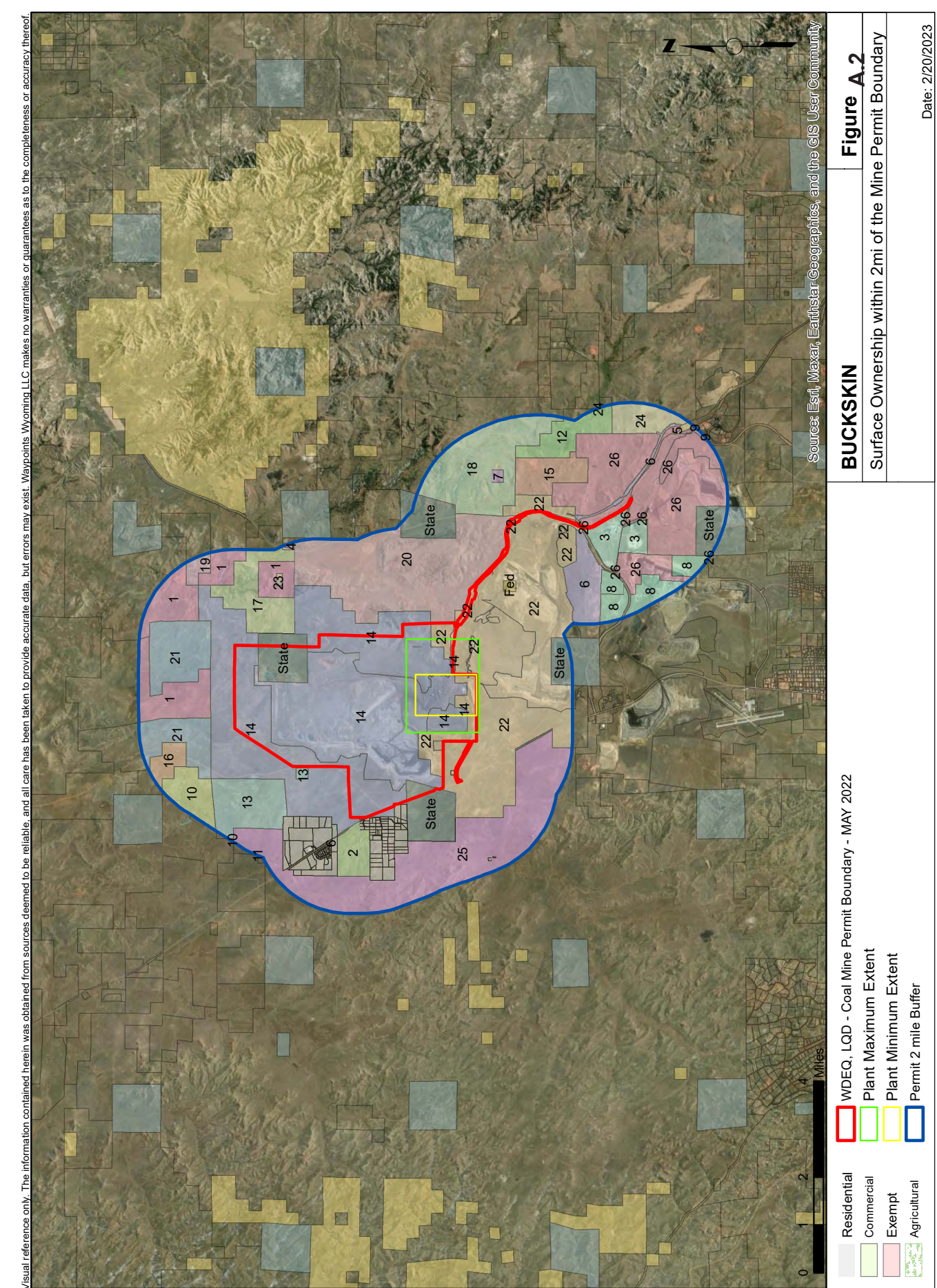
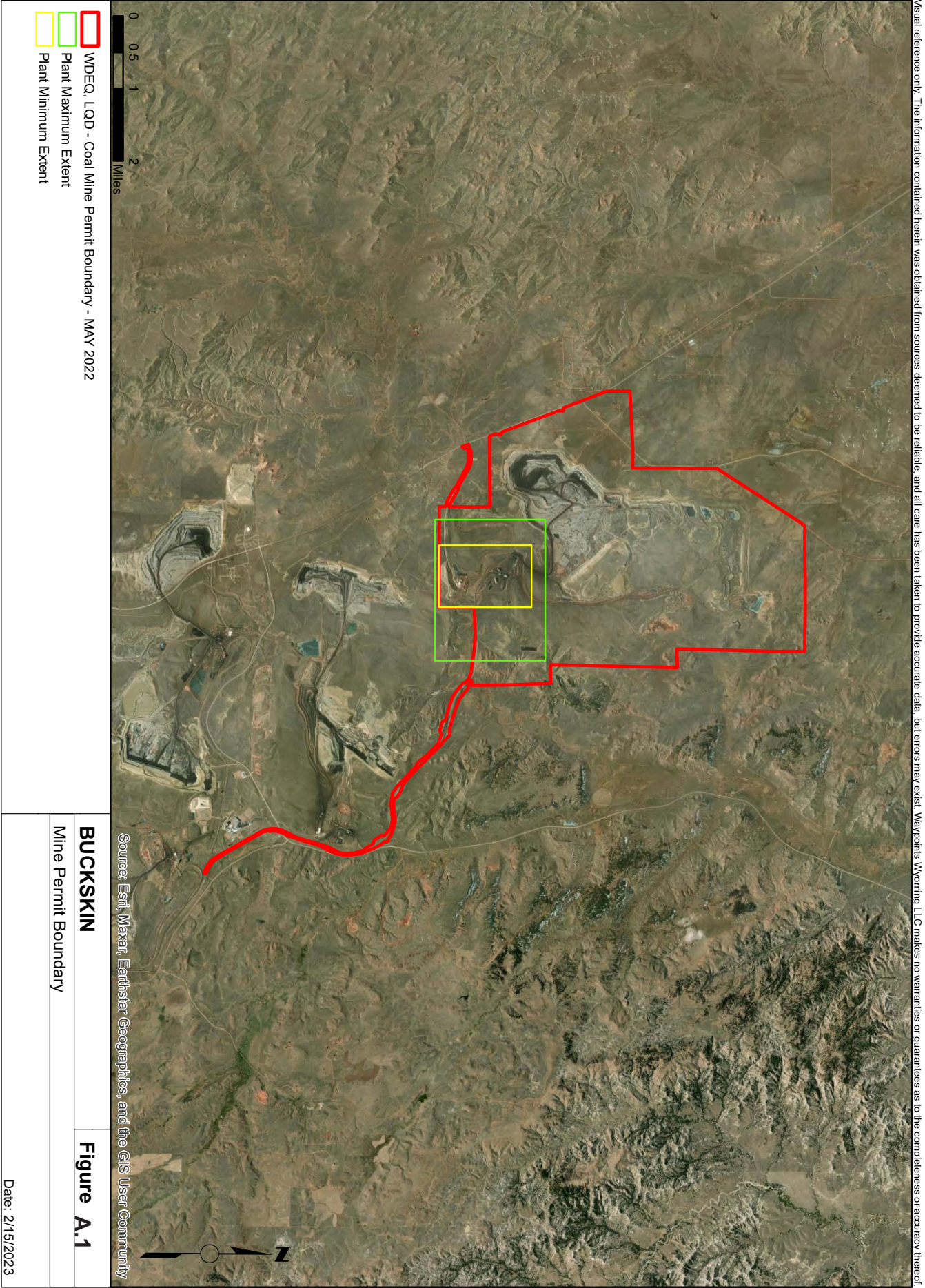
COAL INFRASTRUCTURE REUSE REPORT | APPENDIX A

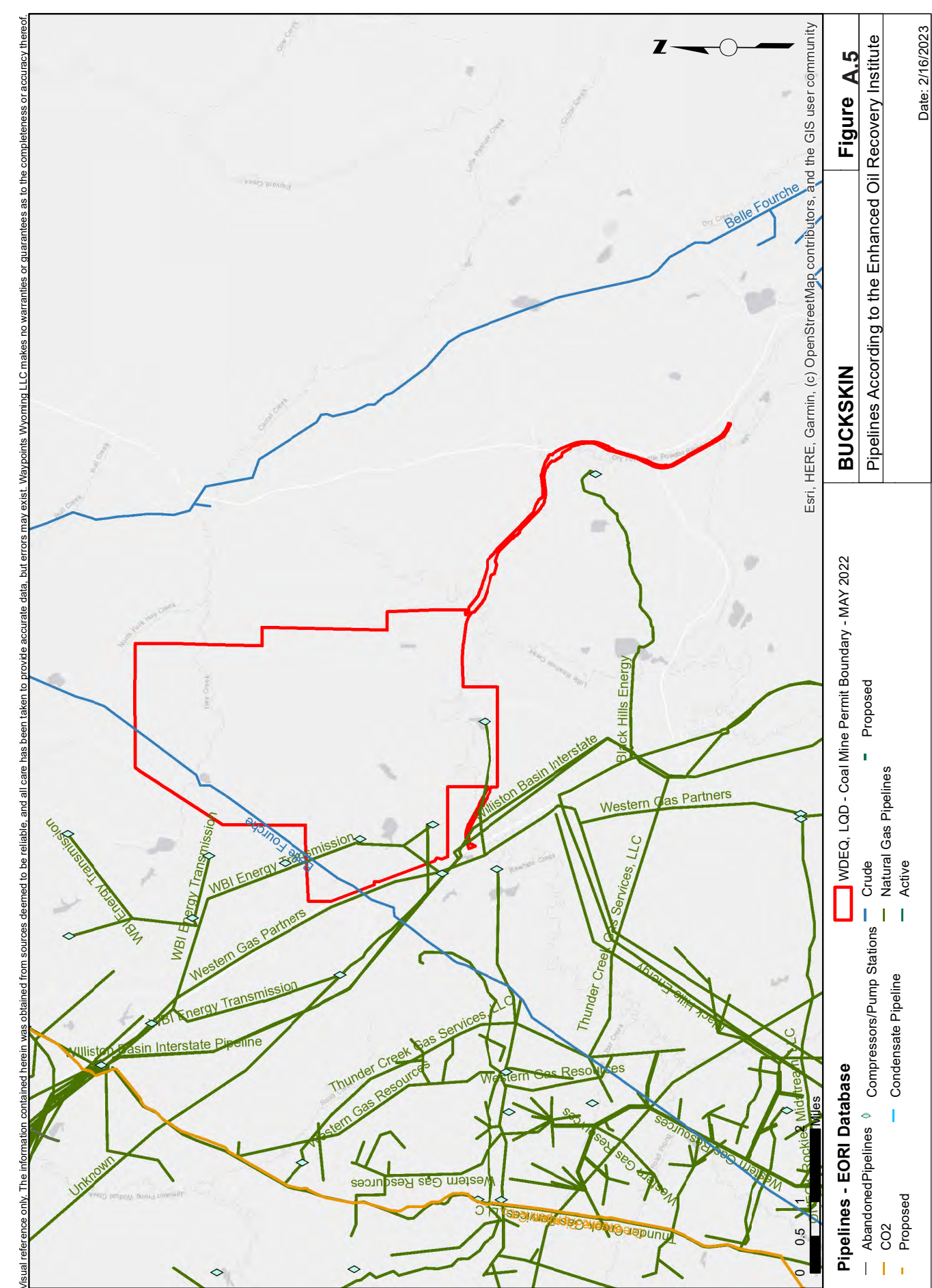
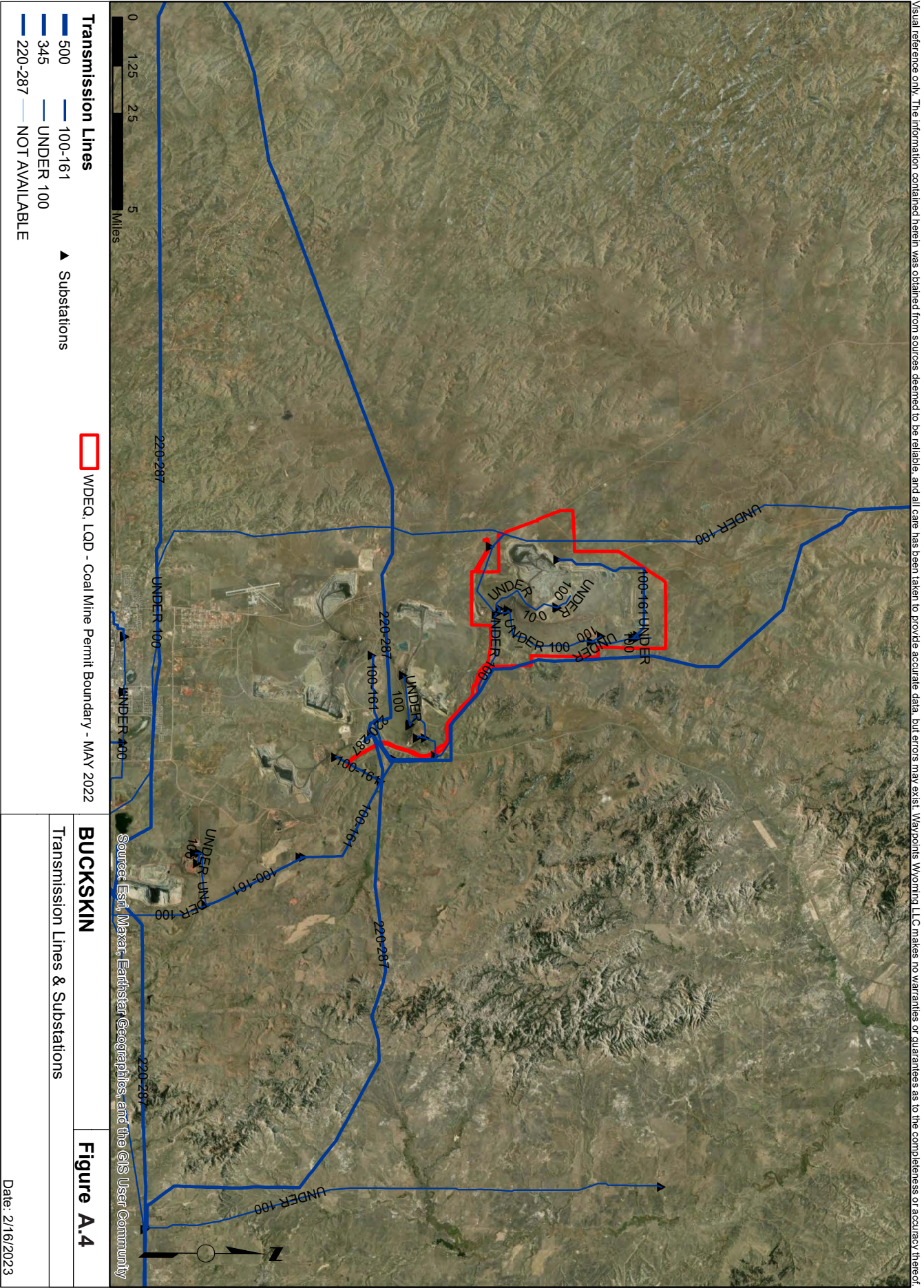
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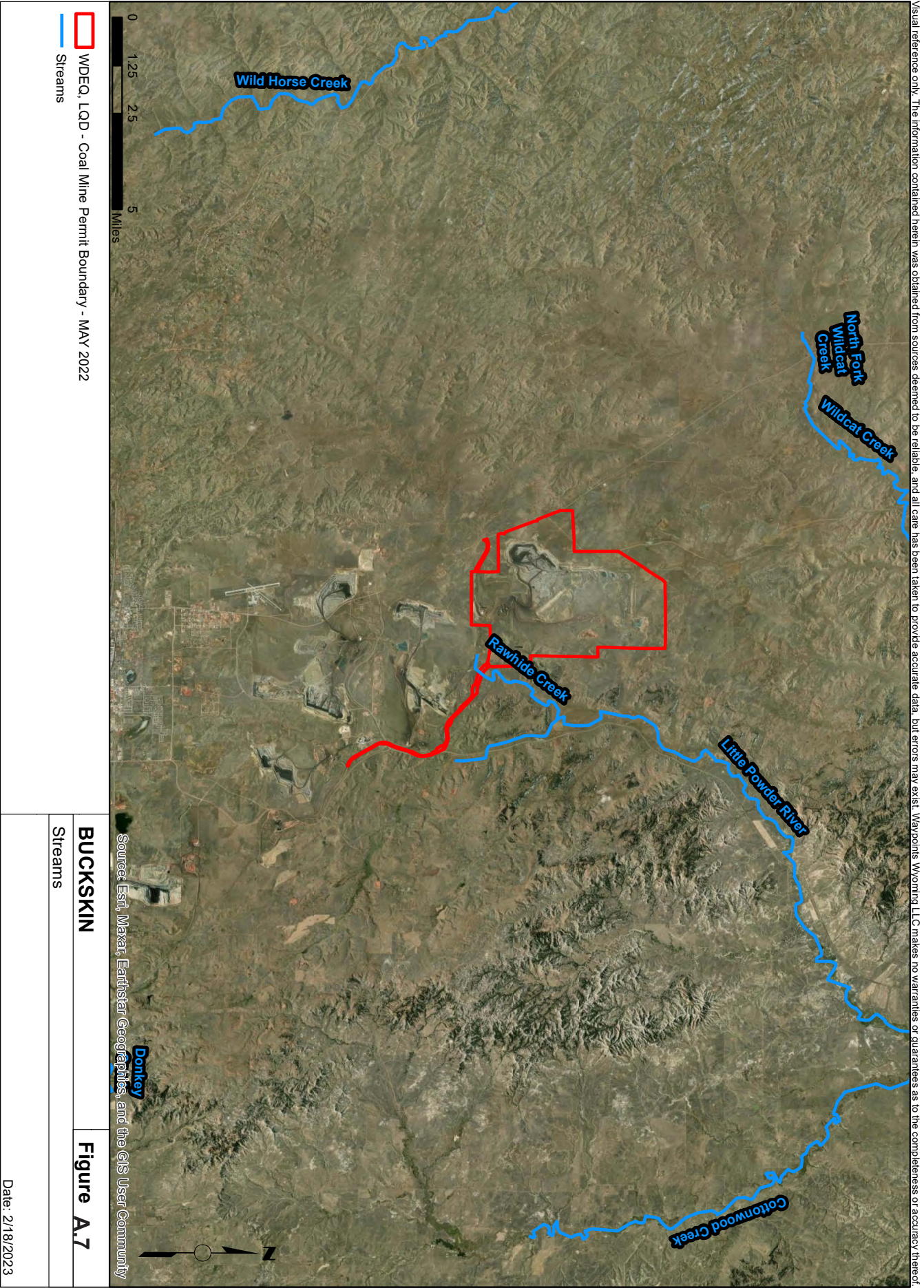


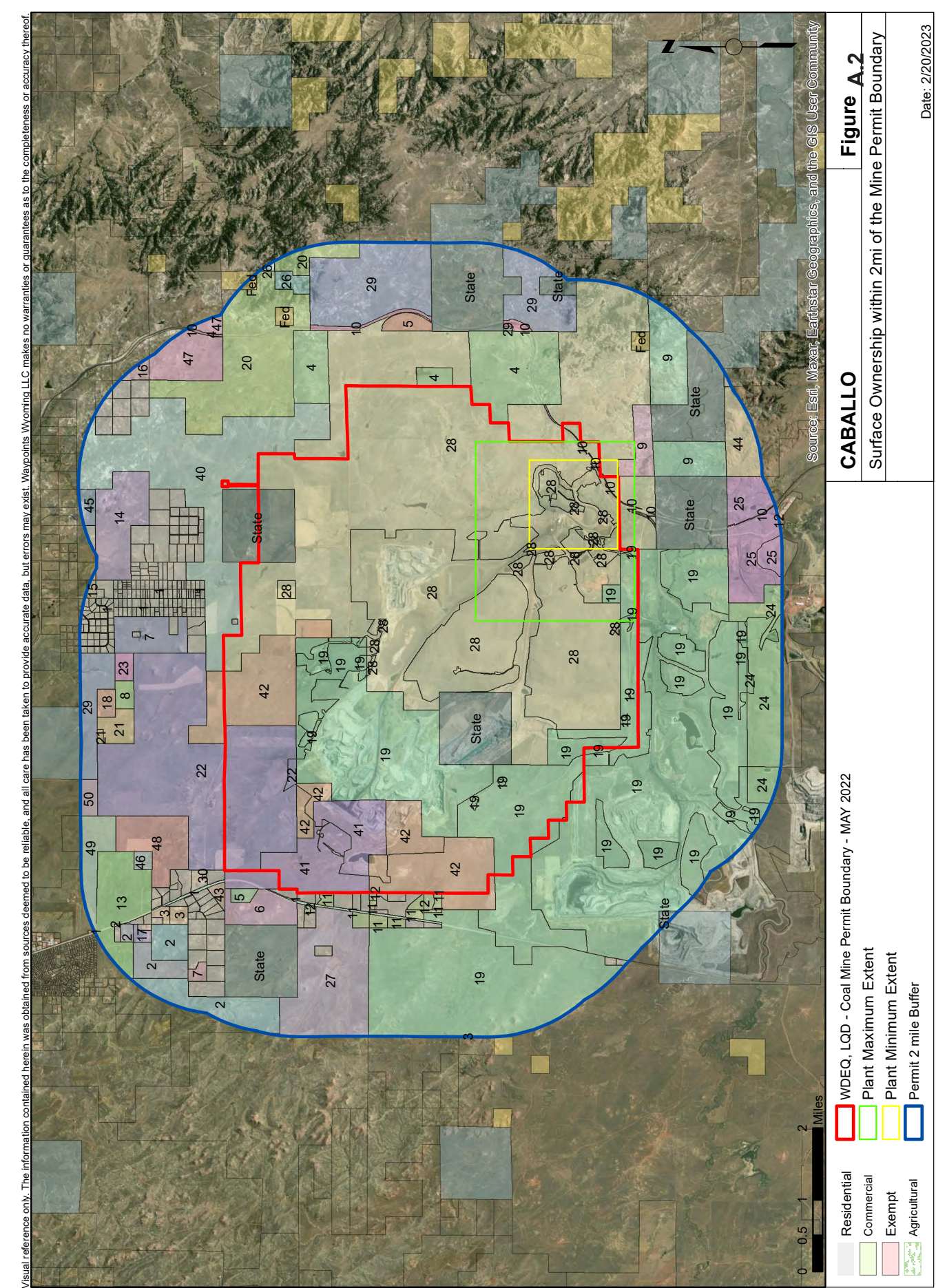
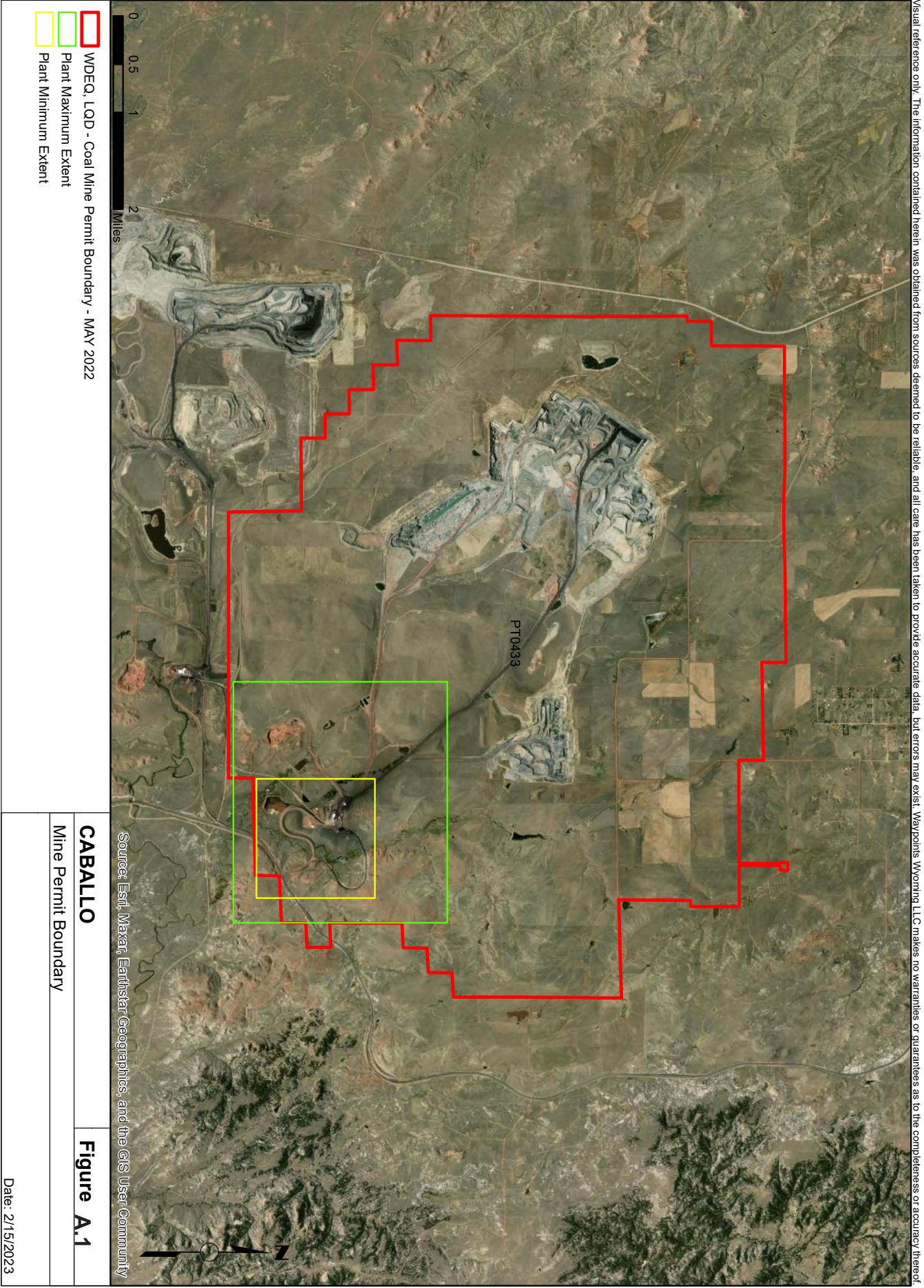
COAL INFRASTRUCTURE REUSE REPORT | APPENDIX A





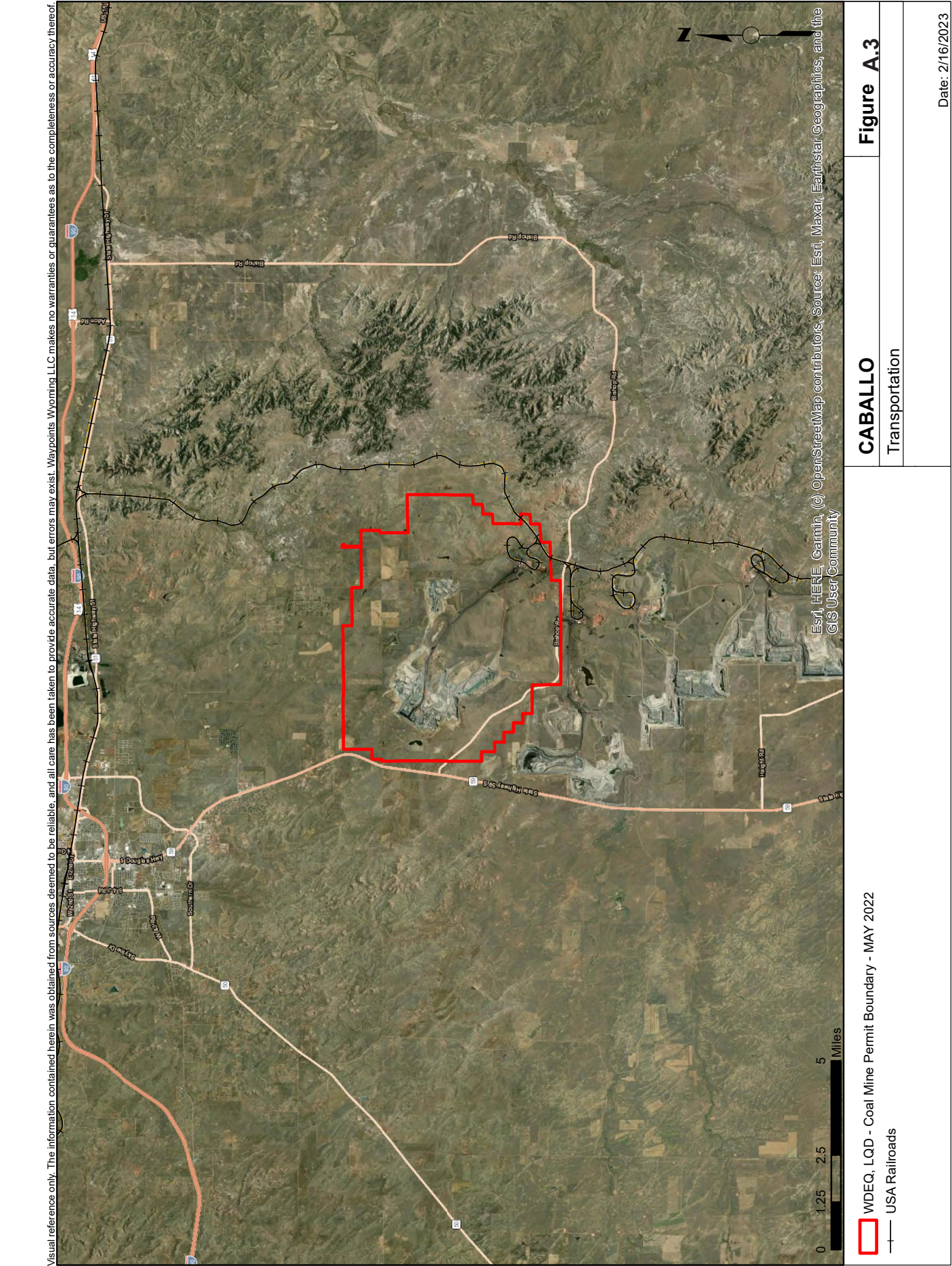


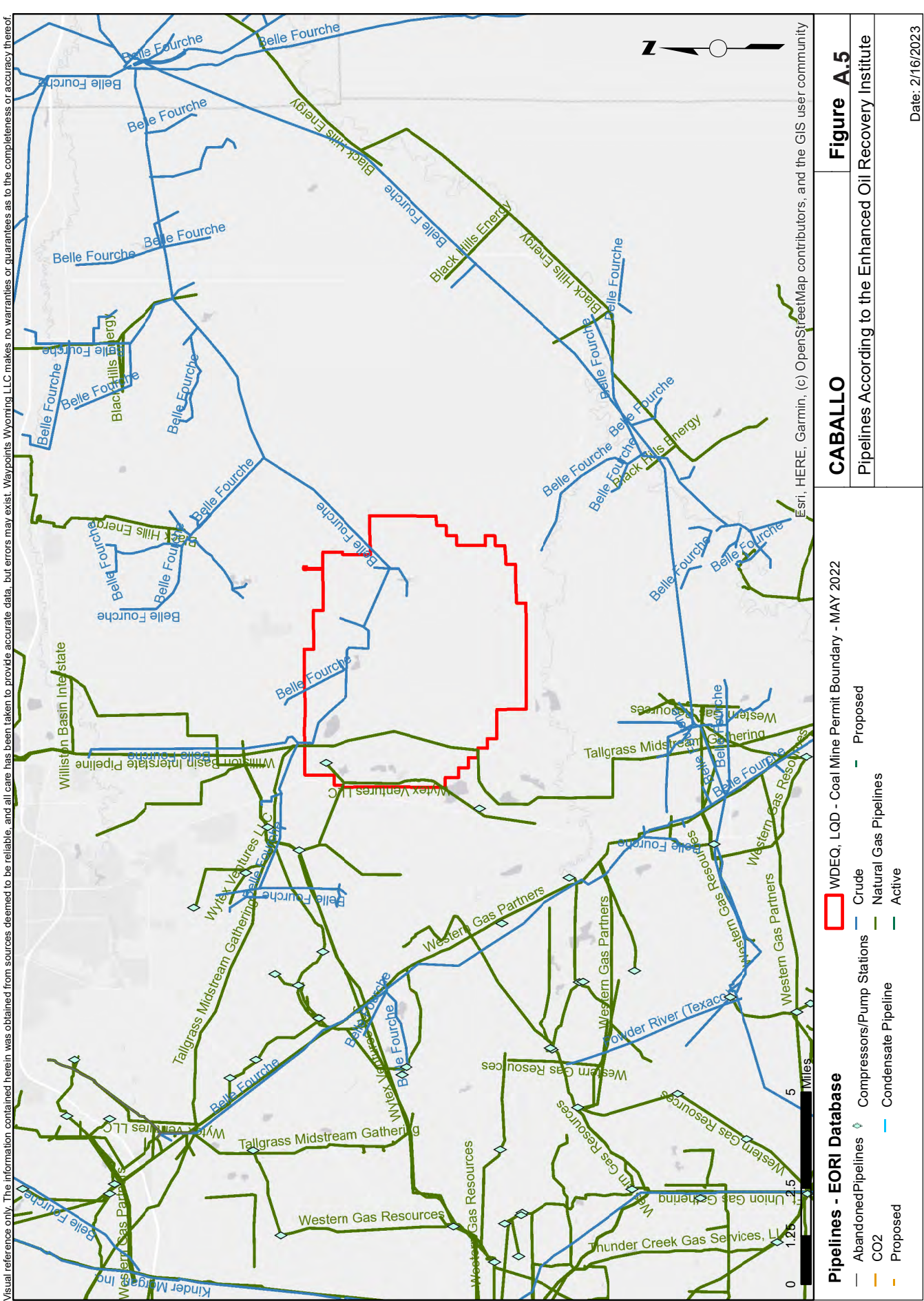
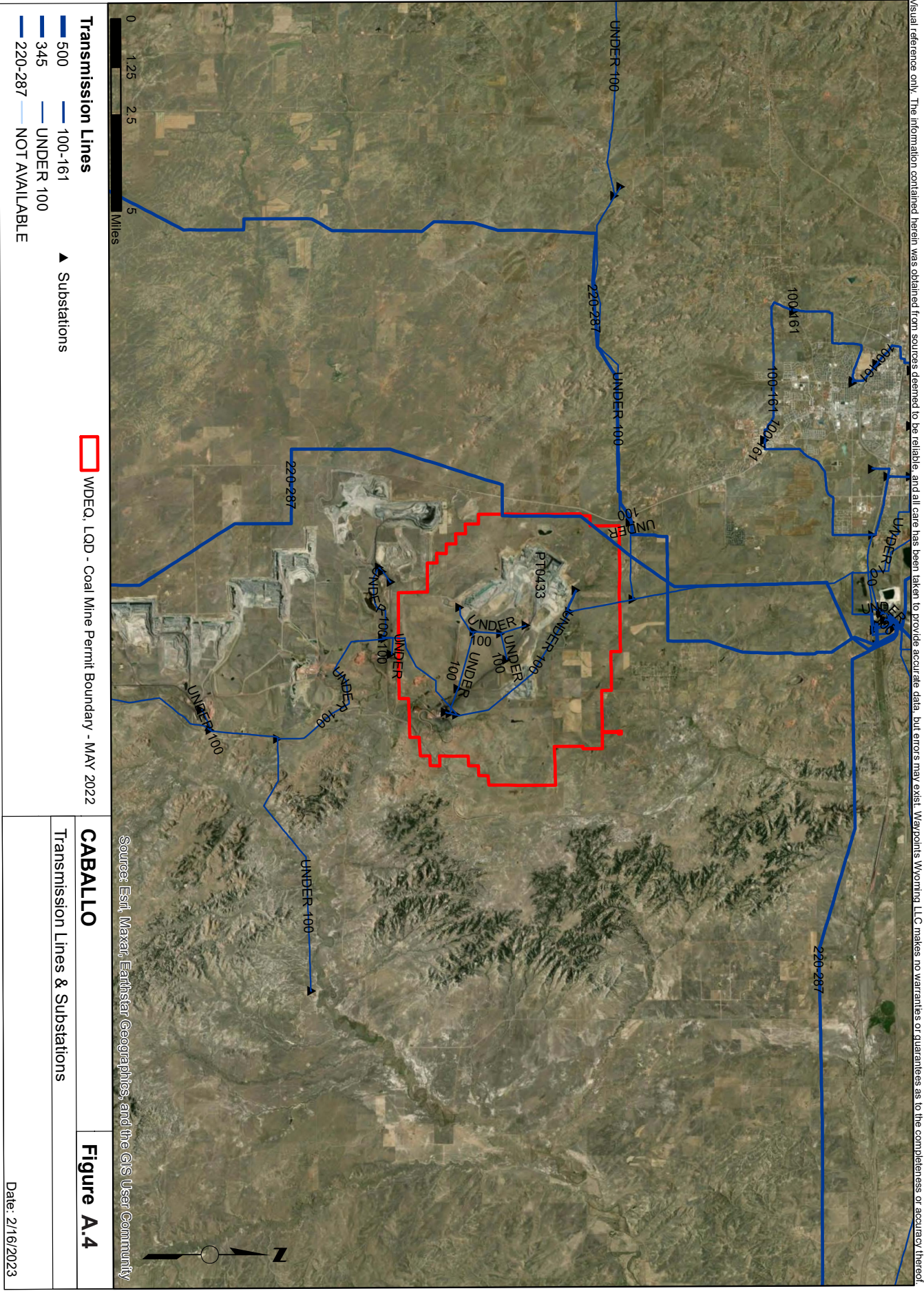


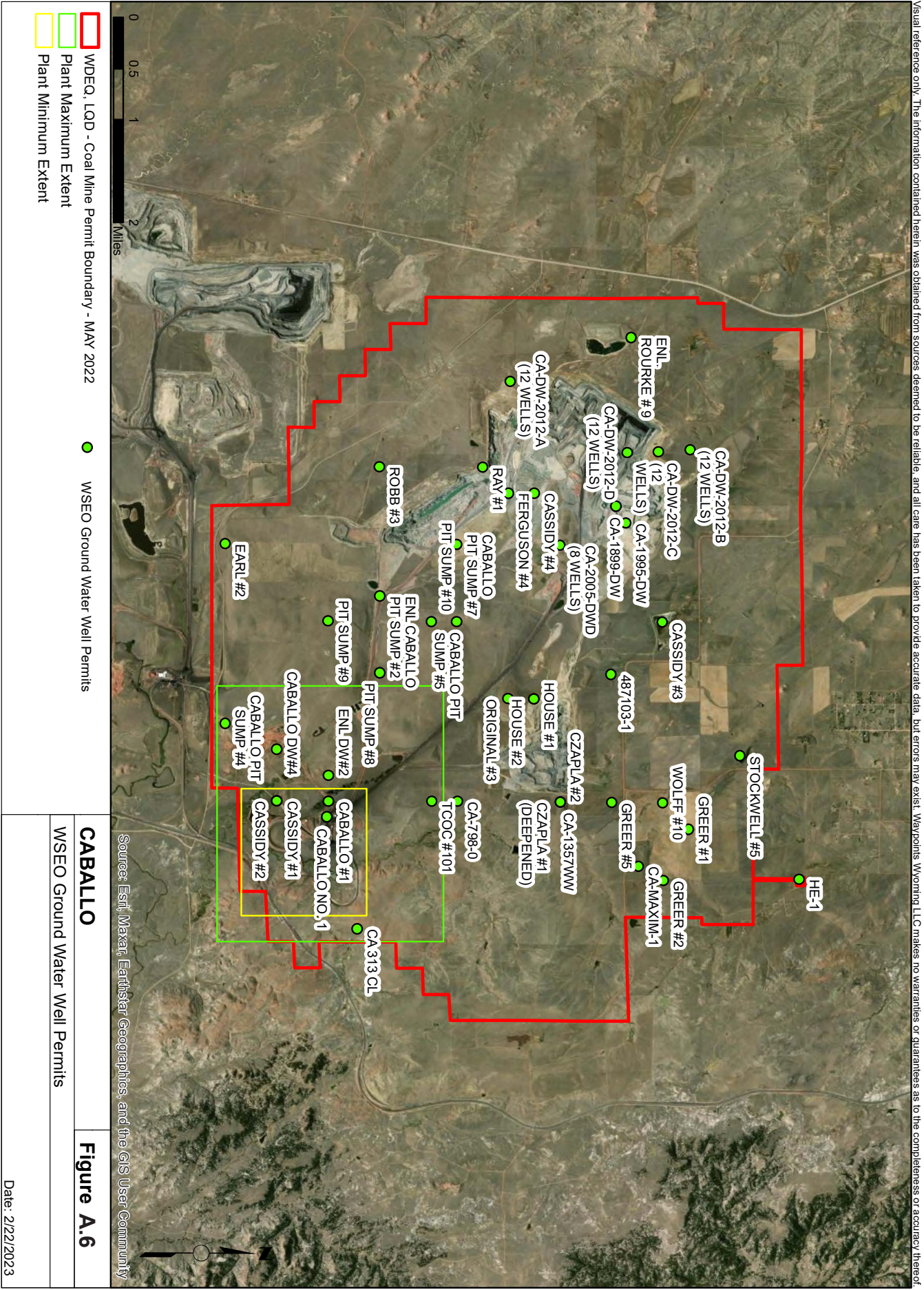


CABBALLO SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
	1
3JTC LLC	2
APPEL MARY ELLEN &	3
BAKER GORDON H ETAL	4
BARTOW JON C & VIKKI C	5
BARTOW JON C & VIKKI C	6
BENGSTON PROPERTIES LLC	7
BILLINGSLEY JANET M JACOBS-	8
BISHOP LAND & LIVESTOCK CO INC	9
BNSF RAILWAY COMPANY	10
BTU WESTERN RESOURCES INC	11
CABALLO COAL COMPANY	12
CAMPBELL COUNTY PROPERTIES LLC	13
CARTER JOHN D REV TRUST	14
CARTER MATTHEW & HOLLIE	15
COOK GILBERT RAY	16
CYCLONE DRILLING INC	17
DEPT OF INTERIOR/BLM	Fed
DSJ PROPERTY LLC	18
EAGLE SPECIALTY MATERIALS LLC	19
GALLATIN FUELS INC &	20
GREER RANDY C	21
HARBAUGH VICKIE BAKER ETAL	22
JOSLIN ORVILLE	23
JUMPING COW LLC	24
LARSEN NELLIE BELLE ETAL	25
MCGEE MICHAEL WAYNE & STELLA	26
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	27
NBMS LAND HOLDINGS LLC	28
OLSEN DAVID C ETAL	29
PAHASHA RANCH LIMITED PARTNERSHIP	30
PEABODY CABALLO MINING LLC	31
PICKREL LAND & CATTLE CO INC	32
PORTER DAVID L & AFTON E LIVING TRUST	33
POWDER RIVER ENERGY CORPORATION	34
RIDE FOR THE BRAND LLC	35
ROURKE LINDA A TRUST	36
ROURKE RANCH LLC	37
STATE OF WYOMING	State
T & G LLC	38


CABBALLO SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
T & T INVESTMENT PROPERTIES LLC	39
T 7 RANCH LLP	40
TAYLOR FRANKLIN G & LEONARD M	41
U S CONCRETE LAND HOLDING LLC	42
WALTER DUANE M & SONJA G	43
WOLFF HARRY L & RUTH LIVING TRUSTS	44
WOLFF HARRY L LIVING TRUST	45
WOLFF RUTH LIVING TRUST	46

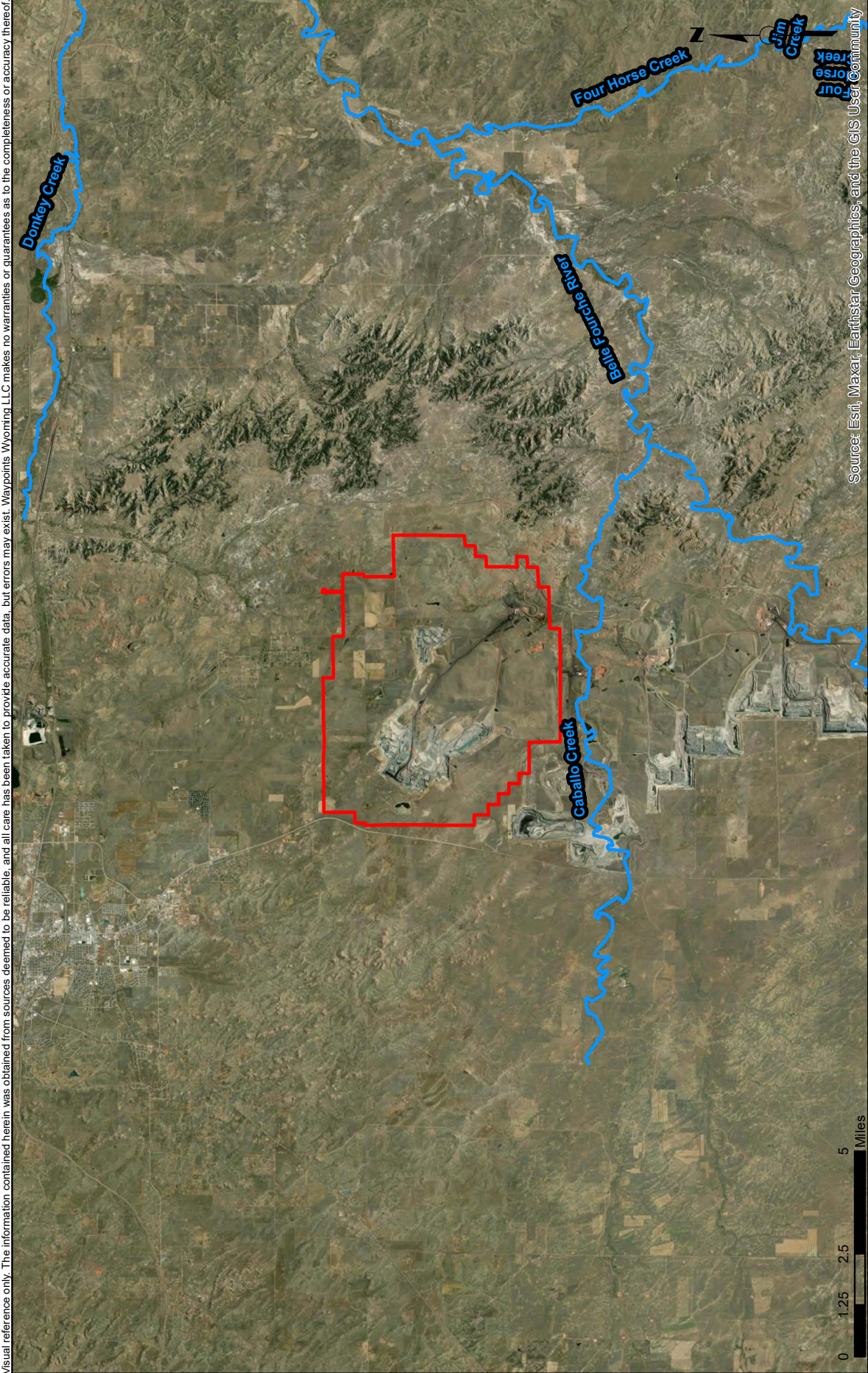






CABALLO MINE - A.6. WATER RIGHTS TABLE									
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE	
P13079.0P	Complete	PEABODY CABALLO MINING LLC	STOCKWELL #5	STK	4	300	-105.34999	44.18016	
P199714.0W	Complete	PEABODY CABALLO MINING, LLC	HE-1	MIS;STK	250	3754	-105.325786	44.188611	
P102222.0W	Complete	PEABODY DEVELOPEMENT CO	CA-A-1357WW	DOM_ GW	18	703	-105.34076	44.15478	
P160860.0W	Complete	PEABODY CABALLO MINING LLC	CA-MAXIM-1	MIS	150	1000	-105.328197	44.165869	
P168045.0W	Complete	PEABODY CABALLO MINING LLC	CA-2005-DWD (8 WELLS)	MIS	320		-105.39115	44.154569	
P16957.0P	Complete	PEABODY CABALLO MINING LLC	CASSIDY #1	DOM_ GW; STK	15	75	-105.34077	44.11474	
P16958.0P	Complete	PEABODY CABALLO MINING LLC	CASSIDY #2	STK	7	105	-105.34077	44.11474	
P16959.0P	Complete	EAGLE SPECIALITY MATERIALS LLC	CASSIDY #3	STK	7	300	-105.37615	44.16907	
P16960.0P	Complete	Foundation Wyoming Land Co.	CASSIDY #4	STK	10	300	-105.40139	44.15092	
P173793.0W	Complete	PEABODY CABALLO MINING LLC	CA-1995-DW	MIS	10	120	-105.395556	44.163889	
P173794.0W	Complete	PEABODY CABALLO MINING LLC	CA-1899-DW	MIS	9	180	-105.398889	44.1625	
P18139.0P	Complete	PEABODY CABALLO MINING LLC	HOUSE #1	STK	5	170	-105.36094	44.15101	
P18140.0P	Complete	PEABODY CABALLO MINING LLC	HOUSE #2	DOM_ GW	10	170	-105.36094	44.15101	
P18141.0P	Complete	PEABODY CABALLO MINING LLC	ORIGINAL #3	STK	5	30	-105.36099	44.14738	
P18142.0P	Complete	ALPHA COAL WEST INC	FERGUSON #4	STK	10	80	-105.40138	44.14727	
P1815.0W	Complete	PEABODY CABALLO MINING LLC	CZAPLA #1 (DEEPEMED)	DOM_ GW	5	560	-105.34076	44.15478	
P1816.0W	Complete	PEABODY CABALLO MINING LLC	CZAPLA #2	DOM_ GW; STK	4	270	-105.34076	44.15478	
P198298.0W	Complete	MID-CON ENERGY OPERATING LLC	ENL. ROURKE # 9	IND_ GW	67		-105.432044	44.1645	
P198307.0W	Complete	PEABODY CABALLO MINING, LLC	CA-DW-2012-A (12 WELLS)	MIS	120	240	-105.42325	44.147444	
P198308.0W	Complete	PEABODY CABALLO MINING, LLC	CA-DW-2012-B (12 WELLS)	MIS	480	260	-105.41	44.172917	
P198309.0W	Complete	PEABODY CABALLO MINING, LLC	CA-DW-2012-C (12 WELLS)	MIS	300	220	-105.409611	44.168444	
P198310.0W	Complete	PEABODY CABALLO MINING, LLC	CA-DW-2012-D (12 WELLS)	MIS	180	255	-105.409389	44.164083	
P20298.0W	Complete	PEABODY CABALLO MINING LLC	WOLFF #10	STK	4	68	-105.34066	44.16928	
P23837.0P	Complete	PEABODY CABALLO MINING LLC	GREER #1	STK	15	343	-105.33555	44.17295	
P23838.0P	Complete	PEABODY CABALLO MINING LLC	GREER #2	STK	10	300	-105.32541	44.16943	
P23840.0P	Complete	PEABODY CABALLO MINING LLC	GREER #5	STK	10	50	-105.34072	44.16204	

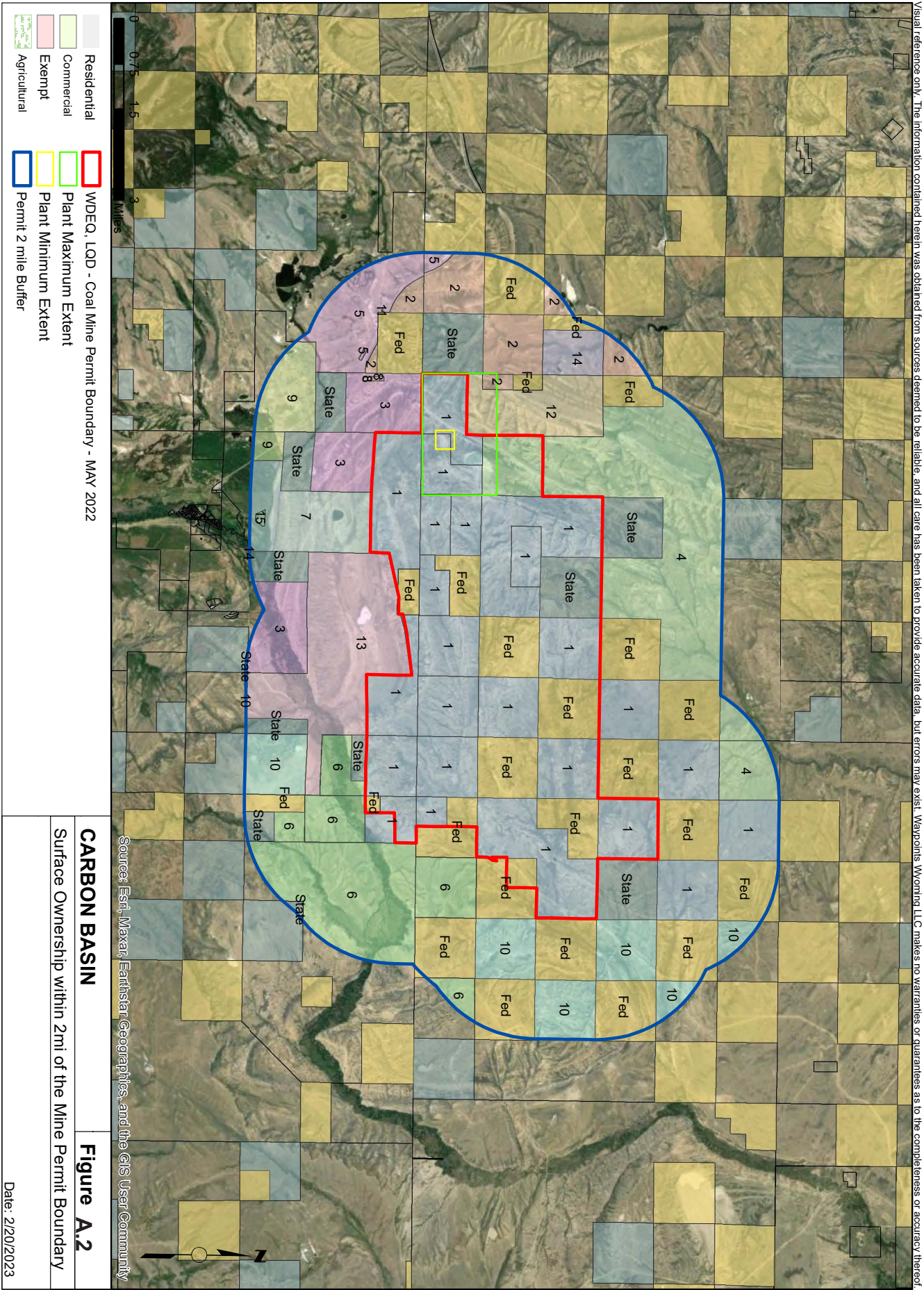
	WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022	
	Streams	
	CABALLO	Figure A.7

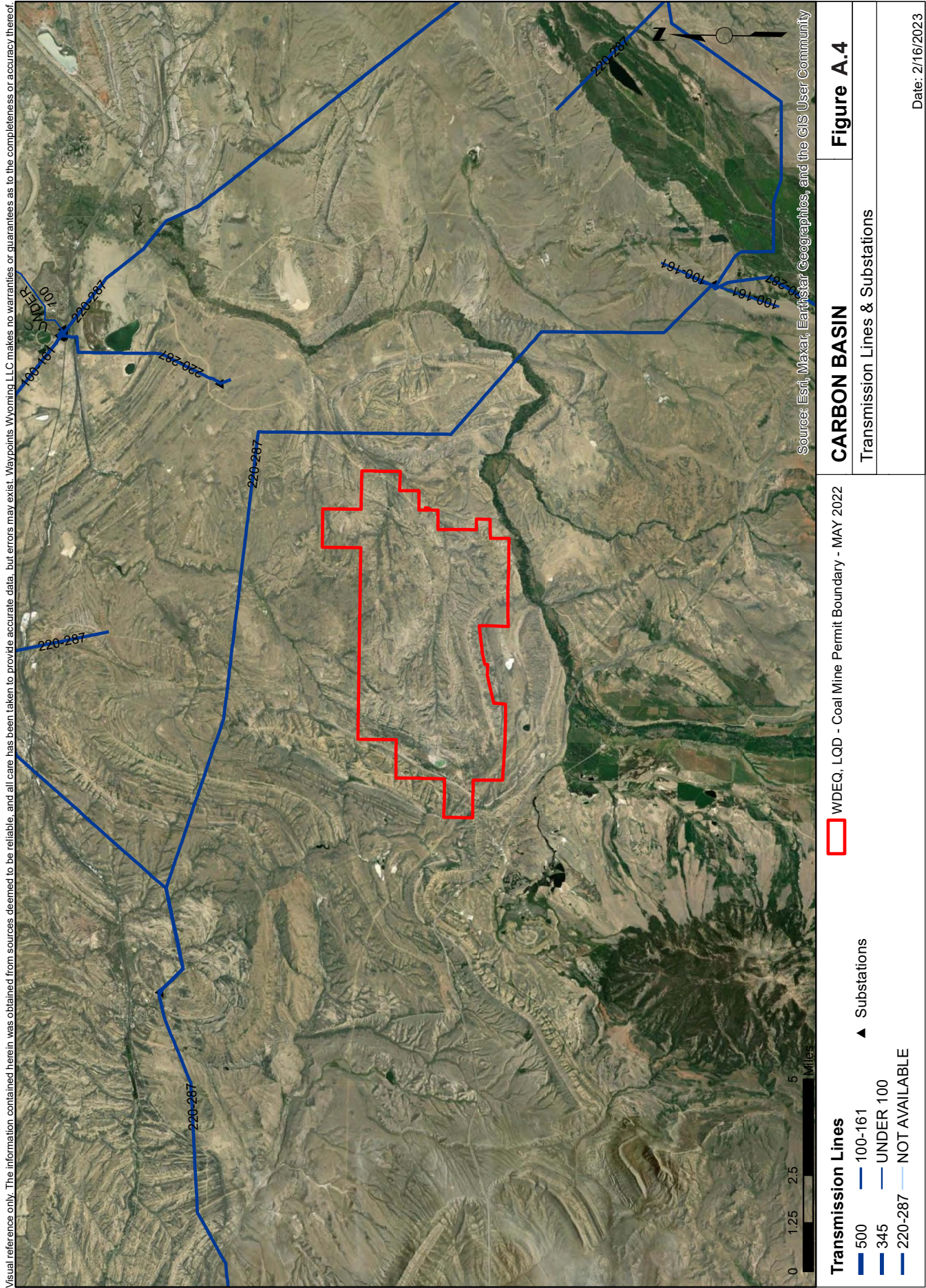
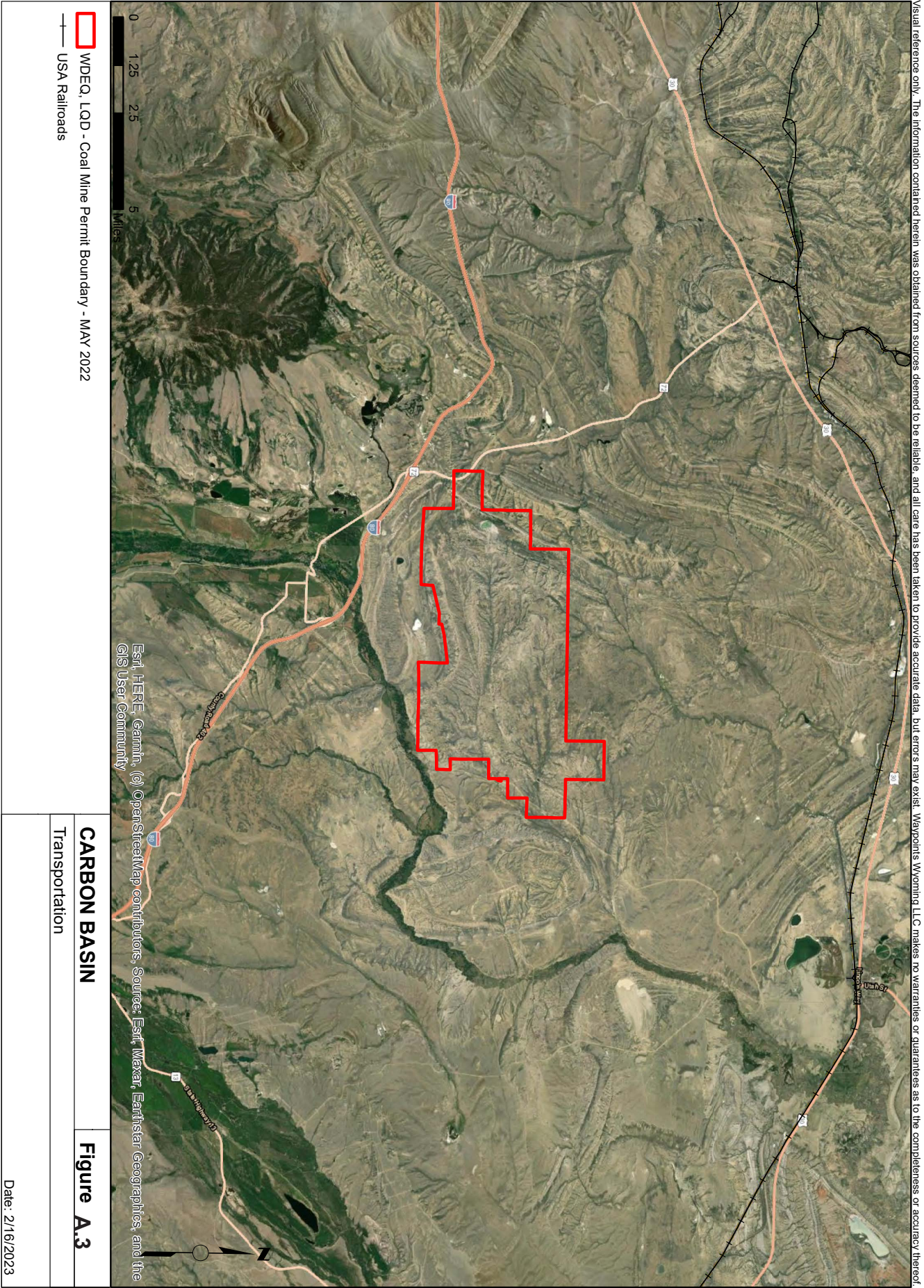


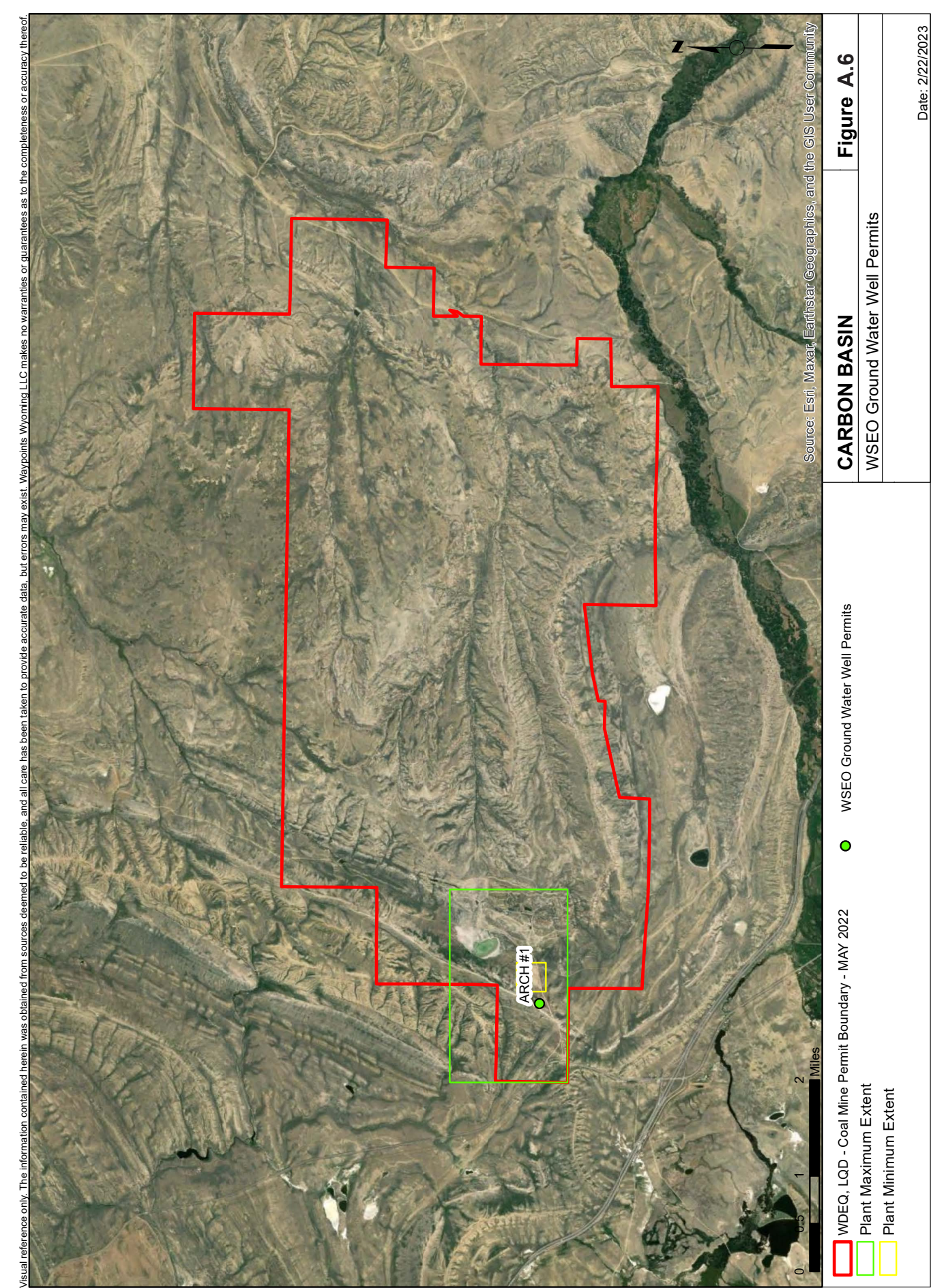
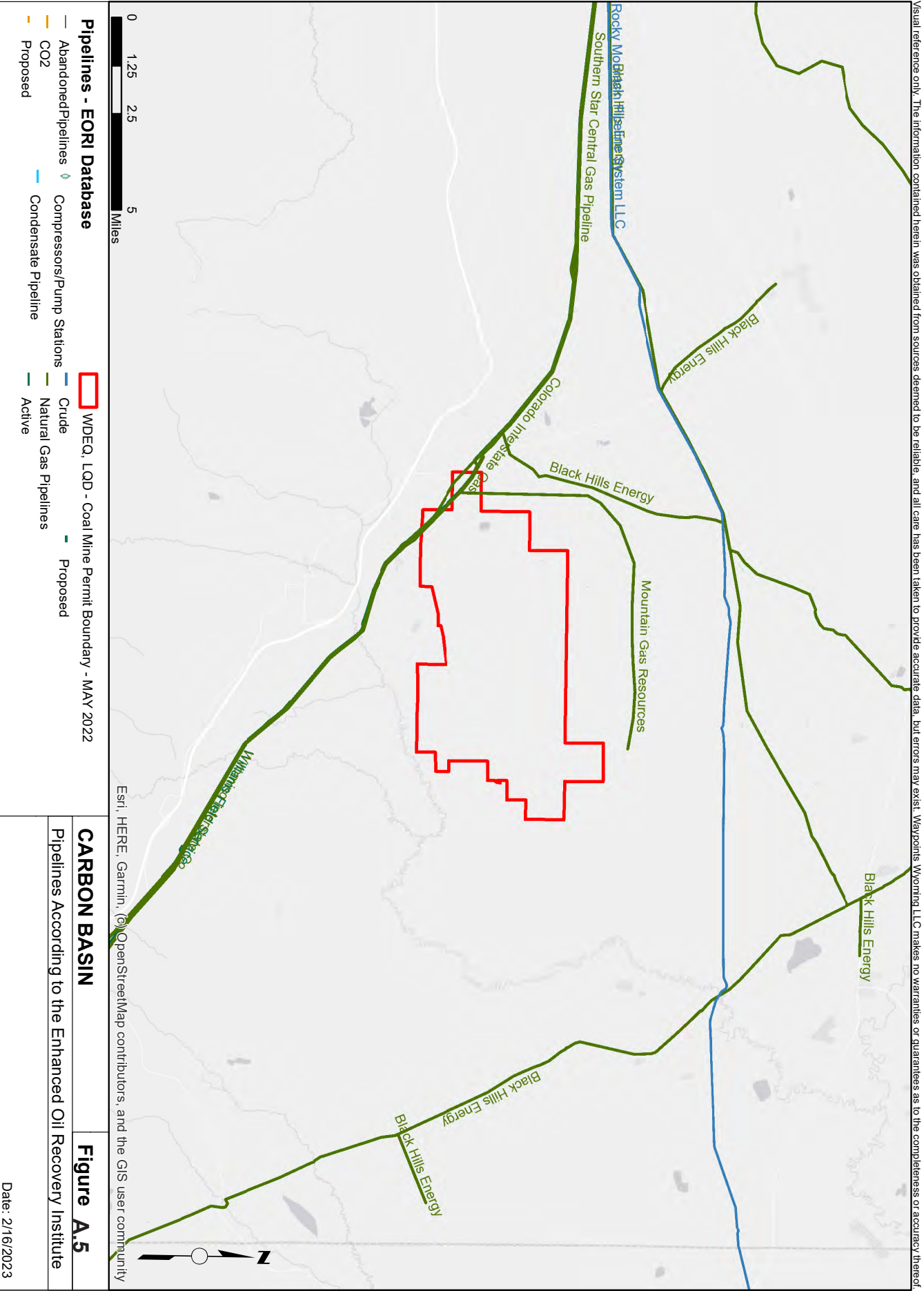
CABALLO MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P198310.0W	Complete	PEABODY CABALLO MINING, LLC	CA-DW-2012-D (12 WELLS)	MIS	180	255	-105.409389	44.164083
P20298.0W	Complete	PEABODY CABALLO MINING LLC	WOLFF #10	STK	4	68	-105.34066	44.16928
P23837.0P	Complete	PEABODY CABALLO MINING LLC	GREER #1	STK	15	343	-105.33555	44.17295
P23838.0P	Complete	PEABODY CABALLO MINING LLC	GREER #2	STK	10	300	-105.32541	44.16943
P23840.0P	Complete	PEABODY CABALLO MINING LLC	GREER #5	STK	10	50	-105.34072	44.16204
P30008.0W	Fully Adjudicated	PEABODY CABALLO MINING LLC	CABALLO #1	MIS	120	1605	-105.34069	44.12206
P32517.0W	Complete	PEABODY CABALLO MINING LLC	TCOC #101	DOM_ GW; STK	10	196	-105.34078	44.13662
P3582.0W	Complete	EAGLE SPECIALITY MATERIAL LLC	RAY #1	DOM_ GW; STK	10	276	-105.40642	44.1436
P44518.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	ROBB #3	STK	5	320	-105.40639	44.129
P52571.0W	Complete	PEABODY CABALLO MINING LLC	487103-1	DOM_ GW; STK	10	295	-105.36588	44.16187
P5511.0P	Complete	EAGLE SPECIALITY MATERIALS LLC	EARL #2	STK	5	130	-105.39118	44.10722
P70603.0W	Complete	PEABODY CABALLO MINING LLC	CABALLO DW#4	MIS	2000	102	-105.35087	44.11467
P71719.0W	Complete	PEABODY CABALLO MINING LLC	ENL DW#2	MIS	0	123	-105.34576	44.12201
P73898.0W	Complete	PEABODY CABALLO MINING LLC	ENL CABALLO PIT SUMP #2	MIS	1000	20	-105.3811	44.12915
P75735.0W	Complete	PEABODY CABALLO MINING LLC	CABALLO PIT SUMP #4	MIS	500	30	-105.3559	44.10735
P76543.0W	Complete	PEABODY CABALLO MINING LLC	CABALLO PIT SUMP #7	MIS	500	30	-105.39119	44.14001
P80956.0W	Complete	PEABODY CABALLO MINING LLC	CA 313 CL	STK	5	146	-105.3157	44.12616
P81451.0W	Complete	PEABODY CABALLO MINING LLC	CABALLO PIT SUMP #5	MIS	500	40	-105.37606	44.13644
P84920.0W	Complete	PEABODY CABALLO MINING LLC	PIT SUMP #8	MIS	100	8	-105.36599	44.1292
P85494.0W	Complete	PEABODY CABALLO MINING LLC	PIT SUMP #9	MIS	100	12	-105.37612	44.12187
P86908.0W	Complete	PEABODY CABALLO MINING LLC	PIT SUMP #10	MIS	100	15	-105.37606	44.14007
P88694.0W	Complete	PEABODY CABALLO MINING LLC	CA-798-0	MIS; MON; STK	2	112	-105.34081	44.14025
CR UW03/467	Fully Adjudicated	CARTER MINING COMPANY	CABALLO NO. 1	IND_ GW; MIS	150		-105.33765	44.121789



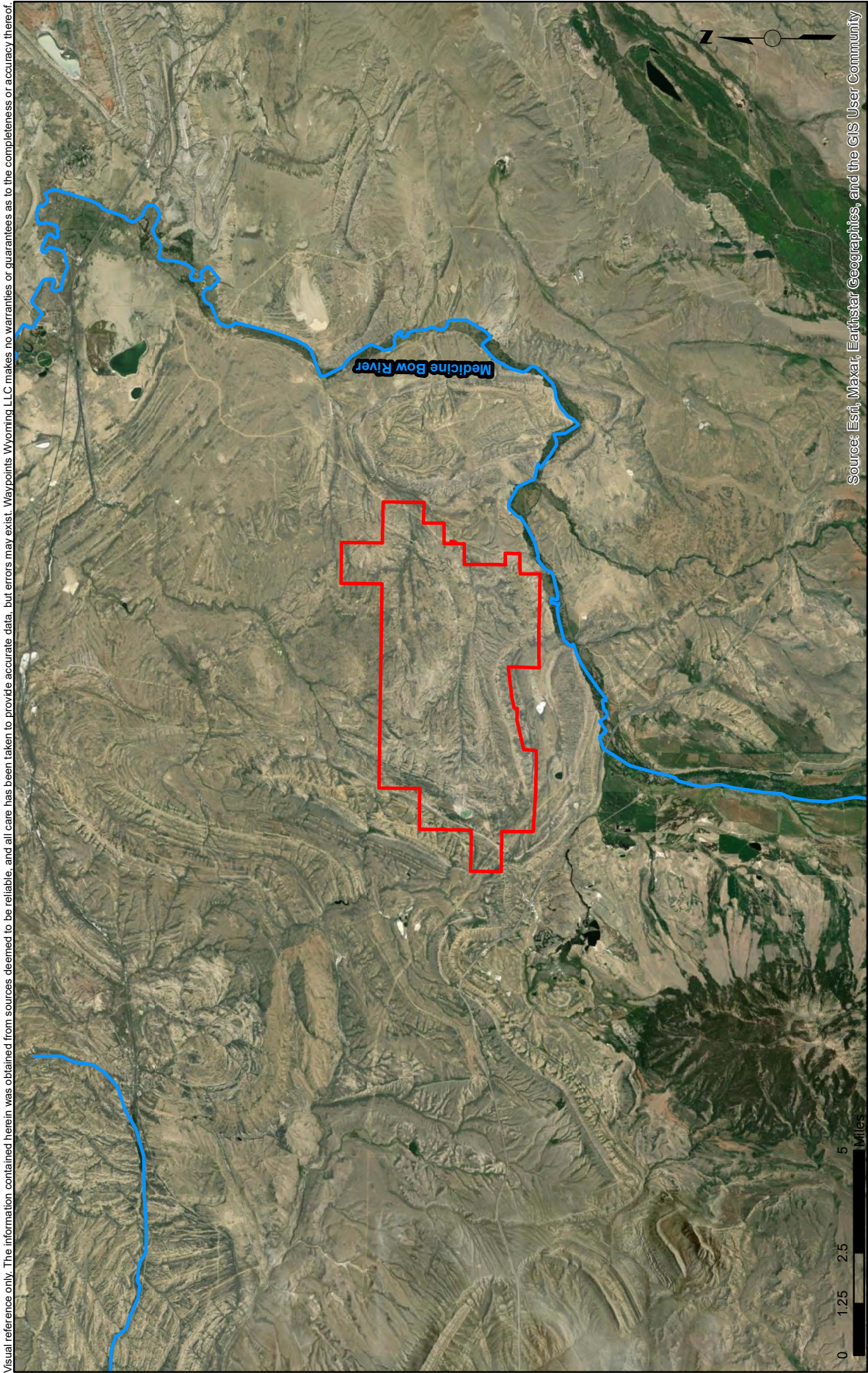
CARBON BASIN SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ARK LAND WR LLC	1
BUREAU OF LAND MANAGEMENT	Fed
DANA MEADOWS WYOMING CLOSE LIMITED LIABILITY COMPANY	2
HERMAN DARLENE G	3
HI ALLEN RANCH LLC	4
IRON BAR HOLDINGS LLC C/O ELK MOUNTAIN RANCH	5
JOHNSON RESOURCE CO	6
JOHNSON ROBERT JOHN AKA ROBERT JOHN JR	7
KONRATH SEITH	8
LARSON BRENTLEY T AND	9
MEDICINE BOW RIVER RANCH OF WYOMING LLC C/O TIPPMANN JOHN SR	10
NATURE CONSERVANCY THE	11
NORDIC GARY E	12
SCHERER ROBERT L II C/O WYOMING GUARDIANSHIP CORPORATION	13
STATE OF WYOMING	State
TETRAD CORPORATION	14
TOWN OF ELK MOUNTAIN	15







CARBON BASIN MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P175004.0W	Complete	ARCH OF WYOMING, INC.	ARCH #1	MIS	25	550	-106.4449	41.744464



Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.

WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022

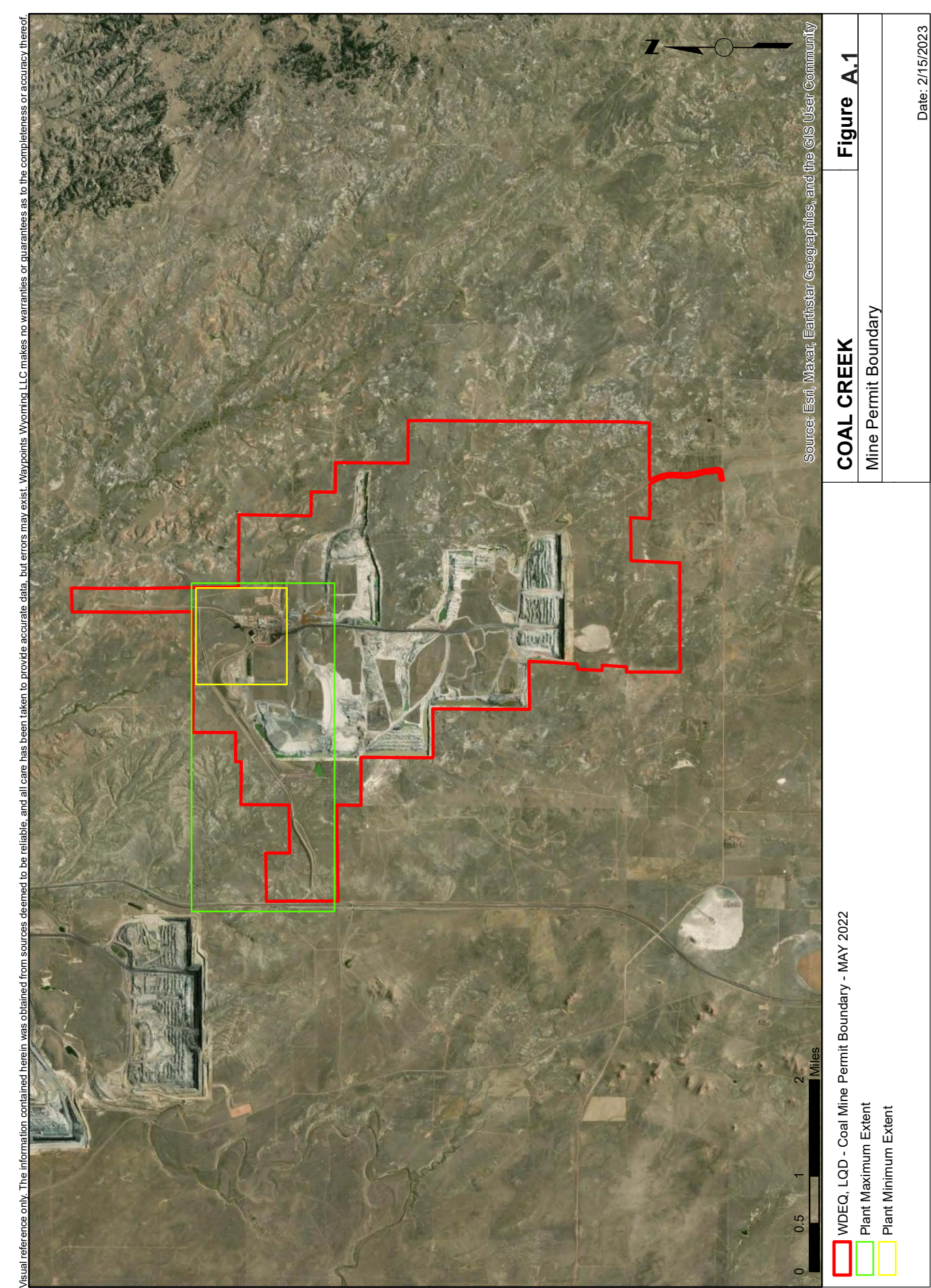
Streams

CARBON BASIN

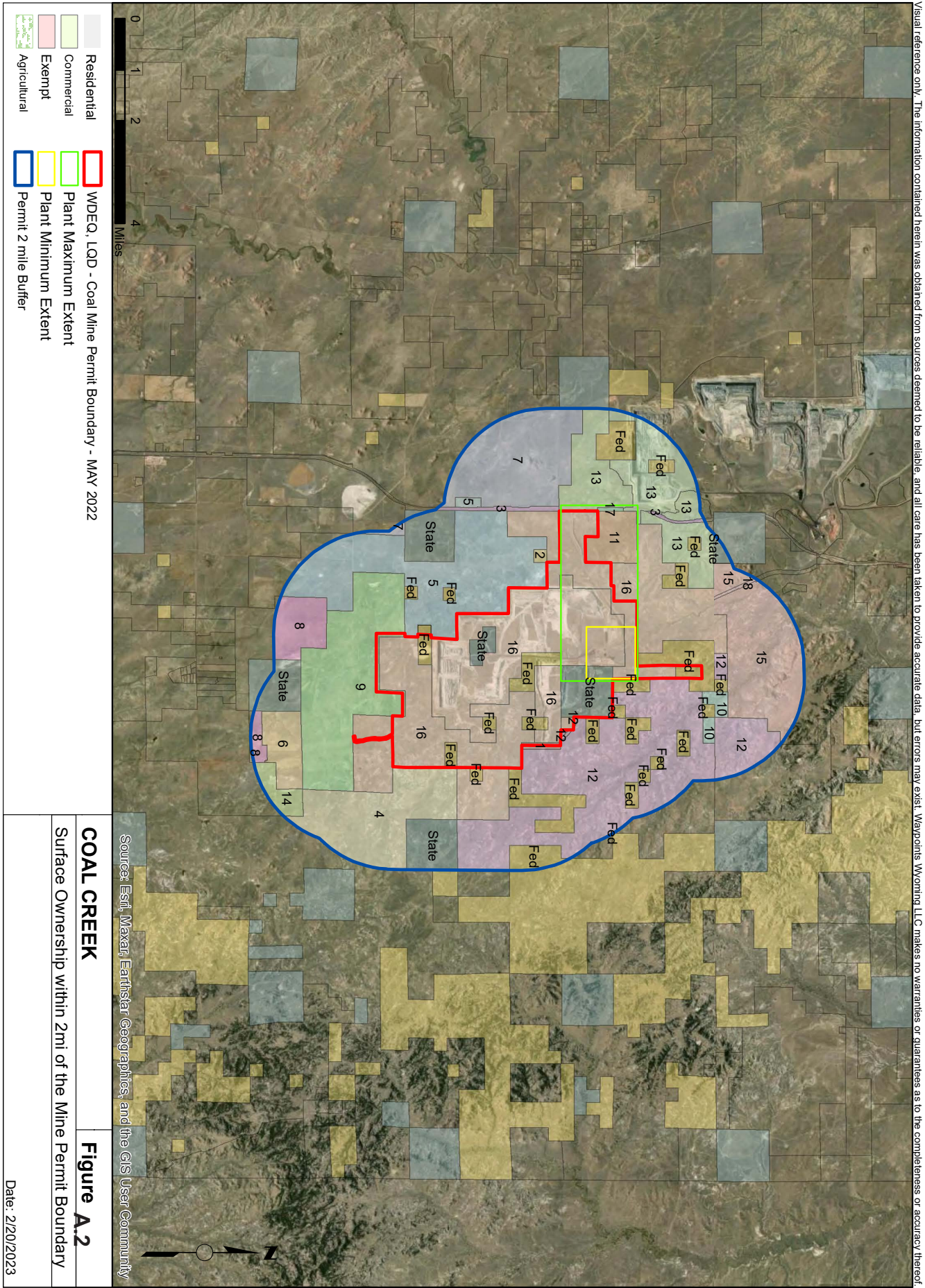
Figure A.7

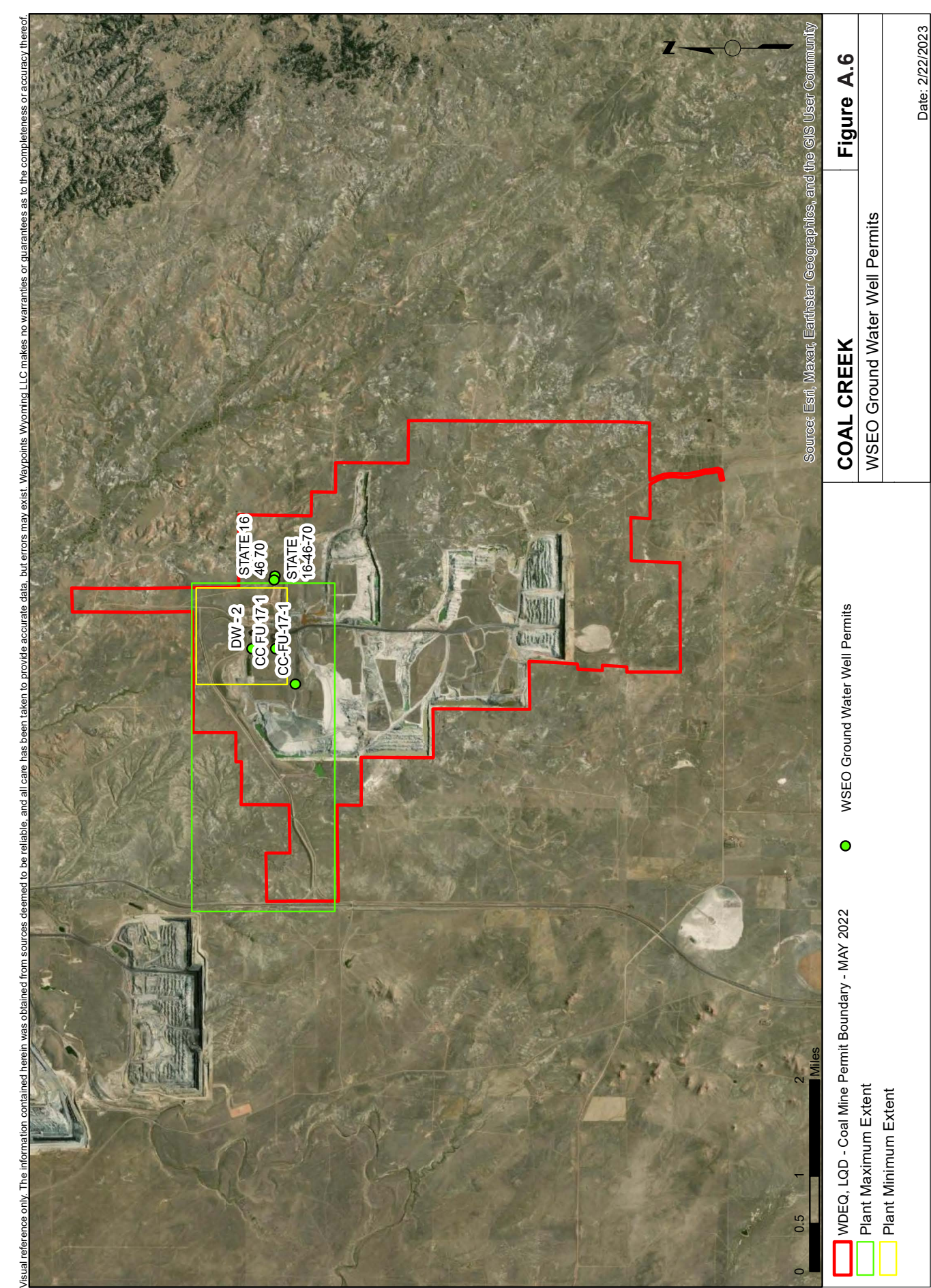
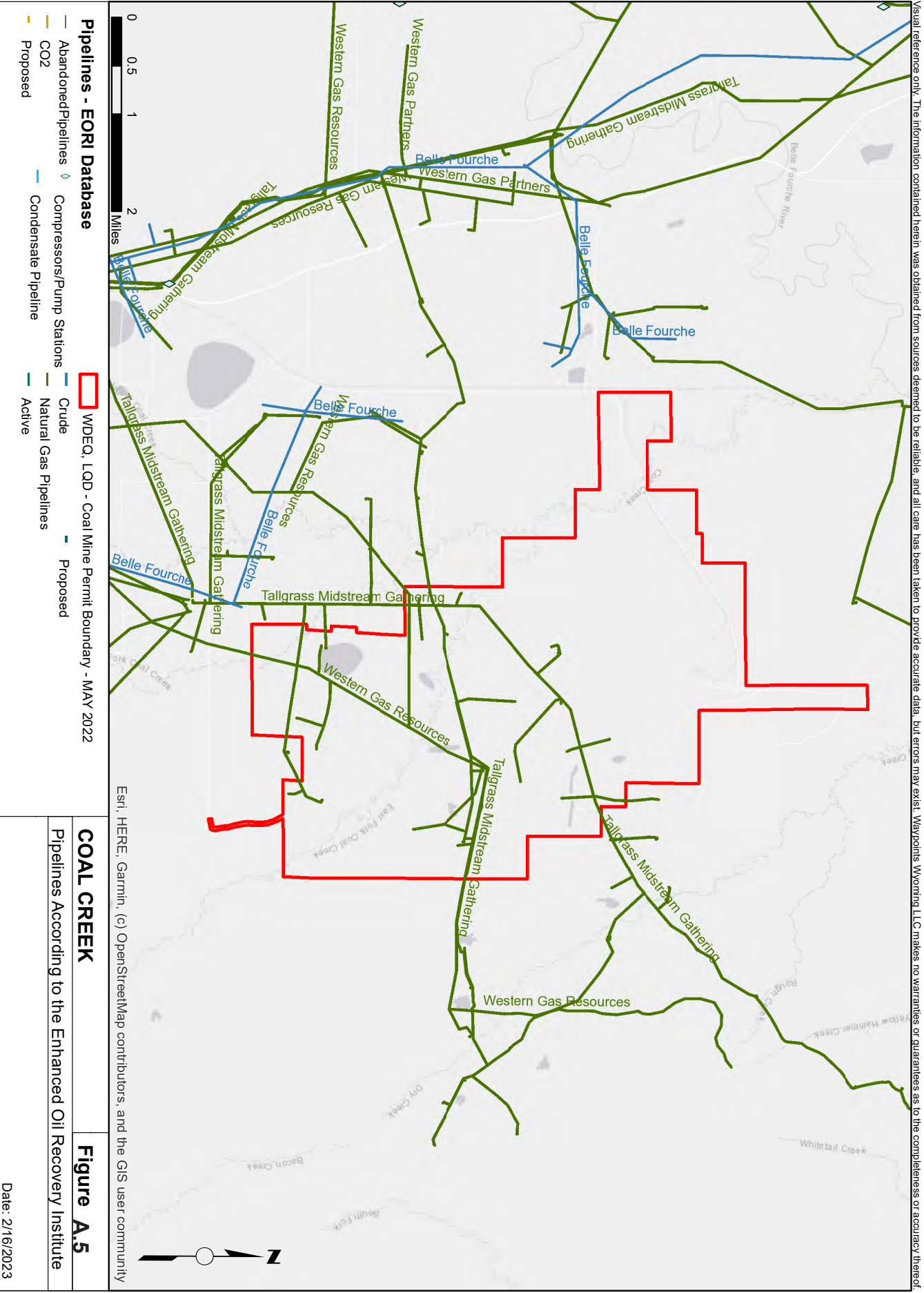
Streams

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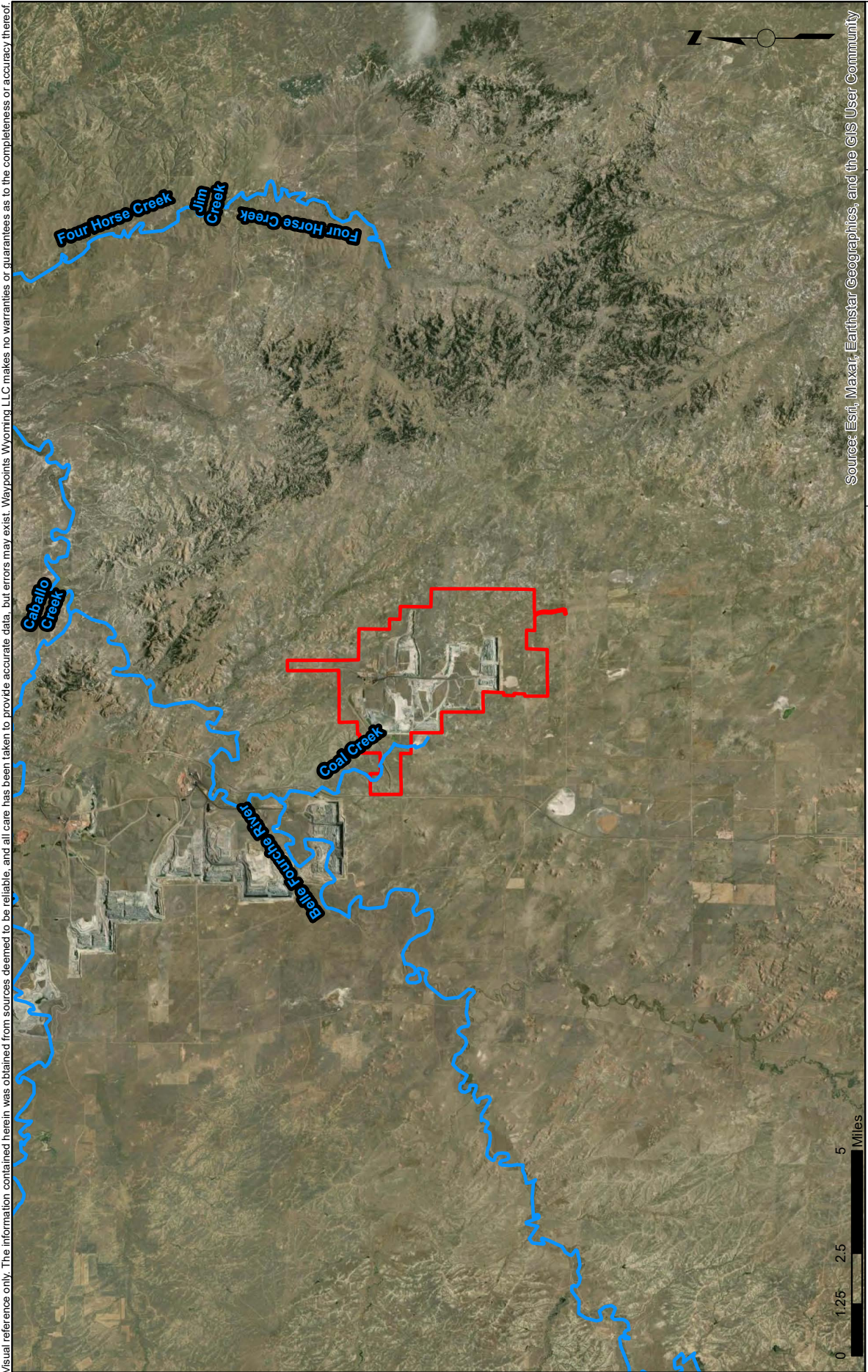


COAL CREEK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ARK LAND COMPANY	1
BJ SALVAGE LLC	2
BNSF RAILWAY COMPANY	3
DEPT OF INTERIOR/BLM	Fed
EAGLE SPECIALTY MATERIALS LLC	4
EDWARDS DENNIS L & MARIE A TRUST	5
EDWARDS LINDA J	6
EDWARDS ORIN R	7
EDWARDS RICHARD W & DEBRA R	8
EDWARDS TED J & SHERYL R LIVING TRUSTS	9
HAYDEN TONY & KAREN	10
HAYDEN TONY S	11
MOORE DALENE ELIZABETH	12
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	13
STATE OF WYOMING	State
T & G LLC	14
T 7 RANCH LLP	15
THUNDER BASIN COAL COMPANY LLC	16
WESTERN RR PROPERTIES INC &	17
WYOMING DAKOTA RAILROAD PROPERTIES	18

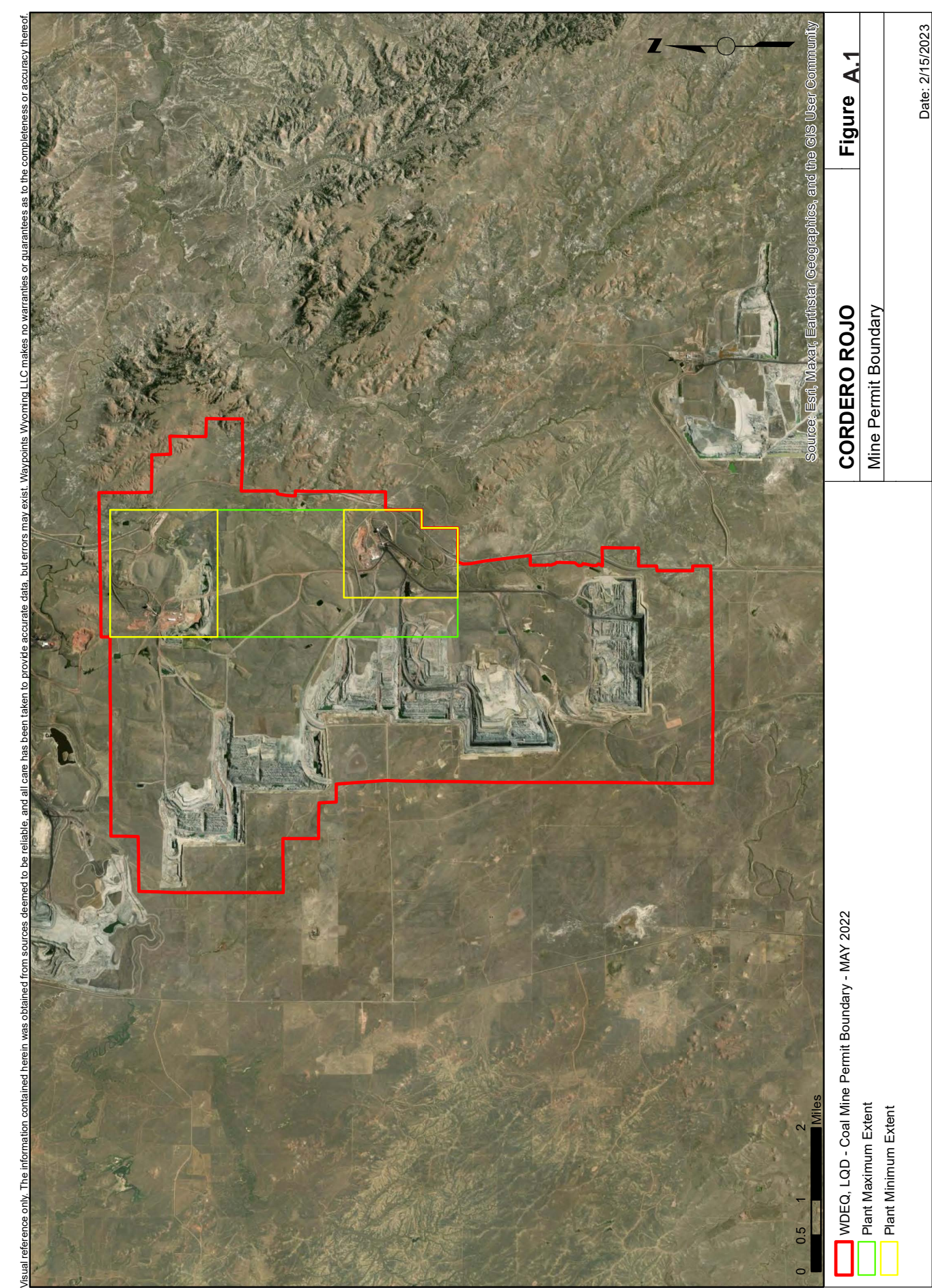


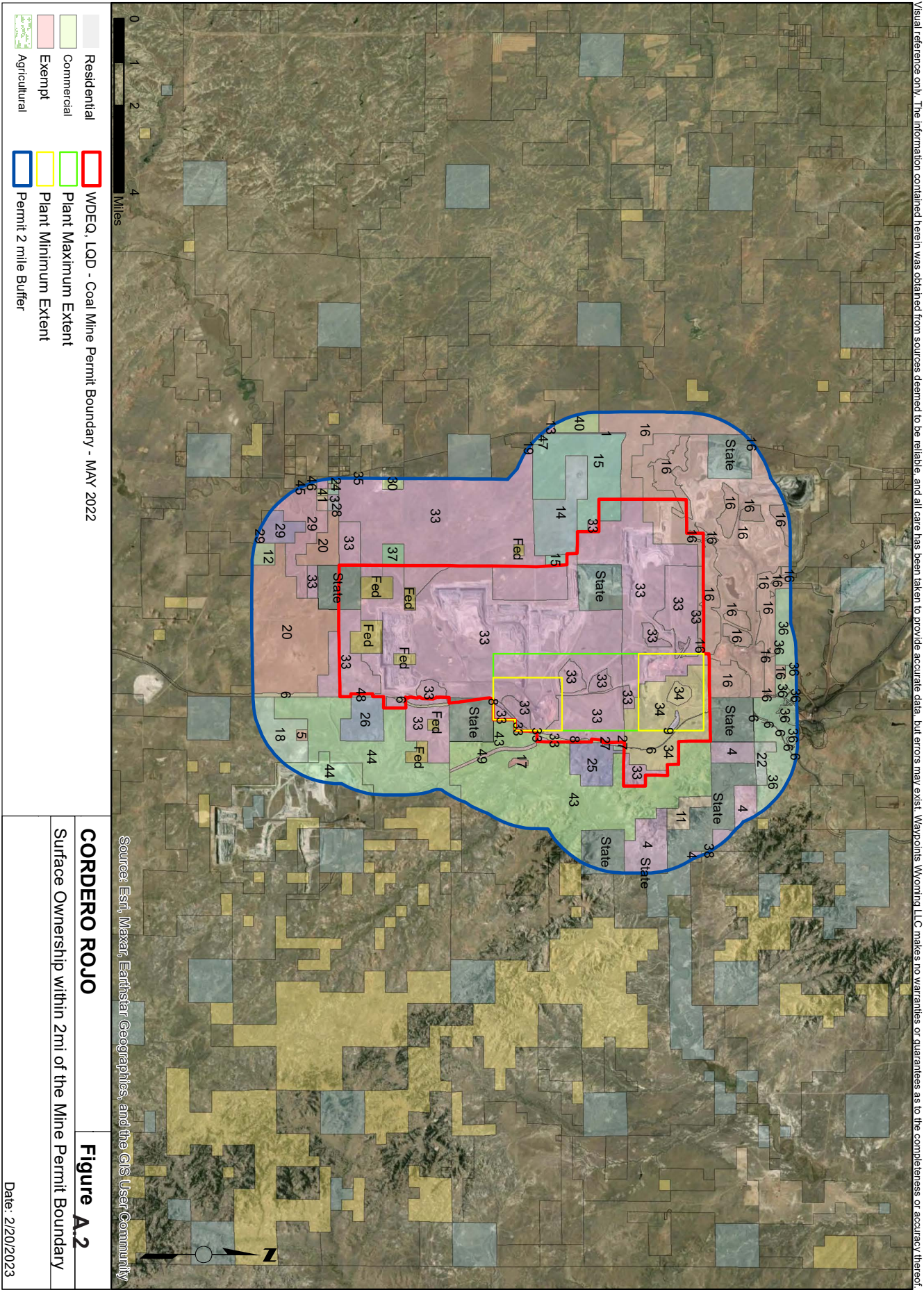


COAL CREEK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P182028.0W	Complete	Thunder Basin Coal Co., LLC	DW - 2	MIS	5	39.5	-105.28985	43.970369
P42470.0W	Fully Adjudicated	Atlantic Richfield Co.	STATE 16 46 70	MIS; STK	170	887	-105.27459	43.96692
P46399.0W	Fully Adjudicated	Atlantic Richfield Co.	CC FU 17 1	MIS	275	2654	-105.28988	43.96675
CR UW06/096	Fully Adjudicated	ATLANTIC RICHFIELD COMPANY ET AL	STATE 16-46-70	MIS; STK	170		-105.275406	43.967036
CR UW06/097	Fully Adjudicated	ATLANTIC RICHFIELD COMPANY ET AL	CC-FU-17-1	MIS	275		-105.297181	43.963792



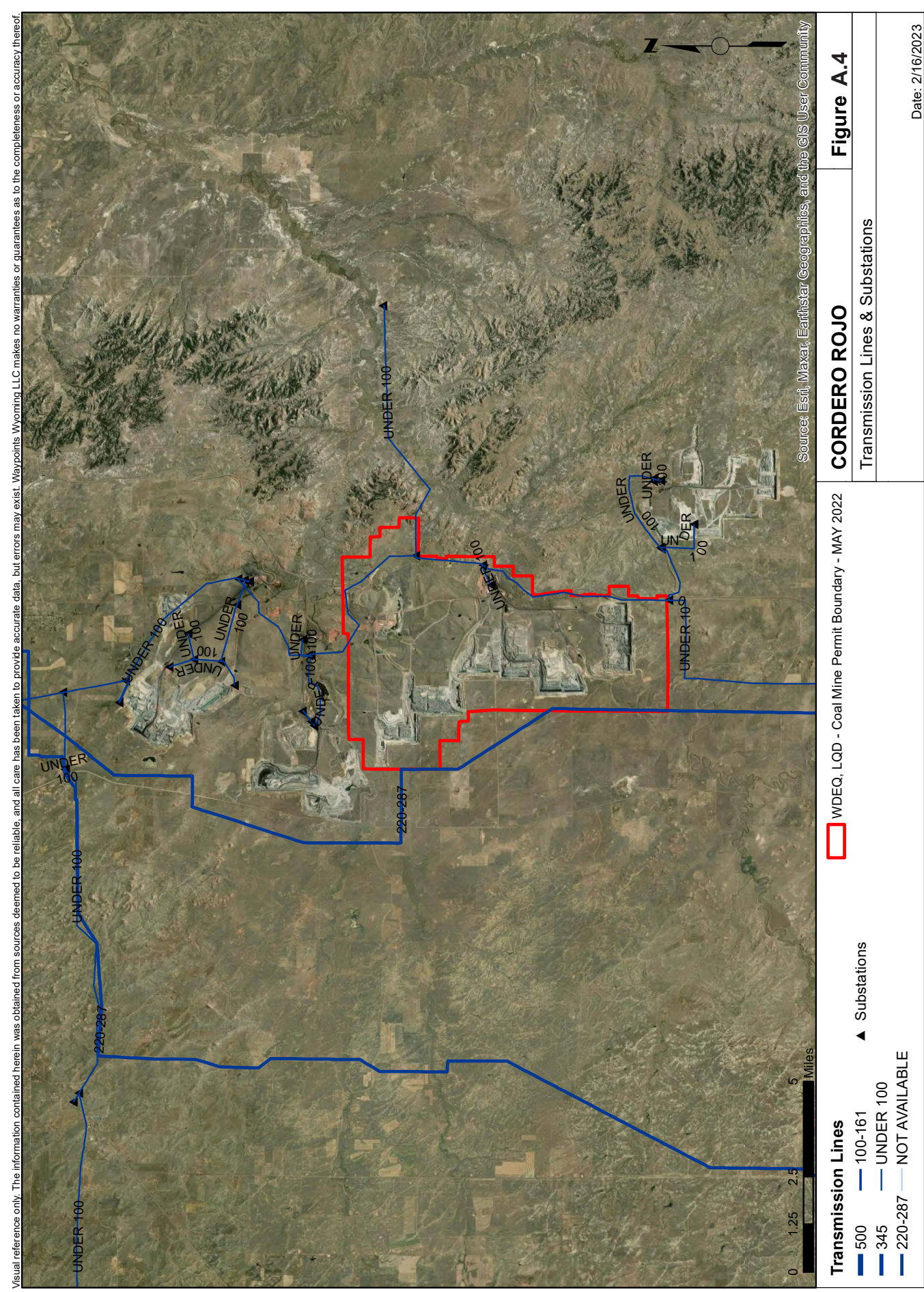
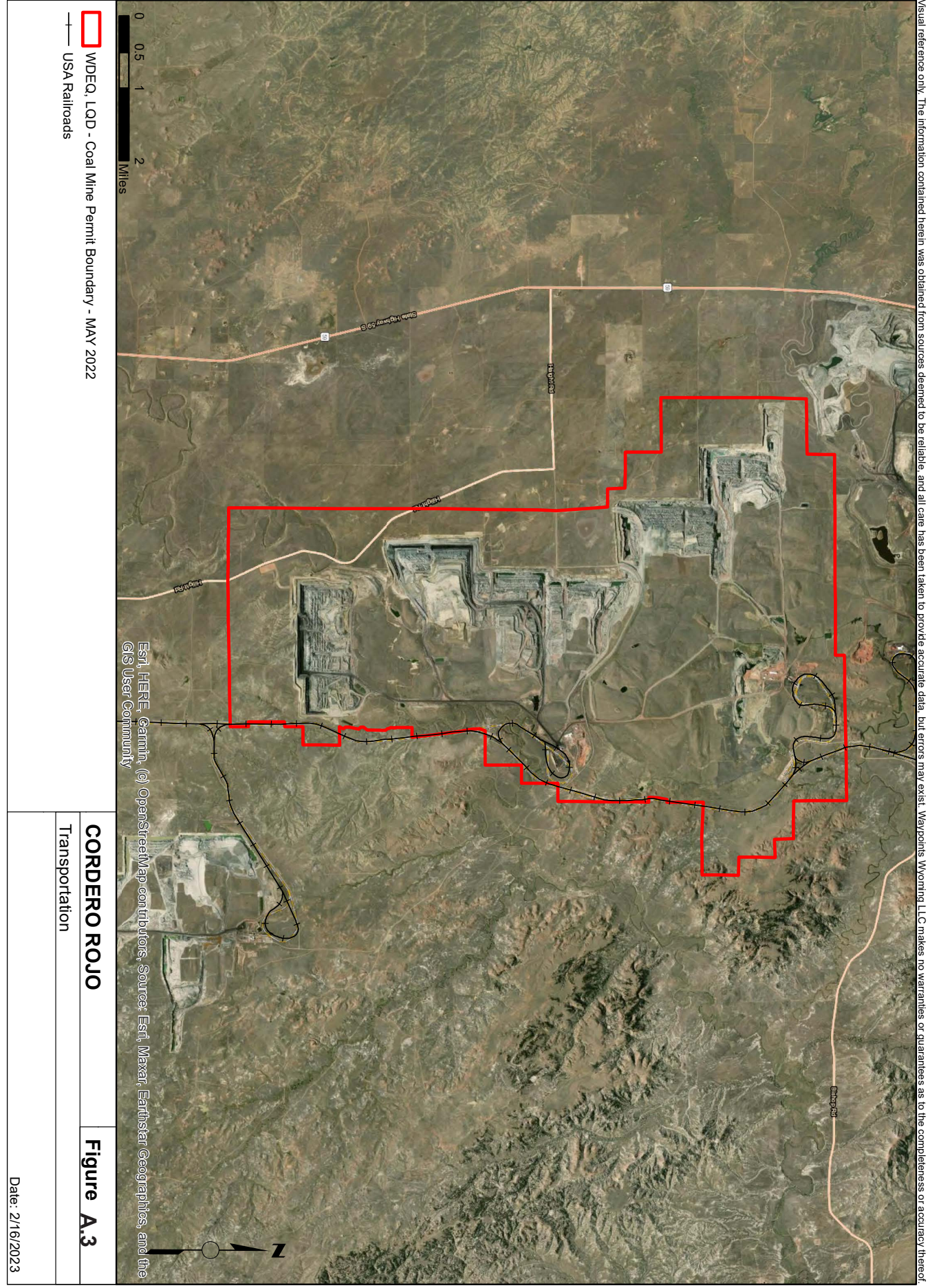
COAL CREEK		Figure A.7
Streams		
WDEQ, IQD - Coal Mine Permit Boundary - MAY 2022		
Streams		
Date: 2/18/2023		

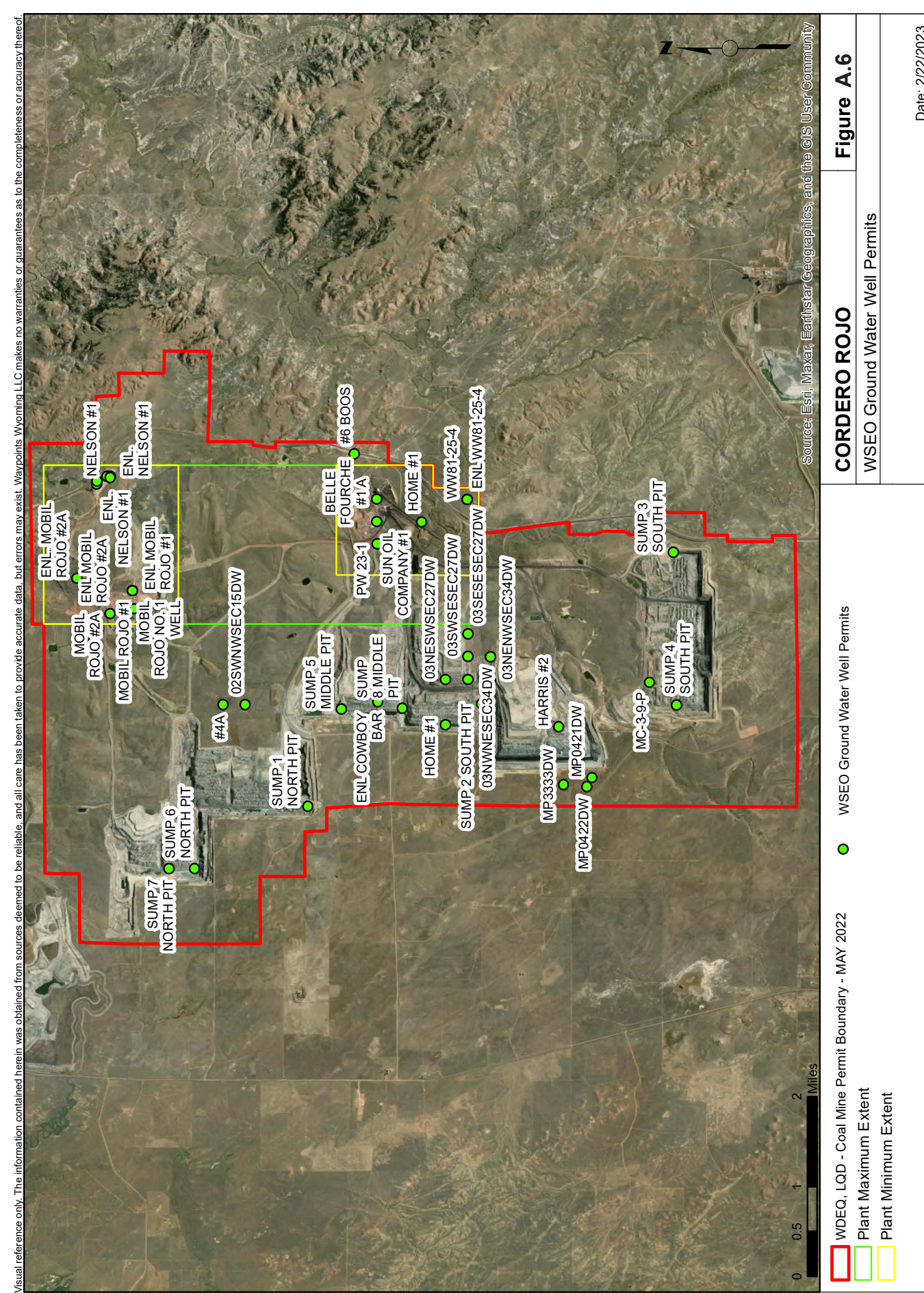
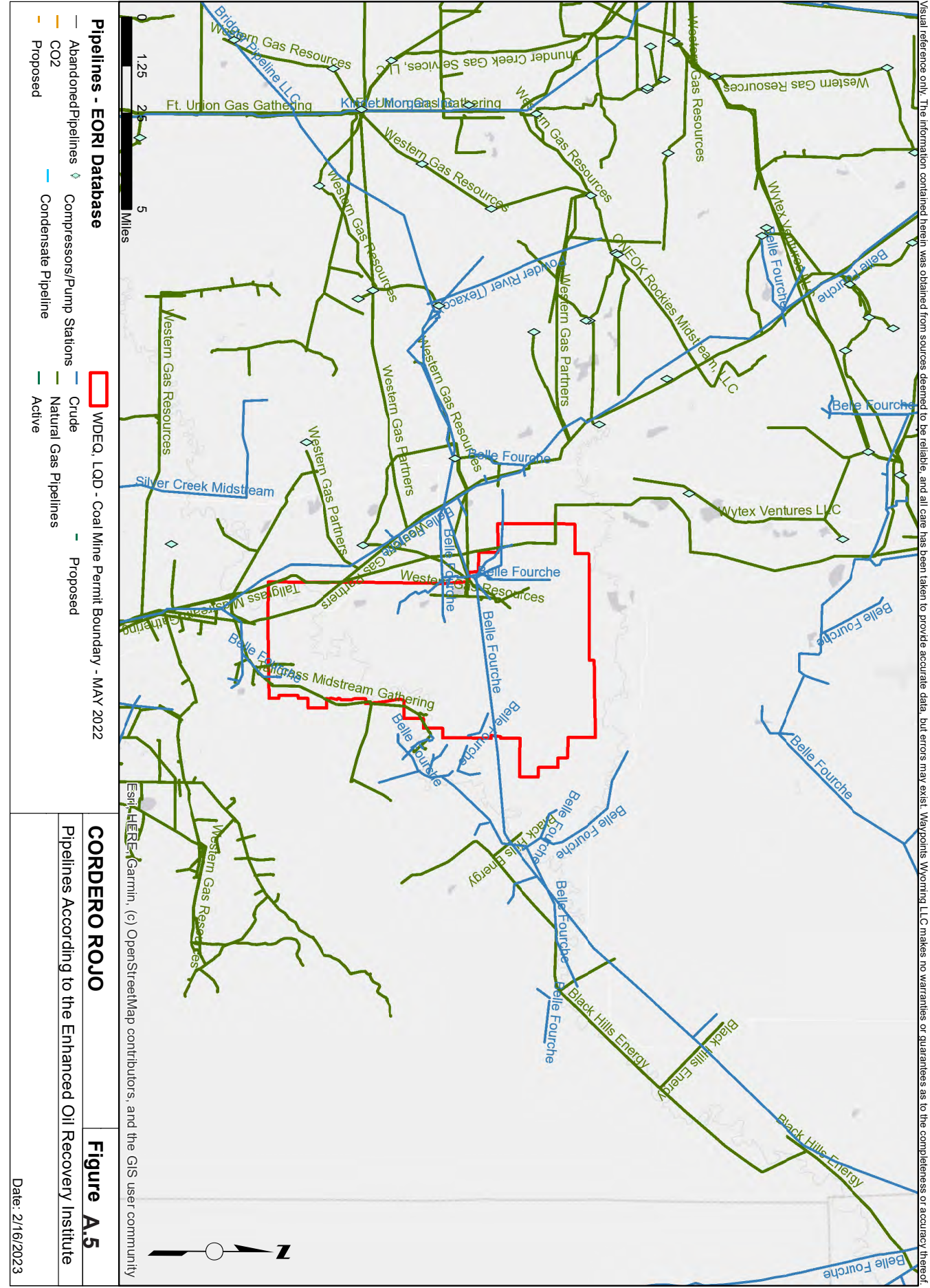




CORDERO ROJO SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
	1
B.N.R.R. & WESTERN R.R. PROPERTIES	2
BENNER CLIFFORD E & DONNA G	3
BISHOP LAND & LIVESTOCK CO INC	4
BJ SALVAGE LLC	5
BNSF RAILWAY COMPANY	6
BOSH JOHN & ETTA	7
BURLINGTON NORTHERN INC &	8
CABALLO ROJO LLC	9
CANDELARIO JOSE R	10
CHRISTENSEN RONALD B & BARBARA J	11
COPPINGER DOUGLAS & KARIN REV LIVING TST ETAL	12
CORDERO MINING LLC	13
DEPT OF INTERIOR/BLM	Fed
DUVALL KENNETH R & NORMA L TRUSTS	14
DUVALL NORMA L TRUST	15
EAGLE SPECIALTY MATERIALS LLC	16
EDWARDS DAVID & EVA	17
EDWARDS DENNIS L & MARIE A TRUST	18
EDWARDS KEAN & REBECCA	19
EDWARDS ORIN R	20
GETTERT MK REVOCABLE TRUST C/O	21
GREER RANDY C	22
GRIFFITH JOHN KEVIN & LISA LEE	23
HABETS JARED	24
HAYDEN TONY ETAL	25
HAYDEN TONY S	26
HAYDEN TONY S & KAREN	27
HOSTETTER JESSICA M & DREW P	28
J F W CORPORATION	29
LAMBERTSON FAMILY TRUST	30
LEPEL MICHAEL C	31
MCKINSEY COLETON	32
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	33
NBMS LAND HOLDINGS LLC	34
PANKOWSKI CARL & VICTORIA	35
PEABODY CABALLO MINING LLC	36
PEABODY CABALLO MINING LLC	36
PETERS MARGARET Z ETAL	37

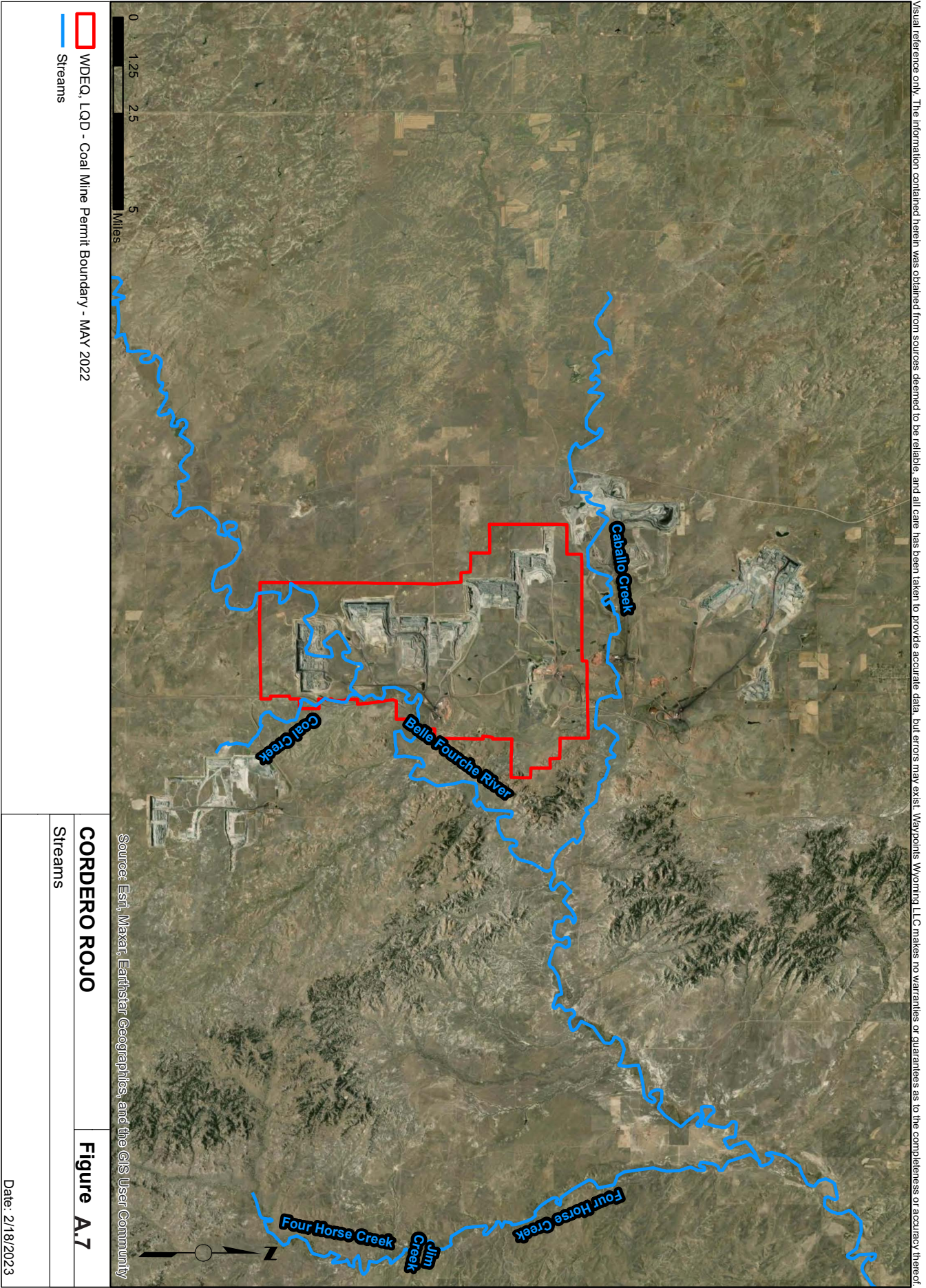
CORDERO ROJO SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
PICKREL LAND & CATTLE CO INC	38
PRICKETT BRIAN L & RONDA R	39
SEELY GLENDA K &	40
SHOWERMAN GERALD	41
STATE OF WYOMING	State
STOLTENBERG TED & DANA	42
T 7 RANCH LLP	43
THUNDER BASIN COAL COMPANY LLC	44
VERDIN DUSTIN D & SAMANTHA L	45
WADE MARK ALLEN & DEBBIE ANN	46
WALKER JASON L & JENNA L	47
WESTERN RR PROPERTIES INC &	48
WYOMING DAKOTA RAILROAD PROPERTIES	49





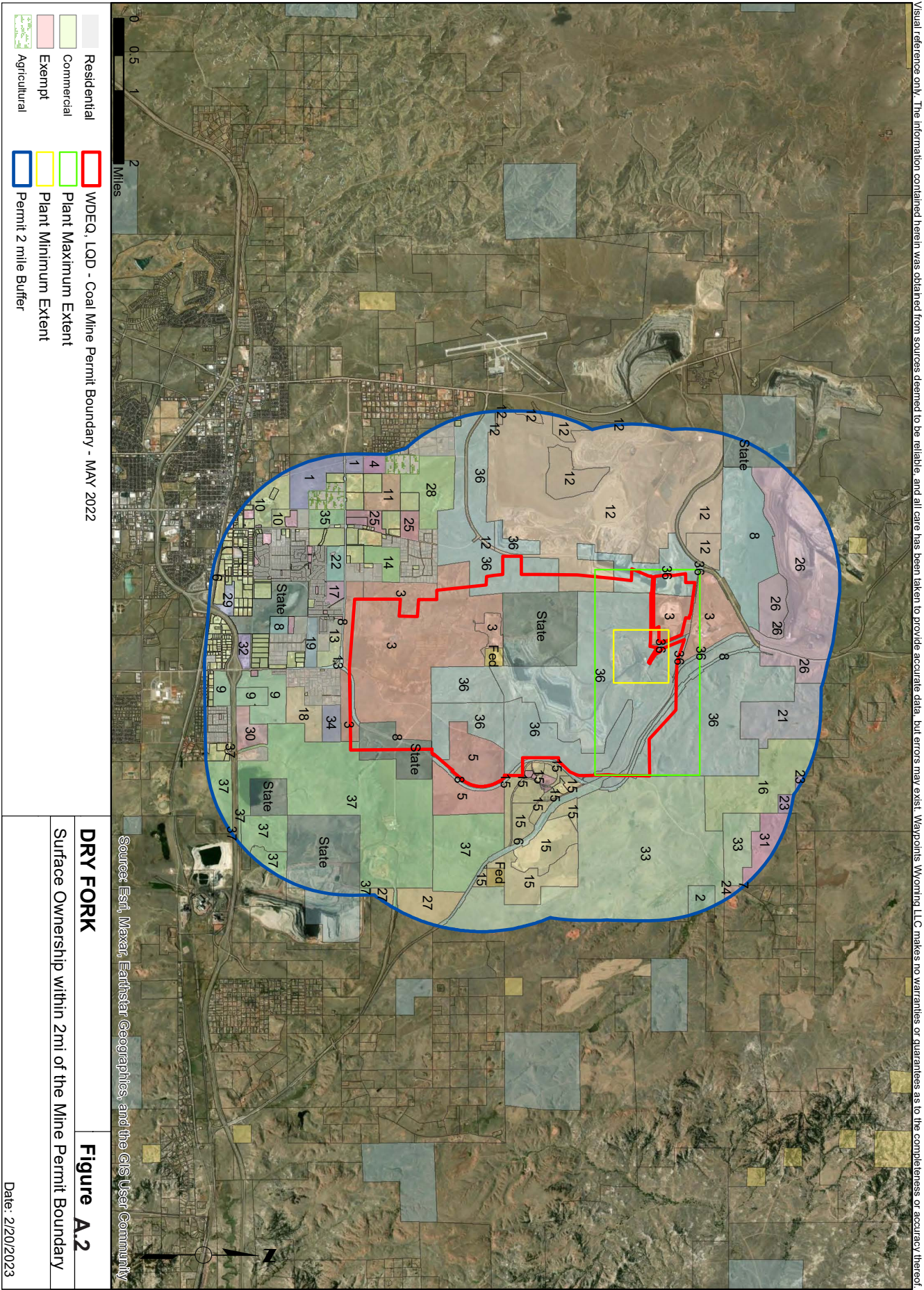
CORDERO ROJO MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P125756.0W	Fully Adjudicated	CABALLO ROJO LLC	NELSON #1	IND_GW, MIS	25	540	-105.330219	44.075311
P145686.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	02SWNWSEC15DW	MIS	17	270	-105.38109	44.05291
P149058.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03SWSESEC27DW	MIS	0.5	160	-105.37016	44.01703
P149059.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03SESESEC27DW	MIS	0.5	150	-105.36512	44.01706
P149060.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03SESWSSEC27DW	MIS	0	190	-105.37522	44.017
P149061.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03NESWSSEC27DW	MIS	0	190	-105.37523	44.02064
P149063.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03NWNESEC34DW	MIS	0.5	180	-105.37021	44.01338
P149065.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	03NENWSEC34DW	MIS	0.5	190	-105.37526	44.01335
P15840.0P	Complete	NAVAJO TRANSITIONAL ENERGY COMPANY	#6 BOOS	DOM_GW	4	175	-105.32494	44.03552
P18695.0P	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	HOME #1	DOM_GW, STK	10	140	-105.3854	44.02057
P18696.0P	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	HARRIS #2	DOM_GW, STK	5	35	-105.3857	44.00228
P18726.0P	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	HOME #1	DOM_GW, STK	4	120	-105.34003	44.02453
P187617.0W	Fully Adjudicated	CABALLO ROJO LLC	ENL. NELSON #1	IND_GW, MIS	0		-105.330219	44.074785
P193484.0W	Fully Adjudicated	CABALLO ROJO LLC	NELSON #2 WELL	IND_GW, MIS	20	625	-105.331933	44.077
P201442.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 1 NORTH PIT	MIS	200	15	-105.40378	44.04269
P201443.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 2 SOUTH PIT	MIS	300	14	-105.38069	44.01478
P201444.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 3 SOUTH PIT	MIS	300	15	-105.34665	43.98395
P201445.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 4 SOUTH PIT	MIS	300	15	-105.38079	43.98333
P201446.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 5 MIDDLE PIT	MIS	300	16	-105.38201	44.03739
P201447.0W	Complete	NAVAJO TRANSITIONAL ENERGY COMPANY	SUMP 6 NORTH PIT	MIS	200	13	-105.41781	44.06094
P201448.0W	Complete	NAVAJO TRANSITIONAL ENERGY COMPANY	SUMP 7 NORTH PIT	MIS	200	15	-105.4179	44.06505
P201449.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	SUMP 8 MIDDLE PIT	MIS	300	16	-105.3818	44.02756
P206832.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	MP0421DW	MIS	12	128	-105.397003	43.996875
P206833.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	MP3333DW	MIS	12	115	-105.398681	44.001492
P206834.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	MP0422DW	MIS	12	130	-105.399083	43.997741
P27108.0W	Complete	NAVAJO TRANSITIONAL COMPANY	#4A	MIS	0	195	-105.38116	44.05645
P28216.0W	Fully Adjudicated	CORDERO MINING LLC	SUN OIL COMPANY #1	MIS	70	1200	-105.34001	44.0318
P30478.0W	Fully Adjudicated	CORDERO MINING LLC	BELLE FOURCHE #1 A	IND_GW	75	988	-105.335	44.03183

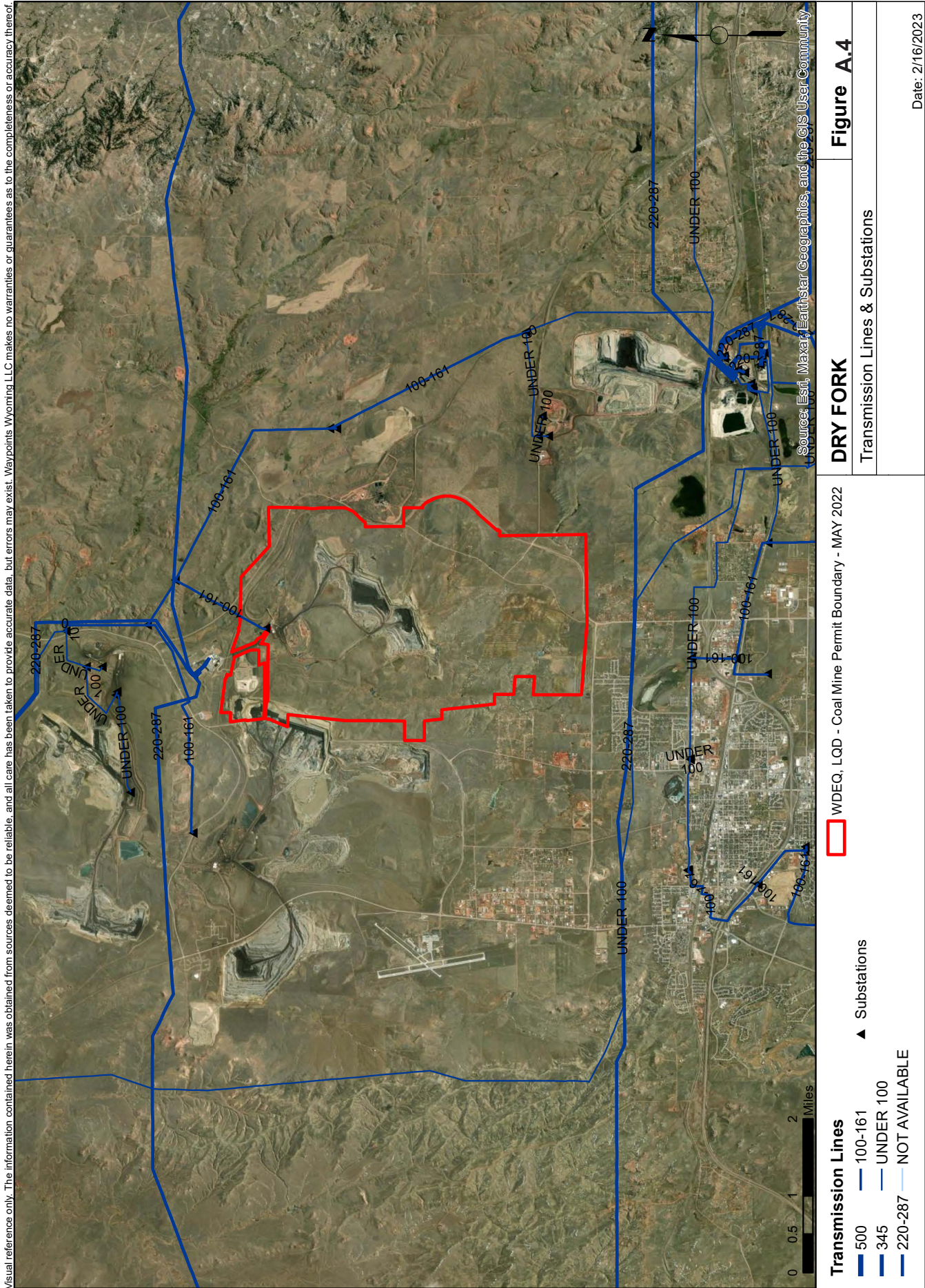
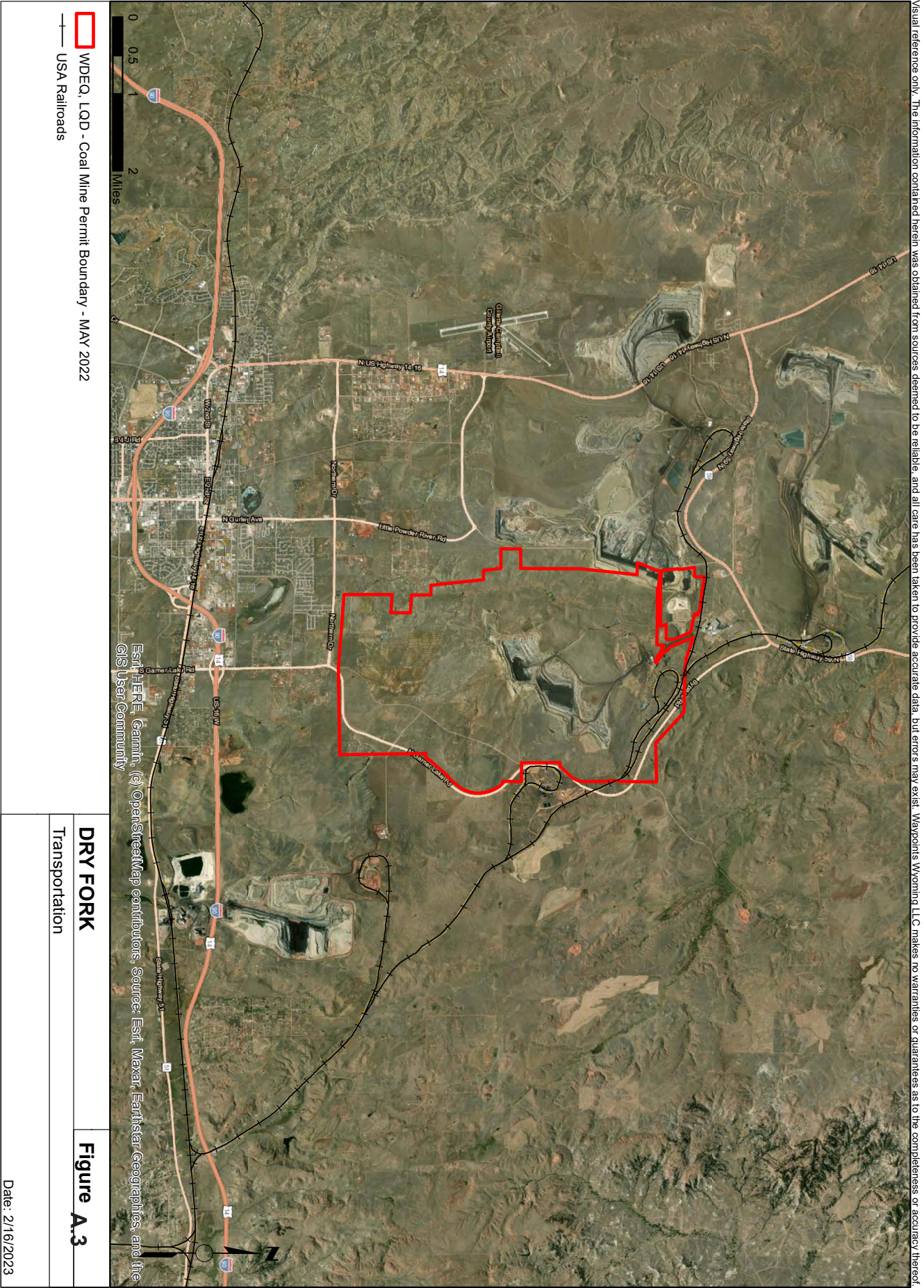
CORDERO ROJO MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P48422.0W	Fully Adjudicated	CABALLO ROJO, INC.	MOBIL ROJO #1	IND_GW; MIS	125	2010	-105.35573	44.07116
P48424.0W	Fully Adjudicated	CABALLO ROJO, INC.	MOBIL ROJO #2A	IND_GW; MIS	125	2034	-105.36084	44.0747
P57136.0W	Fully Adjudicated	CABALLO ROJO, INC.	ENL MOBIL ROJO #1	IND_GW; MIS	175	2010	-105.35573	44.07116
P57137.0W	Fully Adjudicated	CABALLO ROJO, INC.	ENL MOBIL ROJO #2A	IND_GW; MIS	175	2034	-105.36084	44.0747
P58786.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	WW81-25-4	MIS	200	126	-105.33502	44.01726
P65044.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	ENL WW81-25-4	MIS	200	126	-105.33502	44.01726
P65175.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	MC-3-9-P	MIS; STK	3	240	-105.37568	43.9877
P65231.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	WW83-25-1	MIS	600	112	-105.33502	44.01726
P66523.0W	Fully Adjudicated	Caballo Rojo, Inc.	ENL MOBILE ROJO #2A	IND_GW; MIS	75	2034	-105.36084	44.0747
P67365.0W	Complete	NAVAJO TRADITIONAL ENERGY COMPANY	PW 23-1	MIS	375	4130	-105.34504	44.03176
P71366.0W	Fully Adjudicated	CORDERO MINING LLC	ENL COWBOY BAR	MIS	0	600	-105.38034	44.03148
CR UW04/452	Fully Adjudicated	WYOMING BOARD OF LAND COMMISSIONERS	MOBIL ROJO NO. 1 WELL	IND_GW; MIS	125		-105.35573	44.07116
CR UW04/453	Fully Adjudicated	WYOMING BOARD LAND COMMISSIONERS	MOBIL ROJO NO. 2A WELL	IND_GW; MIS	125		-105.36084	44.0747
CR UW04/454	Fully Adjudicated	WYOMING BOARD OF LAND COMMISSIONERS	ENL. MOBIL ROJO #1	IND_GW; MIS	175		-105.35975	44.070839
CR UW04/455	Fully Adjudicated	MOBIL COAL PRODUCING INC	ENL. MOBIL ROJO #2A	IND_GW; MIS	175		-105.353	44.080131
CR UW04/456	Fully Adjudicated	MOBIL COAL PRODUCING INC	2ND ENL. MOBILE ROJO #2A	IND_GW; MIS	75		-105.356519	44.078039
CR UW21/326	Fully Adjudicated	CABALLO ROJO LLC	ENL. NELSON #1	IND_GW; MIS	0		-105.331289	44.076969
CR UW21/327	Fully Adjudicated	CABALLO ROJO LLC	NELSON #2 WELL	IND_GW; IRR_GW; MIS	20	625	-105.330461	44.0748

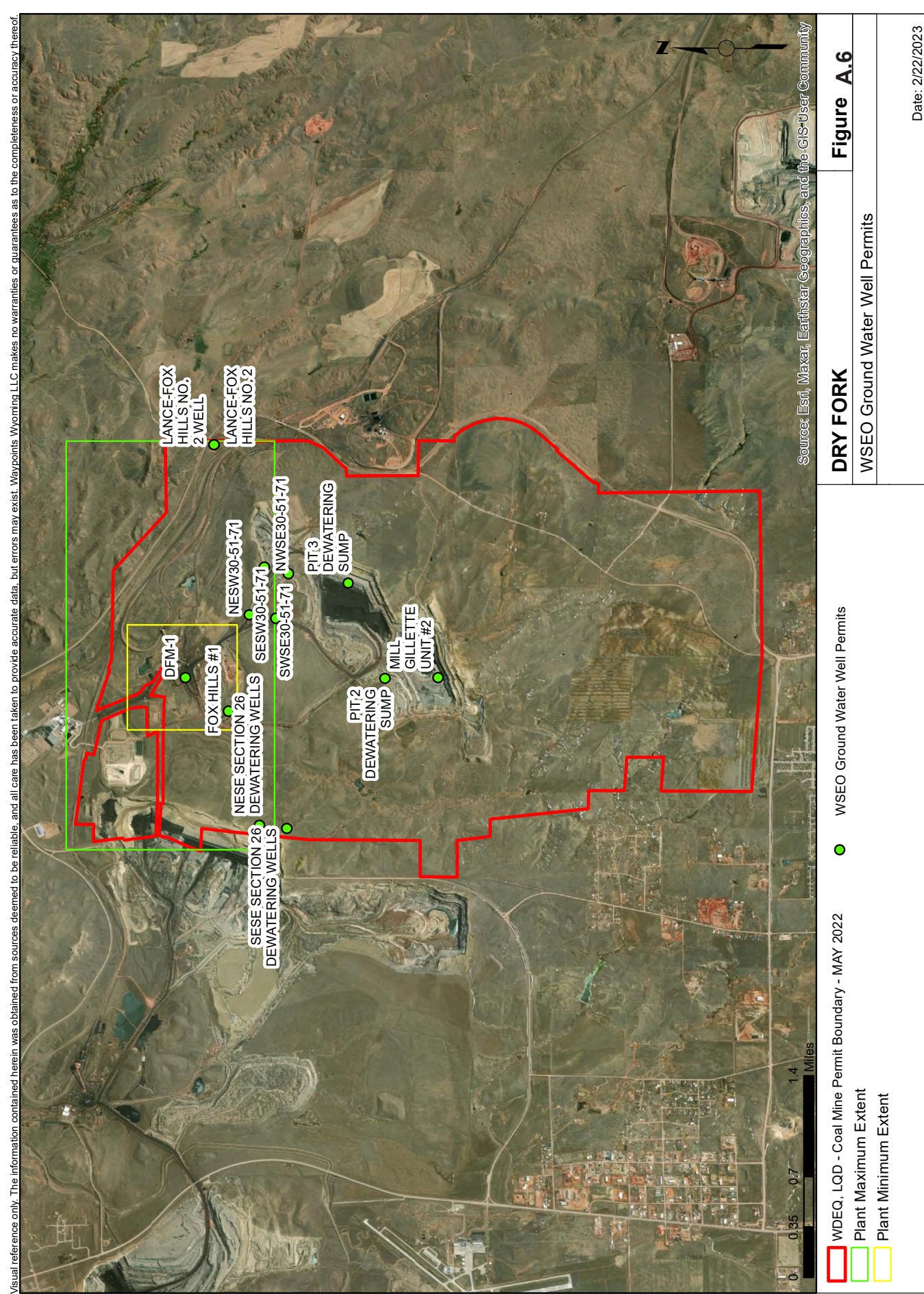
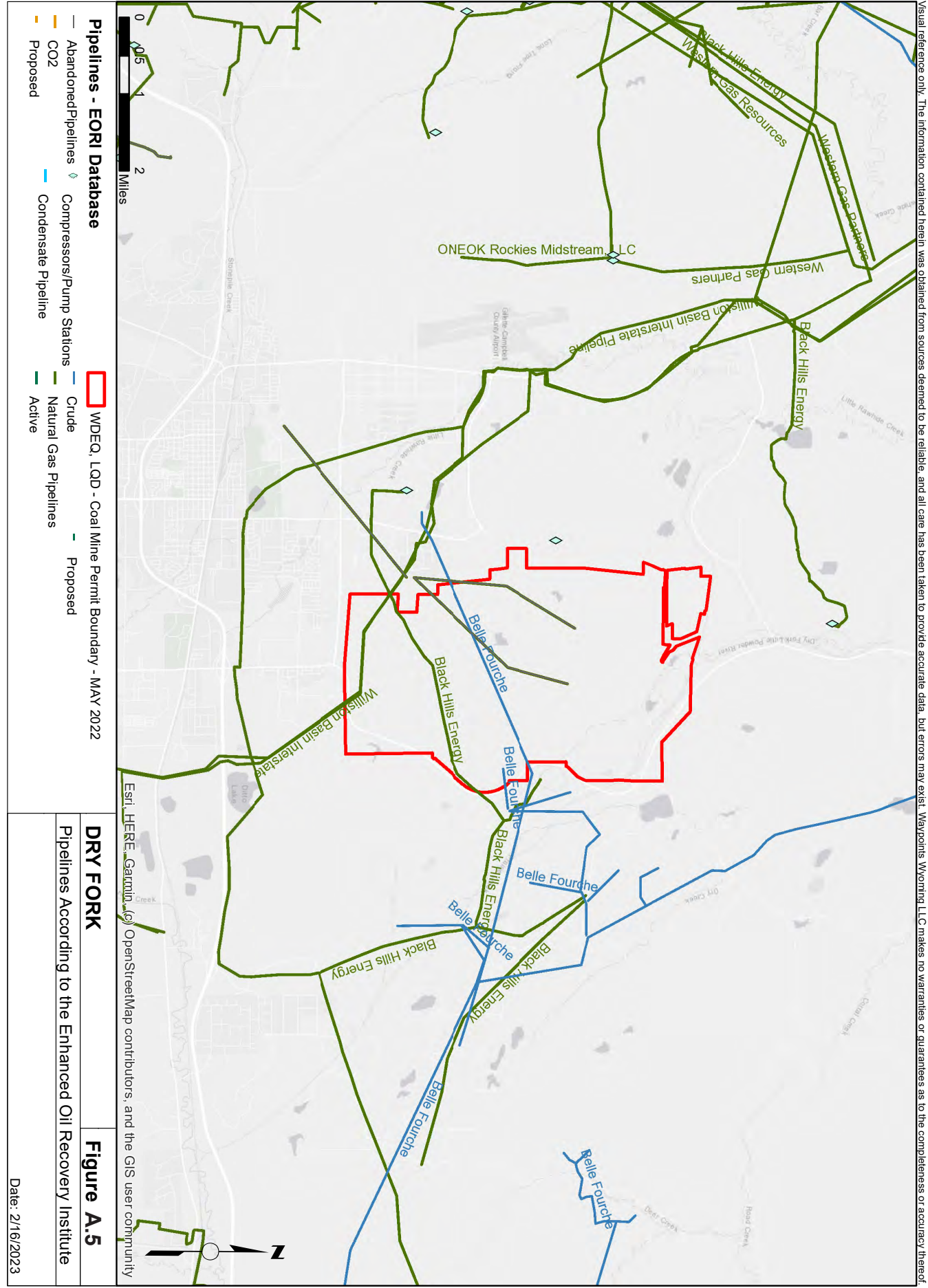




DRY FORK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
3NB LLC	1
ADDISON RODNEY R & MYRA M REV TRUST	2
BASIN ELECTRIC POWER COOP	3
BREDTHAUER CHARLES E & CINDY S	4
BURKHARDT JACKIE & VICKEY FAM REV TRUST	5
BURLINGTON NORTHERN &	6
CALLAWAY GREGORY S & DEBRA S	7
CAMPBELL COUNTY	8
CAPPS LINDA R REVOCABLE TRUST	9
CITY OF GILLETTE	10
CROELL INC	11
DEPT OF INTERIOR/BLM	Fed
EAGLE SPECIALTY MATERIALS LLC	12
FRALICK FAMILY TRUST (THE)	13
GRANZER LAND COMPANY LLC	14
GREEN BRIDGE HOLDINGS INC	15
HORSETREE LLC	16
JKSP LLC	17
KISSACK CLAUDE R JR & KATHY E	18
KLUVER JOHN MILO TRUST	19
L & L PROPERTIES WY LLC	20
L QUARTER CIRCLE LLC	21
LOWRY DIANN & GARY	22
MADER CYNTHIA REV LIVING TRUST	23
MITCHELL JAMES PATRICK & LORI JO LIVING TRUST	24
NORTHERN ENERGY PARK LLC	25
PEABODY CABALLO MINING LLC	26
PLUMB CRYSTAL RENEE & ALLAN DAVID	27
REEVES ANTOINETTE R	28
SIMON CONTRACTORS	29
SPEAR TWO LLC	31
STATE HWY DEPT	32
STATE OF WYOMING	State
TOTAL CONSTRUCTION	33
TRI-STATE GENERATION & TRANSMISSION &	34
WAGGENER YVONNE LIVING TRUST	35
WESTERN FUELS WYOMING INC	36
WYODAK RESOURCES DEVELOPMENT CORP	37

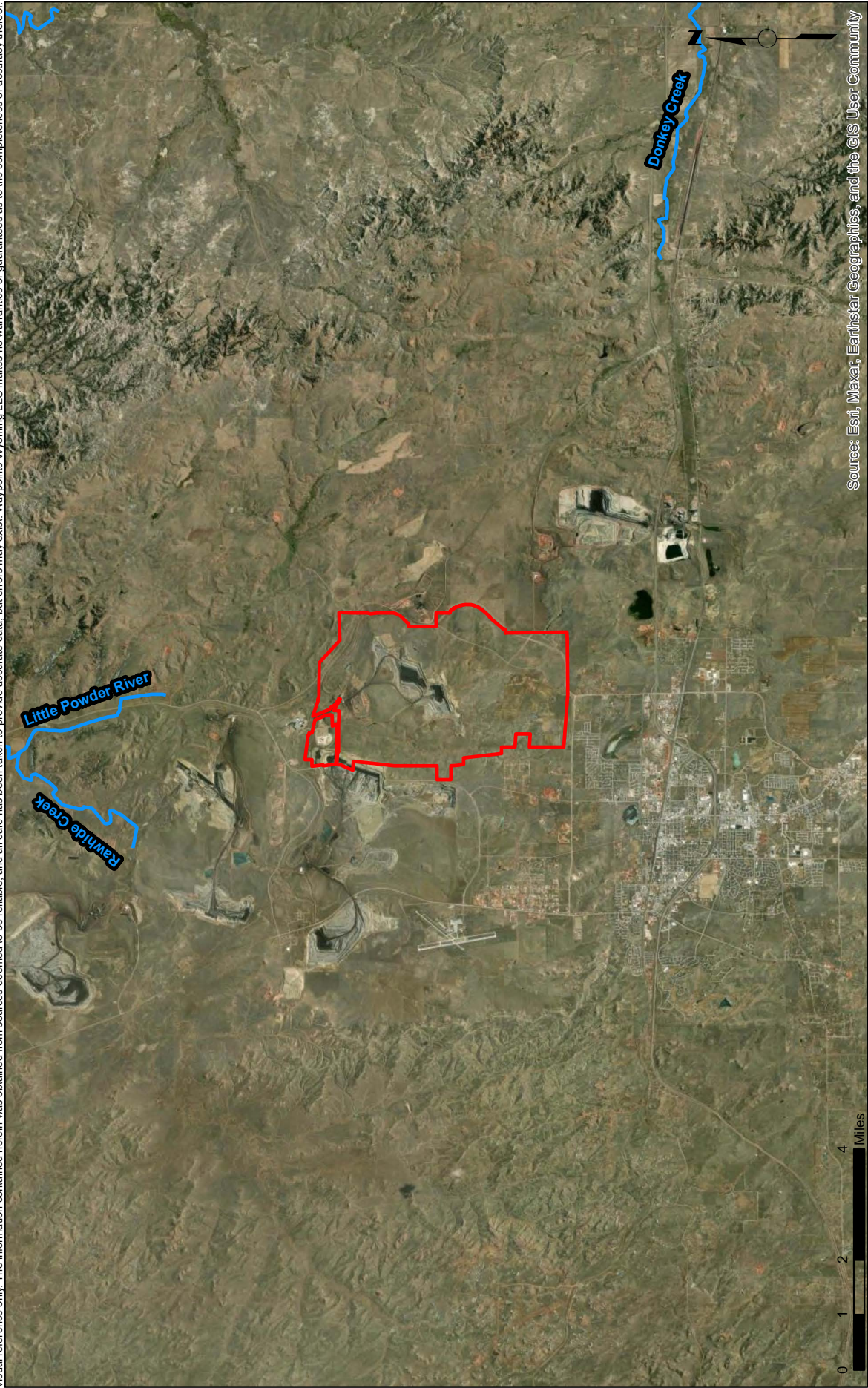






 Streams	DRY FORK	Figure A.7
	Streams	

Date: 2/18/2023

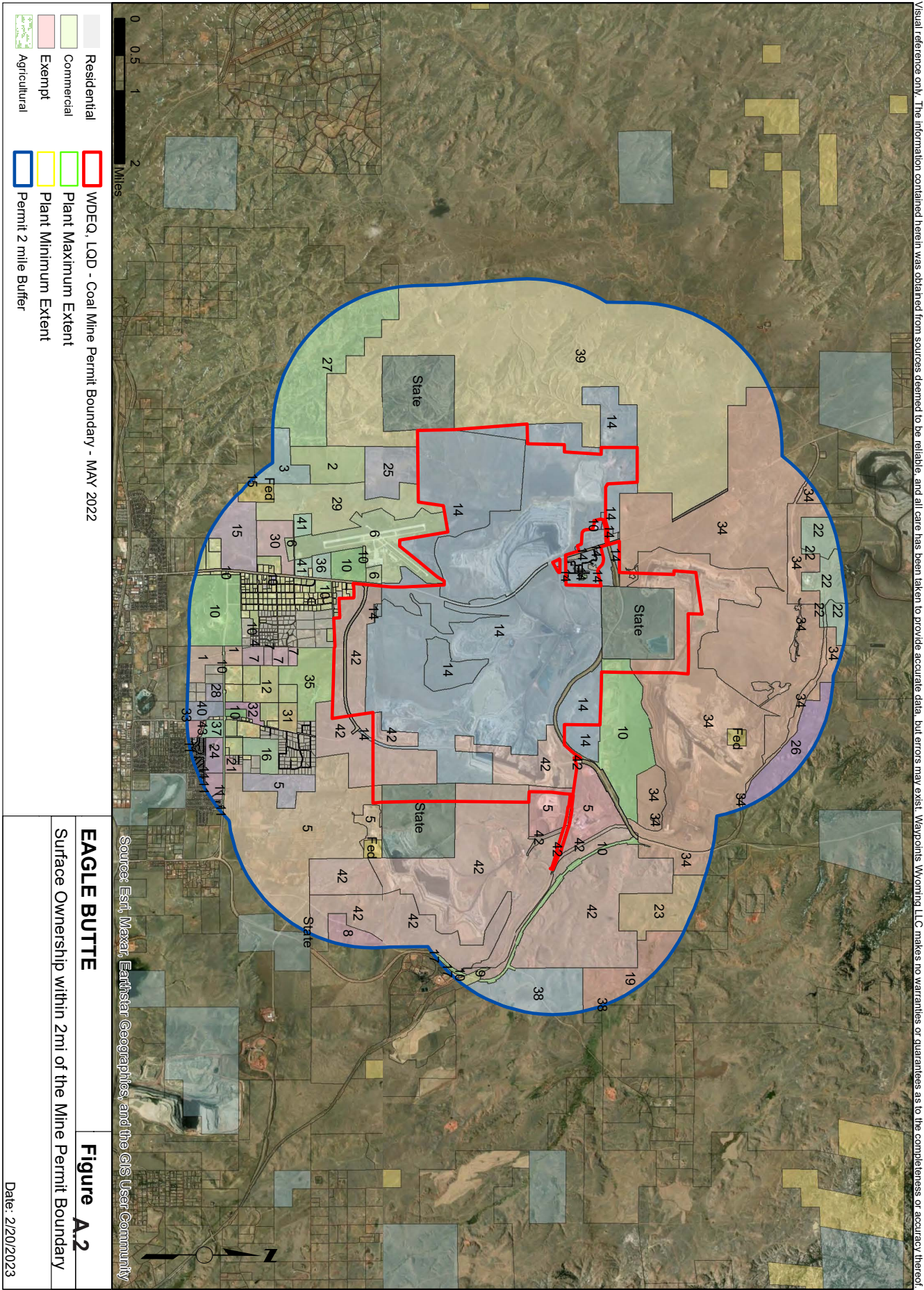


Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist and the user assumes all responsibility for the completeness or accuracy thereof.

DRY FORK MINE - A.6. WATER RIGHTS TABLE

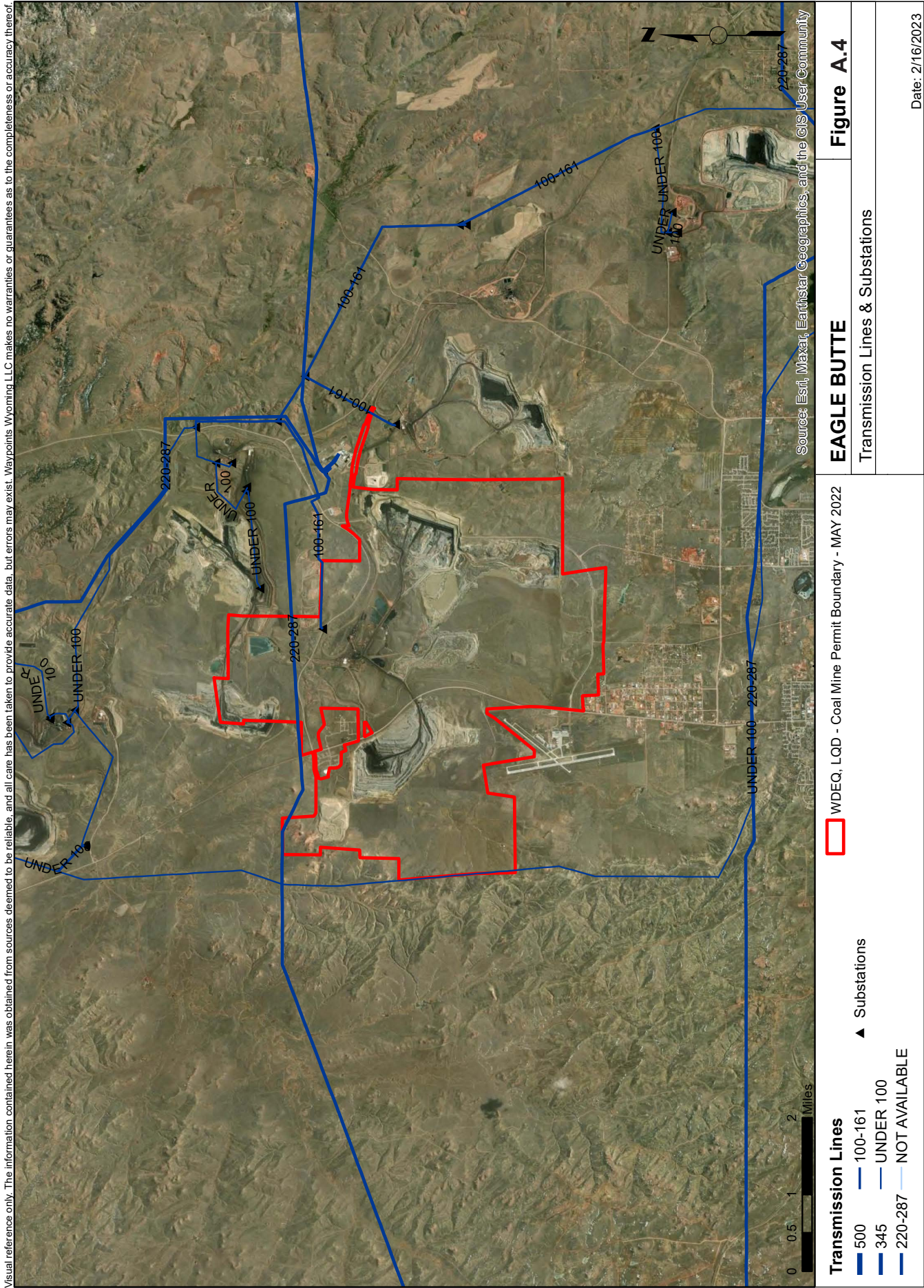
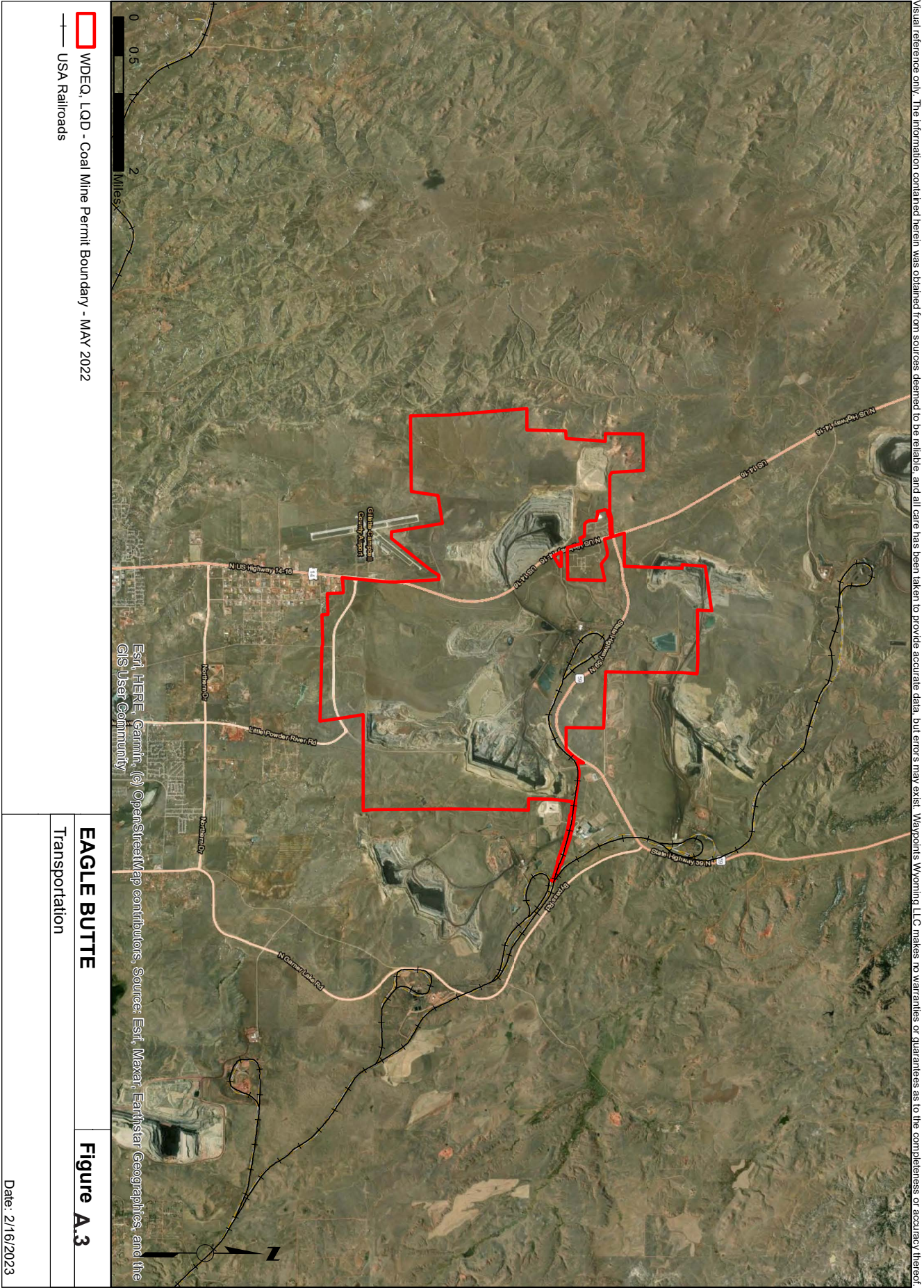
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P180340.0W	Complete	WESTERN FUELS-WYO, INC.	SESW30-51-71	MIS	50	70	-105.445572	44.366958
P180341.0W	Complete	WESTERN FUELS WYO INC	NWSE30-51-71	MIS	15	65	-105.438453	44.368158
P180342.0W	Complete	WESTERN FUELS WYO INC	SWSE30-51-71	MIS	15	65	-105.439306	44.365714
P180343.0W	Complete	WESTERN FUELS-WYO, INC.	NESW30-51-71	MIS	50	70	-105.445083	44.369622
P182039.0W	Fully Adjudicated	BASIN ELECTRIC POWER COOPERATIVE	LANCE-FOX HILLS NO. 2 WELL	IND_ GW; MIS	525	3628.3	-105.42131	44.37326
P199601.0W	Complete	WESTERN FUELS WYOMING, INC.	DFM-1	MIS	190	1814	-105.453953	44.375997
P199602.0W	Complete	WESTERN FUELS WYOMING, INC.	FOX HILLS #1	MIS	425	3820	-105.458611	44.371667
P202051.0W	Complete	WESTERN FUELS WYOMING, INC	PIT 2 DEWATERING SUMP	MIS	1000	250	-105.45392	44.35594
P208205.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NESE SECTION 26 DEWATERING WELLS	MIS	18	305	-105.474564	44.368467
P211518.0W	Complete	WESTERN FUELS WYOMING	PIT 3 DEWATERING SUMP	MIS	1000	10	-105.440588	44.359686
P69750.0W	Complete	MASEK OIL COMPANY	MILL GILLETTE UNIT #2	IND_ GW	30	8083	-105.45376	44.35061
CR UW19/271	Fully Adjudicated	BASIN ELECTRIC POWER COOPERATIVE	LANCE-FOX HILLS NO. 2	IND_ GW; MIS	525		-105.42131	44.37326
P208204.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESE SECTION 26 DEWATERING WELLS	MIS	18	345	-105.475003	44.365722

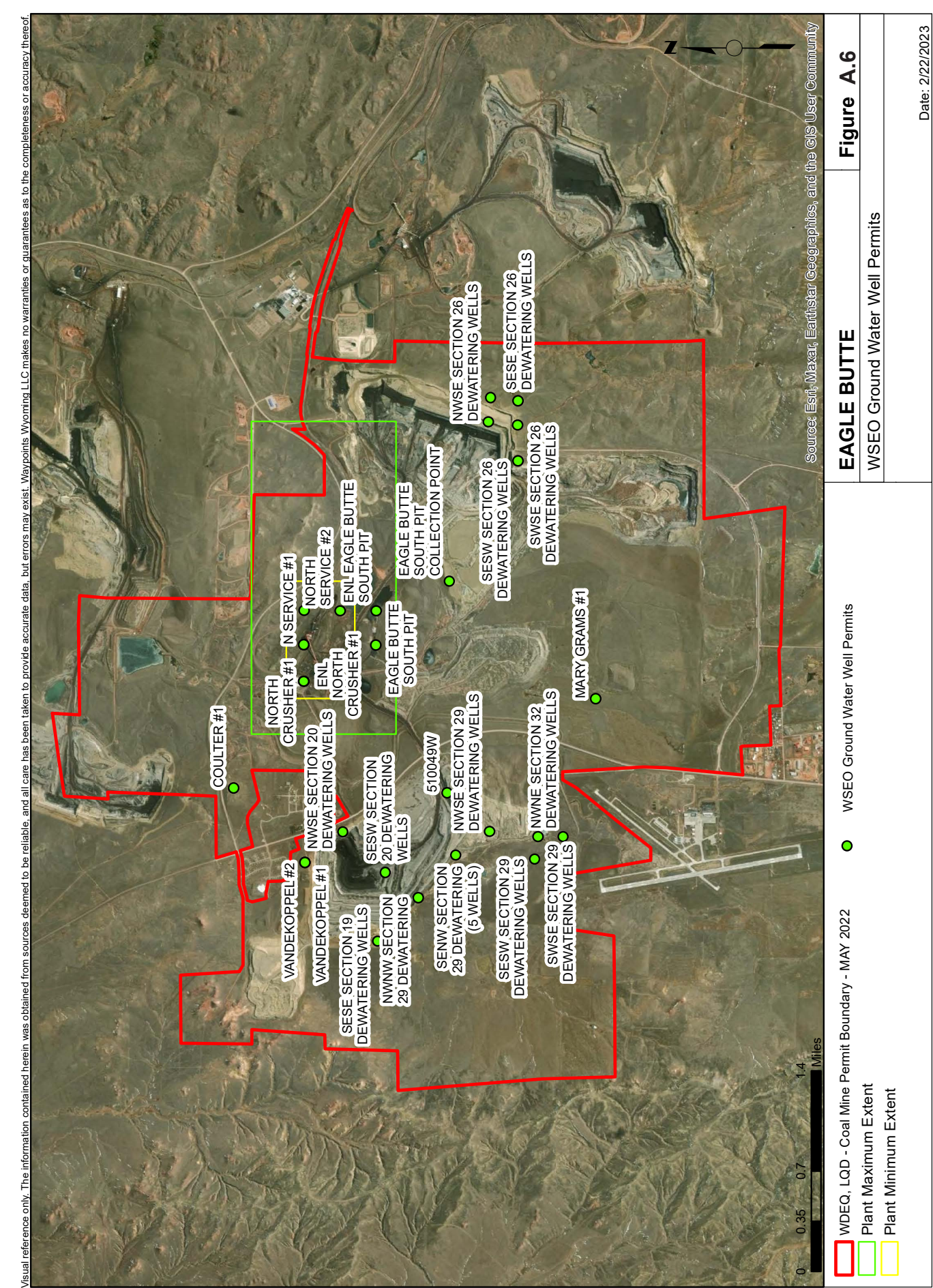
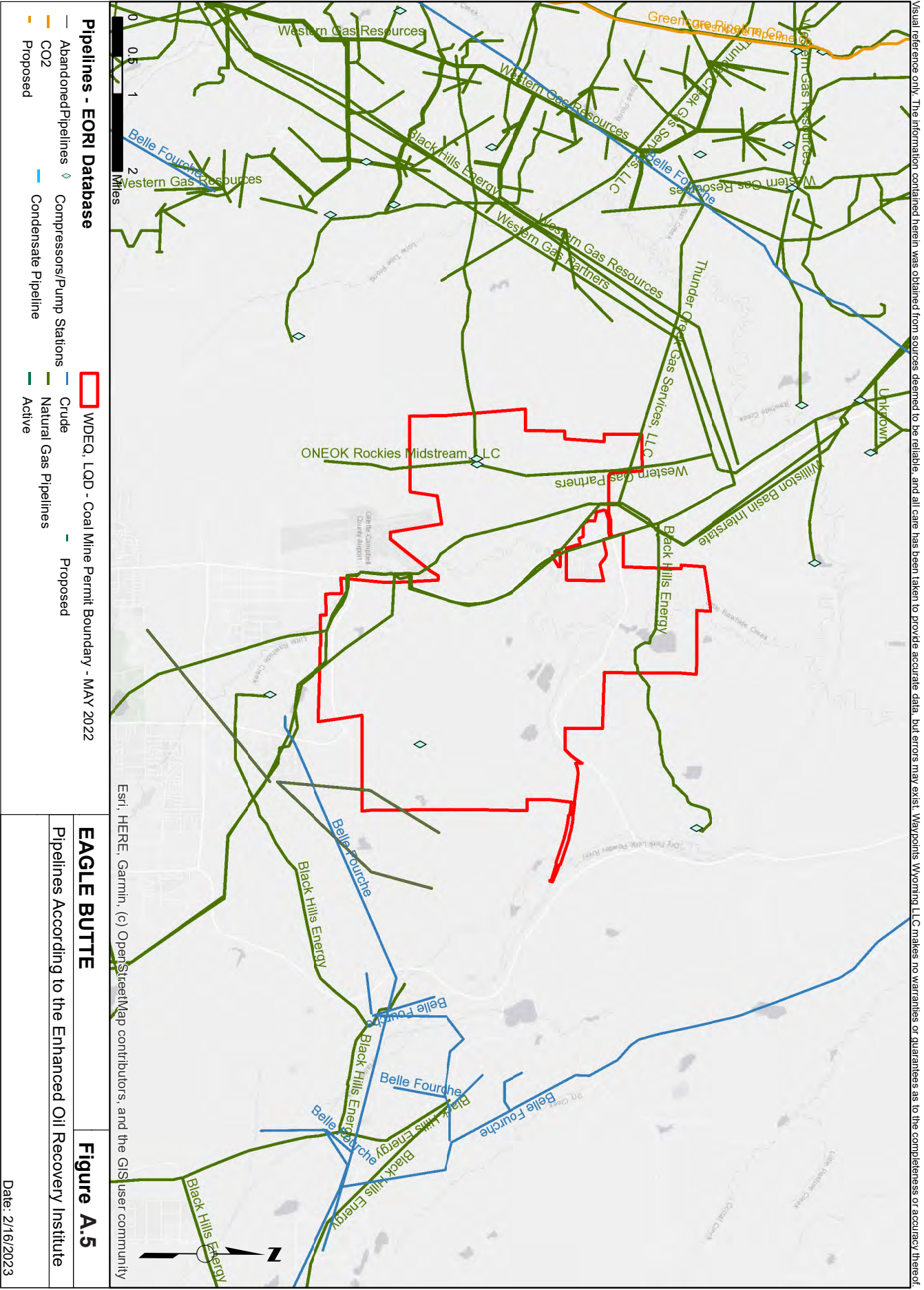




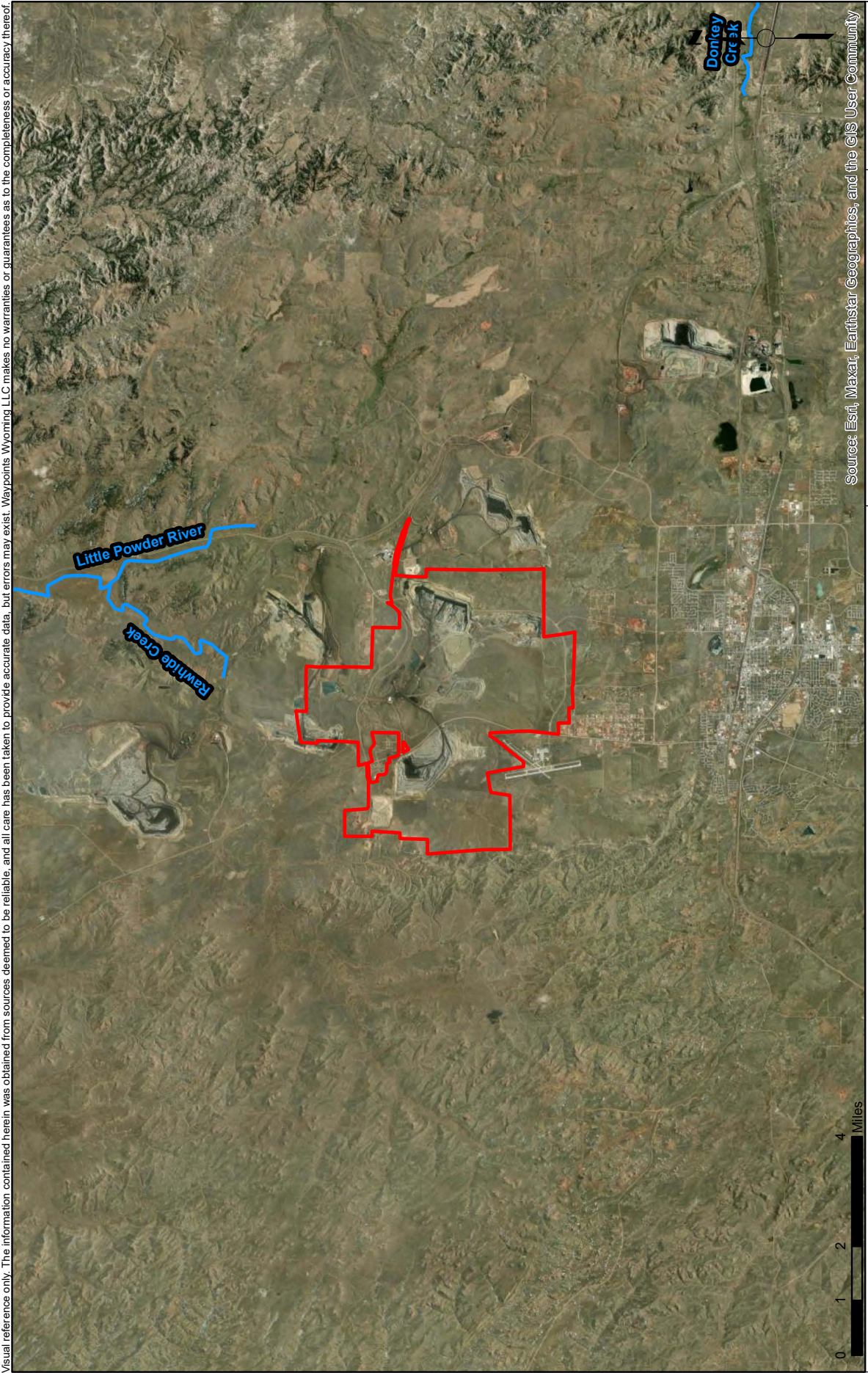
EAGLE BUTTE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
3NB LLC	1
BARBOUR STEVEN RAY REVOCABLE TRUST	2
BARBOUR THOMAS JAMES	3
BARGMANN RICHARD E REVOCABLE TRUST	4
BASIN ELECTRIC POWER COOP	5
BOARD OF COUNTY COMMISSIONERS	6
BREDTHAUER CHARLES E & CINDY S	7
BURKHARDT JACKIE & VICKEY FAM REV TRUST	8
BURLINGTON NORTHERN RAILROAD CO	9
CAMPBELL COUNTY	10
CITY OF GILLETTE	11
CROELL INC	12
DEERFIELD GILLETTE LLC	13
EAGLE SPECIALTY MATERIALS LLC	14
GRAMS RAYMOND FAMILY (BY PASS)TRUST &	15
GRANZER LAND COMPANY LLC	16
GREEN BRIDGE HOLDINGS INC	17
HATZENBIHLER KEVIN JACOB & KIMBERLY JANE	18
HORSETREE LLC	19
JKSP LLC	20
JODOZI KRISTINE KAE & JACOB TODD &	21
KIEWIT MINING PROPERTIES INC	22
L QUARTER CIRCLE LLC	23
LOWRY DIANN & GARY	24
LYNDE JUDY KAY	25
MCCLELLAND RANCH LLC	26
MCCREERY BARBARA NADINE MCKENZIE LIV TST	27
MILLER DOUGLAS	28
NANNEMANN GAYLE J REVOCABLE TRUST	29
NORSTEGARD BRIAN & PATRICIA	30
NORTHERN ENERGY PARK LLC	31
PATEL KANTI R & SULABHA K	33
PEABODY CABALLO MINING LLC	34
REEVES ANTOINETTE R	35
ROSENBERRY ANN M	36

EAGLE BUTTE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
S & J DEVELOPMENT INC & TOTAL CONSTRUCTION	37
TWENTY MILE LAND CO LLC	39
WAGGENER YVONNE LIVING TRUST	40
WESTERN COMPANY OF NORTH AMERICA	41
WESTERN FUELS WYOMING INC	42
WICKHORST SHAWN &	43





EAGLE BUTTE MINE - A.6. WATER RIGHTS TABLE									
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE	
P105949.0W	Complete	ALPHA COAL WEST INC	510049W	MIS	70	140	-105.53024	44.37262	
P150180.0W	Complete	Foundation Coal West, Inc.	EAGLE BUTTE SOUTH PIT COLLECTION POINT	MIS	1200	260	-105.50042	44.37252	
P18750.0P	Complete	Foundation Coal West, Inc.	MARY GRAMS #1	DOML GW; STK	6	158	-105.51689	44.35768	
P191891.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NWNW SECTION 29 DEWATERING	MIS	35	130	-105.54503	44.37547	
P193372.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NWNE SECTION 32 DEWATERING WELLS	MIS	30	186	-105.536272	44.360861	
P196265.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SENW SECTION 29 DEWATERING (6 WELLS)	MIS	8	320	-105.539	44.371667	
P198148.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NWSE SECTION 20 DEWATERING WELLS	MIS	40	250	-105.535825	44.383114	
P198149.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SWSE SECTION 29 DEWATERING WELLS	MIS	200	140	-105.536317	44.363411	
P198151.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NWSE SECTION 29 DEWATERING WELLS	MIS	375	160	-105.535603	44.368317	
P201236.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESE SECTION 19 DEWATERING WELLS	MIS	25	384	-105.55119	44.37952	
P206381.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESW SECTION 20 DEWATERING WELLS	MIS	175	85	-105.541542	44.378786	
P206382.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESW SECTION 29 DEWATERING WELLS	MIS	30	165	-105.539483	44.363708	
P206550.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESW SECTION 26 DEWATERING WELLS	MIS	60	390	-105.483486	44.365664	
P206550.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NWSE SECTION 26 DEWATERING WELLS	MIS	75	380	-105.477963	44.368691	
P206560.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SWSE SECTION 26 DEWATERING WELLS	MIS	45	329	-105.478381	44.365725	
P208205.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NESE SECTION 26 DEWATERING WELLS	MIS	18	305	-105.474564	44.368467	
P21856.0W	Complete	Foundation Coal West, Inc.	COULTER #1	DOML GW	20	574	-105.52976	44.39416	
P23443.0W	Complete	Foundation Coal West, Inc.	VANDEKOPPEL #2	DOML GW; STK	6	60	-105.54018	44.38691	
P23444.0W	Complete	Foundation Coal West, Inc.	VANDEKOPPEL #1	DOML GW; STK	6	50	-105.54018	44.38691	
P33026.0W	Fully Adjudicated	Foundation Coal West, Inc.	N SERVICE #1	MIS	100	917	-105.50954	44.38717	
P33028.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NORTH CRUSHER #1	IND_GW	25	80	-105.51463	44.38715	
P42768.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	NORTH SERVICE #2	IND_GW	250	906	-105.50468	44.38352	
P47618.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	ENL NORTH CRUSHER #1	IND_GW; MIS	275	80	-105.51463	44.38715	
P51361.0W	Fully Adjudicated	Foundation Coal West, Inc.	1ST ENL N SERVICE #1	IND_GW; MIS	100	917	-105.50954	44.38717	
P64038.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	EAGLE BUTTE SOUTH PIT	MIS	600	40	-105.50954	44.37991	
P66643.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	ENL NORTH SERVICE #2	MIS	0	906	-105.50468	44.38715	
P66644.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	ENL NORTH CRUSHER #1	MIS	0	80	-105.51463	44.38715	
P66645.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	ENL EAGLE BUTTE SOUTH PIT	MIS	0	40	-105.50467	44.37989	
P208204.0W	Complete	EAGLE SPECIALTY MATERIALS LLC	SESE SECTION 26 DEWATERING WELLS	MIS	18	345	-105.475003	44.365722	



WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022

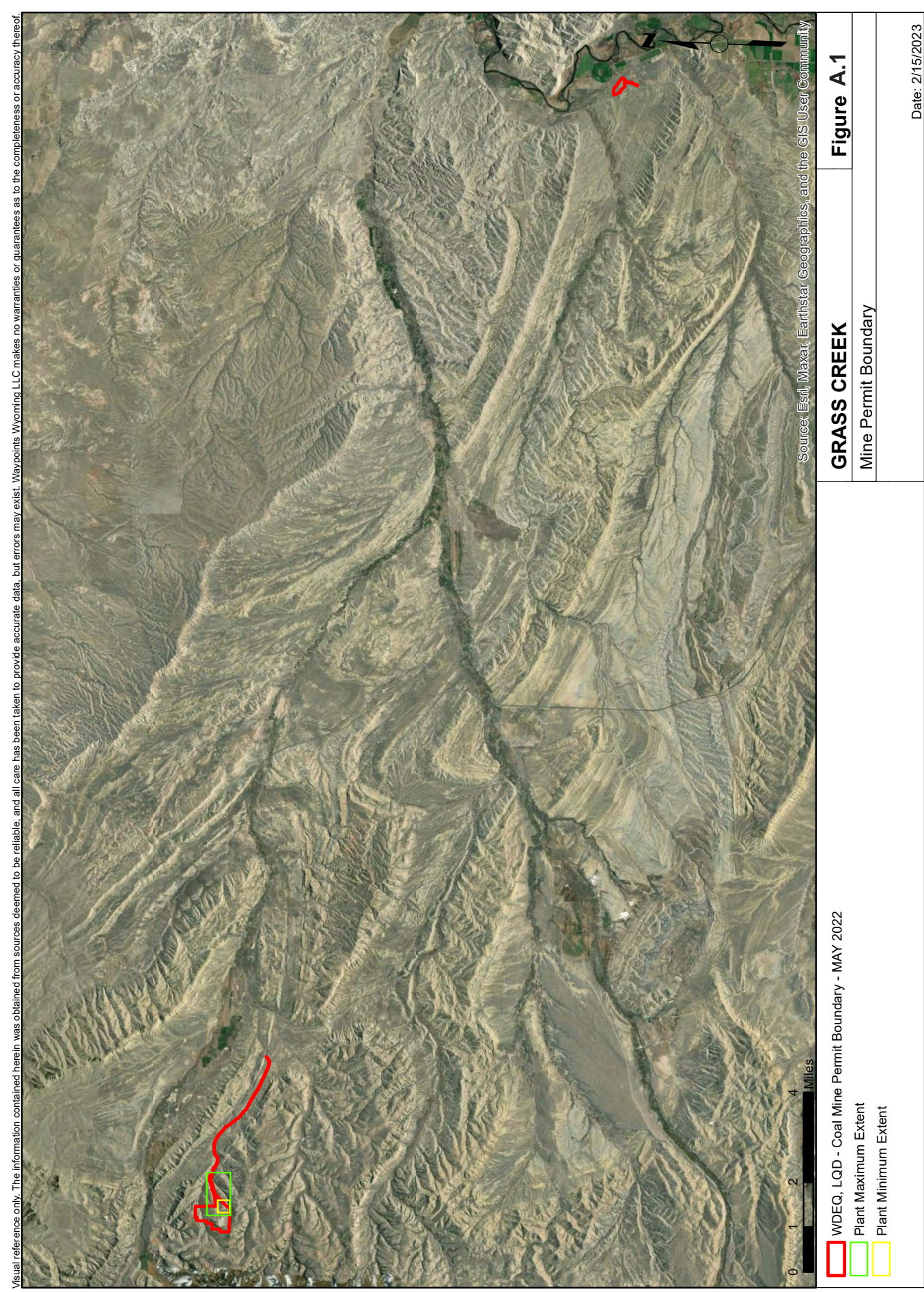
Streams

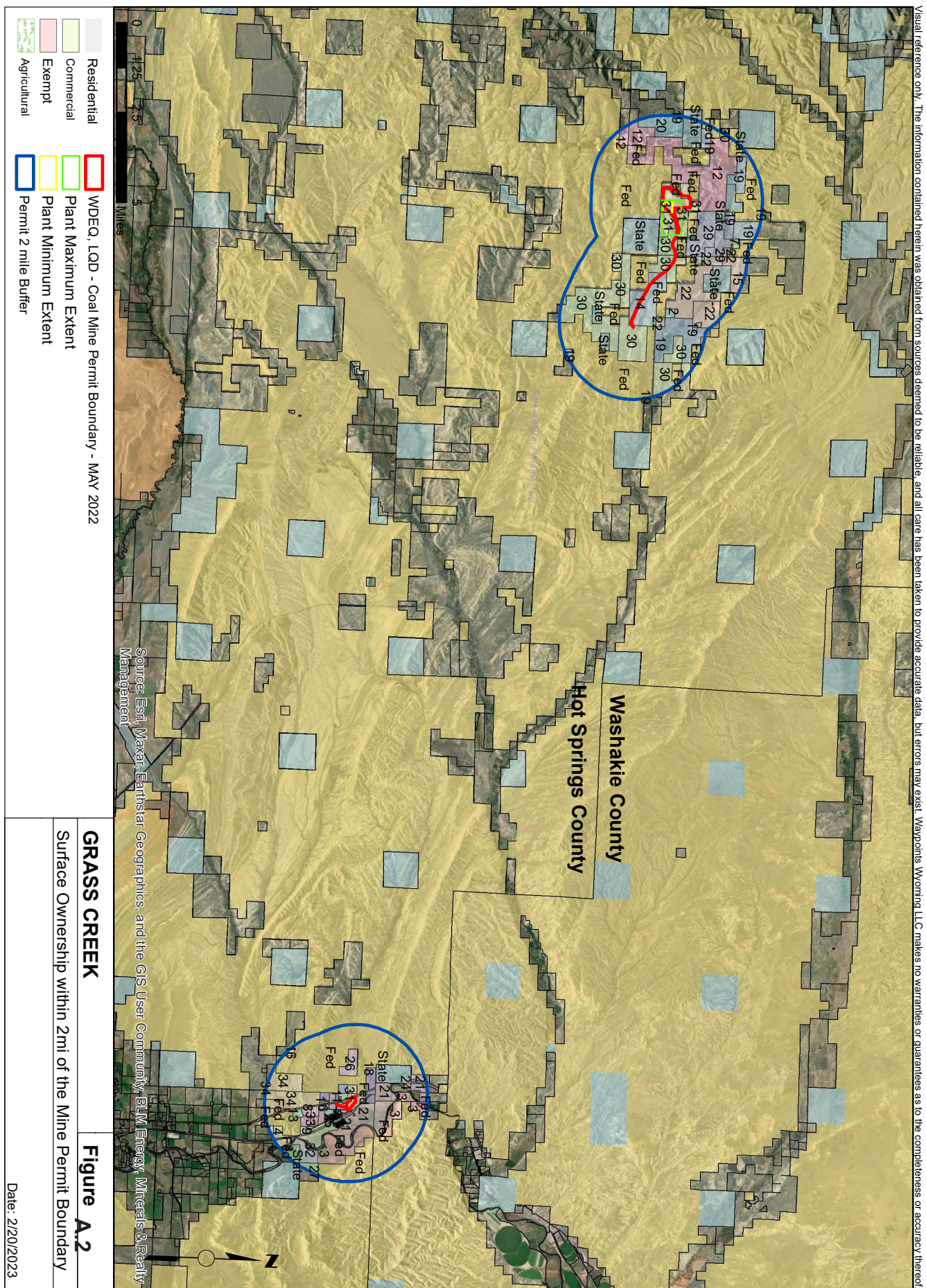
EAGLE BUTTE

Streams

Figure A.7

Date: 2/18/2023

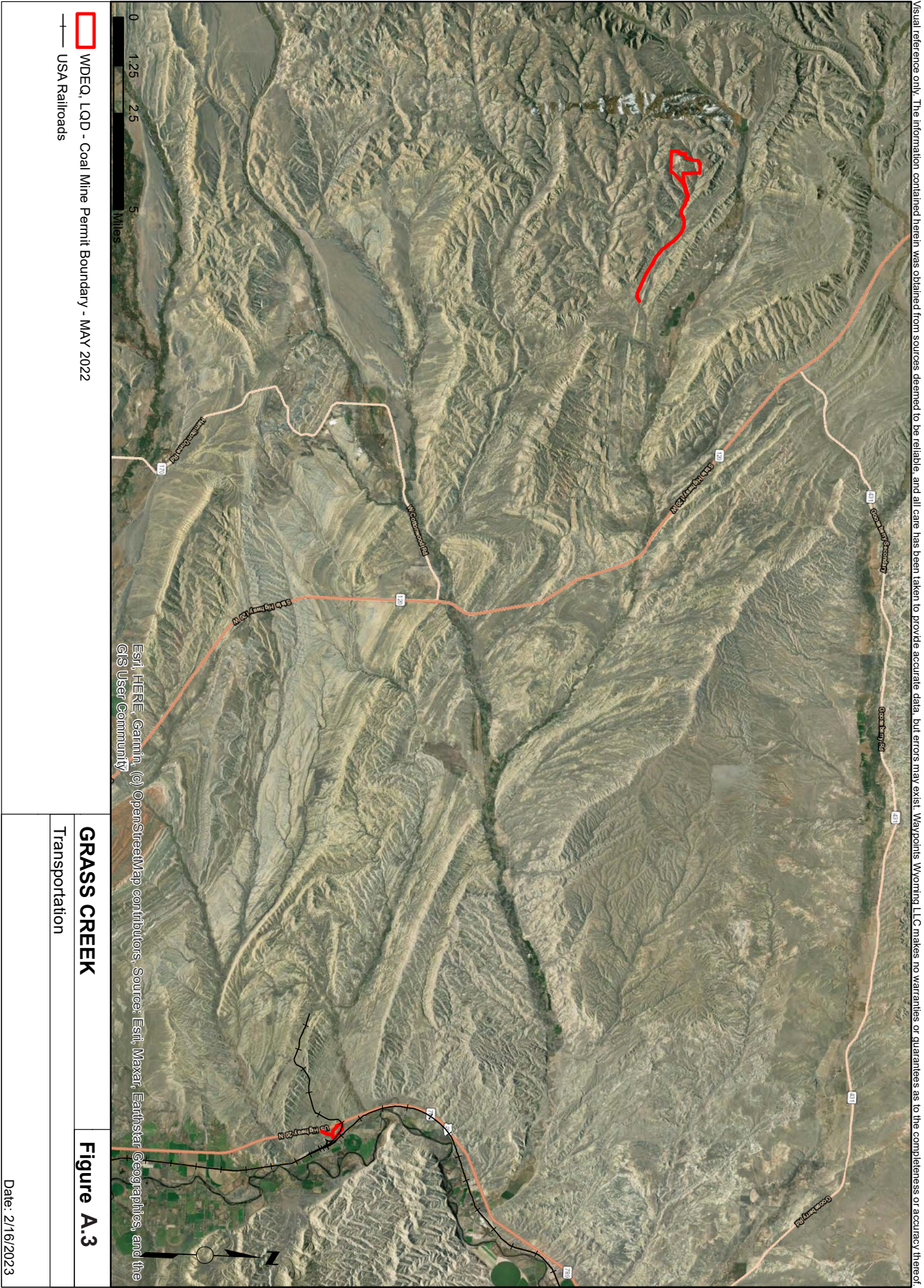


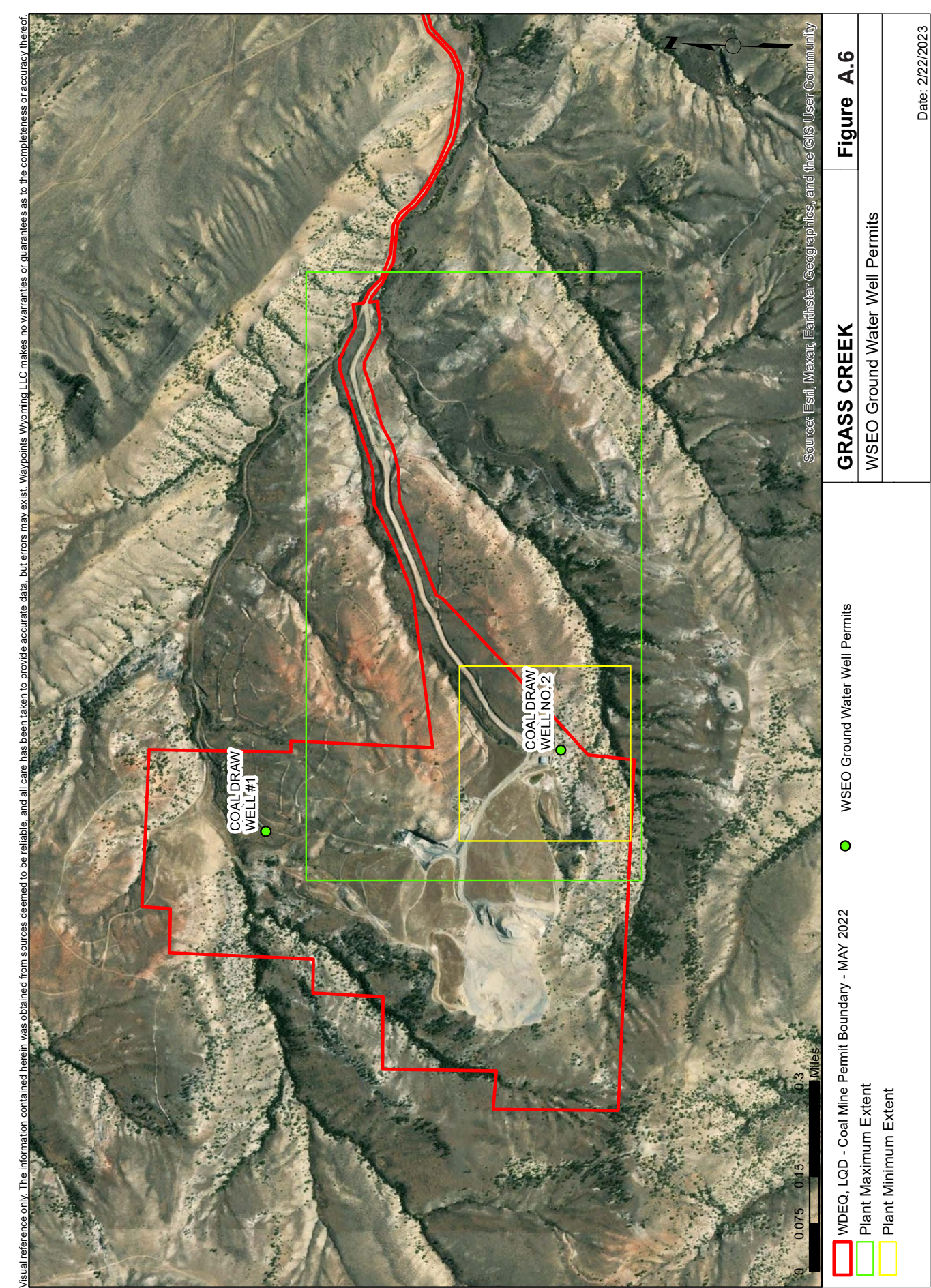
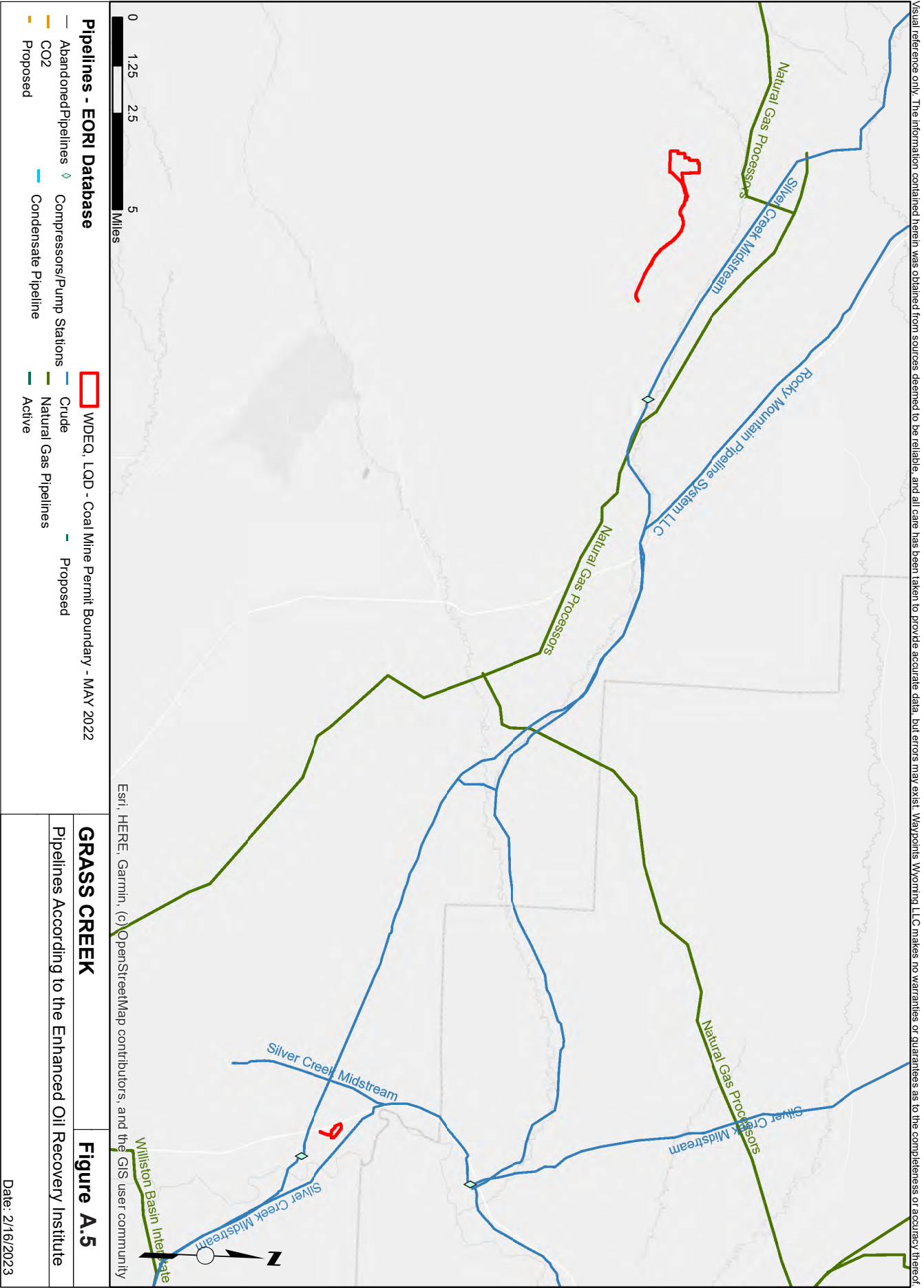


SURFACE OWNER	IDENTIFIER
ADAMS TATE & SHAWNDA	1
ATLANTIC RICHFIELD COMPANY ATTN: PROPERTY TAX DEPT	2
AXTELL RANCHES LLC	3
BIGHORN FARMS LLC	4
BUREAU OF LAND MANAGEMENT	Fed
C&S SALES & SERVICE INC	5
CARSWELL JESSICA	6
CARSWELL KEN	7
DE LUCCHI ROBERT DALE & TINA MARIE	8
DEAN MARK THOMAS & ELIZABETH ANN ETAL	9
EDWARDS TRUST C/O VESTA M EDWARDS TRUSTEE	10
GORDON TRUSTS C/O WILLIAM F GORDON & MARY A GORDON TRUSTEES	11
GRAVES LAND & LIVESTOCK LLC	12
GRISBECK RUSSELL	13
HORSEWORKS WYOMING LLC	14
HURST JAMES T ET-AL C/O MERIT ENERGY OPERATIONS I LLC	15
IRELAND MYTON ETAL C/O IRELAND MYTON	16
KARP BYRON WILLIAM & WALSH CECILIA A	17
KELLY NELLY C/O POWELL TRUST C/O POWELL GERALD LTRUS	18
L U SHEEP CO	19
LEROUX TRUST C/O LEROUX JOHN F TRUSTEE	20
MEAD BRADFORD S & KATHERINE L	21
MERIT ENERGY OPERATIONS I LLC C/O KEN ANDREWS & COMPANY	22
OBRIEN LARRY & AMBRA & MACIE BILLY	23
OSTERMANN TRUST C/O OSTERMANN BRUCE D & BARBARA M TRUSTEES	24
PLAINS PIPELINE, LP	25
REAM RENTALS LLC & WEDLOCK ESTATE ETAL	26
REED CREEK LIMITED PARTNERSHIP C/O REED LINDA LEE	27
SCHLAGER JOHN A & MICHELE L	28
SONRISE GRASS CREEK GUEST RANCH LLC	29

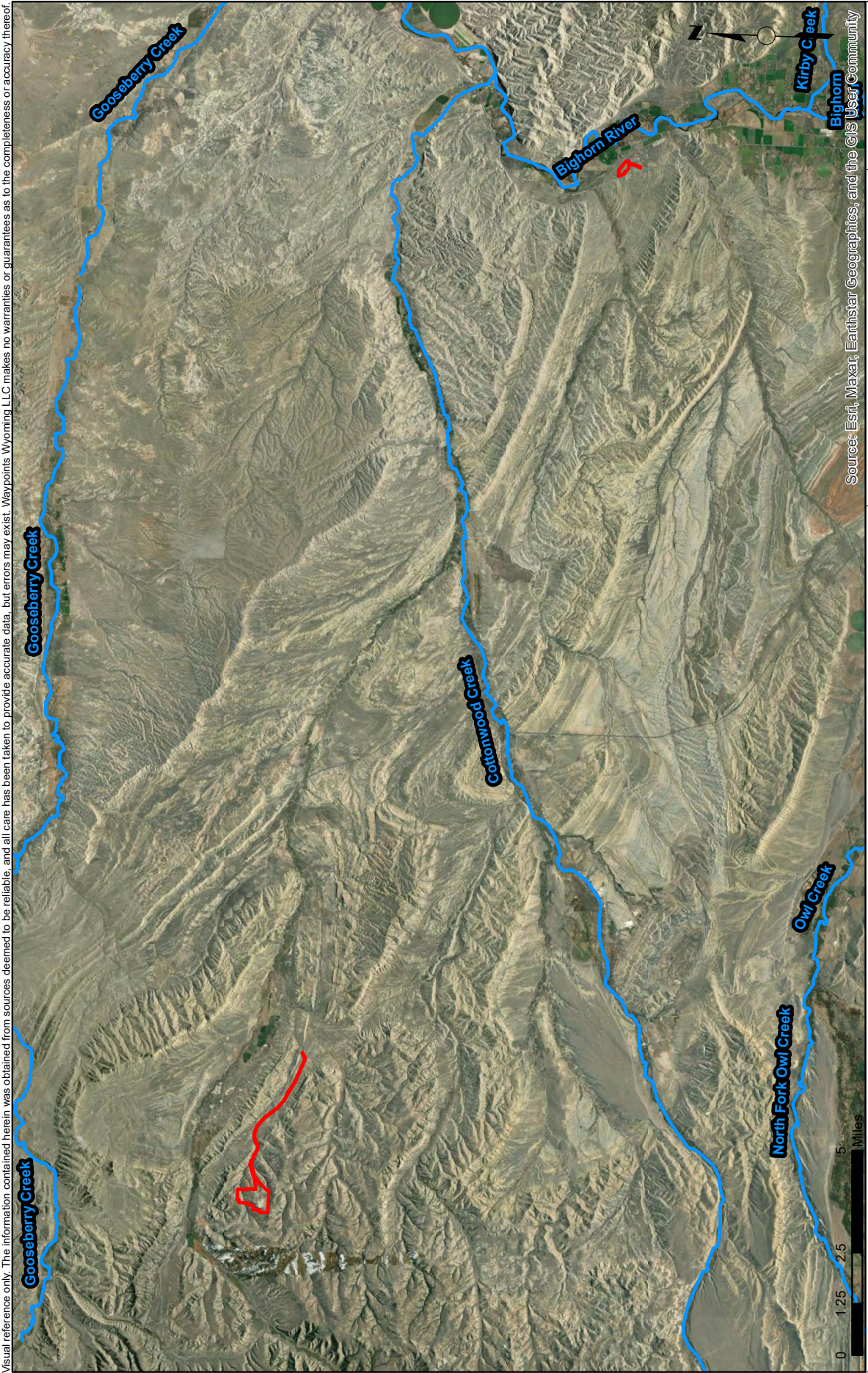
SURFACE OWNER	IDENTIFIER
SPRING GULCH CATTLE CO	30
SPRING GULCH COAL COMPANY	31
STATE OF WYOMING	State
STRAMPE BRIAN K	32
VAN HEULE BENJAMIN THOMAS	33
VAN HEULE JAMES DENNIS	34
WIGHT ALBERT R & HERLI P	35
ZORICHAK CHRIS & WILLIAMS CATRIN REES	36

GRASS CREEK - WASHAKIE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AXTELL RANCHES LLC	3
AXTELL RANCHES LLC	3





GRASS CREEK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P4594.0W	Fully Adjudicated	SPRING GULCH COAL CO	COAL DRAW WELL #1	STK	3.5	276	-108.69859	43.92764
CR UW09/148	Fully Adjudicated	SPRING GULCH COAL COMPANY	COAL DRAW WELL NO. 2	MIS, STK	15		-108.695611	43.921



WDEQ, IQD - Coal Mine Permit Boundary - MAY 2022

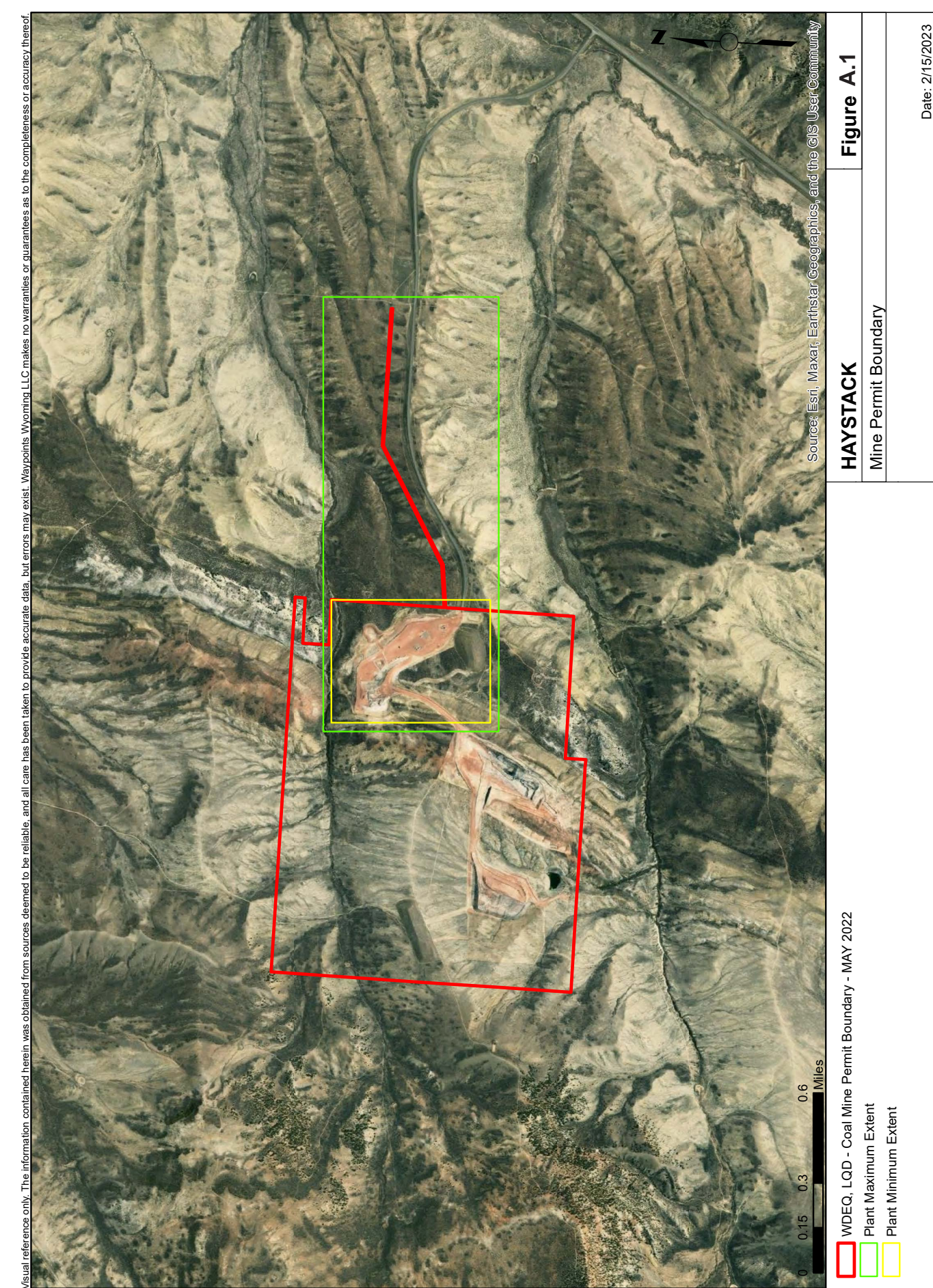
Streams

GRASS CREEK

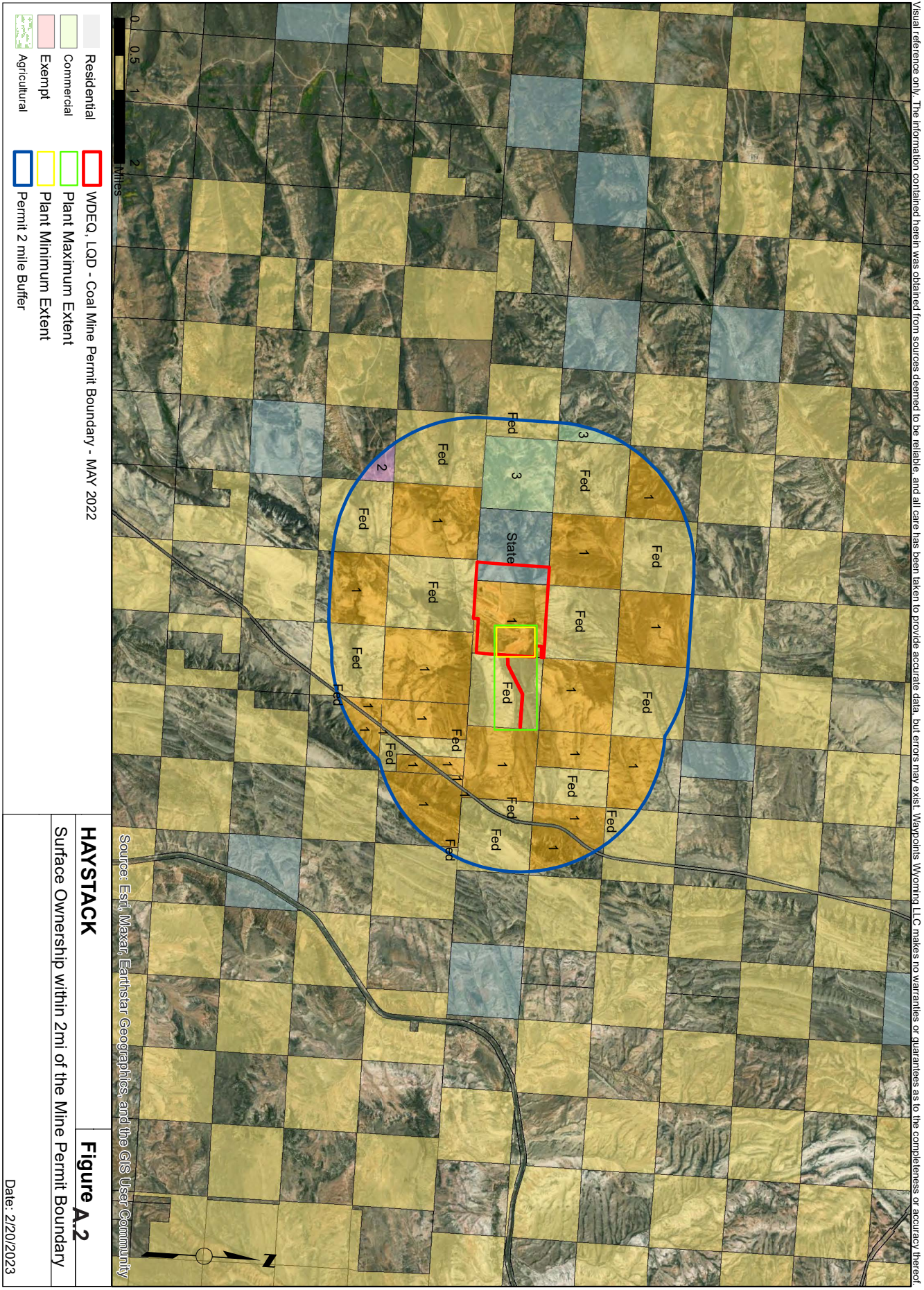
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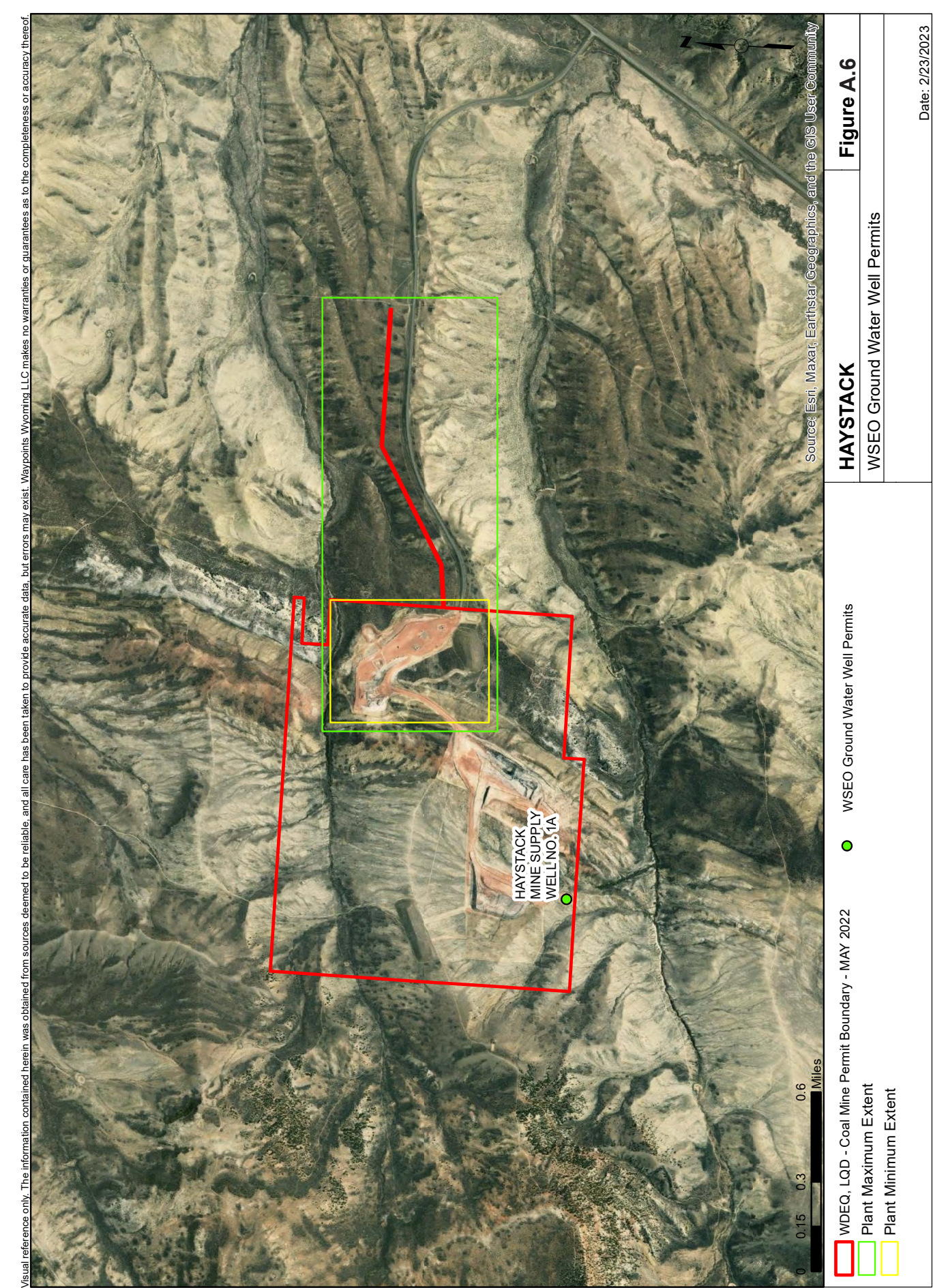
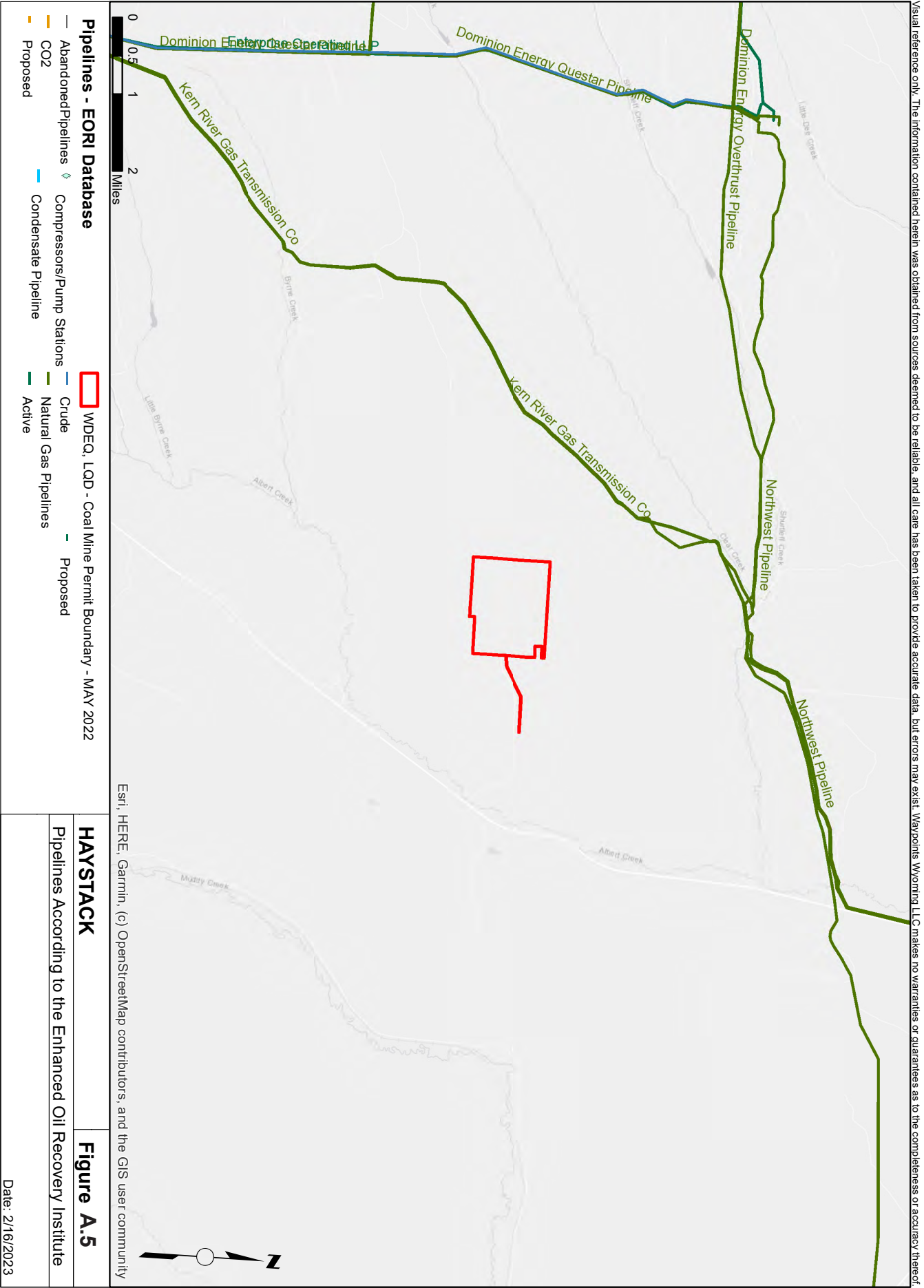
Figure A.7

Date: 2/18/2023



HAYSTACK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
BLM	Fed
SIMS, MICHAEL J. & GILDA S	2
STATE OF WYOMING	State
UINTA LIVESTOCK GRAZING PART.	3





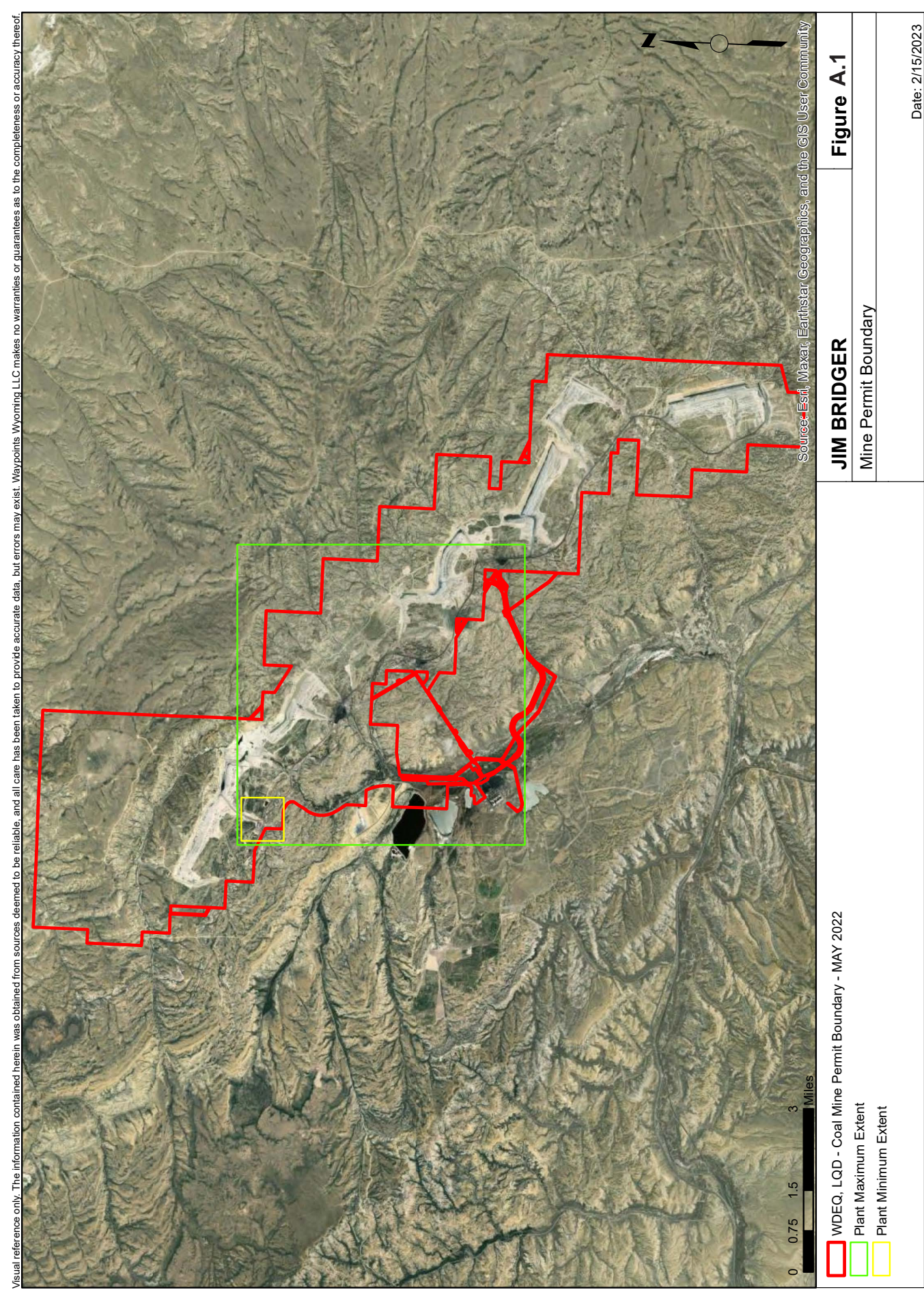
HAYSTACK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (F-T)	LONGITUDE	LATITUDE
P197709.0W	Complete	HAYSTACK COAL COMPANY	HAYSTACK MINE SUPPLY WELL NO. 1A	MIS	68	1155	-110.692561	41.4056



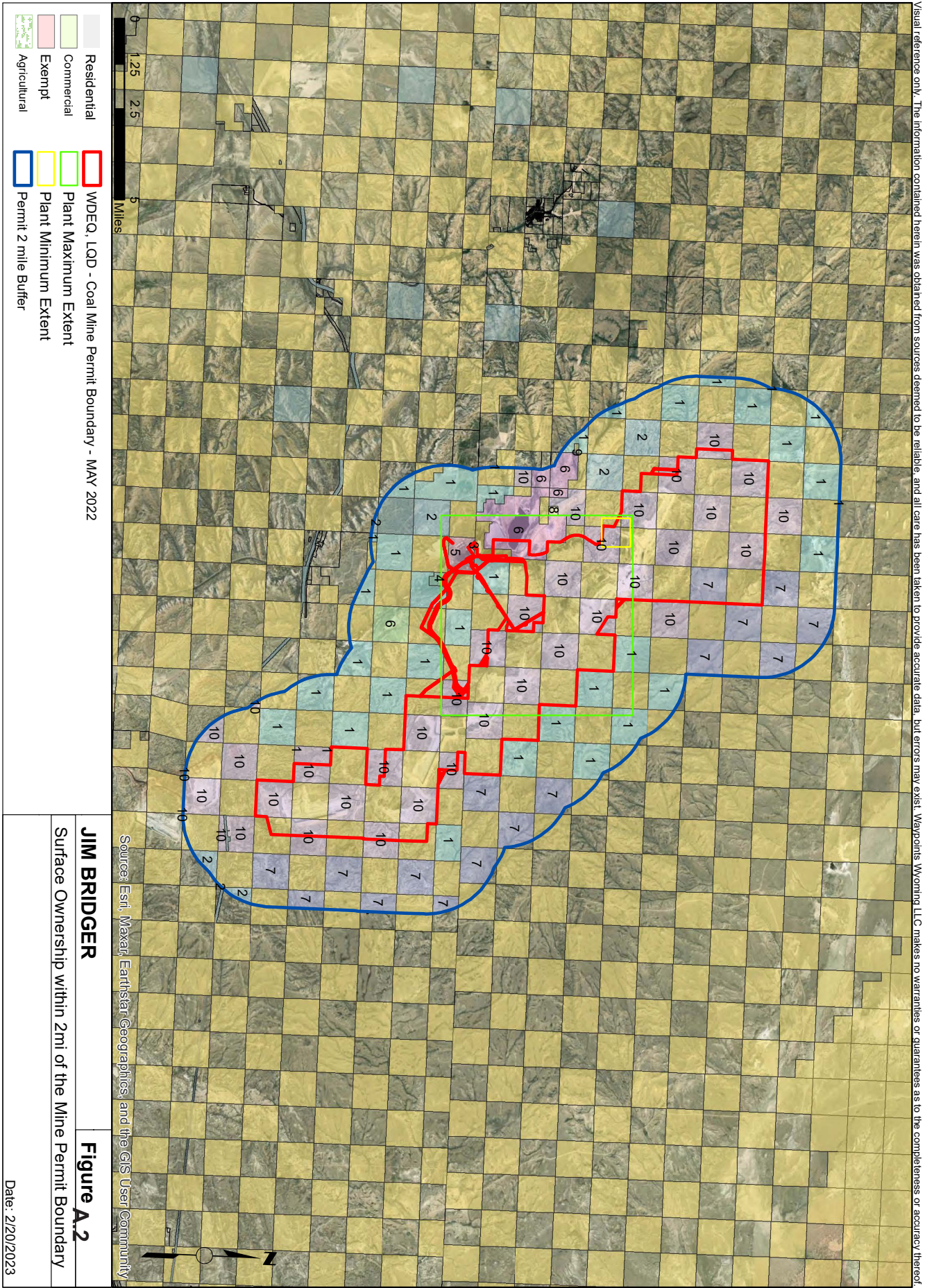
WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022	
Streams	
Date: 2/18/2023	

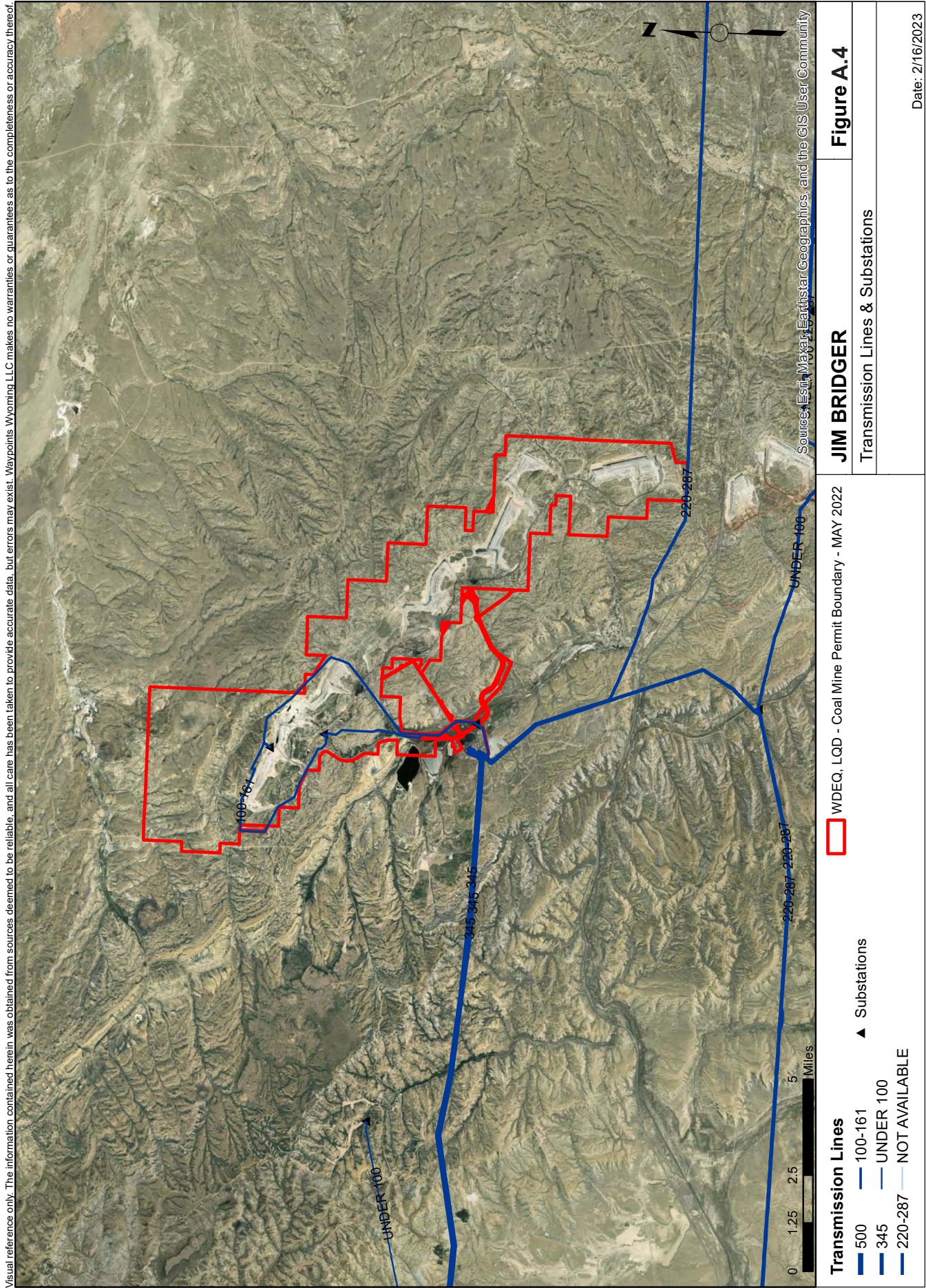
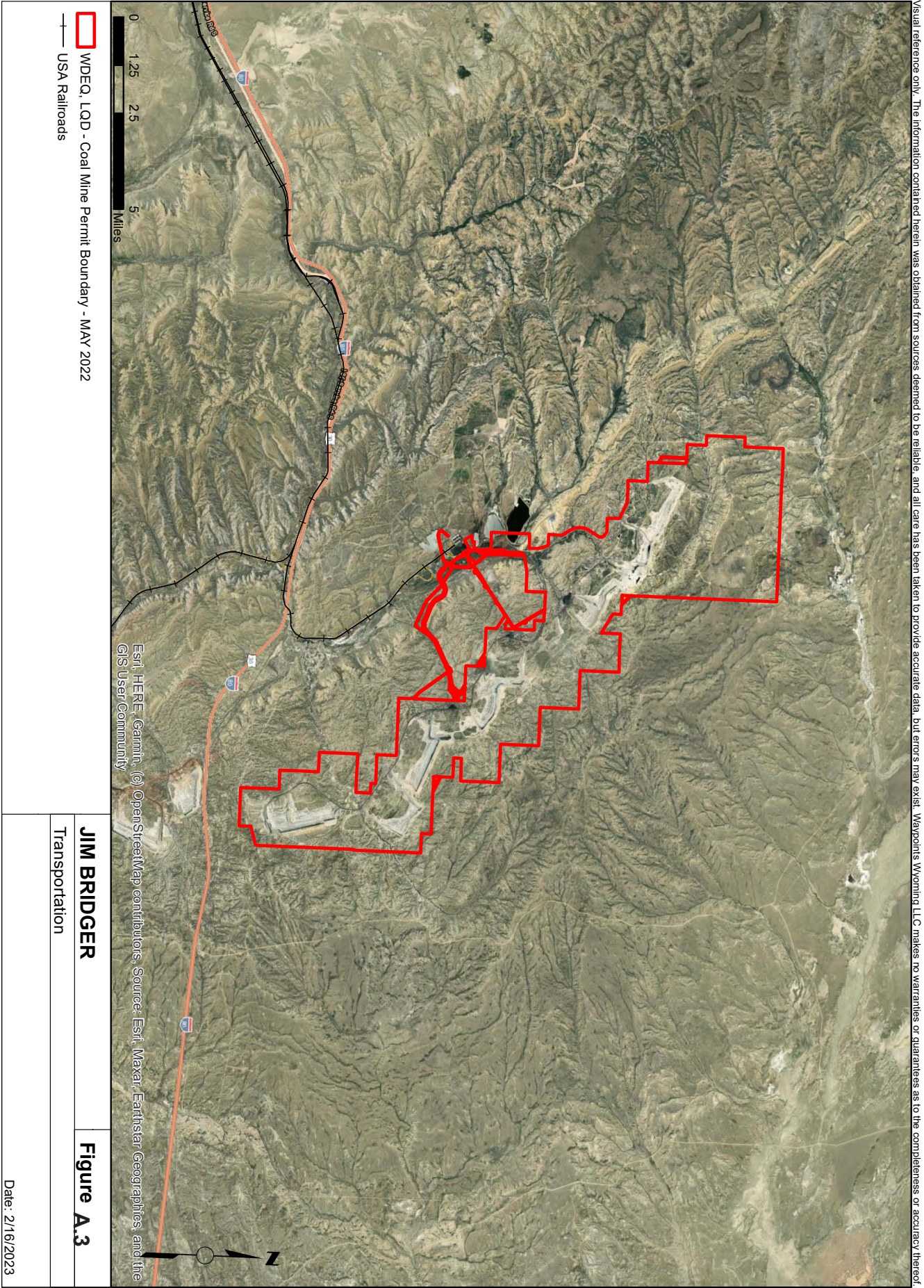
HAYSTACK

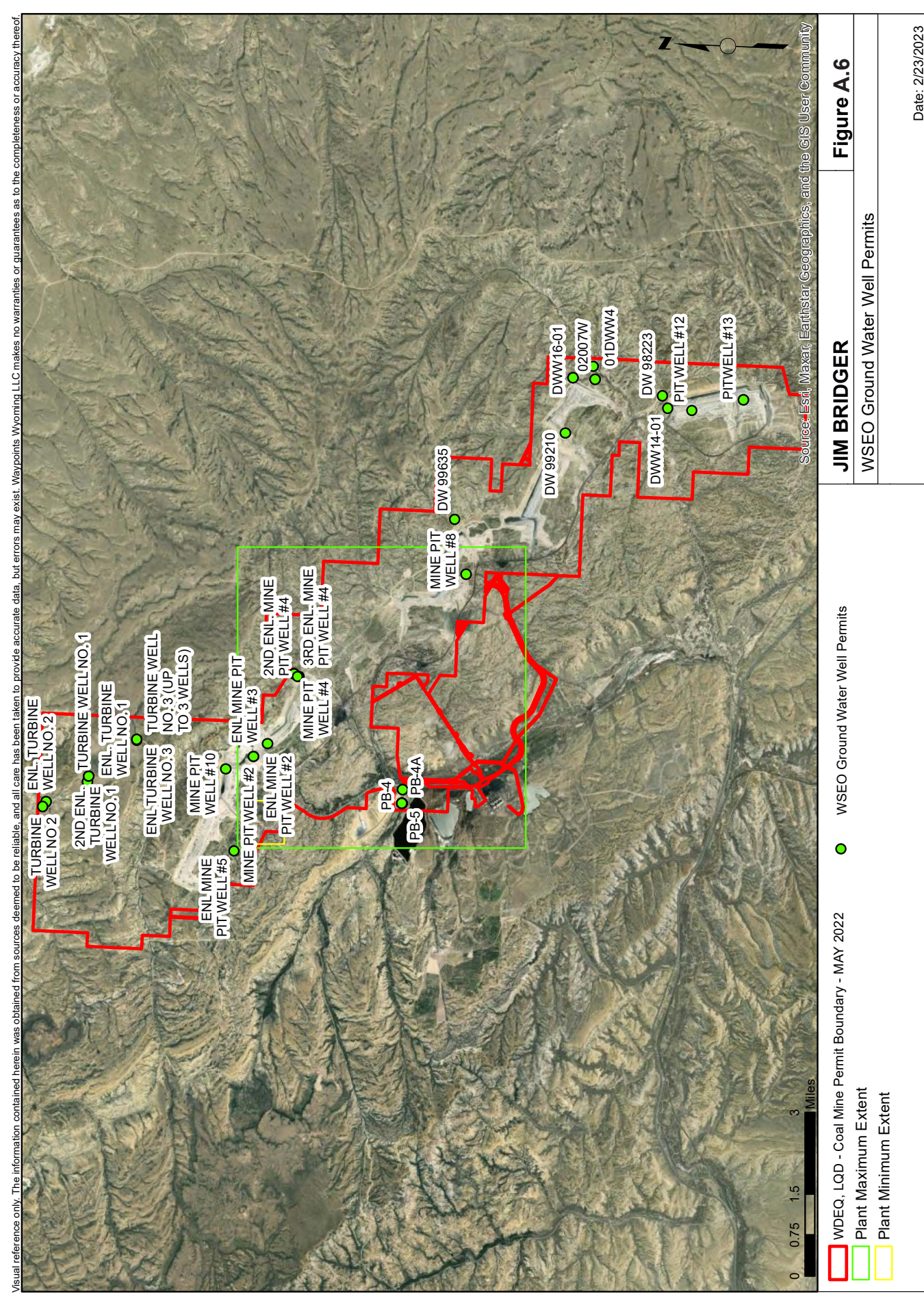
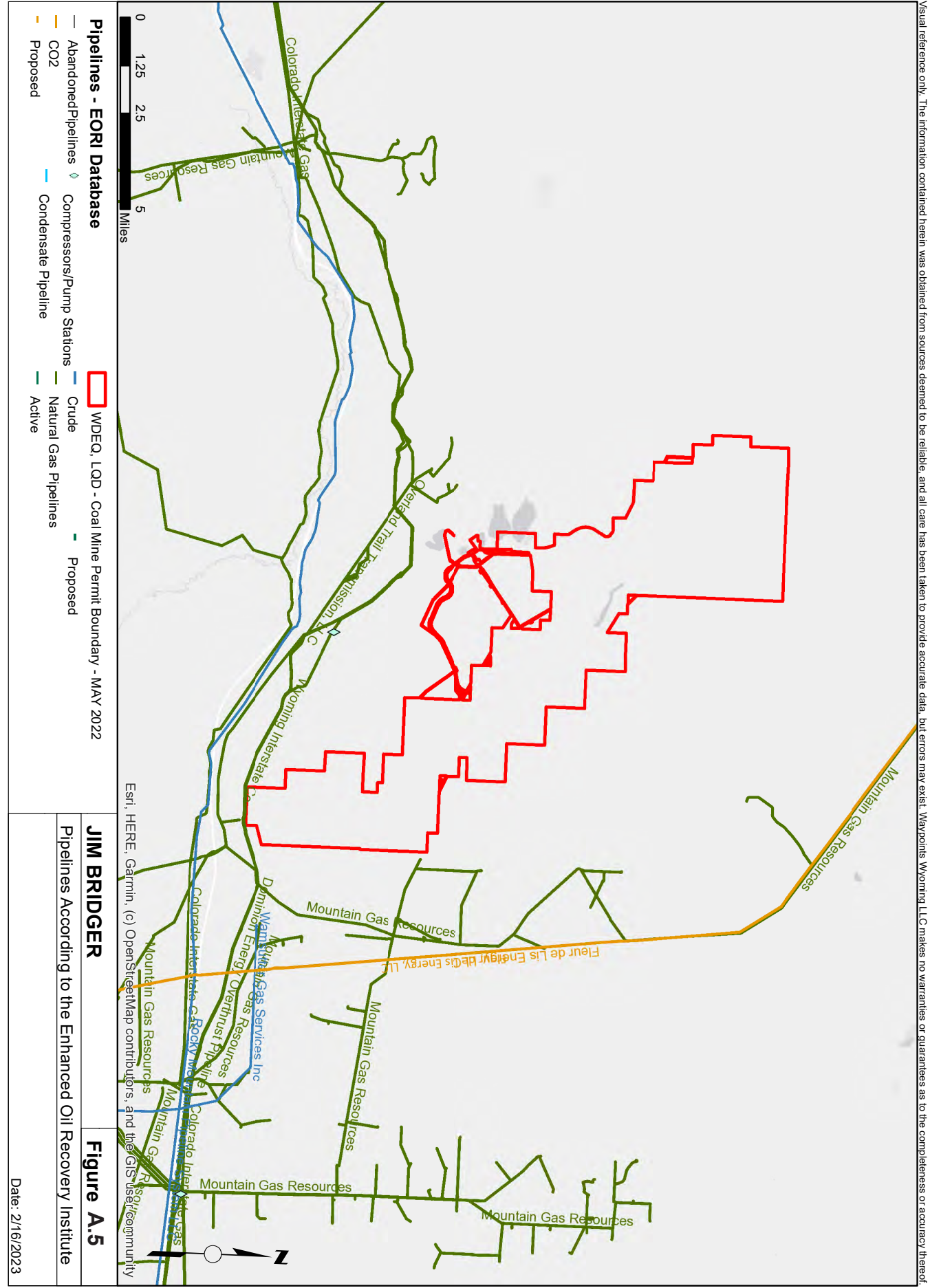
Figure A.7



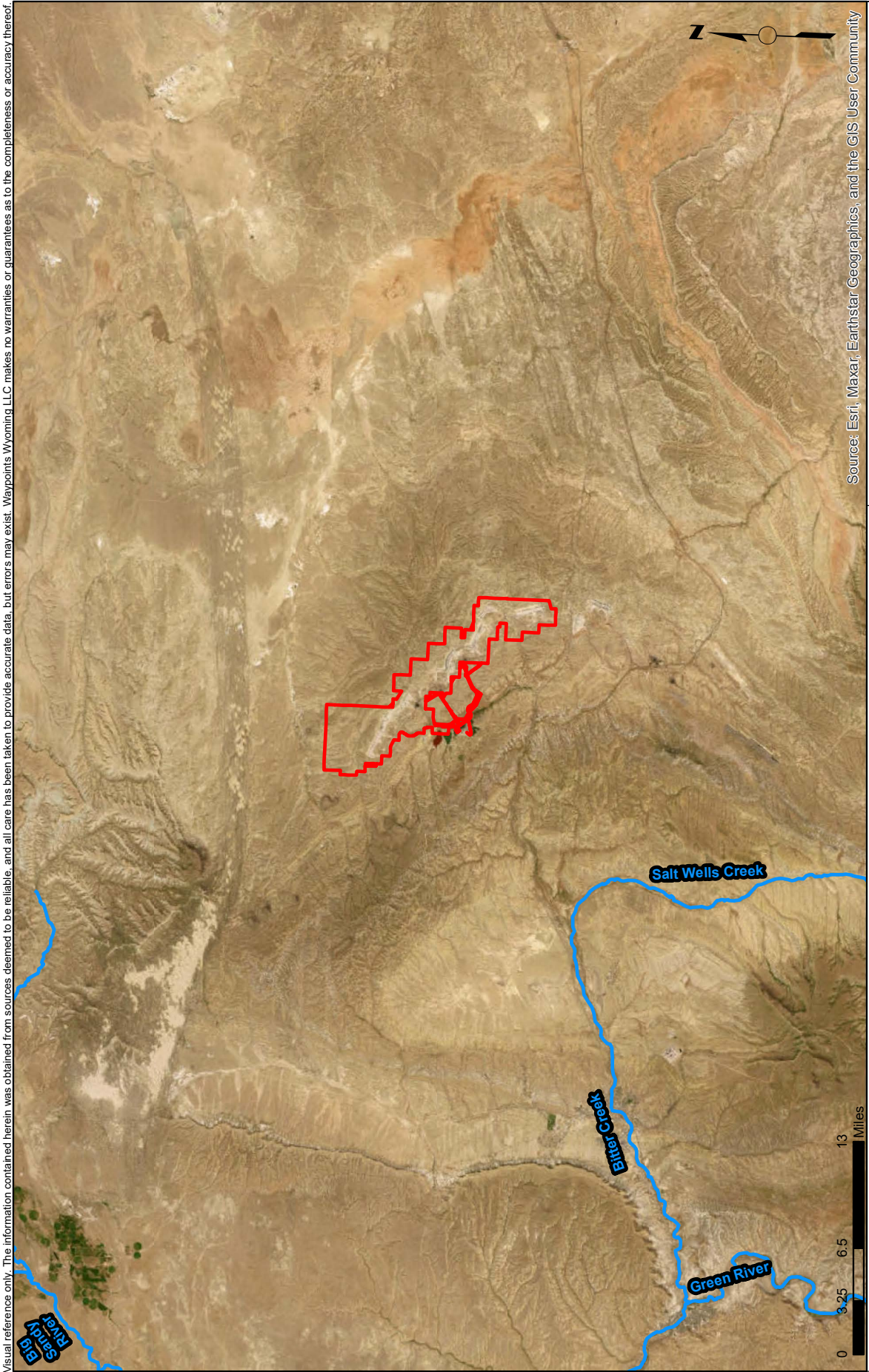
JIM BRIDGER SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ANADARKO LAND CORP	2
BLM	Fed
BRIDGER COAL CO	3
LIGHTHOUSE RESOURCES INC (BLACK BUTTE MINE) BLYTHE MASON	4
PACIFIC POWER & LIGHT COMPANY CO PACIFICORP	5
PACIFICORP PROPERTY TAX DEPT	6
ROCK SPRINGS GRAZING ASSN	7
SEARLE BROS CONSTRUCTION CO	8
STATE OF WY	State
TOWN OF SUPERIOR	9
WILDCAT COAL LLC	10



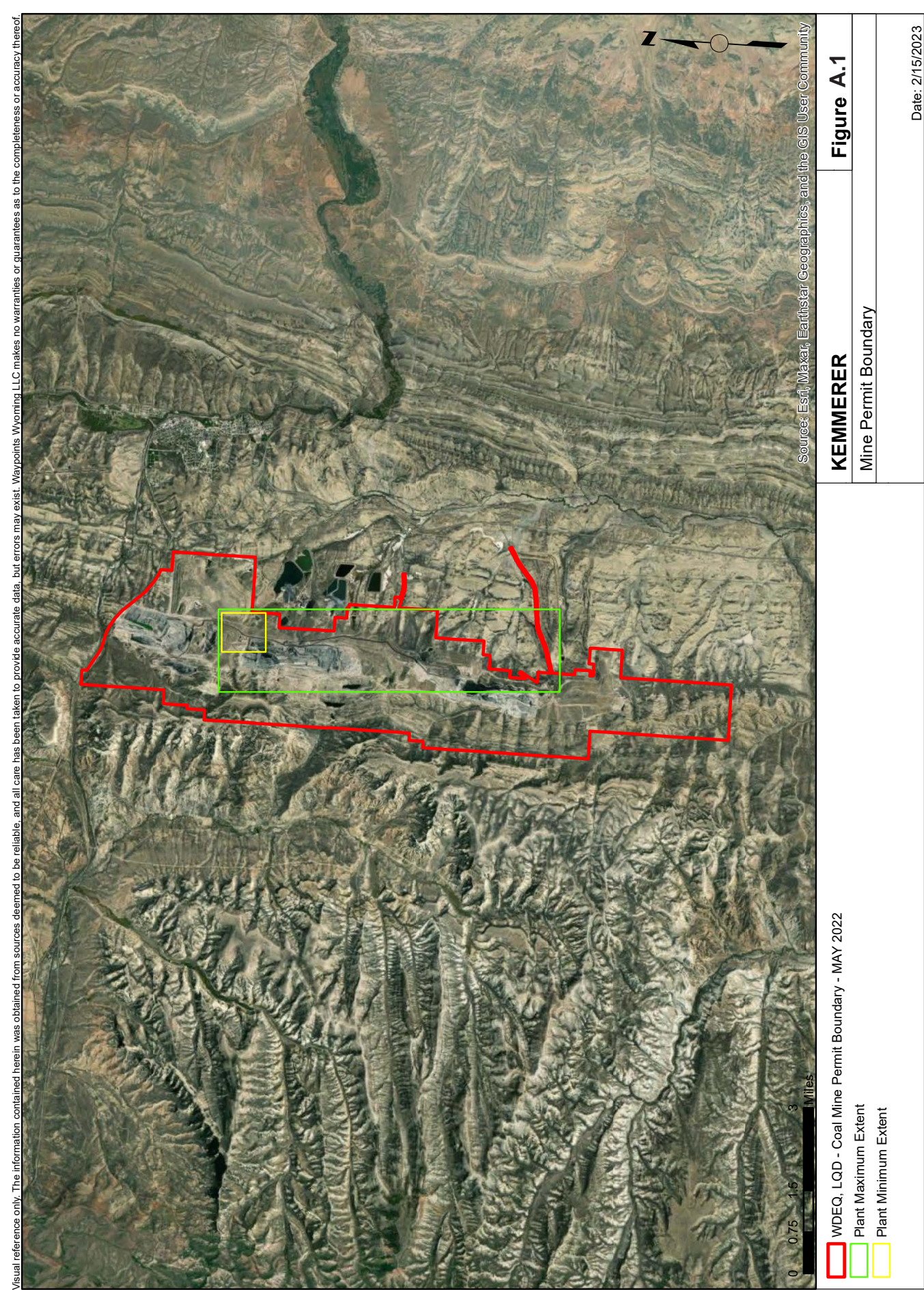
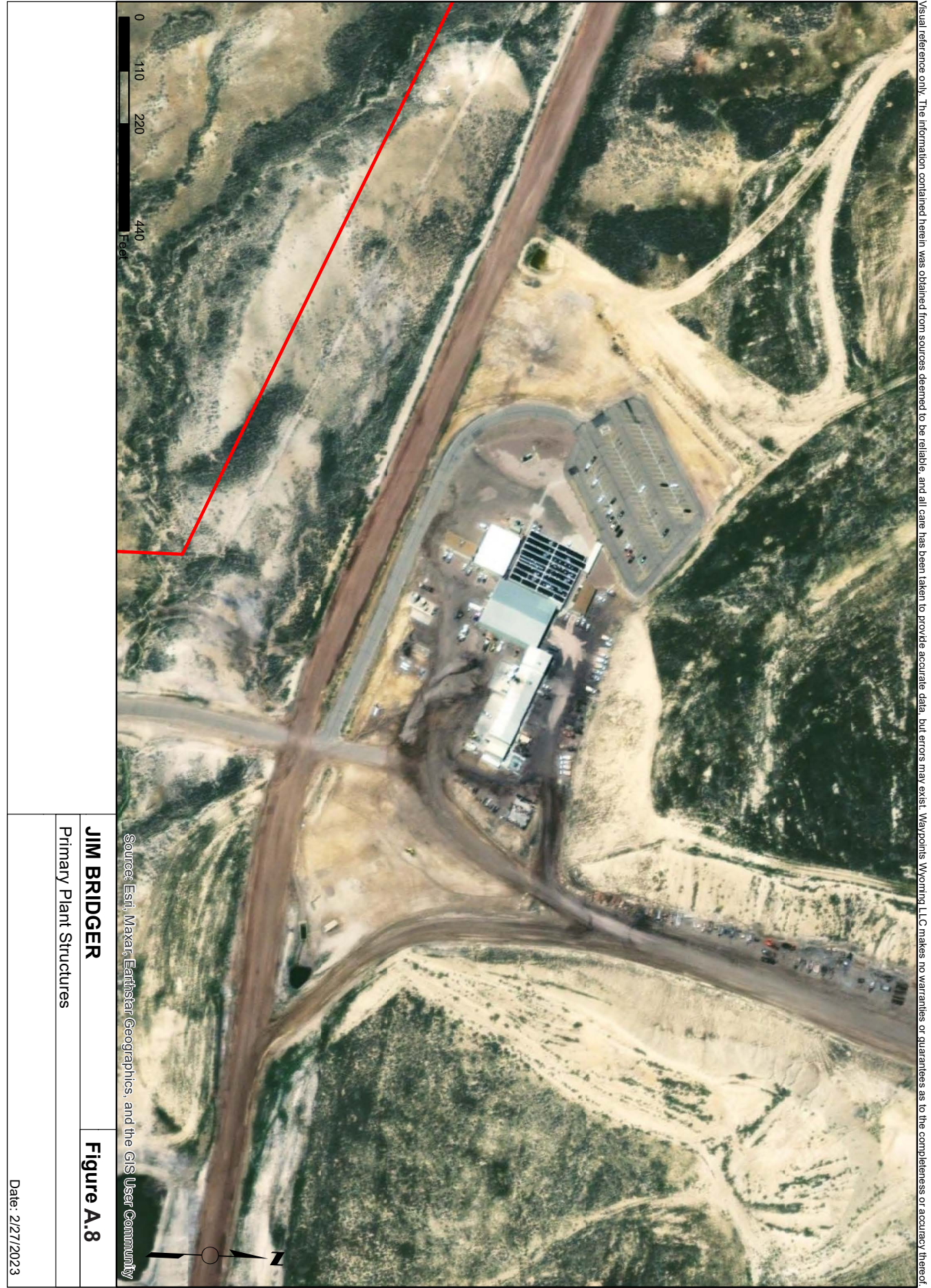




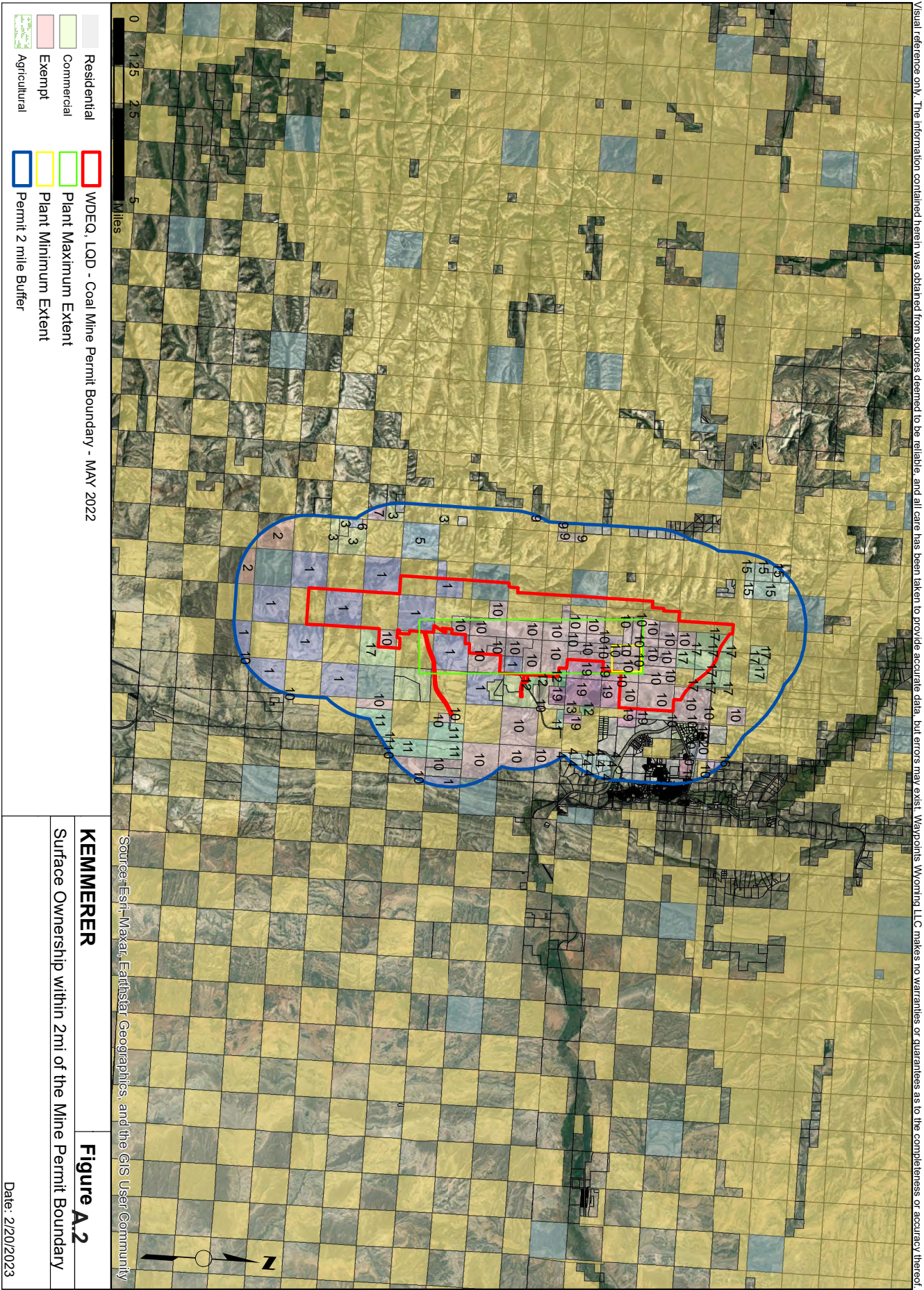
JIM BRIDGER MINE - A.6. WATER RIGHTS TABLE									
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE	
P122087.0W	Complete	Bridger Coal Co.	DW 98223	MIS	100	368	-108.6409	41.69821	
P122088.0W	Complete	Bridger Coal Co.	DW 99635	MIS	100	538	-108.68763	41.75188	
P122089.0W	Complete	Bridger Coal Co.	DW 99210	MIS	100	418	-108.66541	41.72358	
P148351.0W	Complete	Bridger Coal Co.	02007W	MIS	30	377	-108.63607	41.71629	
P180218.0W	Complete	Bridger Coal Co.	TURBINE WELL NO. 1	MIS	1300	746	-108.786242	41.846172	
P187086.0W	Complete	BRIDGER COAL COMPANY	ENL. TURBINE WELL NO. 1	MIS; MIS	1200		-108.784311	41.845914	
P190933.0W	Complete	BRIDGER COAL CO.	TURBINE WELL NO.2	MIS	3800	795	-108.795833	41.857778	
P191565.0W	Complete	PACIFICORP ENERGY	ENL. TURBINE WELL NO. 2	IND_GW	0		-108.794061	41.856969	
P191566.0W	Complete	PACIFICORP ENERGY	2ND ENL. TURBINE WELL NO. 1	IND_GW	1200		-108.784289	41.845975	
P191567.0W	Complete	PACIFICORP ENERGY	2ND ENL. MINE PIT WELL #4	IND_GW	0		-108.74565	41.791272	
P193744.0W	Complete	BRIDGER COAL CO	PIT WELL #12	MIS	1000	285	-108.64556	41.69028	
P193745.0W	Complete	BRIDGER COAL CO	PITWELL #13	MIS	1000	320	-108.641111	41.676667	
P196658.0W	Complete	PACIFICORP - JIM BRIDGER POWER PLANT	PB-4	MIS	3	110	-108.789056	41.762656	
P196659.0W	Complete	PACIFICORP - JIM BRIDGER POWER PLANT	PB-4A	MIS	3	150	-108.789119	41.76235	
P196660.0W	Complete	PACIFICORP - JIM BRIDGER POWER PLANT	PB-4B	MIS	3	140	-108.789097	41.762633	
P196661.0W	Complete	PACIFICORP - JIM BRIDGER POWER PLANT	PB-5	MIS	2	110	-108.789014	41.762694	
P196662.0W	Complete	PACIFICORP - JIM BRIDGER POWER PLANT	PB-6	MIS	1	140	-108.7842	41.762608	
P203174.0W	Complete	BRIDGER COAL COMPANY	DWw14-01	MIS	40	260	-108.64521	41.69661	
P205257.0W	Complete	BRIDGER COAL COMPANY	2ND ENL. TURBINE WELL NO. 2	IND_GW; MIS	4200		-108.795833	41.857778	
P205258.0W	Complete	BRIDGER COAL COMPANY	3RD ENL. MINE PIT WELL #4	IND_GW; MIS	300		-108.744758	41.792744	
P206004.0W	Complete	BRIDGER COAL COMPANY	01DWW4	MIS	200	392	-108.631389	41.716944	
P206095.0W	Complete	BRIDGER COAL COMPANY	DWw16-01	MIS	0	305	-108.635722	41.722083	
P20742.0W	Complete	BRIDGER COAL COMPANY	TURBINE WELL NO. 3 (UP TO 3 WELLS)	MIS	0	710.58	-108.770833	41.833611	
P207764.0W	Complete	BRIDGER COAL COMPANY	ENL. TURBINE WELL NO. 3	IND_GW	0		-108.770556	41.833611	
P54279.0W	Complete	BRIDGER COAL COMPANY	MINE PIT WELL #2	MIS	250	90.2	-108.774731	41.8025	
P54281.0W	Complete	BRIDGER COAL CO.	MINE PIT WELL #4	MIS	250	400	-108.774738	41.792744	
P54285.0W	Complete	Bridger Coal Co.	MINE PIT WELL #8	MIS	250	66	-108.70695	41.7482	
P60005.0W	Complete	BRIDGER COAL COMPANY	ENL MINE PIT WELL #4	MIS	250	154	-108.74571	41.79166	
P66633.0W	Complete	BRIDGER COAL COMPANY	MINE PIT WELL #10	MIS	500	115	-108.779511	41.809739	
P67006.0W	Complete	Bridger Coal Co.	ENL MINE PIT WELL #5	MIS	250	111	-108.80846	41.8065	
P69205.0W	Complete	BRIDGER COAL COMPANY	ENL MINE PIT WELL #2	MIS	250	90.2	-108.774731	41.8025	
P69206.0W	Complete	Bridger Coal Co.	ENL MINE PIT WELL #3	MIS	250		-108.76989	41.79888	

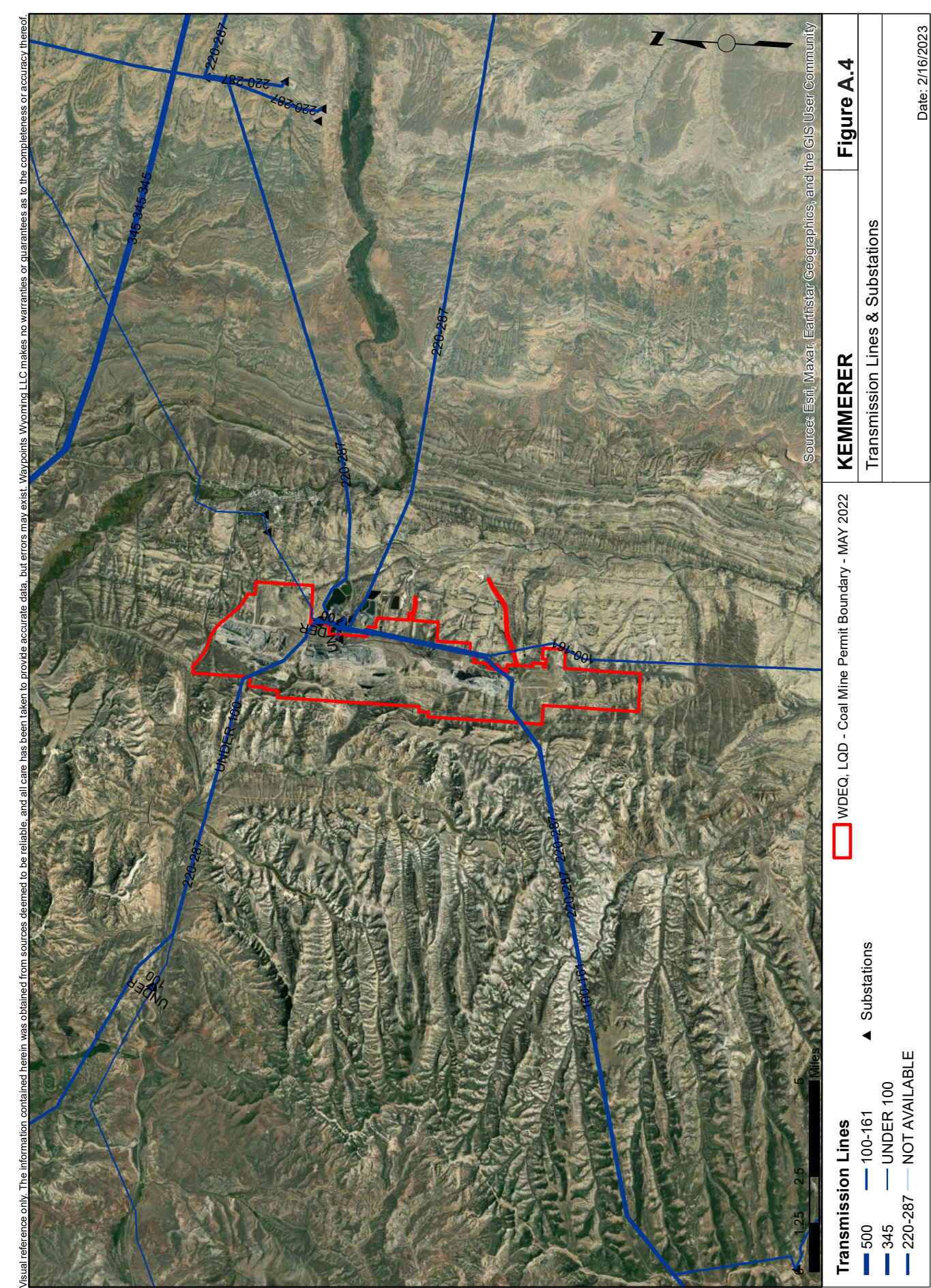
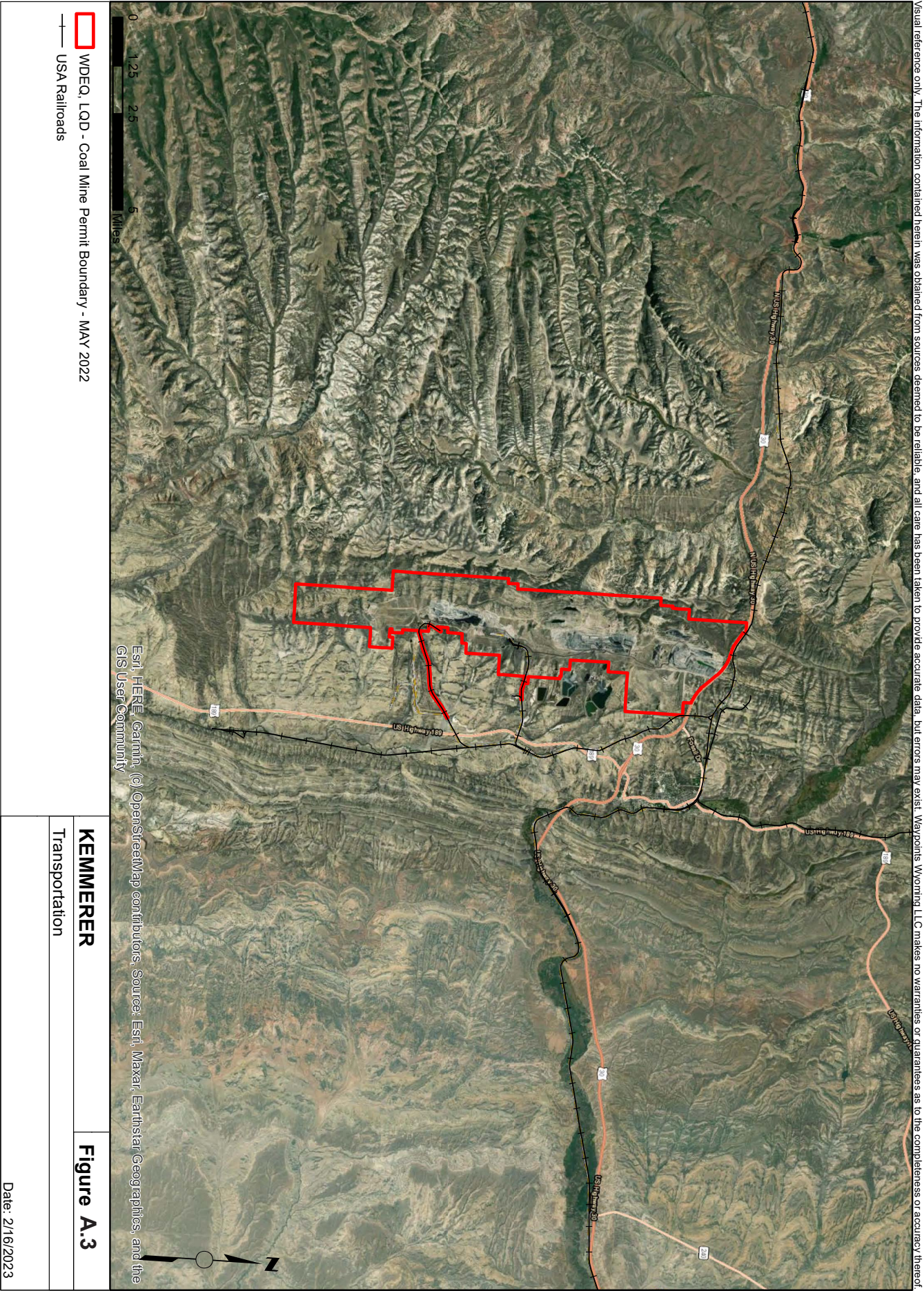


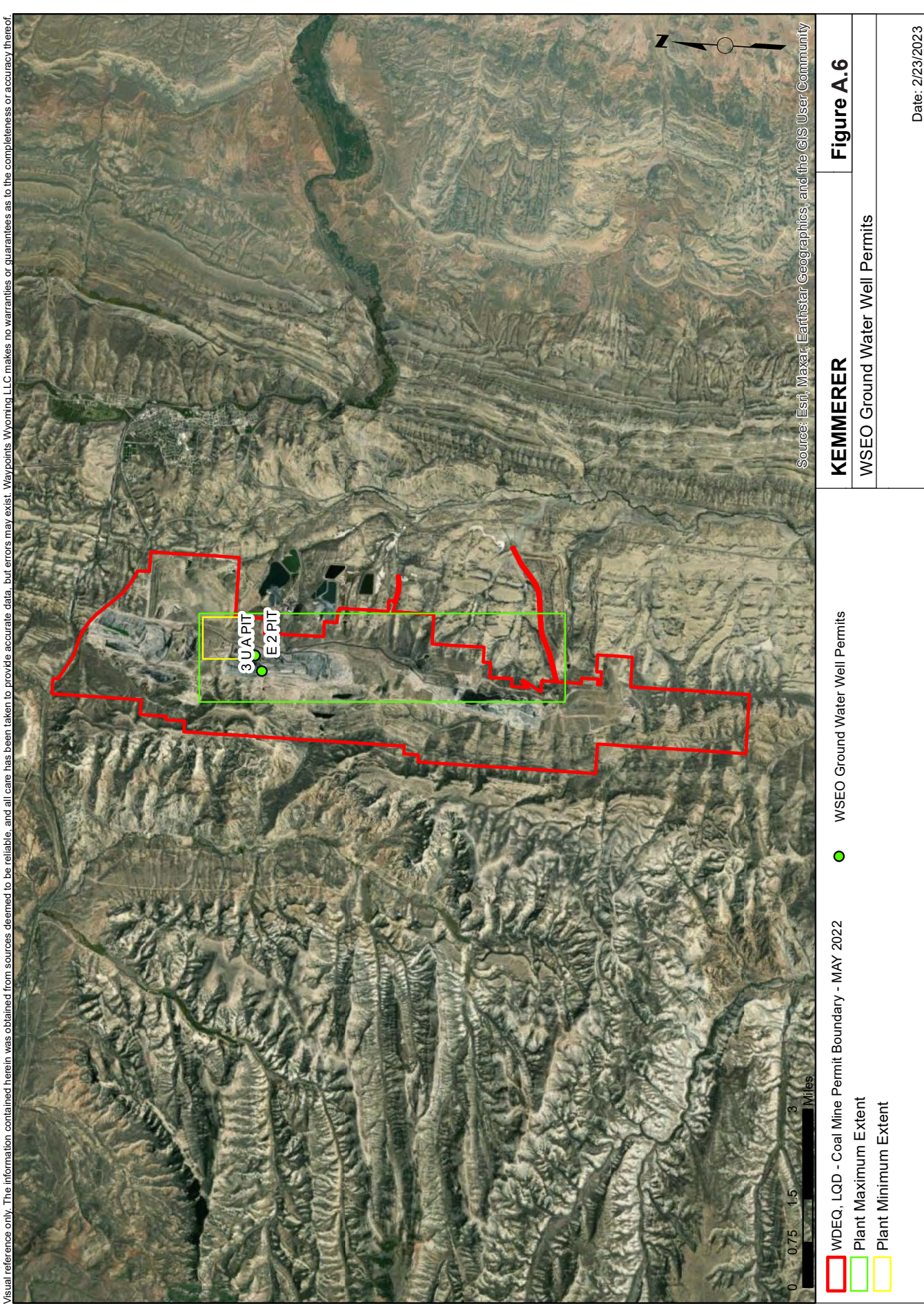
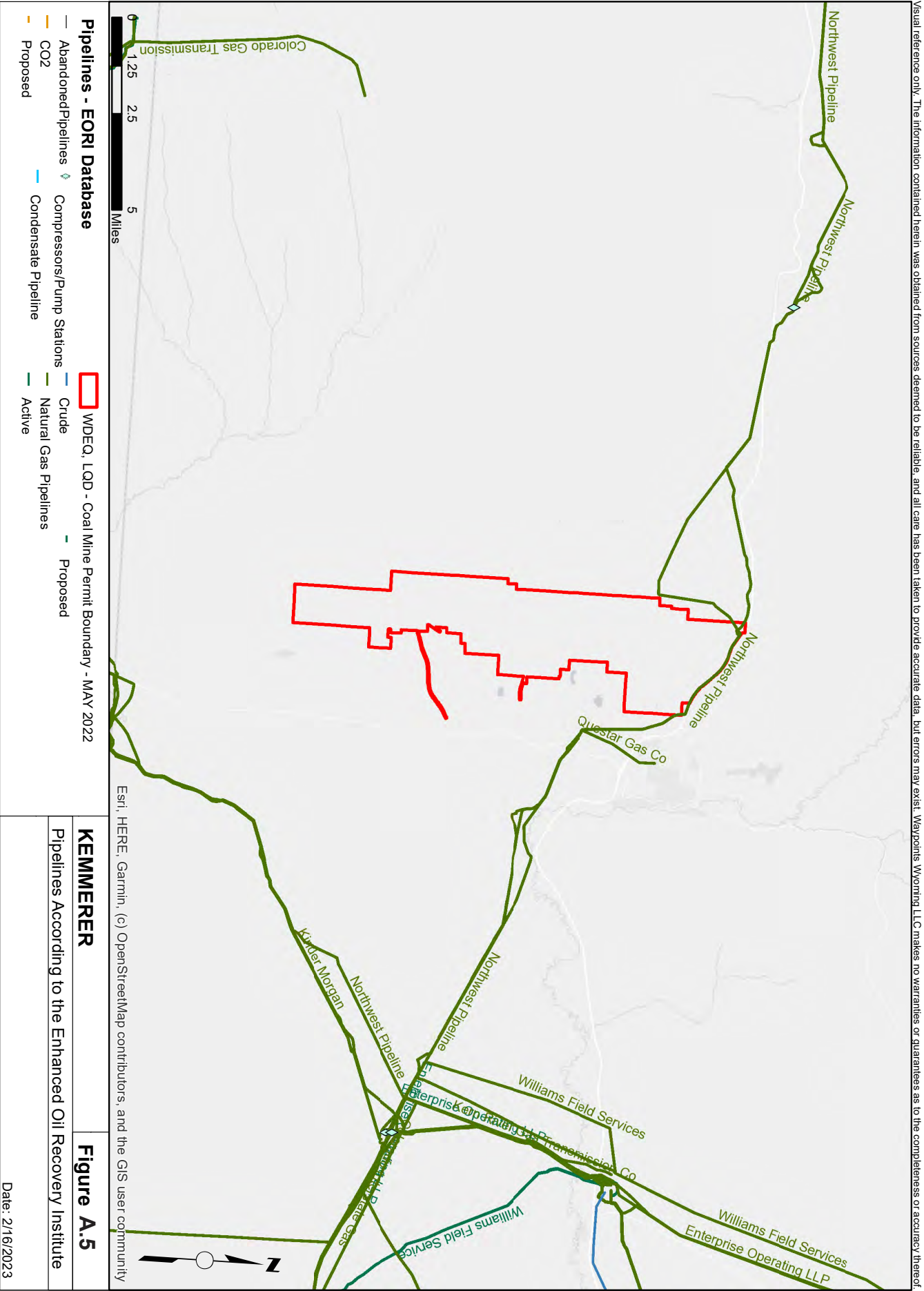
Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.



KEMMERER SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
BEAR RIVER LAND & GRAZING % REES,WAYNE	2
BELL BUTTE GRAZING PARTNERSHIP	3
BLM	Fed
CITY OF KEMMERER	City
FOX, ROBERT B	4
HATCH, DOUGLAS T & JOANNAT TRUSTEES	5
HEBDON, RICK C/O WARFIELD FOSSIL QUARRIES, INC.	6
HEBDON, VIRL & SHIRLEY	7
HYDE, GAYLE, ETAL	8
JULIAN LAND & LIVESTOCK	9
KEMMERER OPERATIONS, LLC	10
PACIFIC POWER AND LIGHT	11
PACIFICORP	12
ROCKY MOUNTAIN POWER	13
SOUTH LINCOLN SPEC CEMETERY DIST	14
THOMPSON LAND & LIVESTOCK	15
TOWN OF KEMMERER - KEMMERER AIRPORT	16
UNION PACIFIC LAND RESOURCES	17
UNION PACIFIC RAILROAD	18
UTAH POWER & LIGHT	19
W & M THOMAN RANCHES, LLC	20
WYO	State



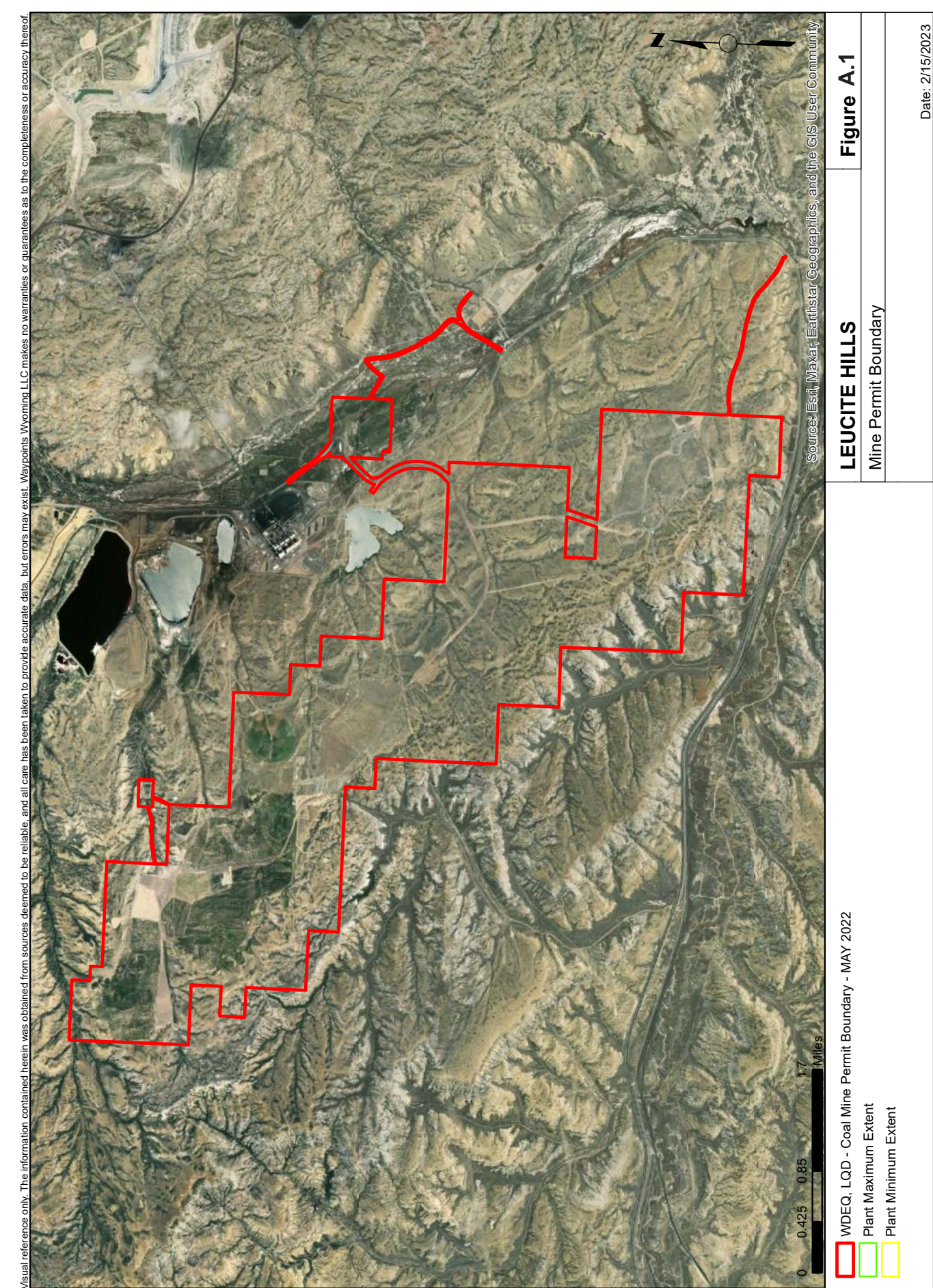




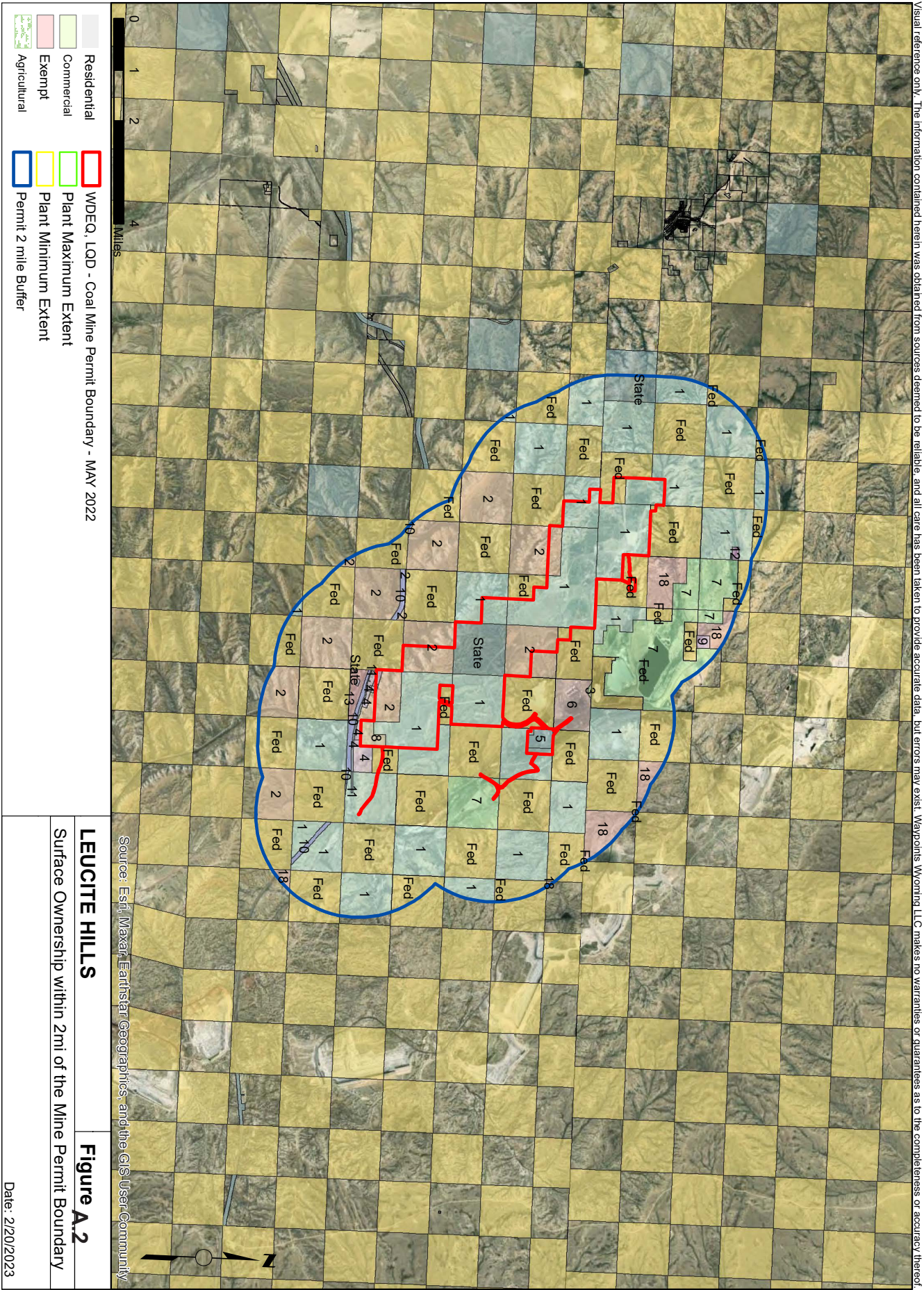
KEMMERER MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P46000.0W	Complete	KEMMERER OPERATIONS LLC	3 U A PIT	MIS	100	250	-110.619062	41.763448
P46006.0W	Complete	KEMMERER OPERATIONS LLC	E 2 PIT	MIS	100	225	-110.614202	41.765363

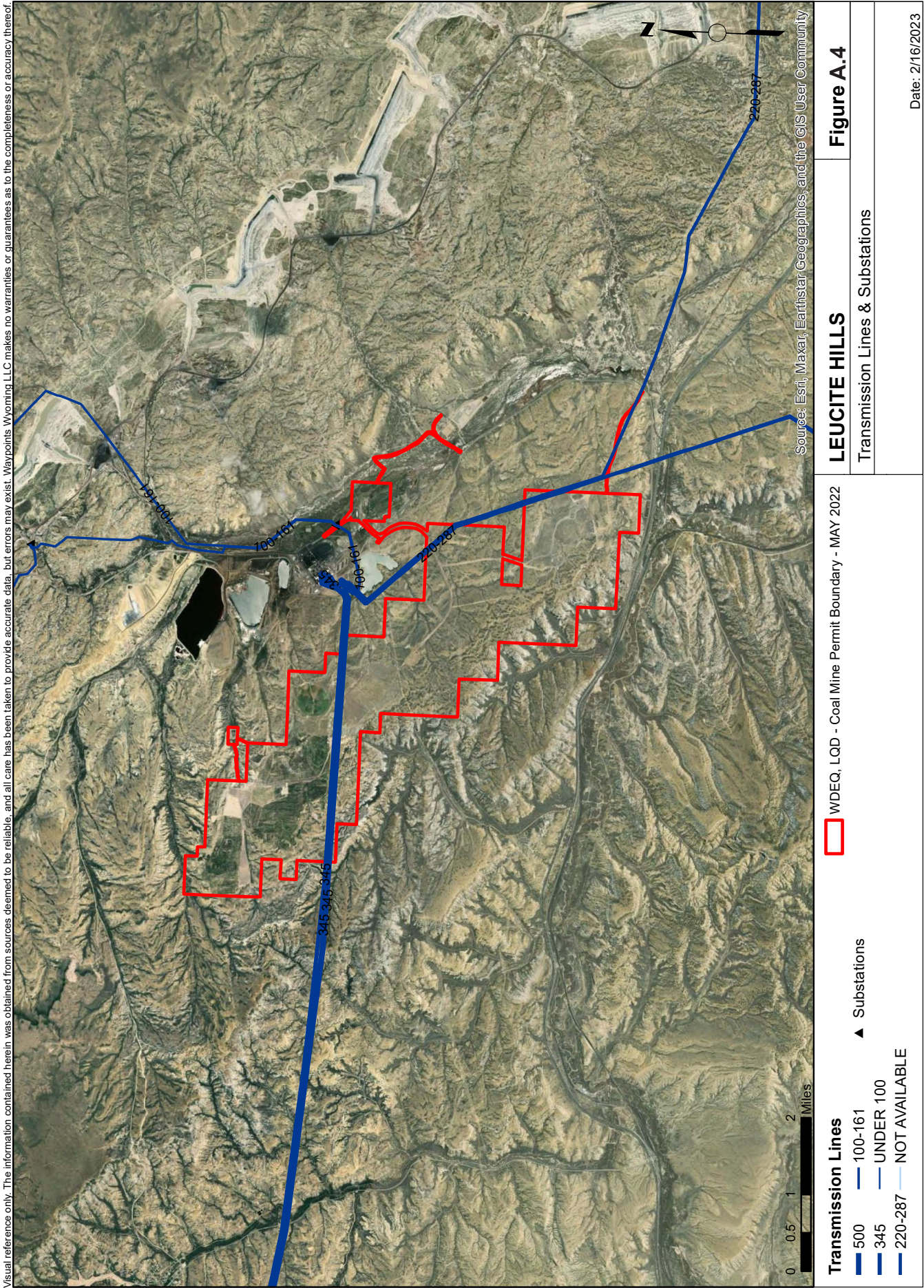
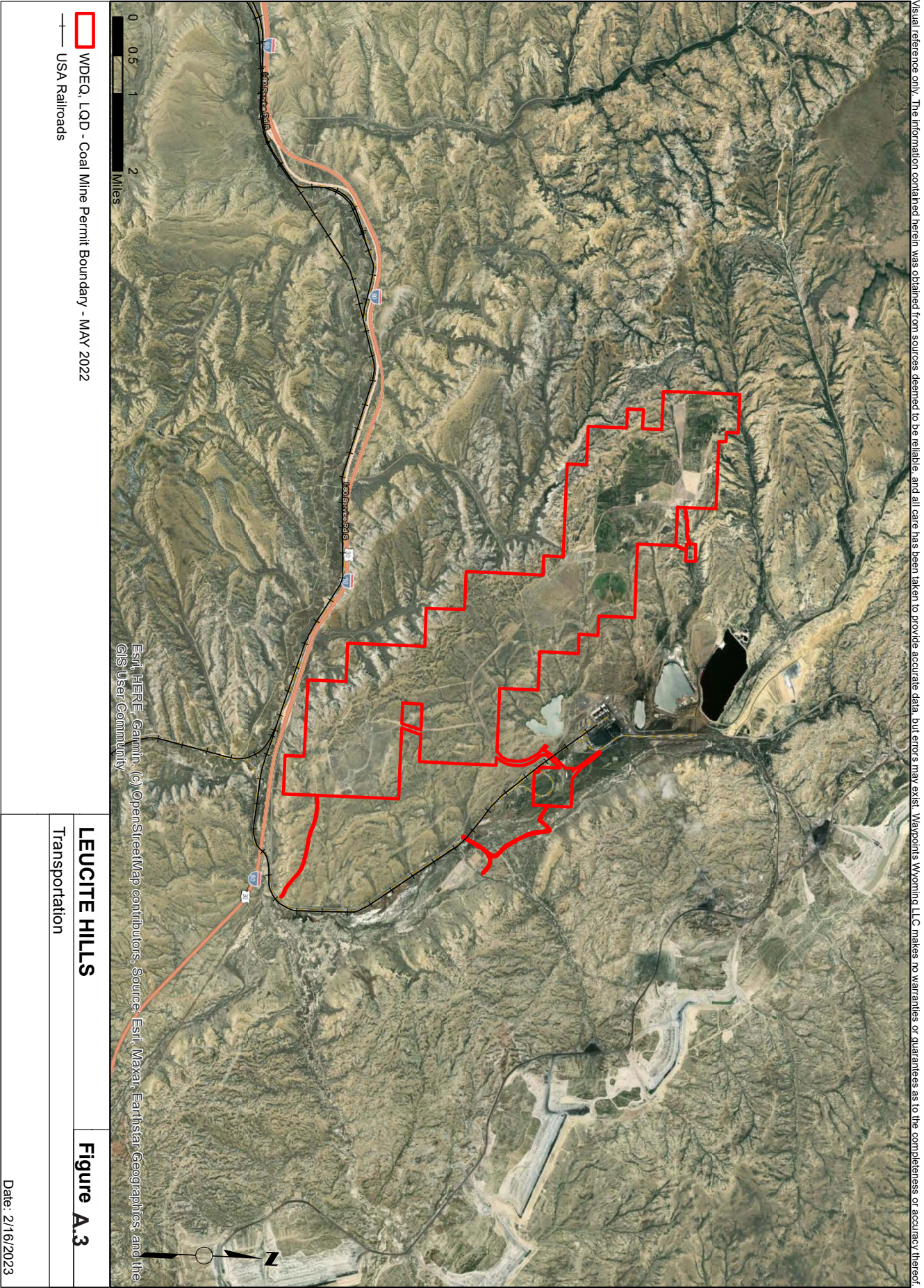


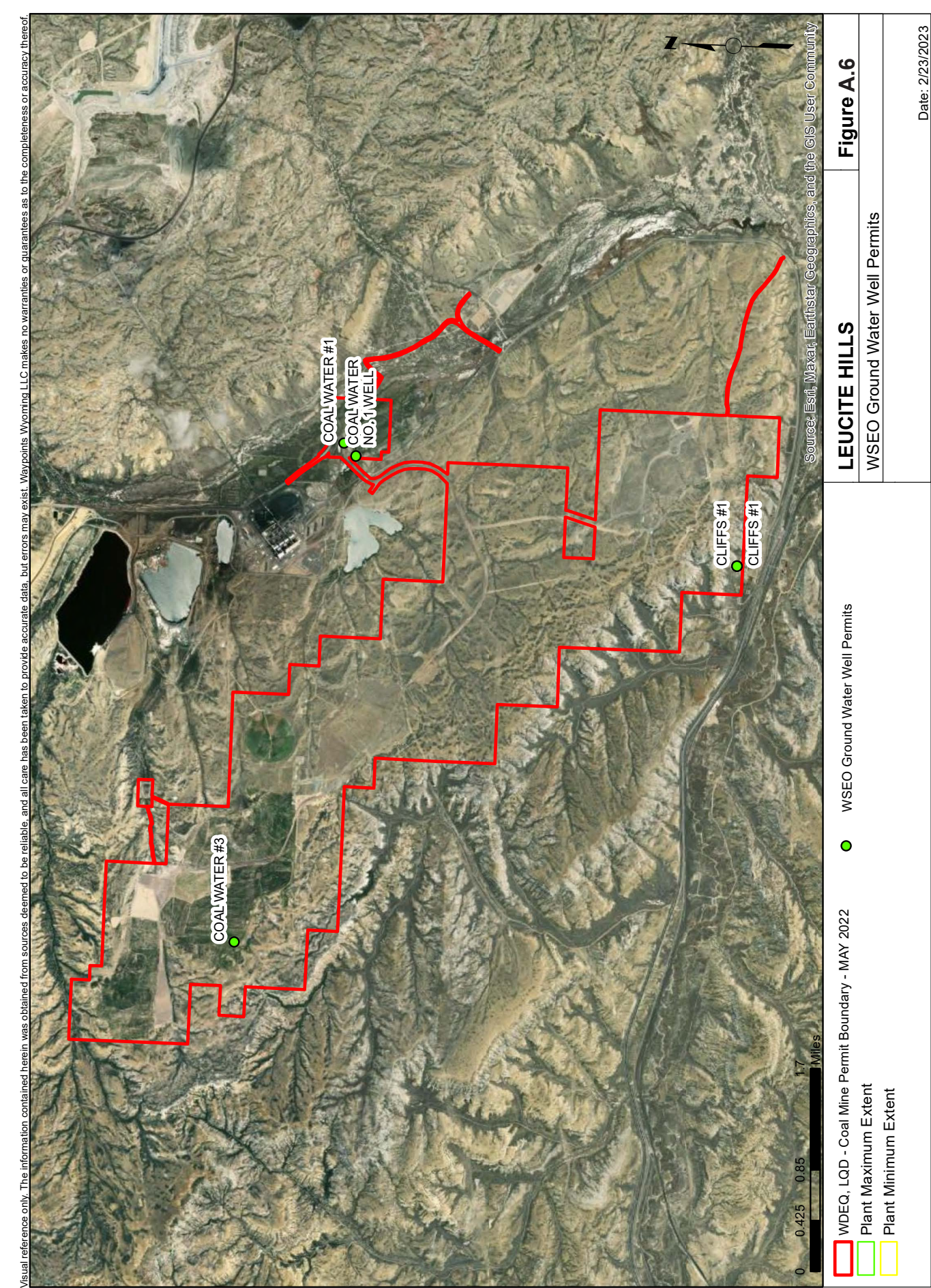
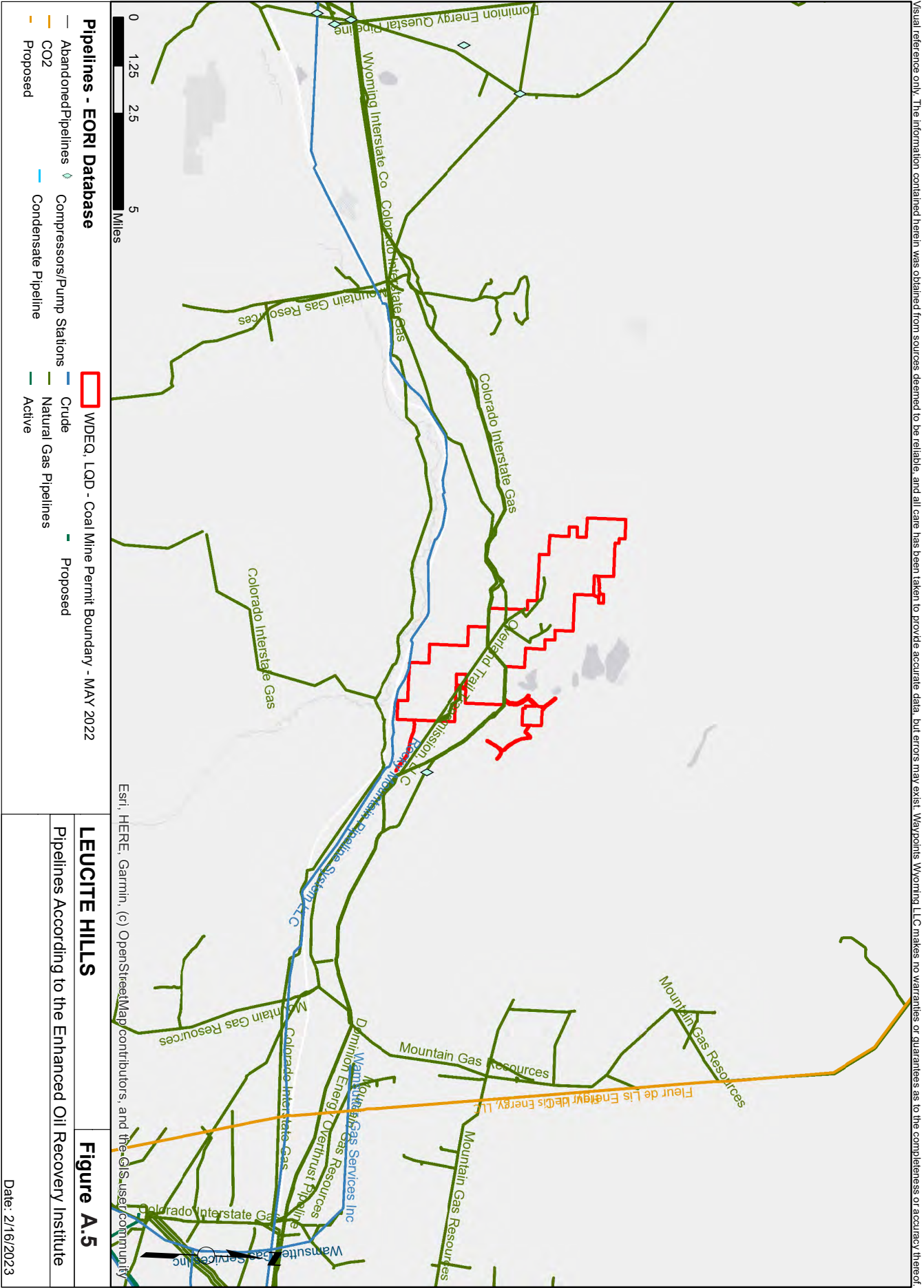
<div><div></div> WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022</div> <div><div></div> Streams</div>	KEMMERER	Figure A.7
	Streams	
	Date: 2/18/2023	



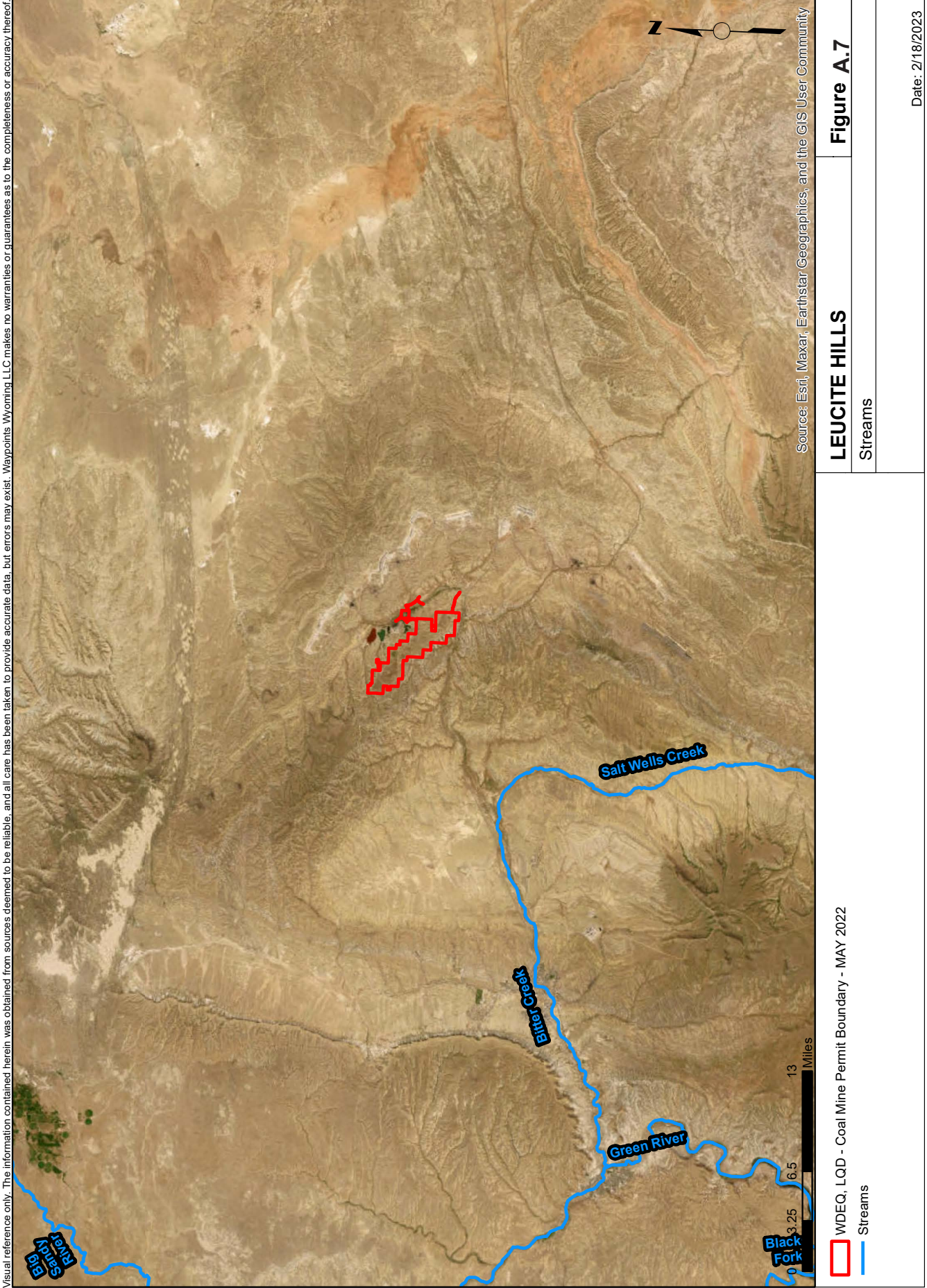
LEUCITE HILLS SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ANADARKO LAND CORP	2
BLM 190006	Fed
BRIDGER COAL CO	3
HOME POINT LLC	4
LIGHTHOUSE RESOURCES INC (BLACK BUTTE MINE) BLYTHE MASON	5
PACIFIC POWER & LIGHT COMPANY CO PACIFICORP	6
PACIFICORP PROPERTY TAX DEPT	7
PHILLIPS FAMILY TRUST PHILLIPS MICHAEL C TRUSTEE	8
SEARLE BROS CONSTRUCTION CO	9
STATE OF WY 200116	State
STATE OF WYOMING DEPARTMENT OF TRANSPORTATION	10
SWEETWATER COUNTY	11
TOWN OF SUPERIOR	12
UNION PACIFIC RAILROAD CO ATTN GERRY WHITE SENIOR MANAGER TAX	13
VARLEY EDWARD R & RAE DELL REVOCABLE TRUST	14
VARLEY FAMILY TRUST VARLEY A JEFF & LOU A TRUSTEES	15
VARLEY ROGER D & DEBRA A	16
WESTERN HI POINT LLC	17
WILDCAT COAL LLC	18

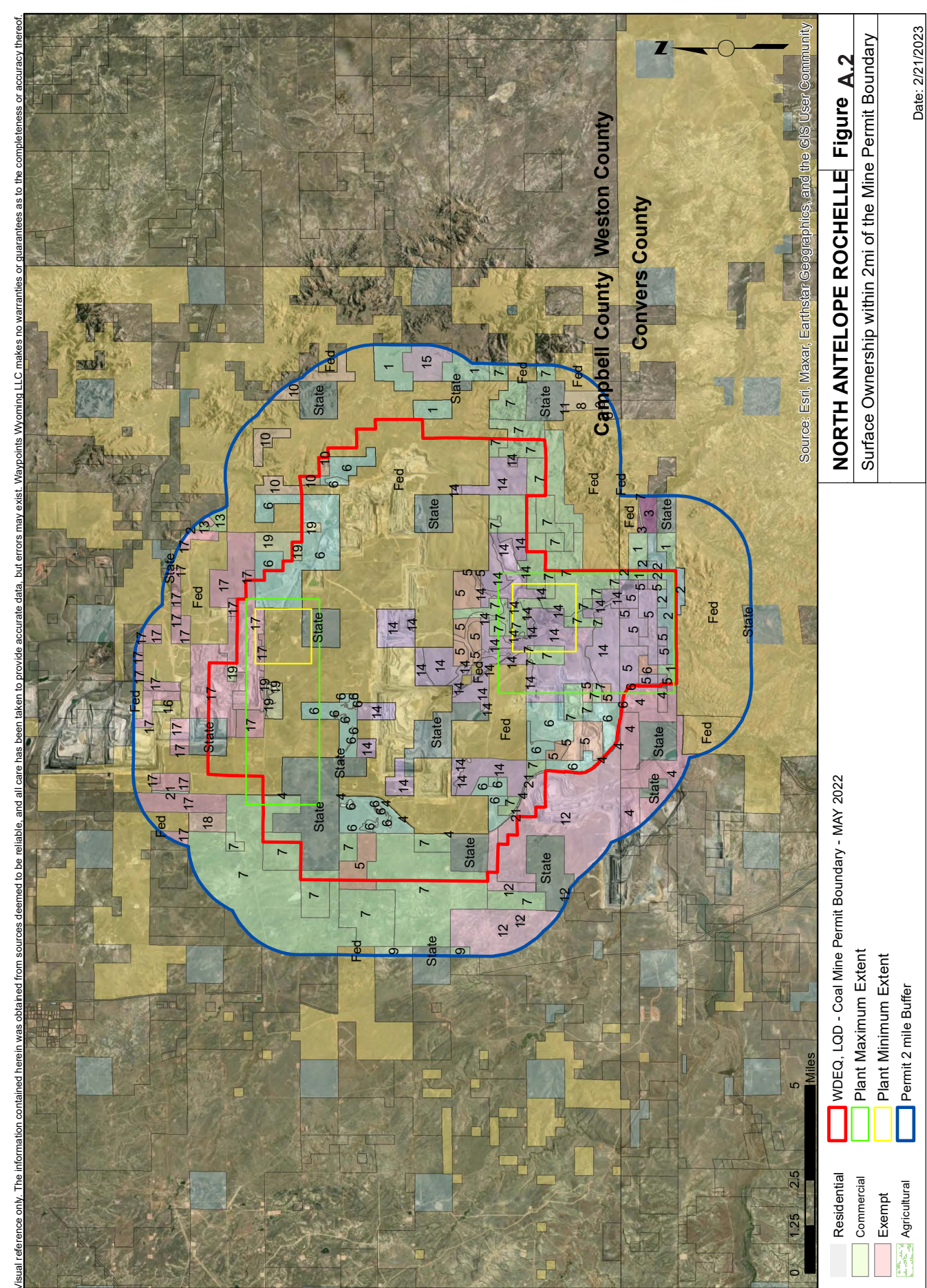
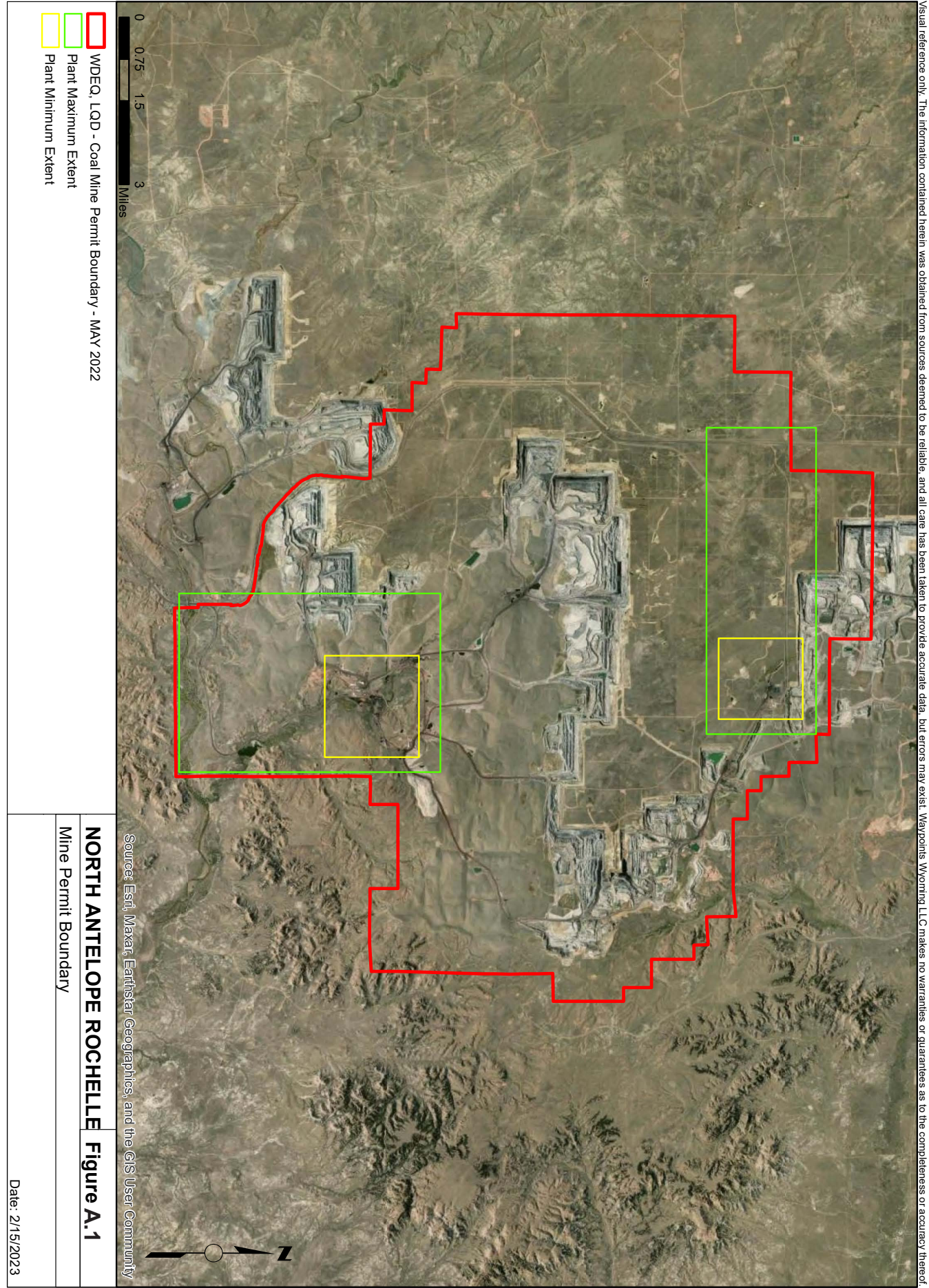




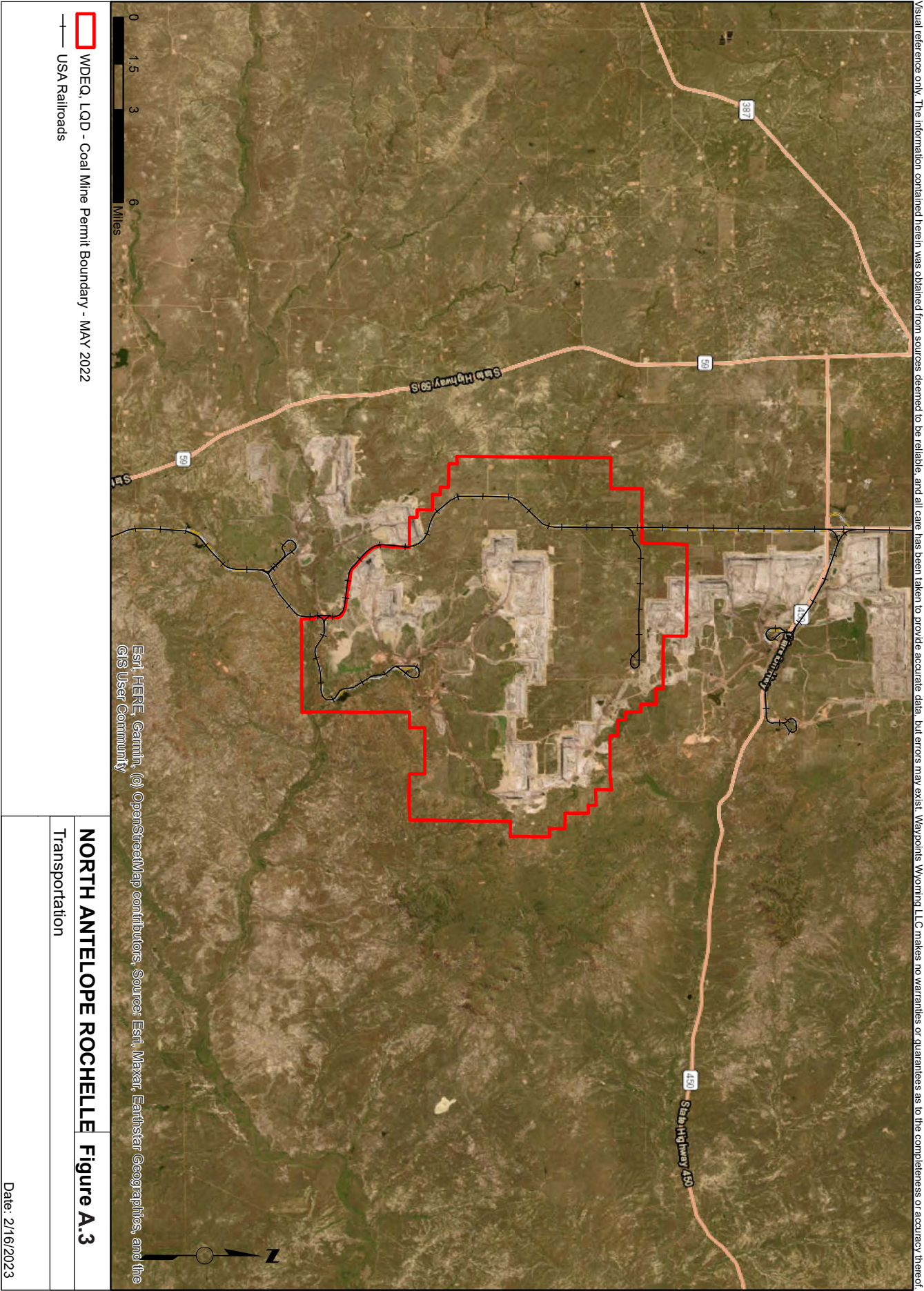


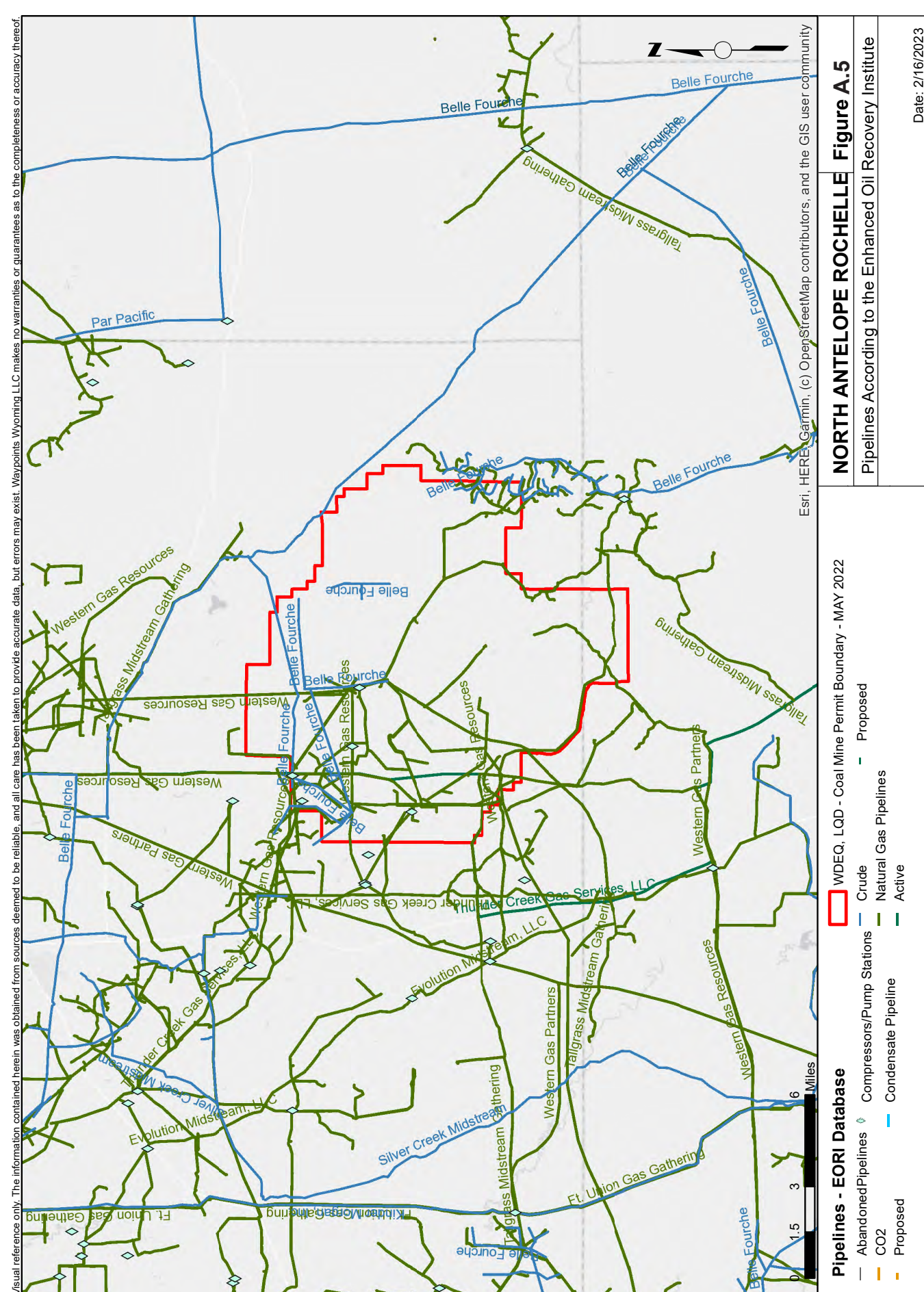
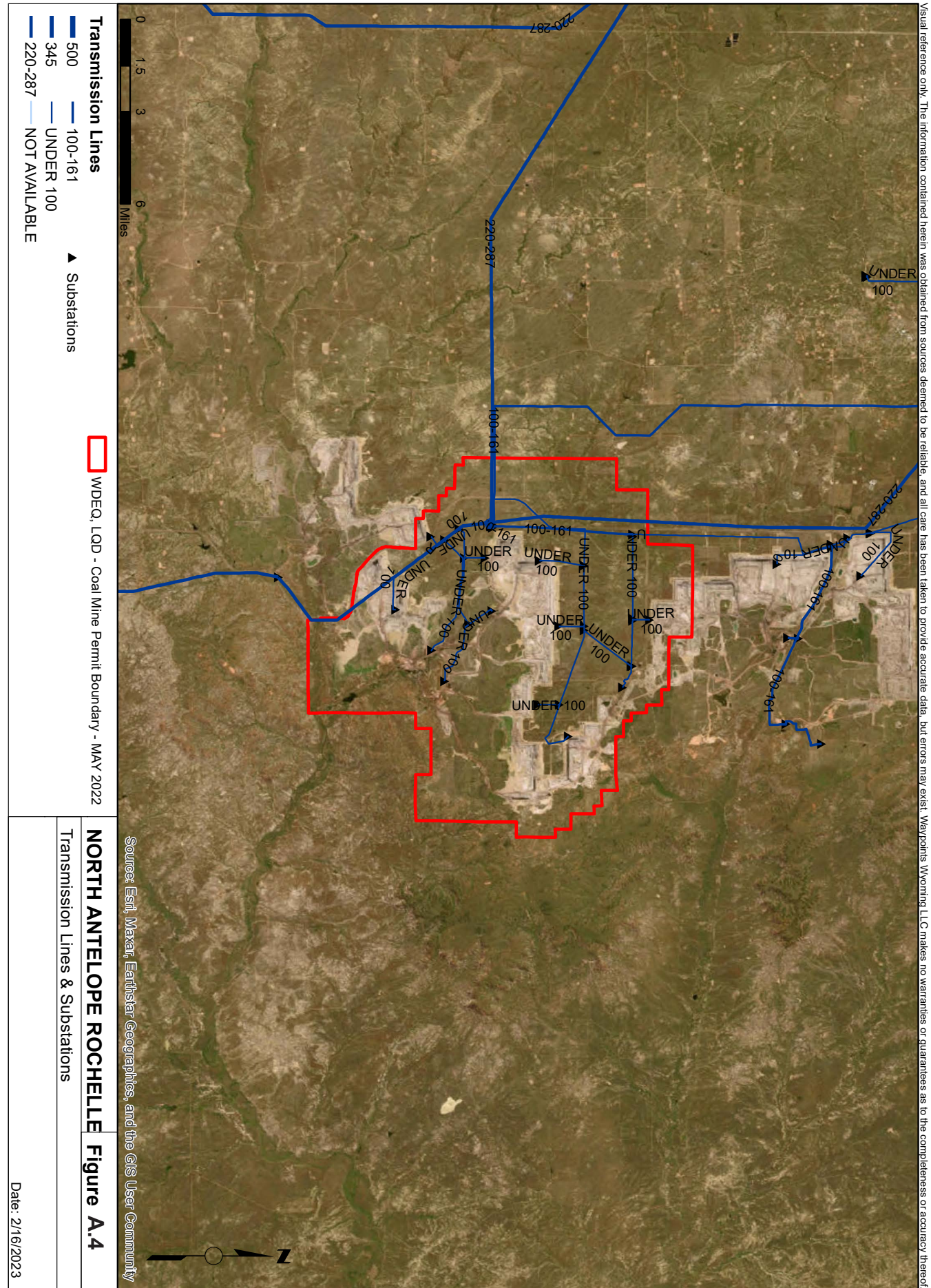
LEUCITE HILLS MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P172074.0W	Complete	Black Butte Coal Co.	COAL WATER #3	MIS	100	935	-108.851856	41.741556
P202567.0W	Fully Adjudicated	WESTERN HI POINT, LLC	CLIFFS #1	MIS	23	253	-108.787677	41.682805
P34385.0W	Fully Adjudicated	Black Butte Coal Co.	COAL WATER #1	IND_ GW; MIS	50	514	-108.77055	41.73097
CR UW03/221	Fully Adjudicated	U P LAND RESOURCES CORP	COAL WATER NO. 1 WELL	IND_ GW	50		-108.77259	41.72945
CR UW21/360	Fully Adjudicated	HOME POINT LLC AND WESTERN HI POINT LLC	CLIFFS #1	MIS	23	253	-108.787678	41.682806

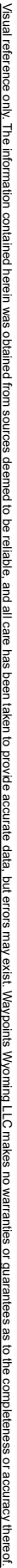




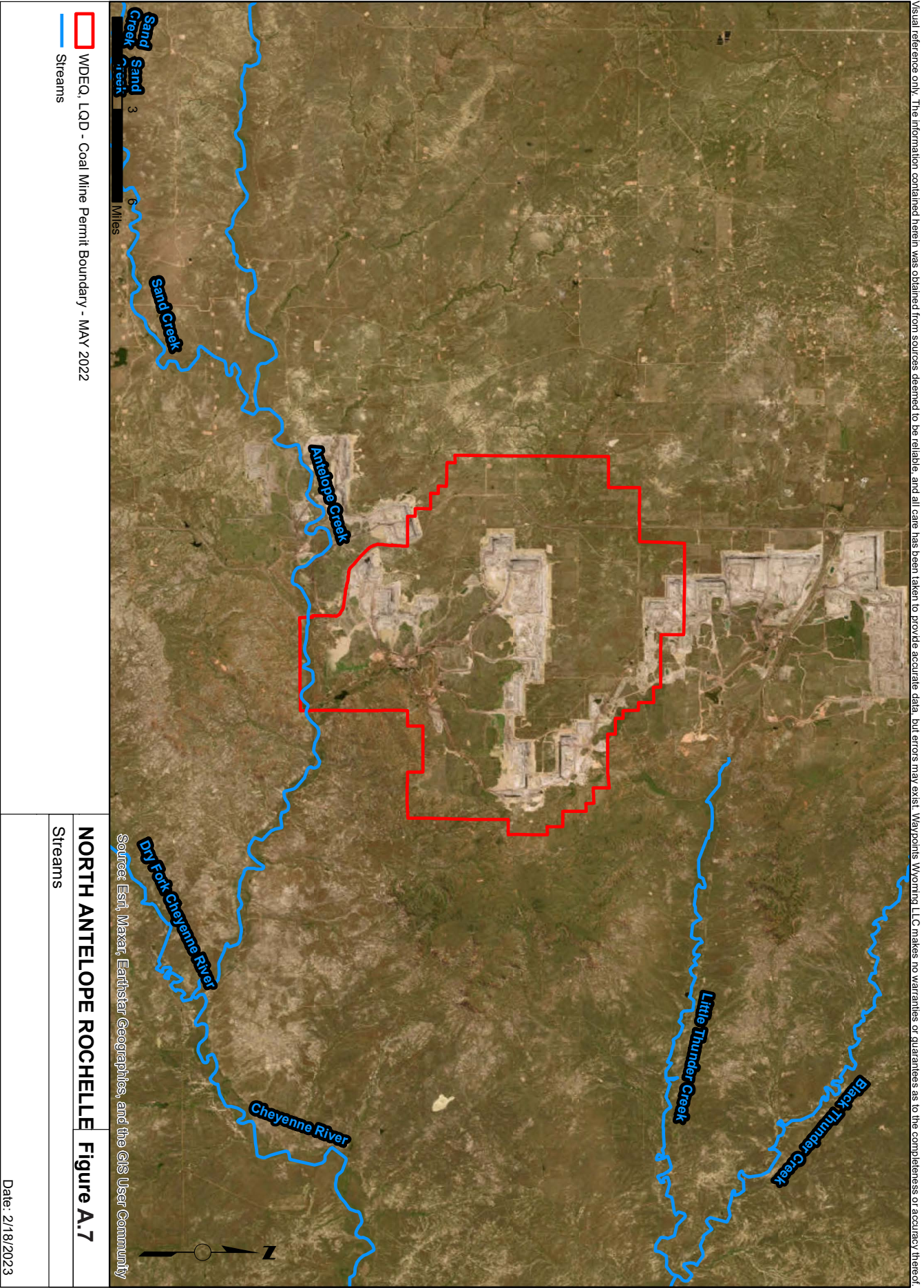
NORTH ANTELOPE ROCHELLE MINE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
BRANDON J DILTS FAMILY LMTD PARTNERSHIP	1
DILTS FAMILY LMTD. PTSHP. ATTN: JERRY DILTS	2
IRWIN LIVESTOCK COMPANY	3
NAVAJO TRANSITIONAL ENERGY CO LLC ATTN TAX DEPT	4
POWDER RIVER COAL COMPANY ATTN: PEABODY DEVELOPMENT CO	5
POWDER RIVER COAL, LLC ATTN: PEABODY DEVELOPMENT CO.	5
STATE OF WYOMING STATE SCHOOL USFS	State Fed
WEST ROUNDUP RESOURCES, INC ATTN: PEABODY DEVELOPMENT CO.	6
WYOMING DAKOTA RAILROAD PROP., INC.	7

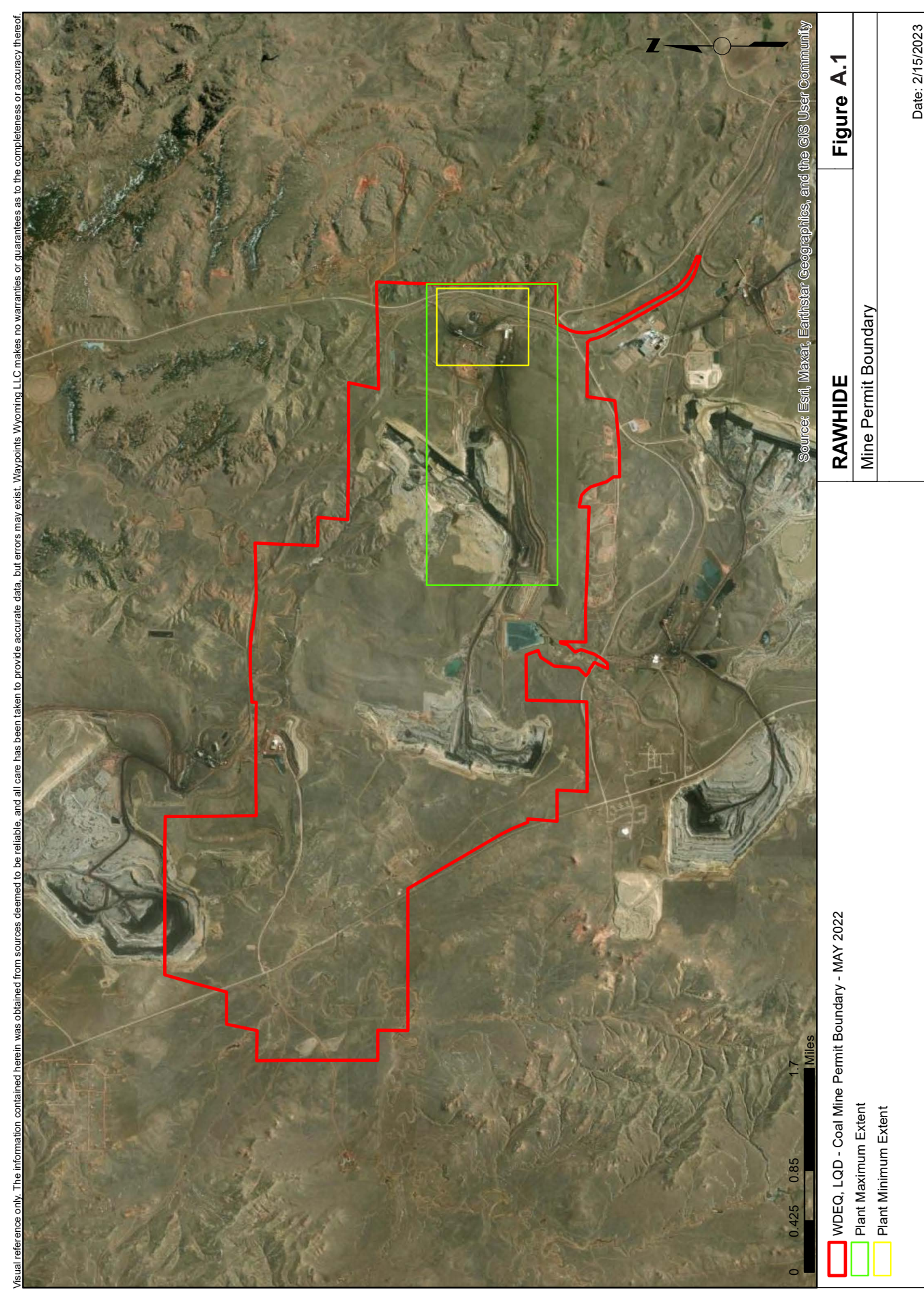




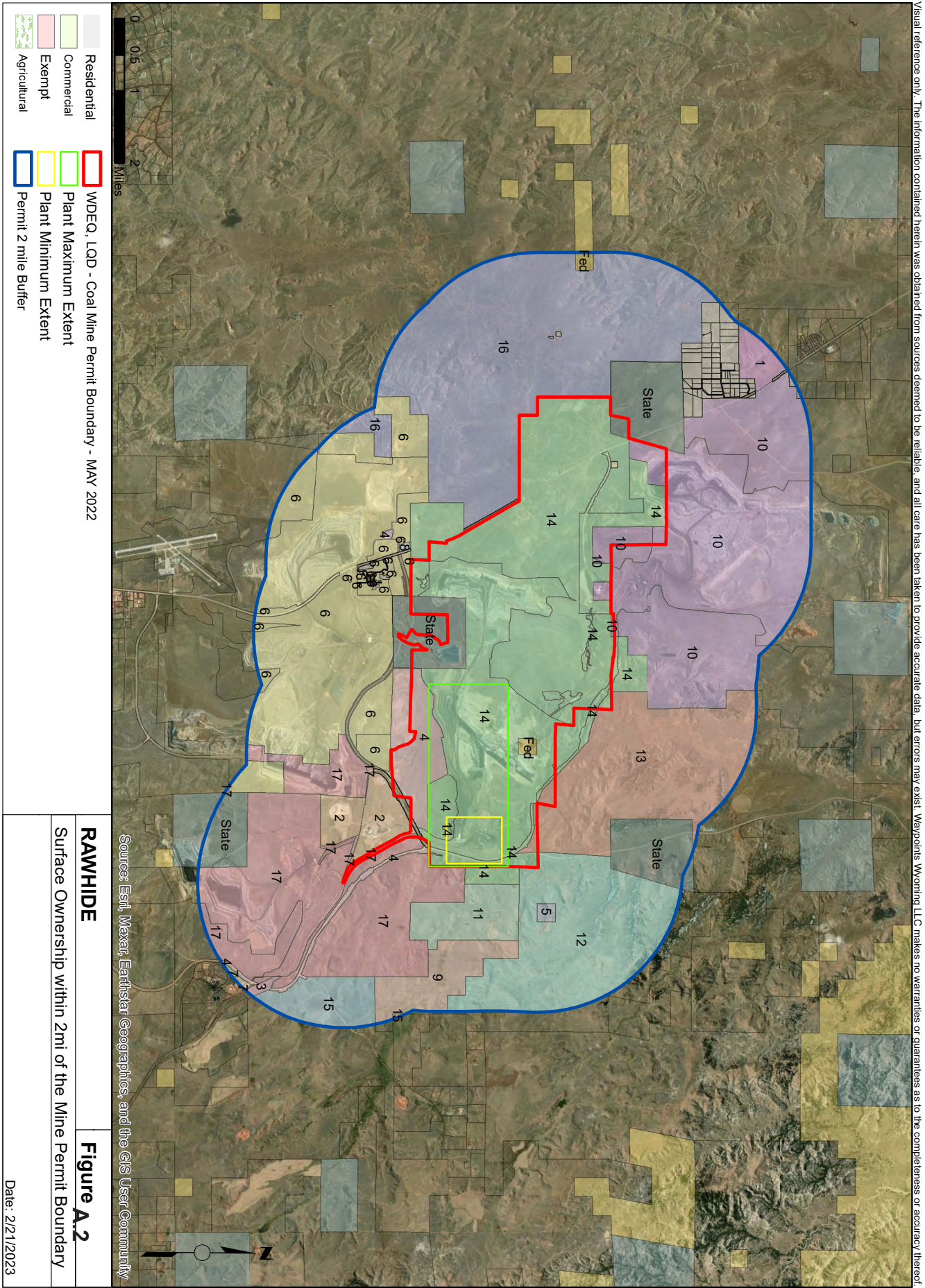


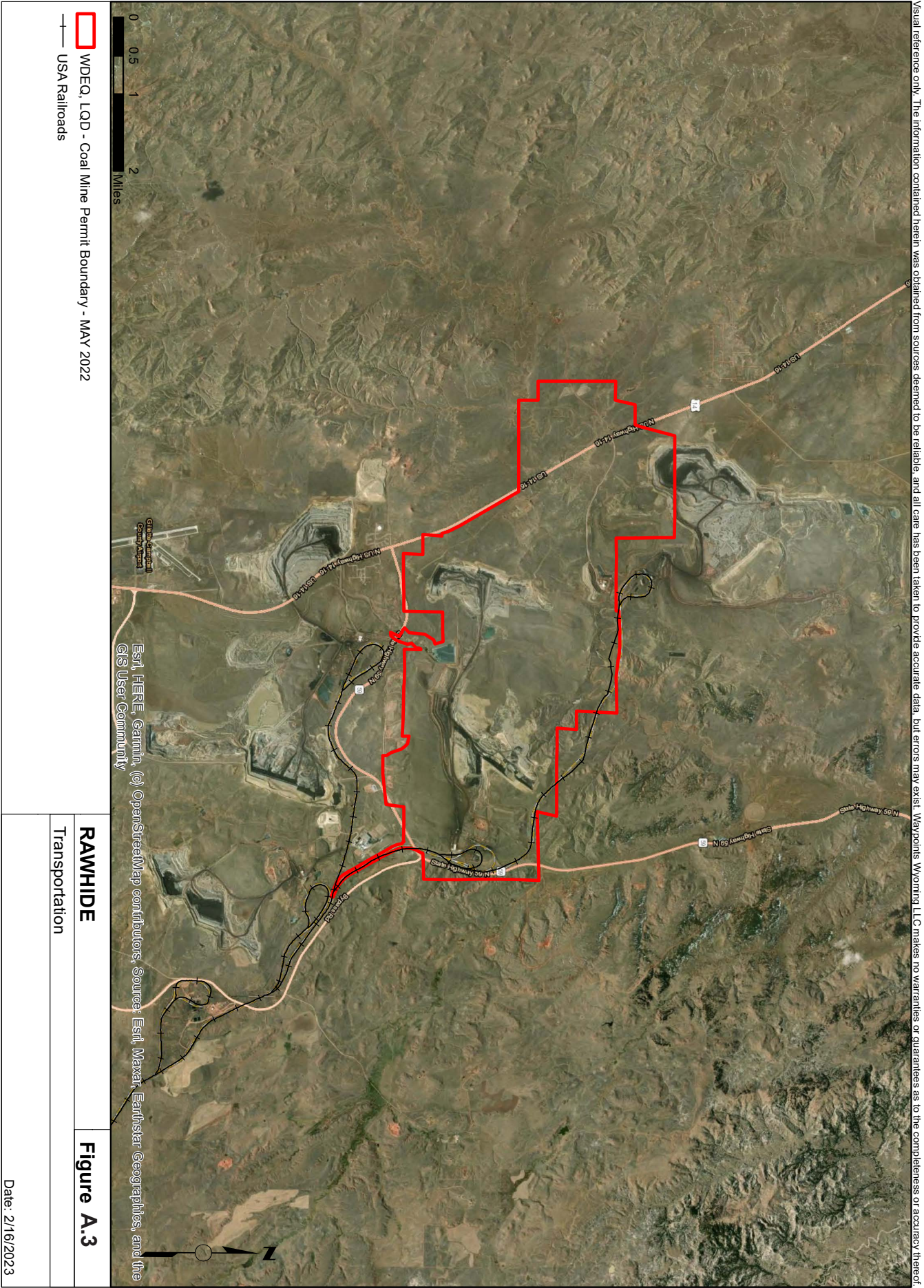
NORTH ANTELOPE ROCHELLE MINE - A-6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P104463.0W	Complete	PEABODY POWDER RIVER MINING LLC	TWW-1	MIS	250	2300	-105.27062	43.63393
P168051.0W	Complete	PEABODY POWDER RIVER MINING LLC	5669DW	MIS	10	270	-105.335231	43.568711
P172426.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARC #24	MIS	300	2667	-105.307	43.56325
P178586.0W	Complete	PEABODY POWDER RIVER MINING LLC	SC #1	MIS	340	2121	-105.219278	43.613139
P184586.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARC #22	MIS; MIS	500	5210	-105.274389	43.522722
P194913.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-NORTHEAST-1	MIS	4000	375	-105.280833	43.582778
P194914.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-NORTH-MIDDLE-1	MIS	4000	400	-105.312411	43.583
P194915.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-WEST-MIDDLE-1	MIS	4000	400	-105.332344	43.573953
P194917.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-ELK-1	MIS	4000	350	-105.198989	43.555922
P194918.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-PINE-TREE-1	MIS	4000	350	-105.193025	43.555928
P194919.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-WEST-1	MIS	4000	400	-105.306033	43.526422
P194920.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-RAIL-LOOP-NORTH-1	MIS	4000	350	-105.292261	43.520072
P194921.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-RAIL-LOOP-WEST-1	MIS	4000	350	-105.286028	43.520519
P194922.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARM-RAIL-LOOP-EAST-1	MIS	4000	350	-105.27753	43.508956
P200273.0W	Complete	PEABODY POWDER RIVER MINING, LLC	NARC #26	MIS	350	2075	-105.250386	43.550069
P53030.0W	Complete	NORTH ANTELOPE COAL CO	NORTH ANTELOPE MINE #201	MIS	285	2050	-105.2754	43.52146
P78990.0W	Complete	PEABODY POWDER RIVER MINING LLC	TWW 2	MIS	180	1789	-105.27062	43.63393
P84792.0W	Complete	PEABODY POWDER RIVER MINING LLC	WILKINSON #5	DOM_ GW	5	280	-105.34528	43.58326
P141430.0W	Complete	PEABODY POWDER RIVER MINING LLC	NARC # 10	MIS	300	2600	-105.22026	43.5434
P29356.0W	Complete	PEABODY POWDER RIVER MINING LLC	ROCHELLE #1	MIS	300	1978	-105.25524	43.52886

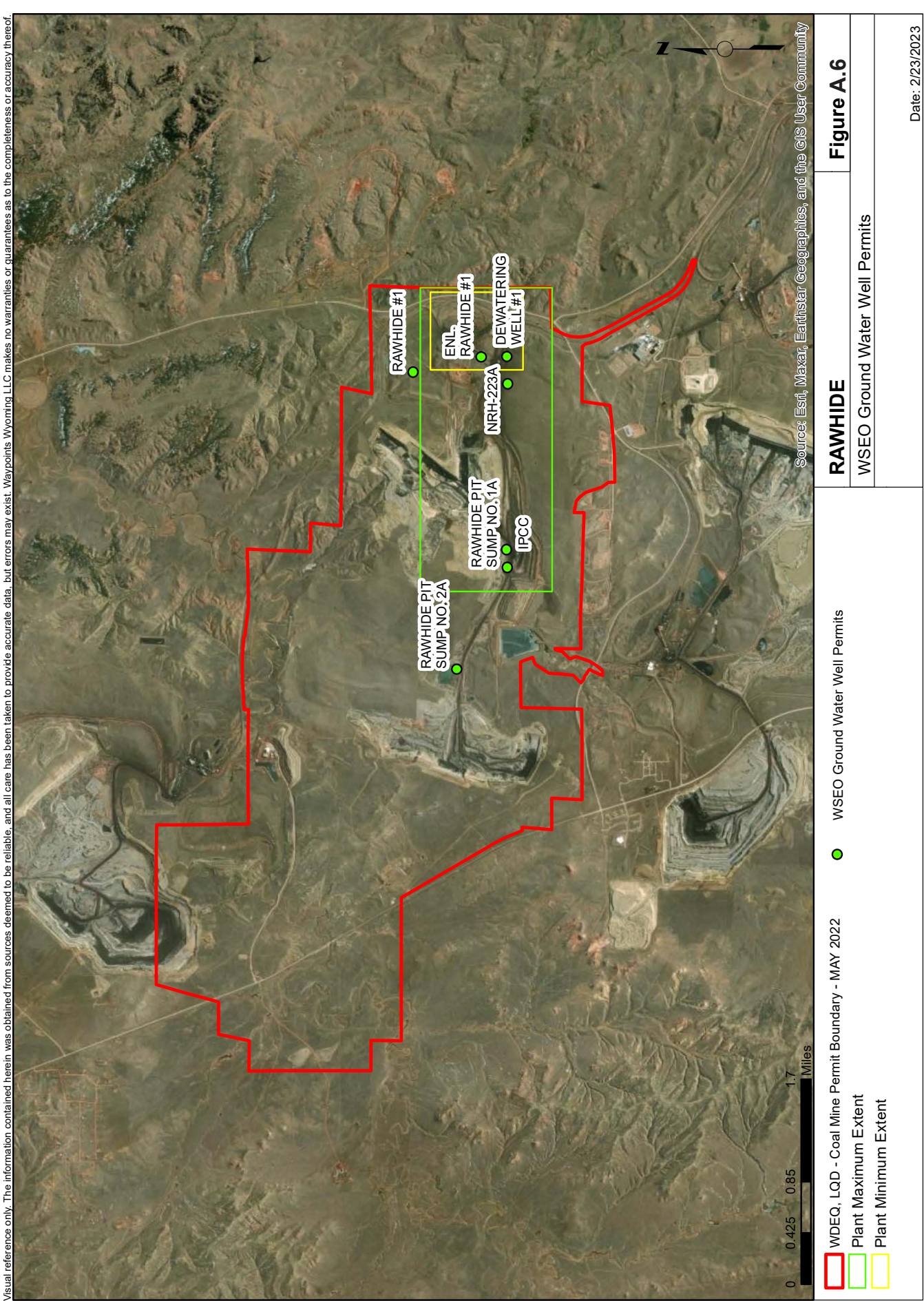
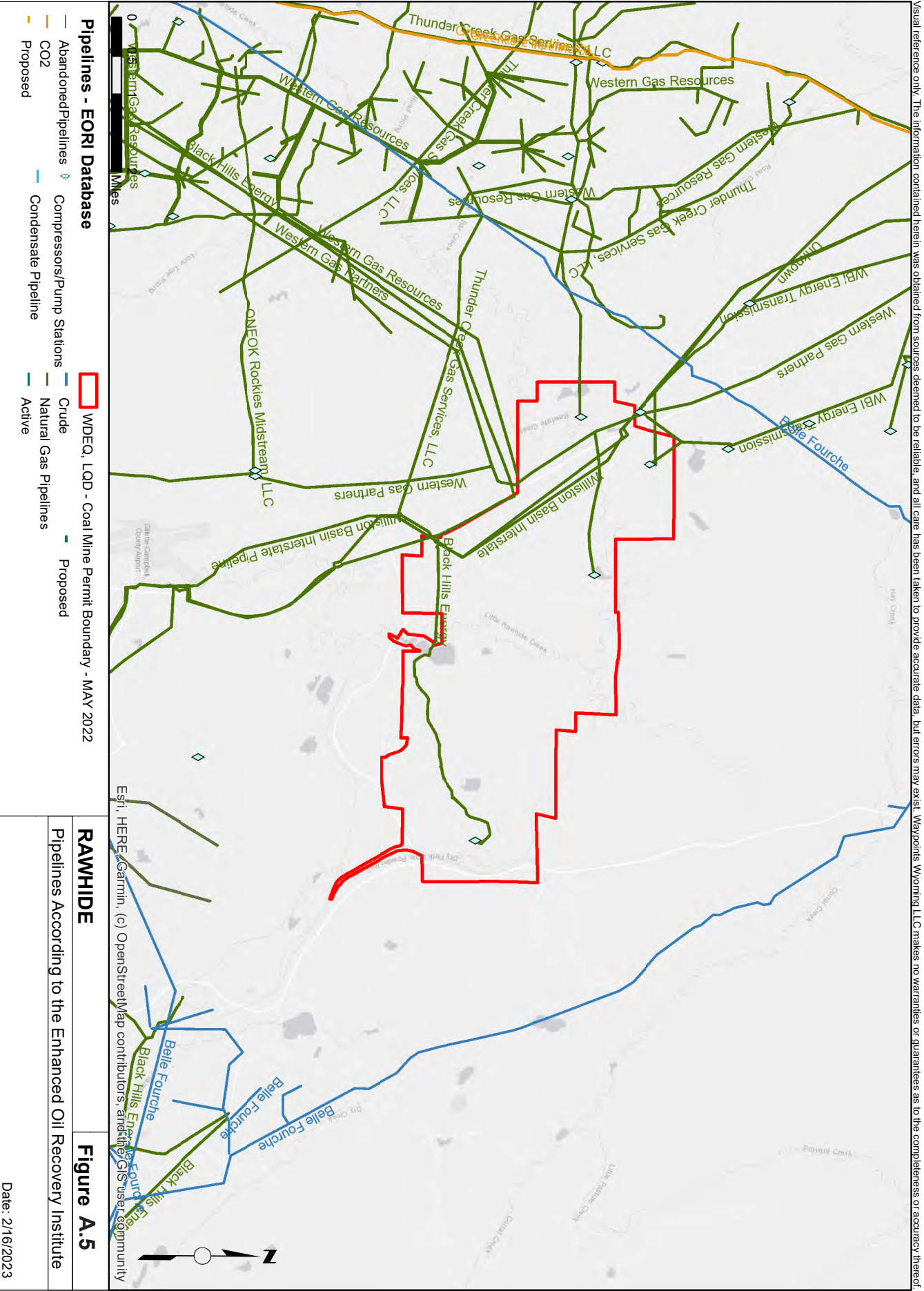




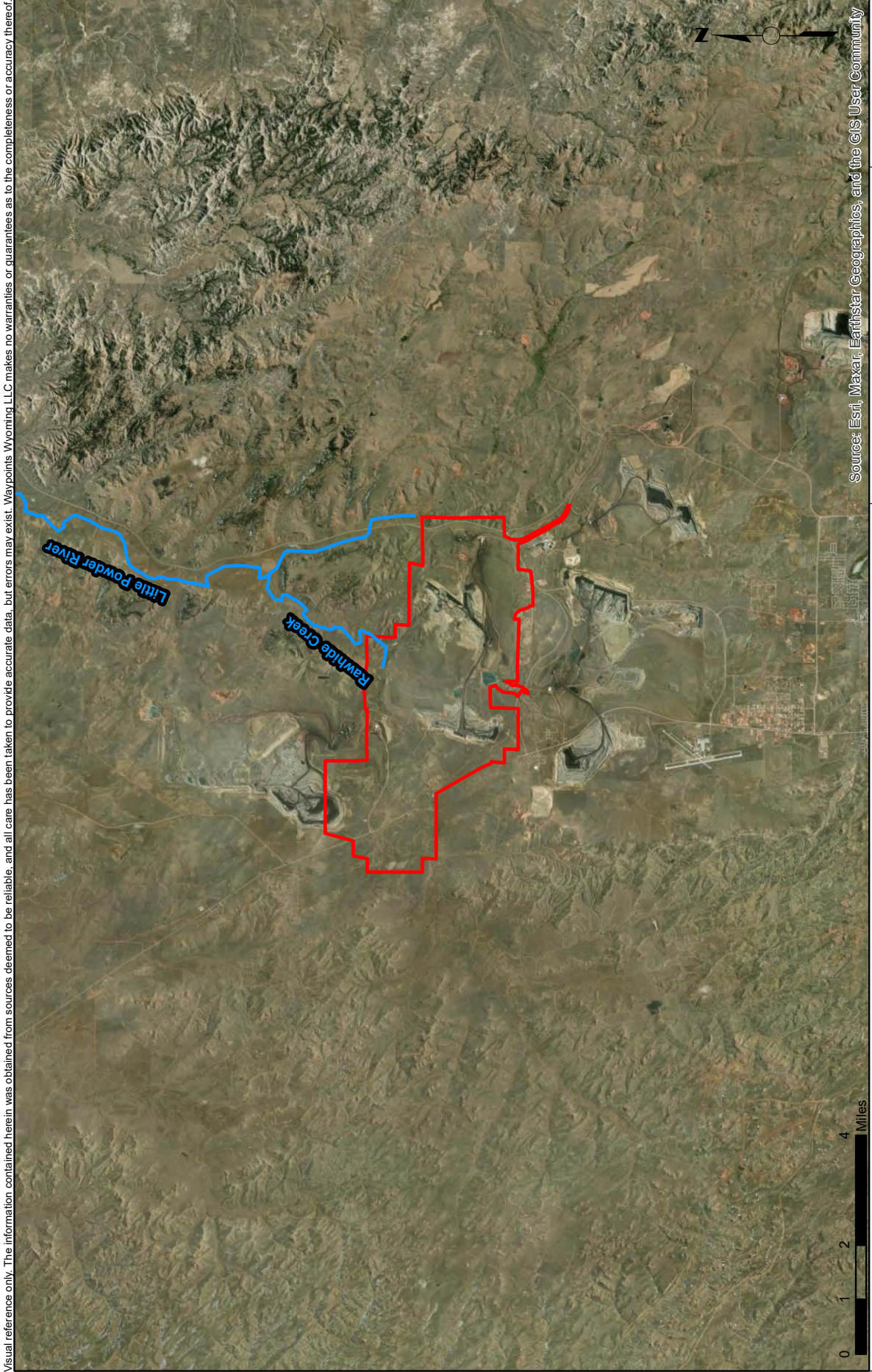
RAWHIDE SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
BARBOUR THOMAS JAMES	1
BASIN ELECTRIC POWER COOPERATIVE	2
BURLINGTON NORTHERN RAILROAD CO	3
CAMPBELL COUNTY	4
CORRAL CREEK HOLDINGS LLC	5
DEPT OF INTERIOR/BLM	Fed
EAGLE SPECIALTY MATERIALS LLC	6
GREEN BRIDGE HOLDINGS INC	7
HATZENBIHLER KEVIN JACOB & KIMBERLY JANE	8
HORSETREE LLC	9
KIEWIT MINING PROPERTIES INC	10
L QUARTER CIRCLE LLC	11
MADER CYNTHIA REV LIVING TRUST	12
MCCLELLAND RANCH LLC	13
PEABODY CABALLO MINING LLC	14
STATE OF WYOMING	State
TOTAL CONSTRUCTION	15
TWENTY MILE LAND CO LLC	16
WESTERN FUELS WYOMING INC	17







RAWHIDE MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P199673.0W	Complete	PEABODY CABALLO MINING, LLC	RAWHIDE PIT SUMP NO. 1A	MIS	2000	300	-105.498383	44.405039
P199674.0W	Complete	PEABODY CABALLO MINING, LLC	RAWHIDE PIT SUMP NO. 2A	MIS	2000	300	-105.515422	44.411025
P199739.0W	Complete	PEABODY CABALLO MINING, LLC	ENL. RAWHIDE #1	MIS	0		-105.463158	44.408339
P35769.0W	Complete	THE CARTER OIL COMPANY	DEWATERING WELL #1	MIS	1500	72	-105.4631	44.40524
P83928.0W	Complete	PEABODY CABALLO MINING LLC	IPCC	MIS	95	1050	-105.49542	44.40515
P84970.0W	Complete	PEABODY CABALLO MINING LLC	NRH-223A	DOM_ GW; STK	6	87	-105.4677	44.40515
CR UW04/189	Fully Adjudicated	THE CARTER MINING COMPANY	RAWHIDE #1	IND_ GW; MIS	160		-105.465831	44.4165



Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.

WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022

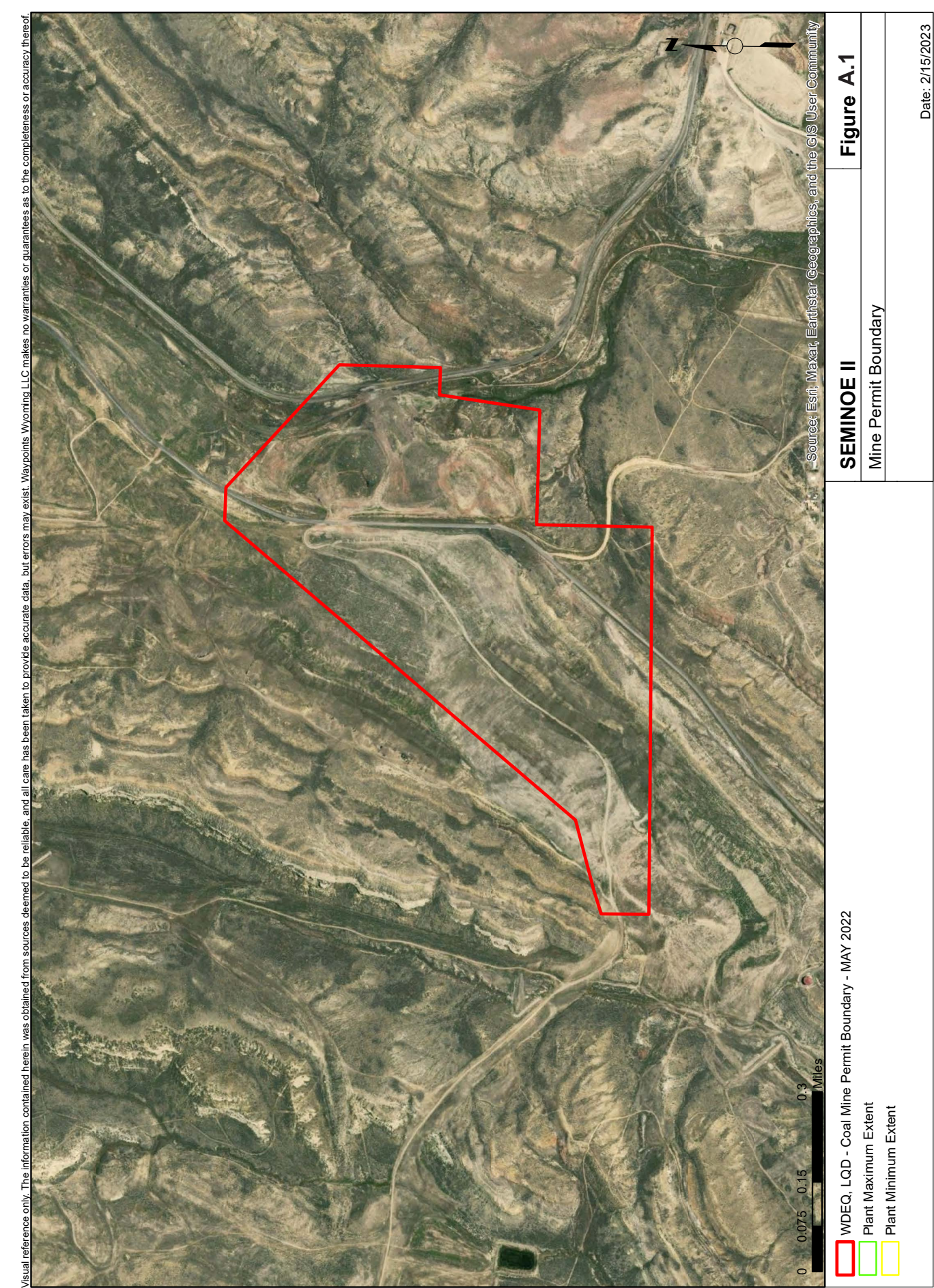
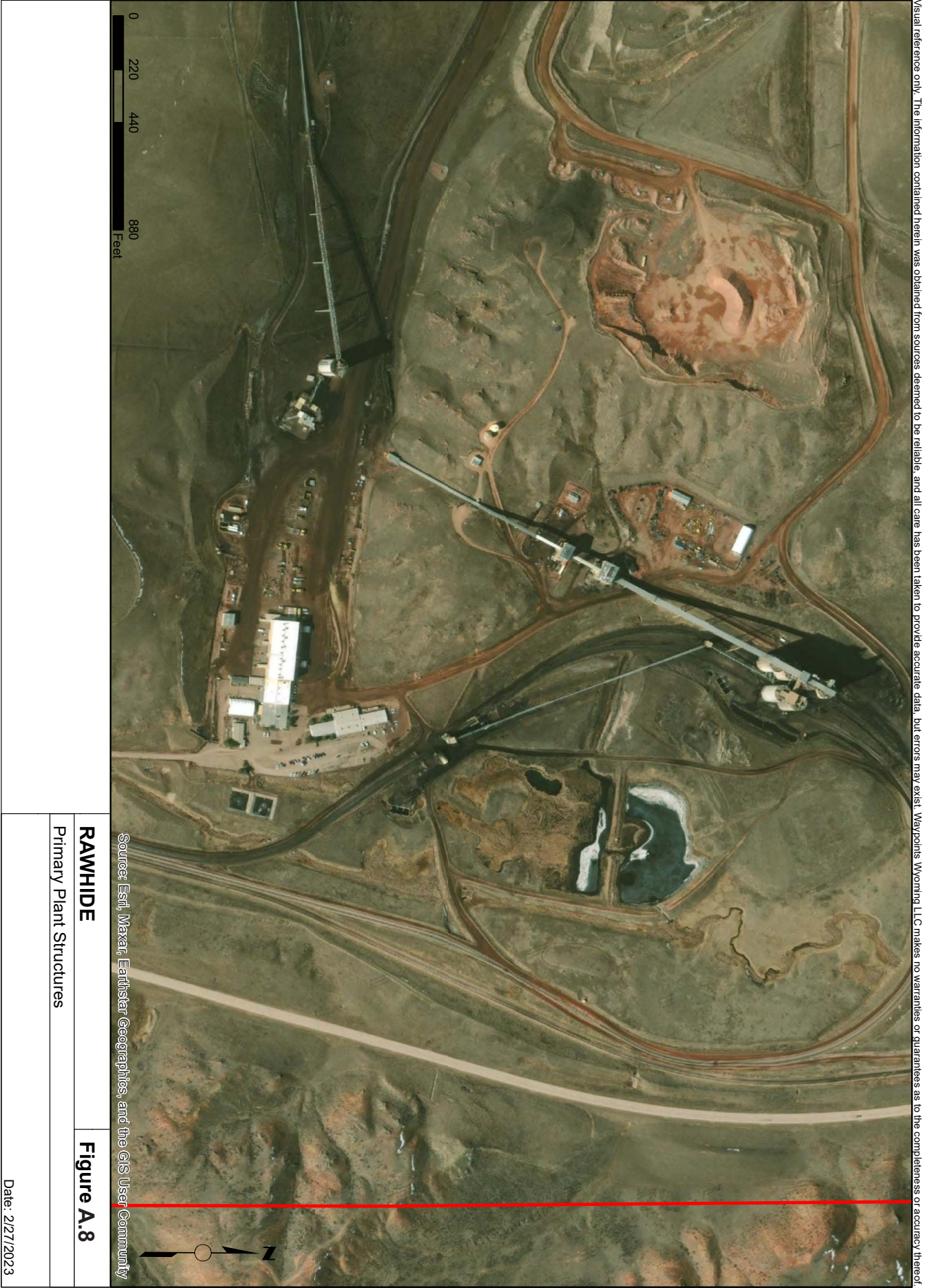
Streams

RAWHIDE

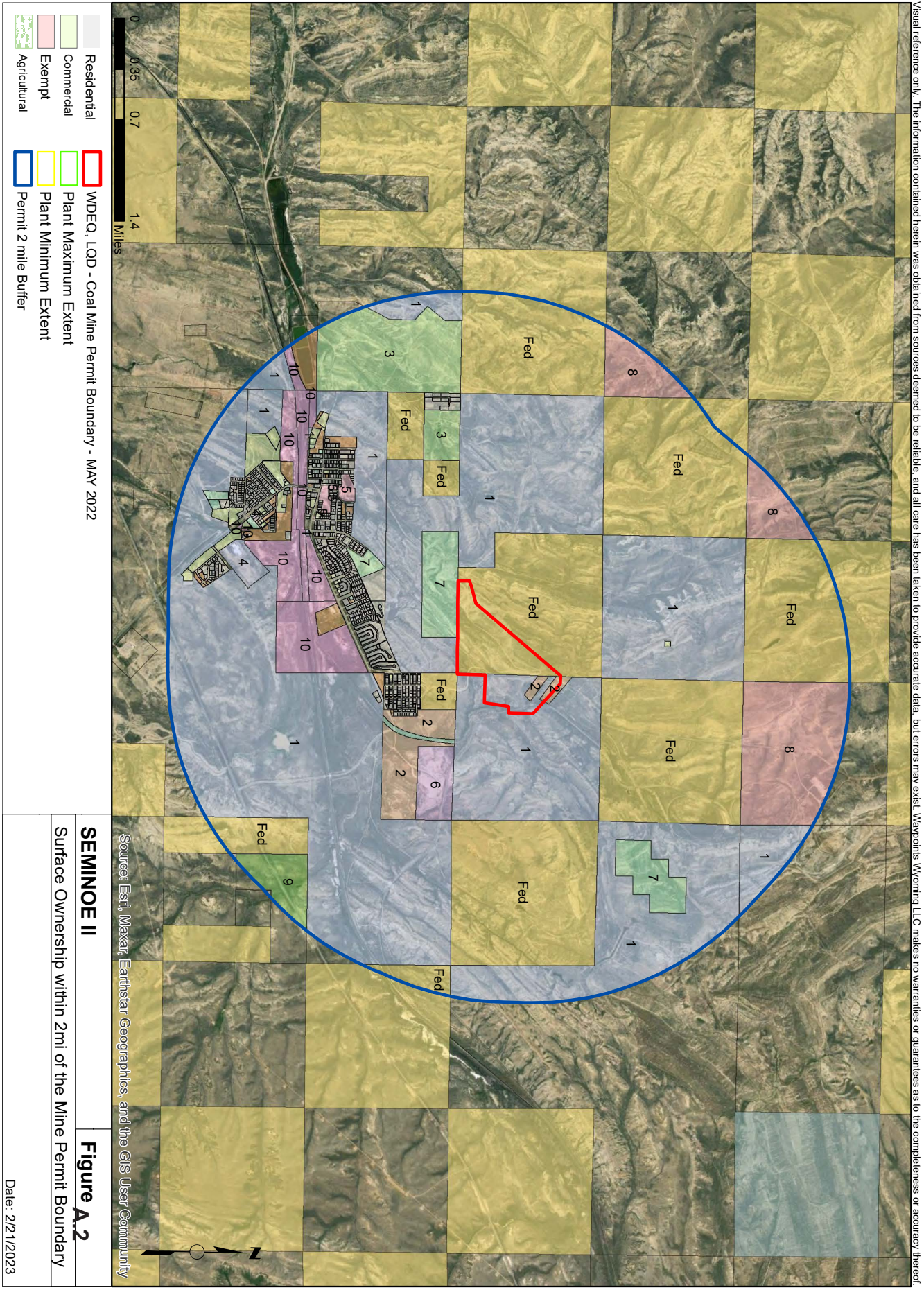
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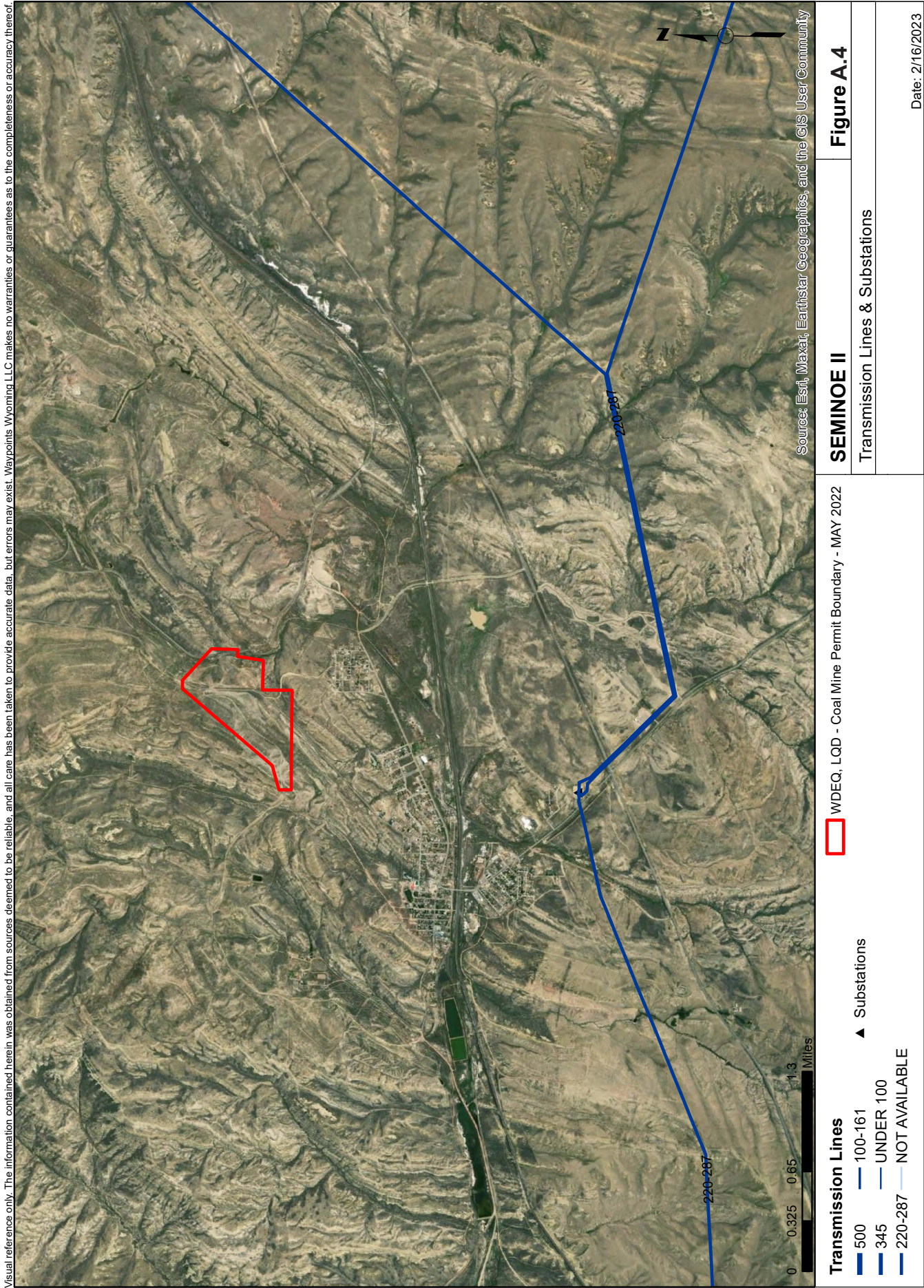
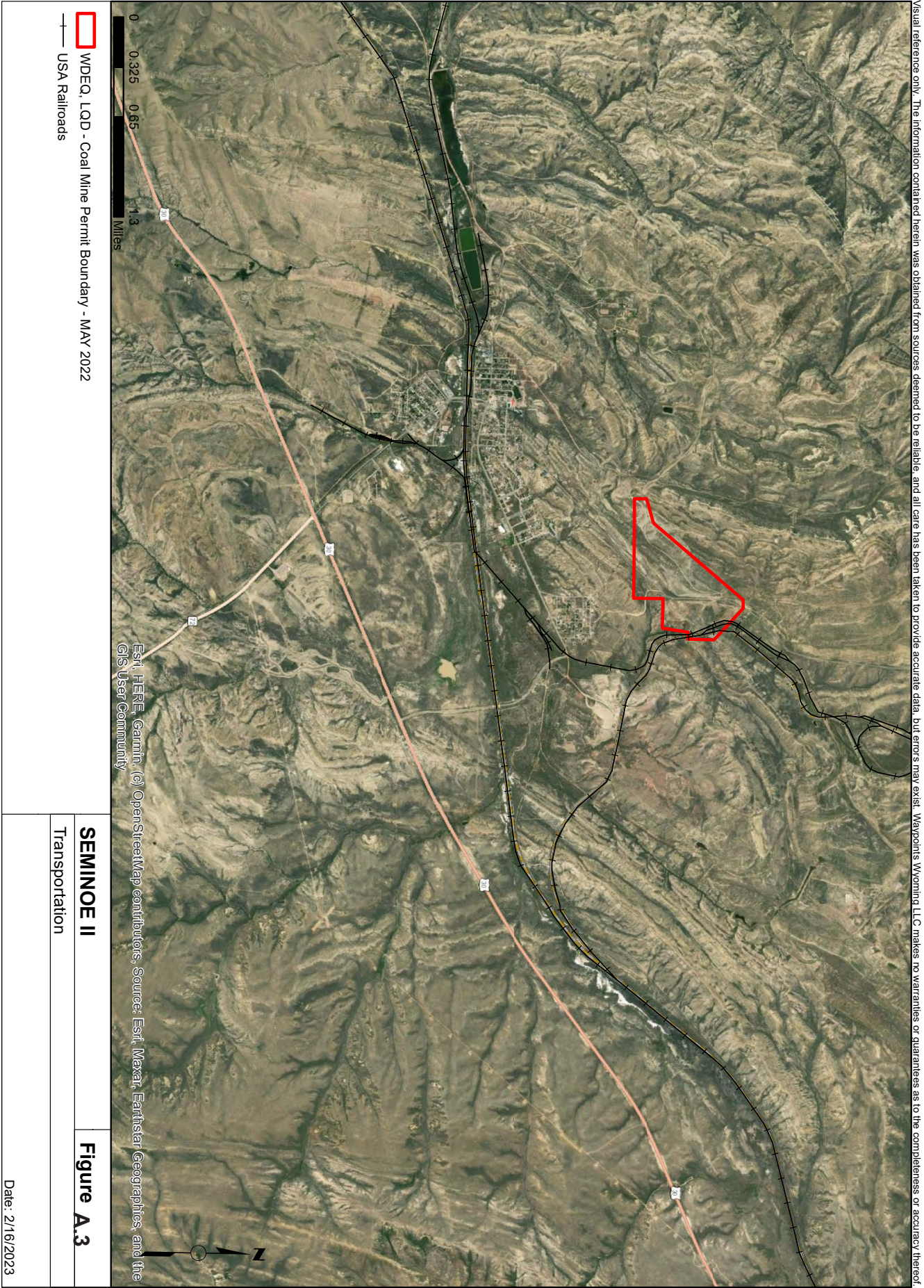
Figure A.7

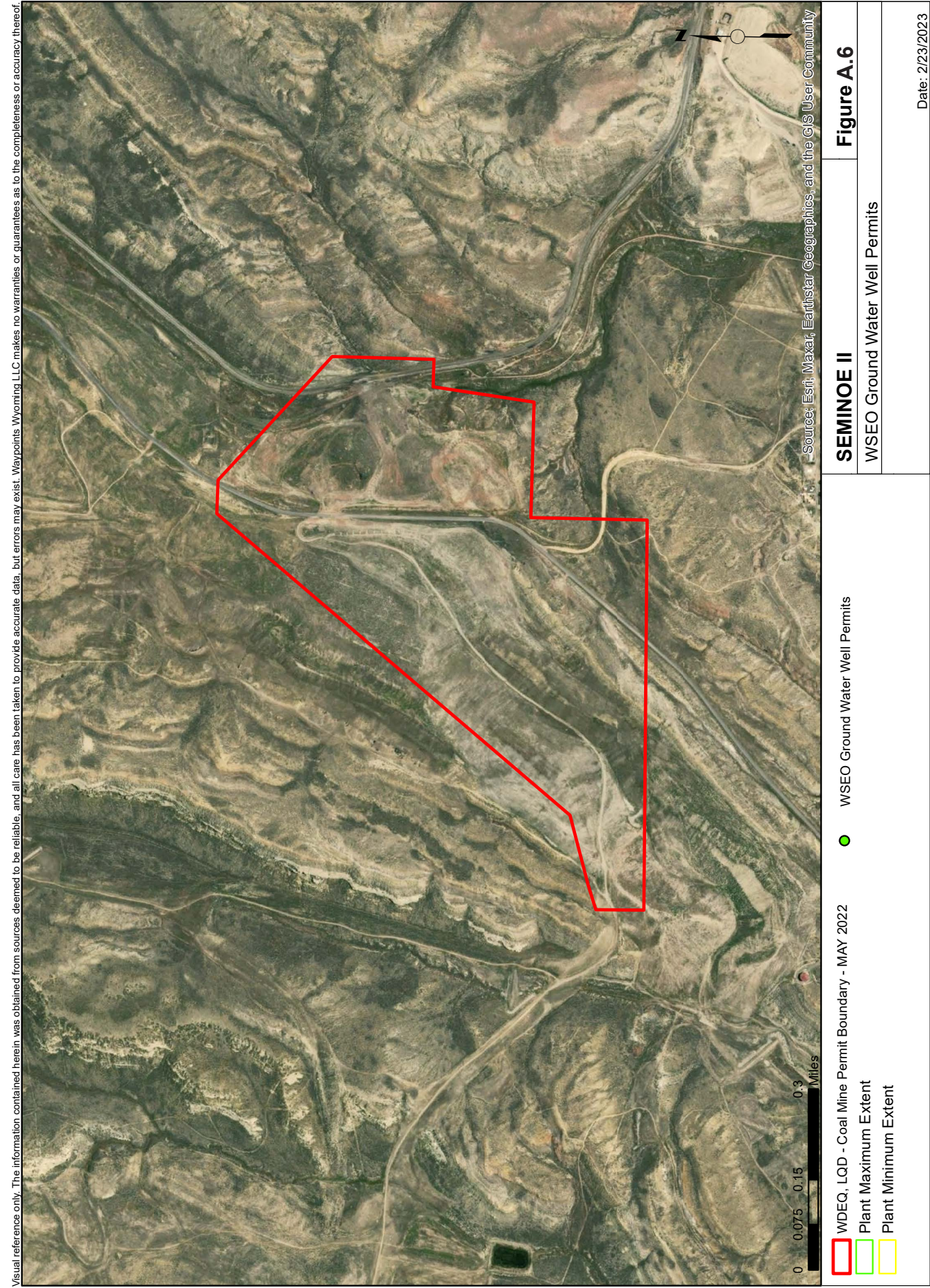
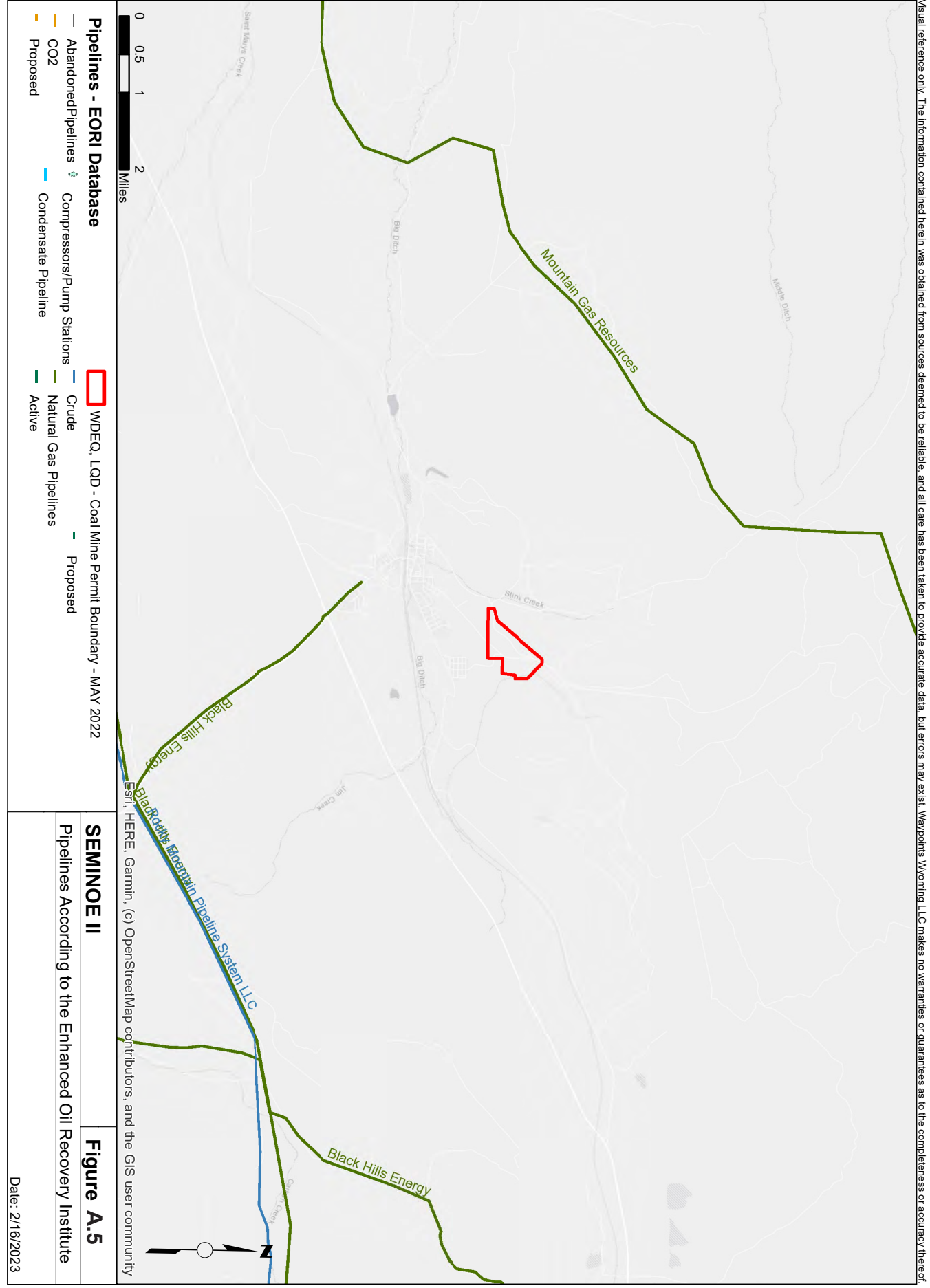
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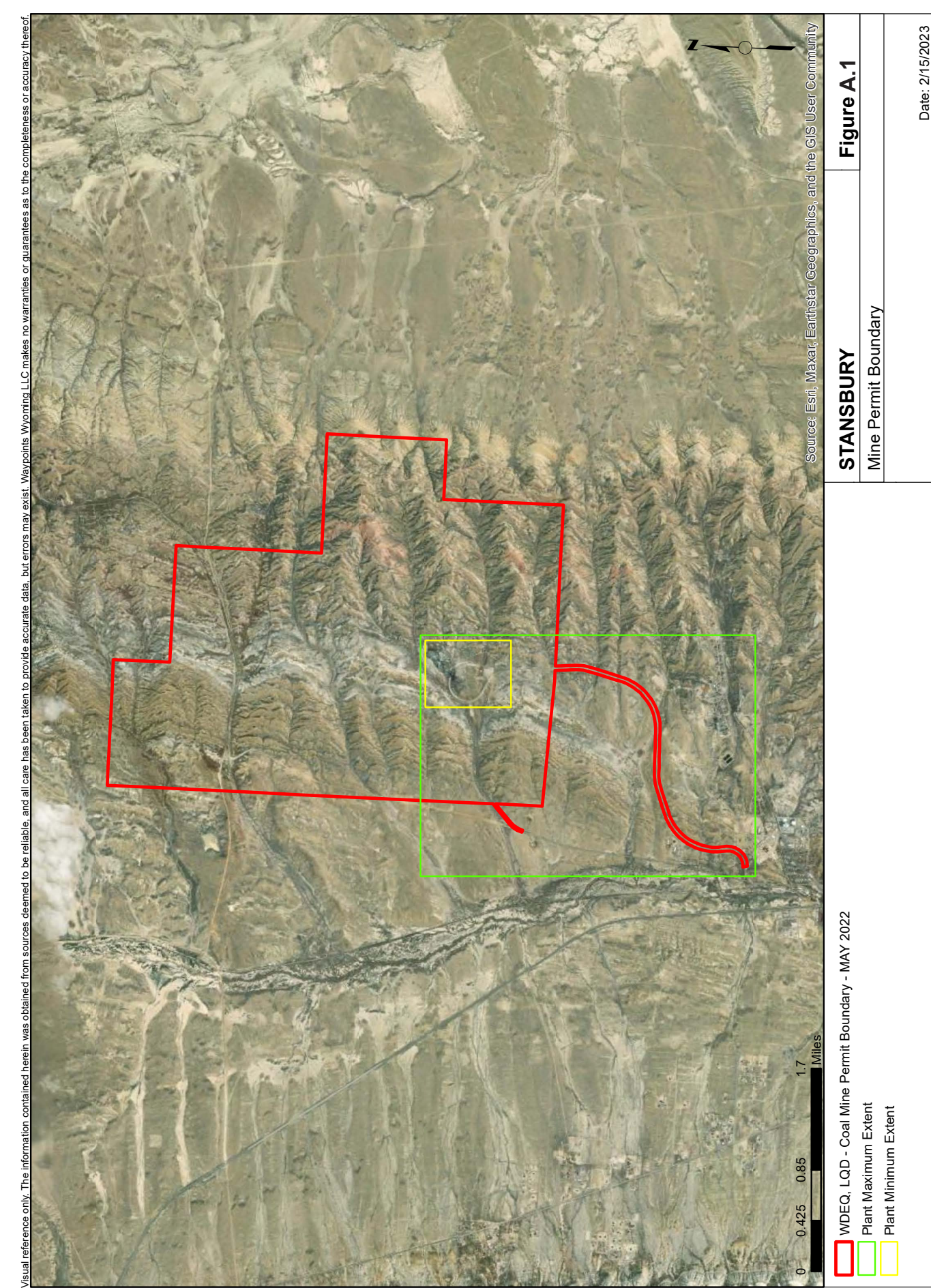
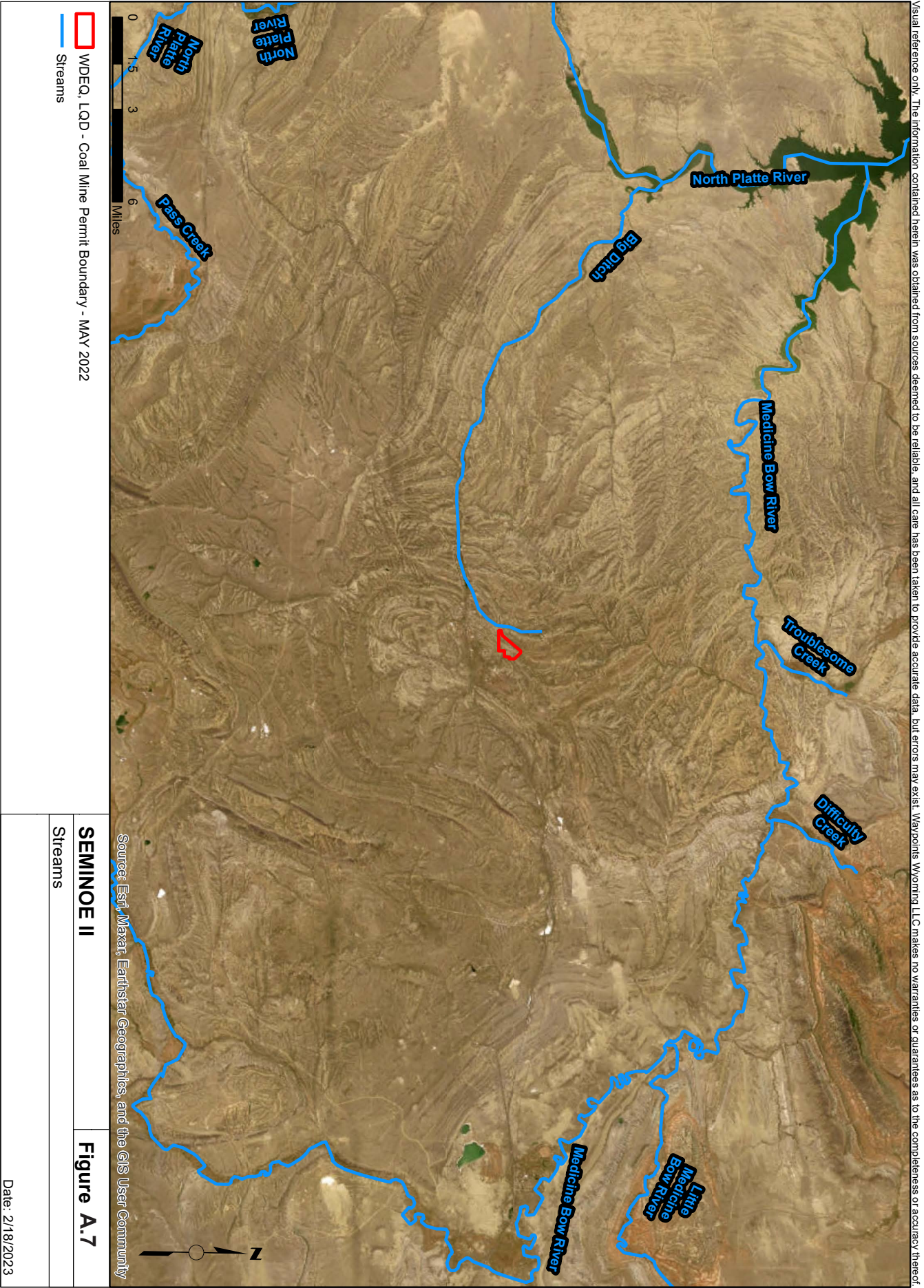


SEMINOE II SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ARK LAND LLC	2
BUREAU OF LAND MANAGEMENT	Fed
CALVERT DONALD AND DOROTHY TRUST	3
CARBON COUNTY SCHOOL DISTRICT 2	4
CARBON COUNTY SCHOOL DISTRICT NO 2 FKA SCHOOL DISTRICT 4	5
HIGH COUNTRY JOINT POWERS BOARD	6
KONRATH SEITH A	7
Q CREEK LAND AND LIVESTOCK COMPANY LLC	8
RUFSVOLD J R	9
UNION PACIFIC RAILROAD COMPANY PROPERTY TAX DEPARTMENT	10

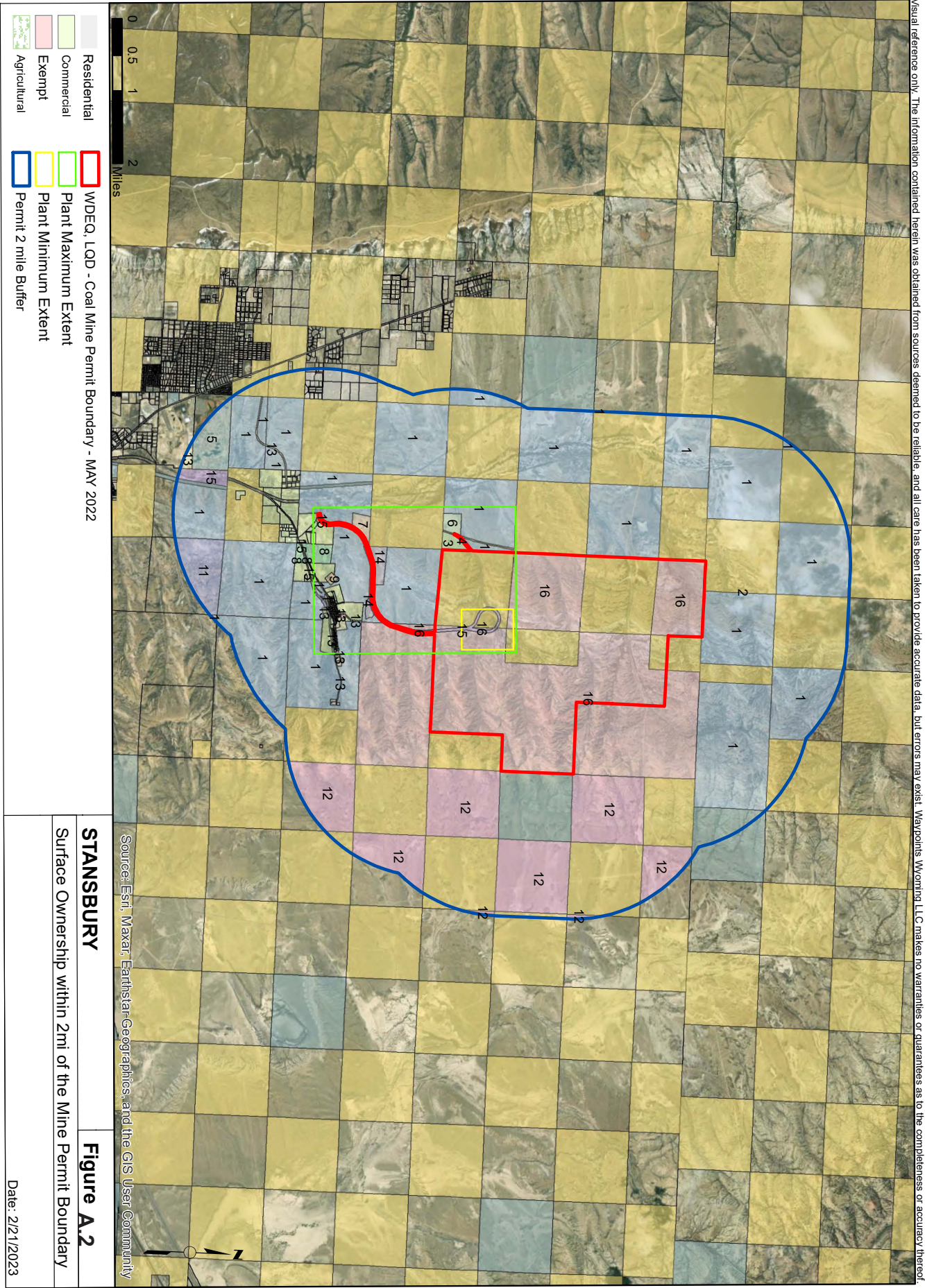


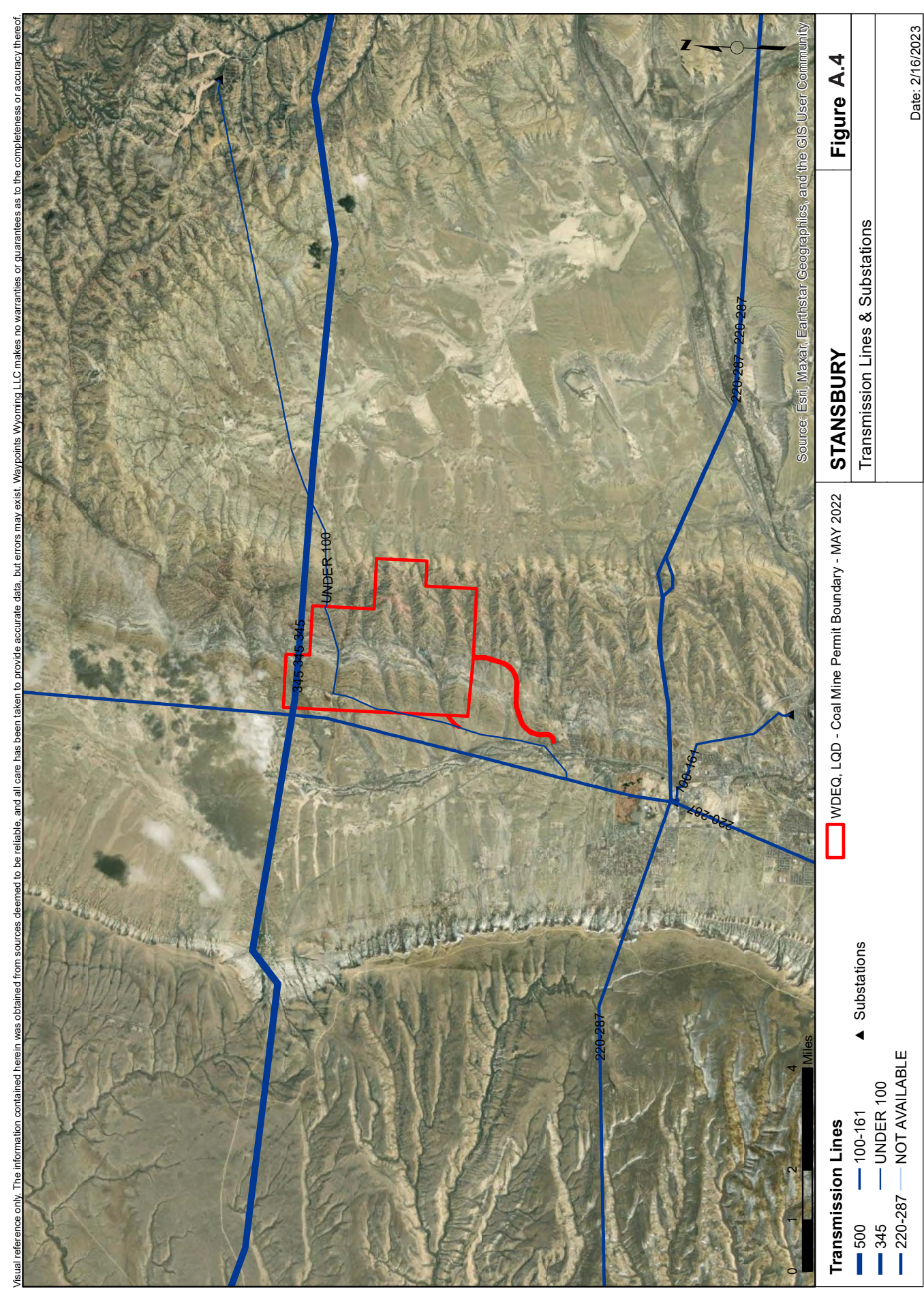
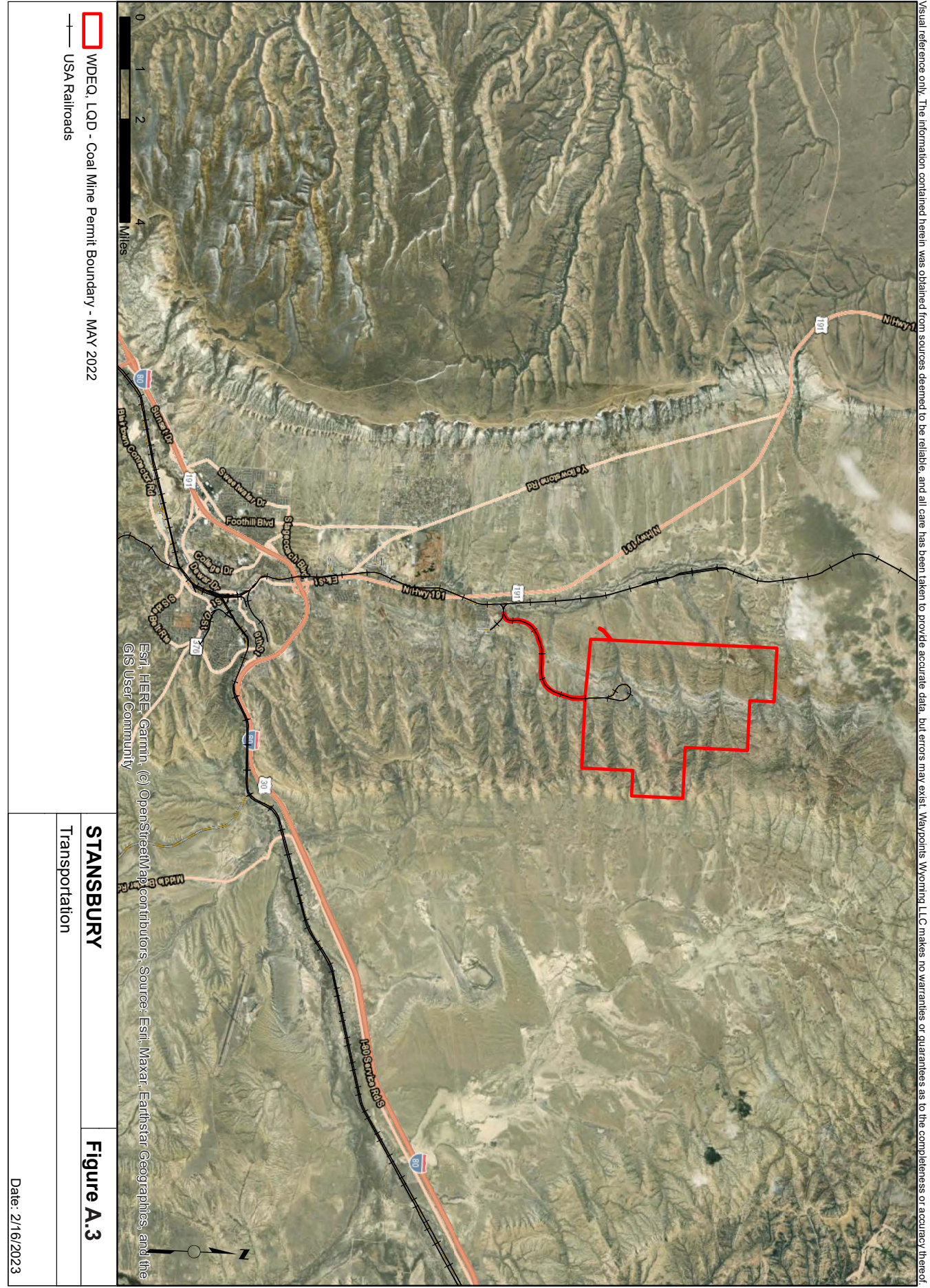


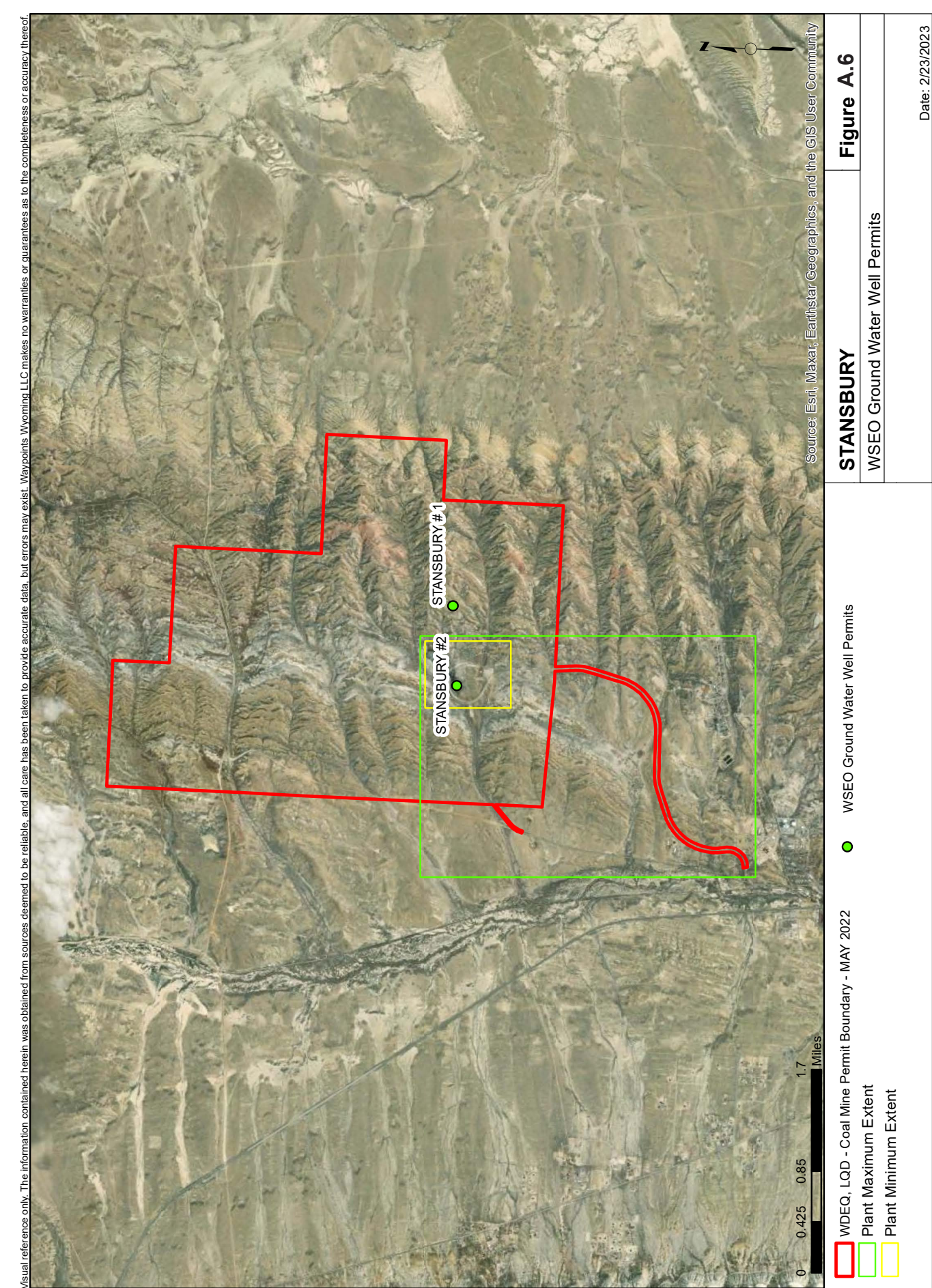
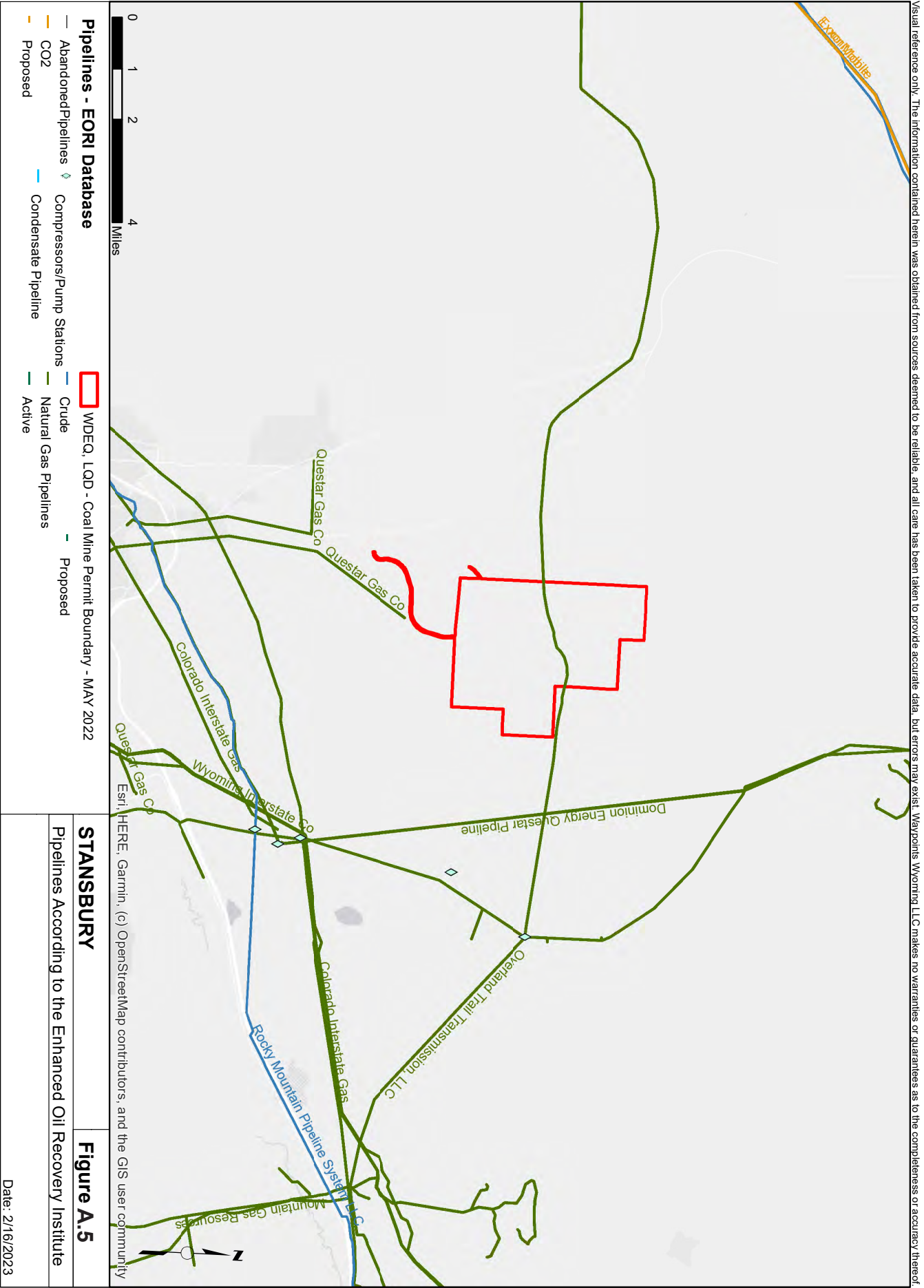




STANSBURY SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ANADARKO LAND CORP	2
BLM	Fed
CHENOWETH FAMILY TRUST CHENOWETH JOSEPH D& TREASA A	3
CHENOWETH JOSEPH	4
CITY OF ROCK SPRINGS	5
COLVIN SCOTT O & CINDY L	6
H & N HOLDINGS LLC	7
JOINT POWERS WATER BOARD	8
NORTH SWEETWATER WATER & SEWER DIST	9
RELIANCE FIRE DISTRICT	10
ROCK SPRINGS CATHOLIC SCHOOL FOUNDATION ETAL	11
ROCK SPRINGS GRAZING ASSN	12
STATE OF WY	State
SWEETWATER COUNTY	13
SWEETWATER COUNTY SOLID WASTE DISP DISTRICT #1	14
UNION PACIFIC RAILROAD CO ATTN GERRY WHITE SENIOR MANAGER TAX	15
WILDCAT COAL LLC	16







STANSBURY MINE - A.6. WATER RIGHTS TABLE						
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)
P149551.0W	Complete	ROCKY MOUNTAIN COAL COMPANY, LLC	STANSBURY # 1	MIS	500	300
P57678.0W	Complete	ROCKY MOUNTAIN COAL COMPANY, LLC	STANSBURY #2	MIS	180	700



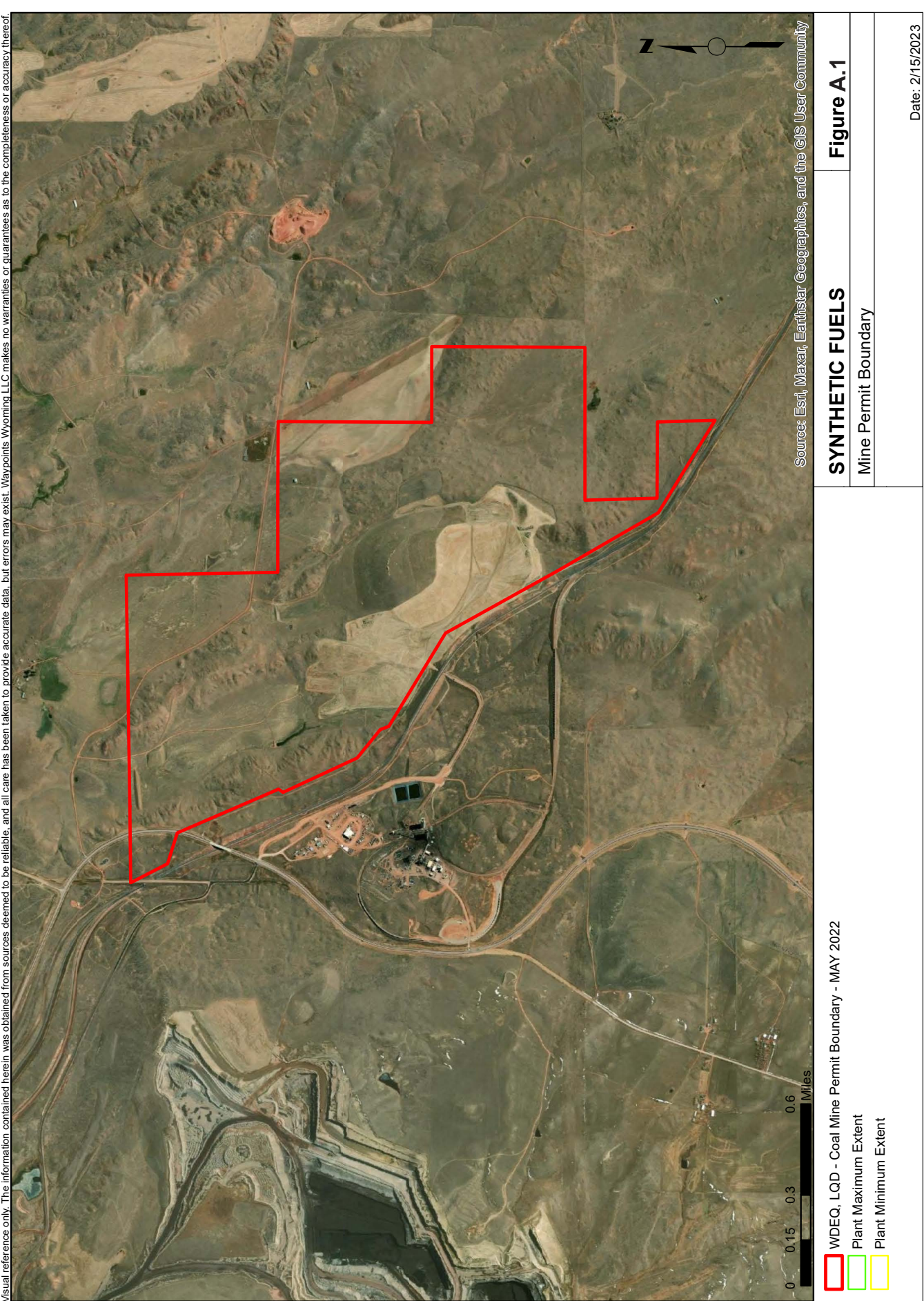
Visual reference only. The information contained herein was obtained from sources deemed to be reliable, and all care has been taken to provide accurate data, but errors may exist. Waypoints Wyoming LLC makes no warranties or guarantees as to the completeness or accuracy thereof.

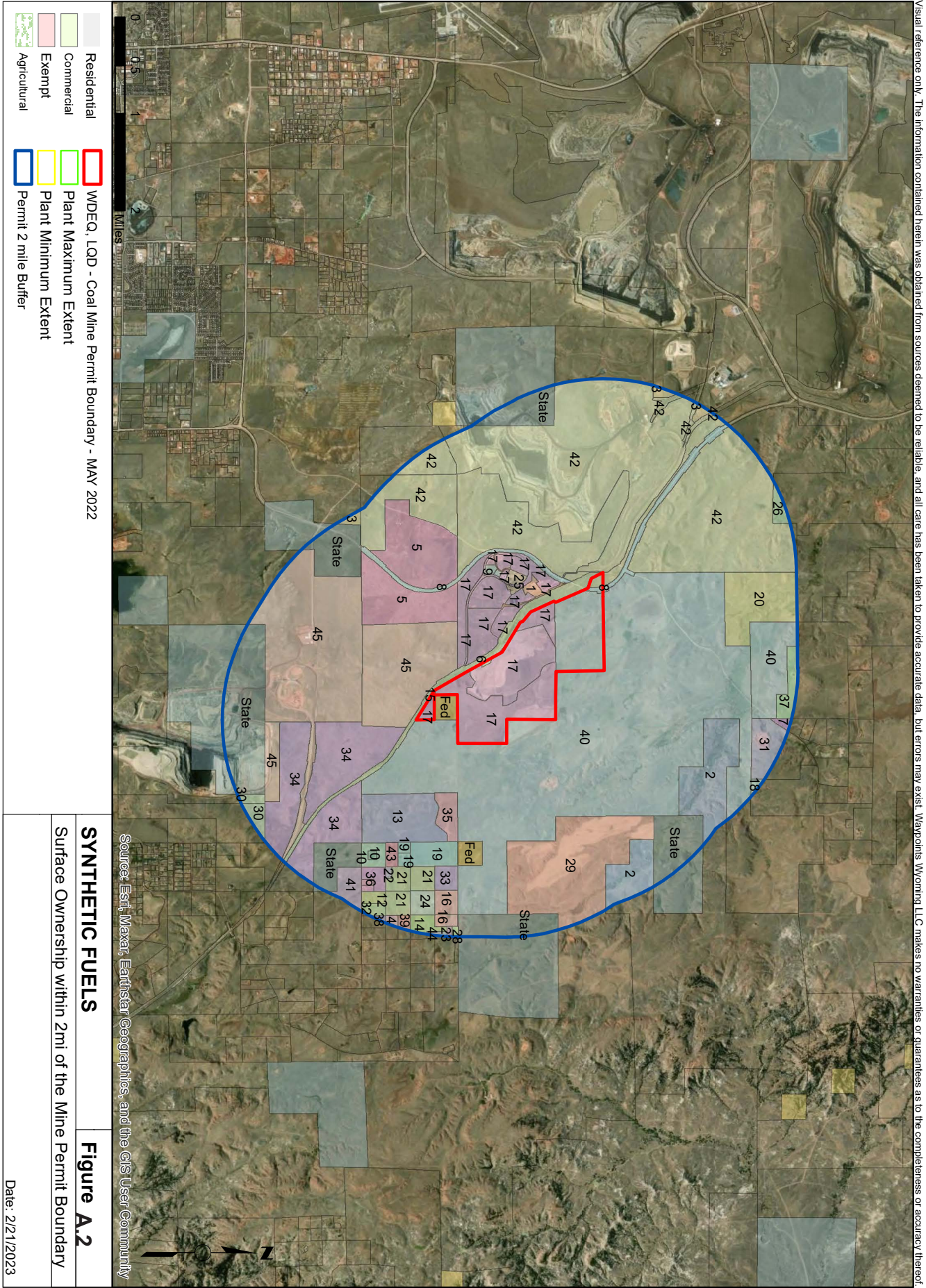
STANSBURY

Streams

Figure A.7

Date: 2/19/2023

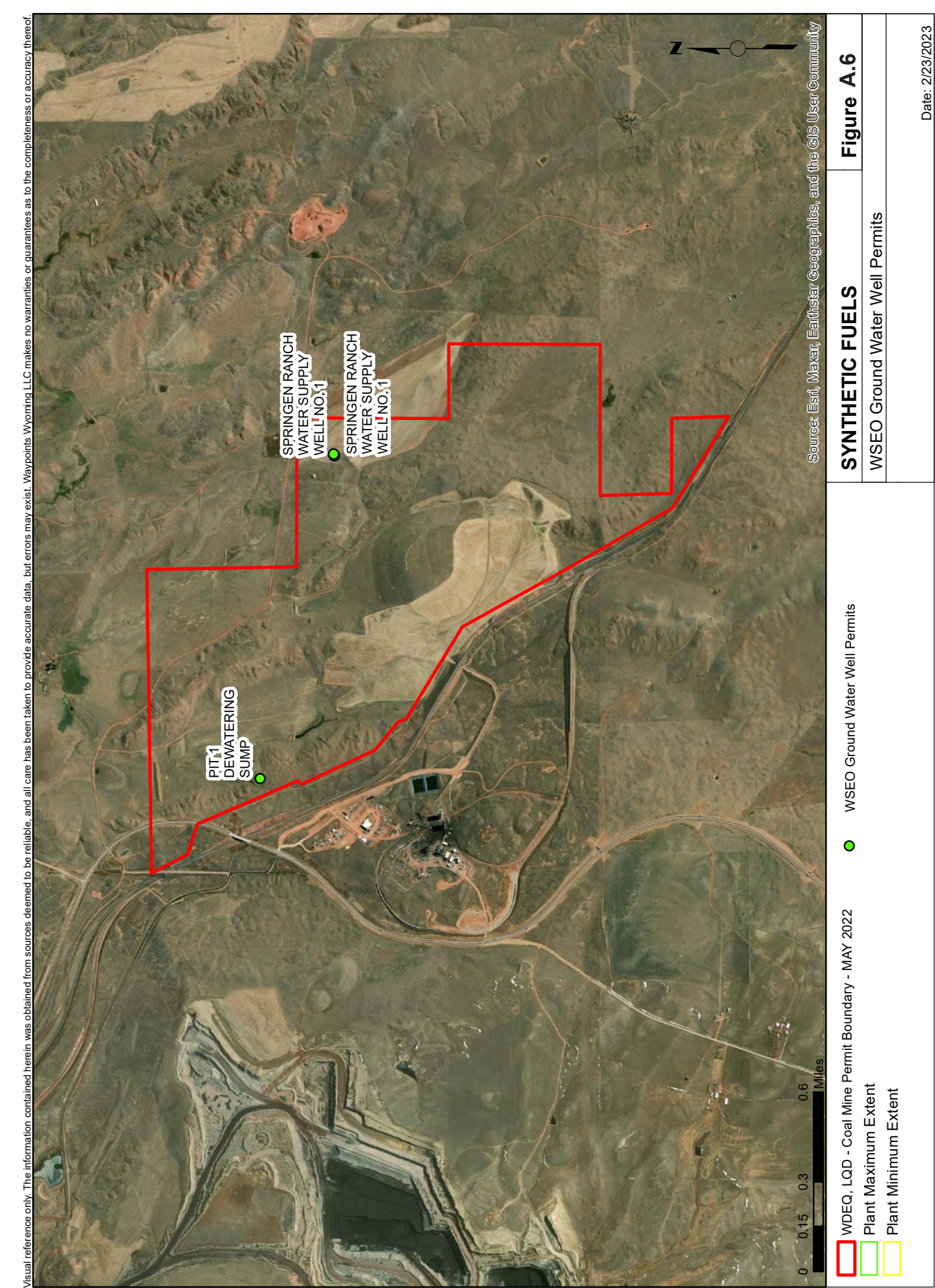
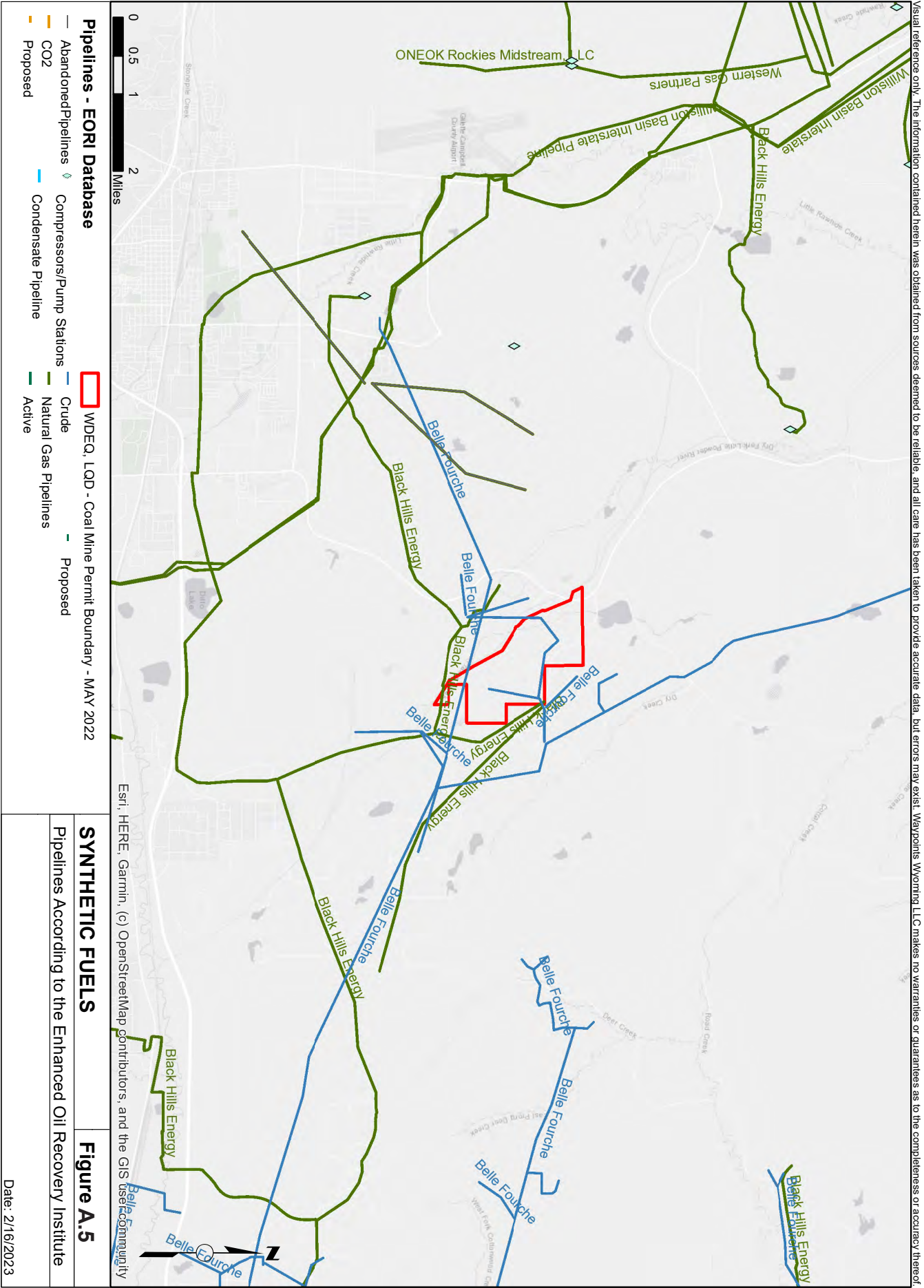




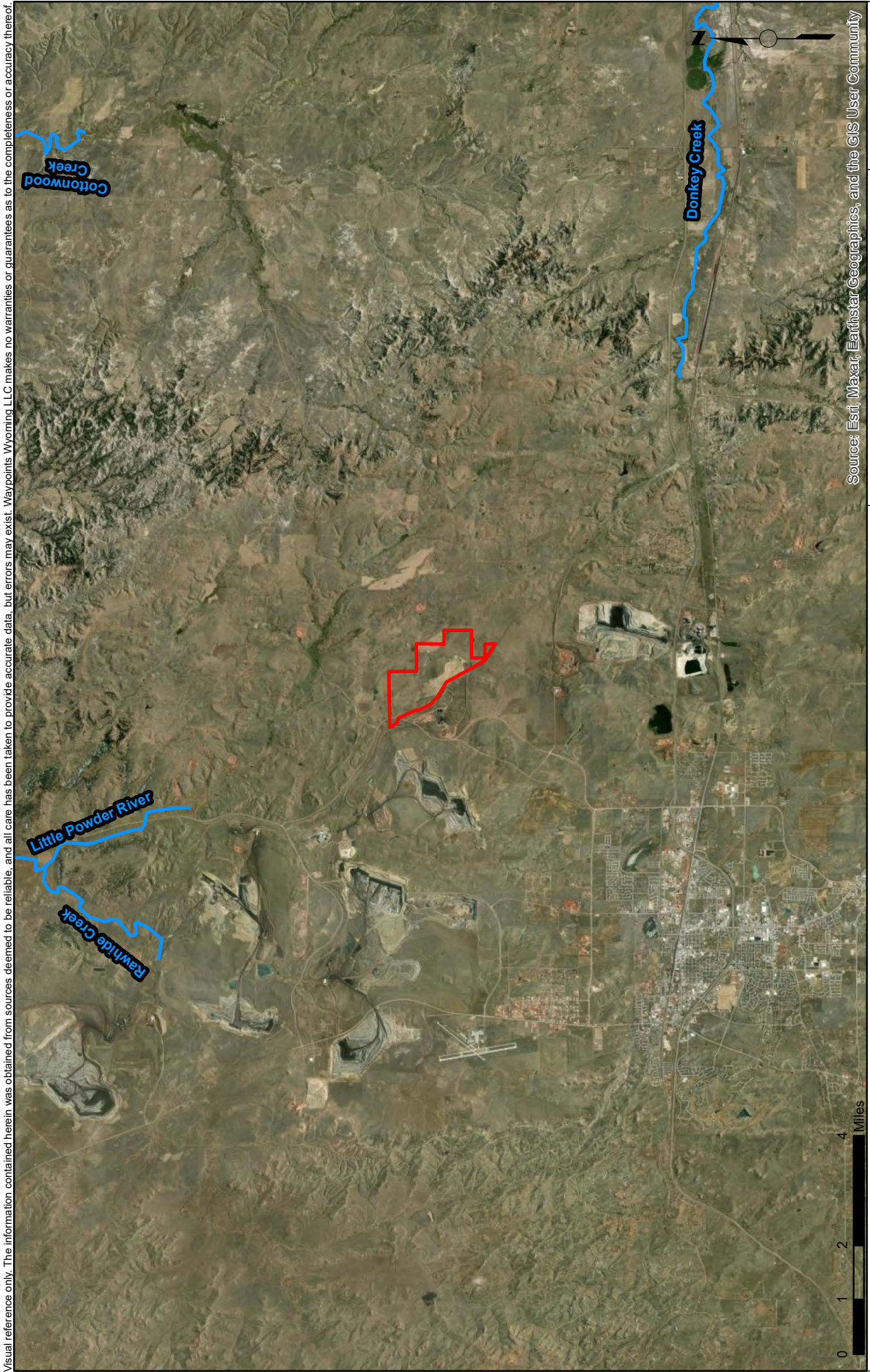
SYNTHETIC FUELS SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
2TS LEASING LLC	1
ADDISON RODNEY R & MYRA M REV TRUST	2
BASIN ELECTRIC POWER COOP	3
BERGSTROM JASON	4
BURKHARDT JACKIE & VICKY FAM REV TRUST	5
BURLINGTON NORTHERN RAILROAD CO	6
CALLAWAY GREGORY S & DEBRA S	7
CAMPBELL COUNTY	8
CAMPBELL COUNTY ECONOMIC DEV CORP	9
DEPT OF INTERIOR/BLM	Fed
DERKSEN R ROSS & NANCY D	10
EIXENBERGER DAVID W	11
ELLIOTT AUDREY A & PHILLIP J	12
ELMORE MICHAEL J	13
ESPONDA JOHN III	14
FORT UNION LTD	15
FOY DENNES M & PATRICIA A LIVING TRUST	16
GREEN BRIDGE HOLDINGS INC	17
GREGORY CHARLES L	18
HOAGLUND TIMOTHY A & TAMMY	19
HORSETREE LLC	20
JOLOVICH TODD RUSSELL & TANYA RAE	21
JONES CODY	22
KENYON MICHAEL S	23
KERNS EDDIE & DEANNA	24
L & L PROPERTIES WY LLC	25
L QUARTER CIRCLE LLC	26
LEIH KEVIN A & DEBRA JO	27
MADSEN FAMILY TRUST	28
MELGAARD FAMILY LIMITED PARTNERSHIP	29
MILLS SAMUEL E ETAL	30
MITCHELL JAMES PATRICK & LORI JO LIVING TRUST	31
NORTON JACOB N & MISTY	32
PADOVA ALFRED W & MARY L	33
PLUMB CRYSTAL RENEE & ALLAN DAVID	34
SCHWINDT DENNIS D & RAYMOND R REV LIFE TRUST C/O	35

SYNTHETIC FUELS SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
SHEPPARD CYNTHIA	36
SPEAR TWO LLC	37
STATE OF WYOMING	State
TAYLOR JOHN PATRICK & SYDNEY HANNAH	38
TERRY CLAY & MISTY	39
TOTAL CONSTRUCTION	40
VANDERVOORT DAVID E & INGA J	41
WESTERN FUELS WYOMING INC	42
WILLIAMS GERALD & DONNA RUTH	43
WILLIAMS THOMAS &	44
WYODAK RESOURCES DEVELOPMENT CORP	45

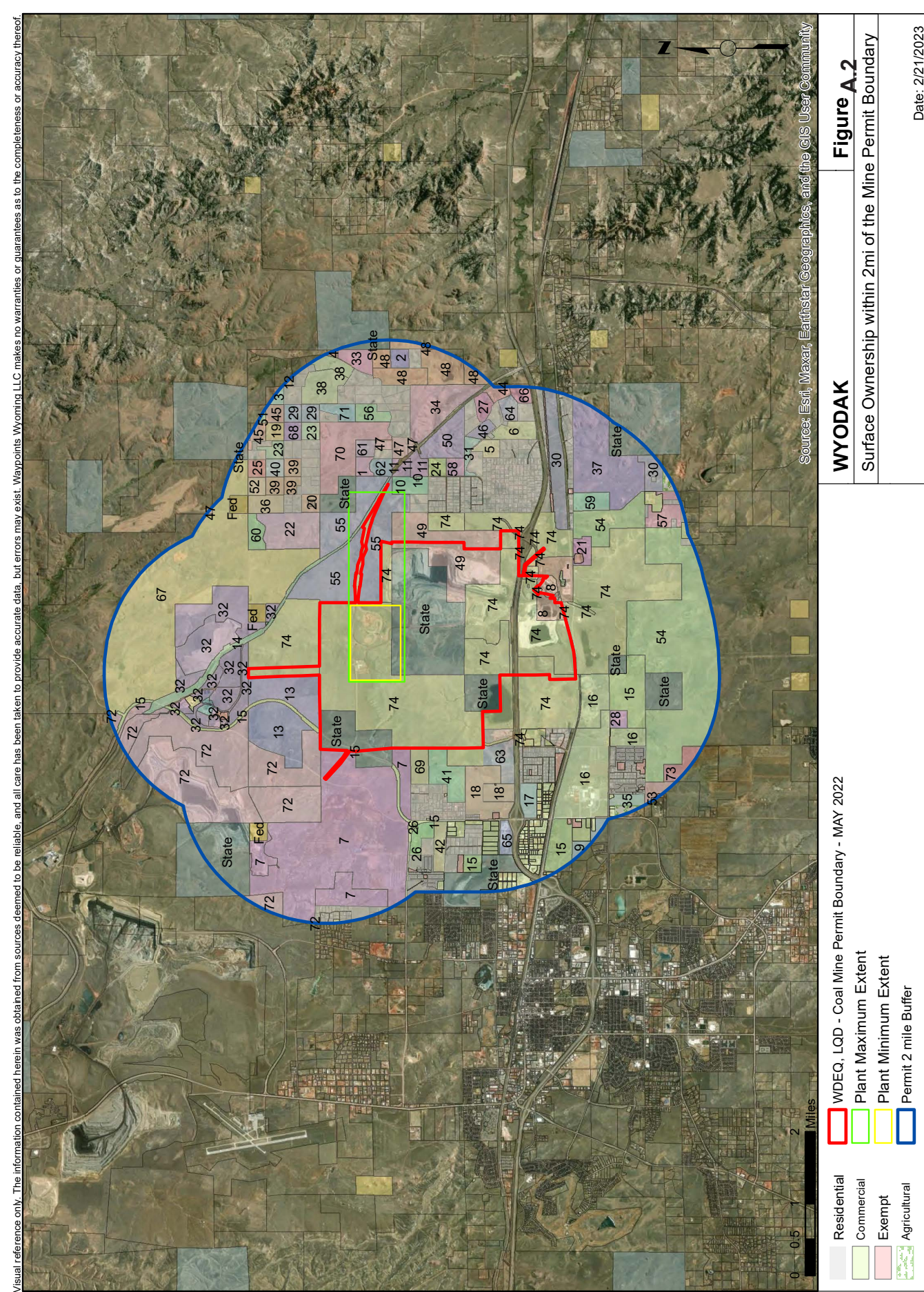
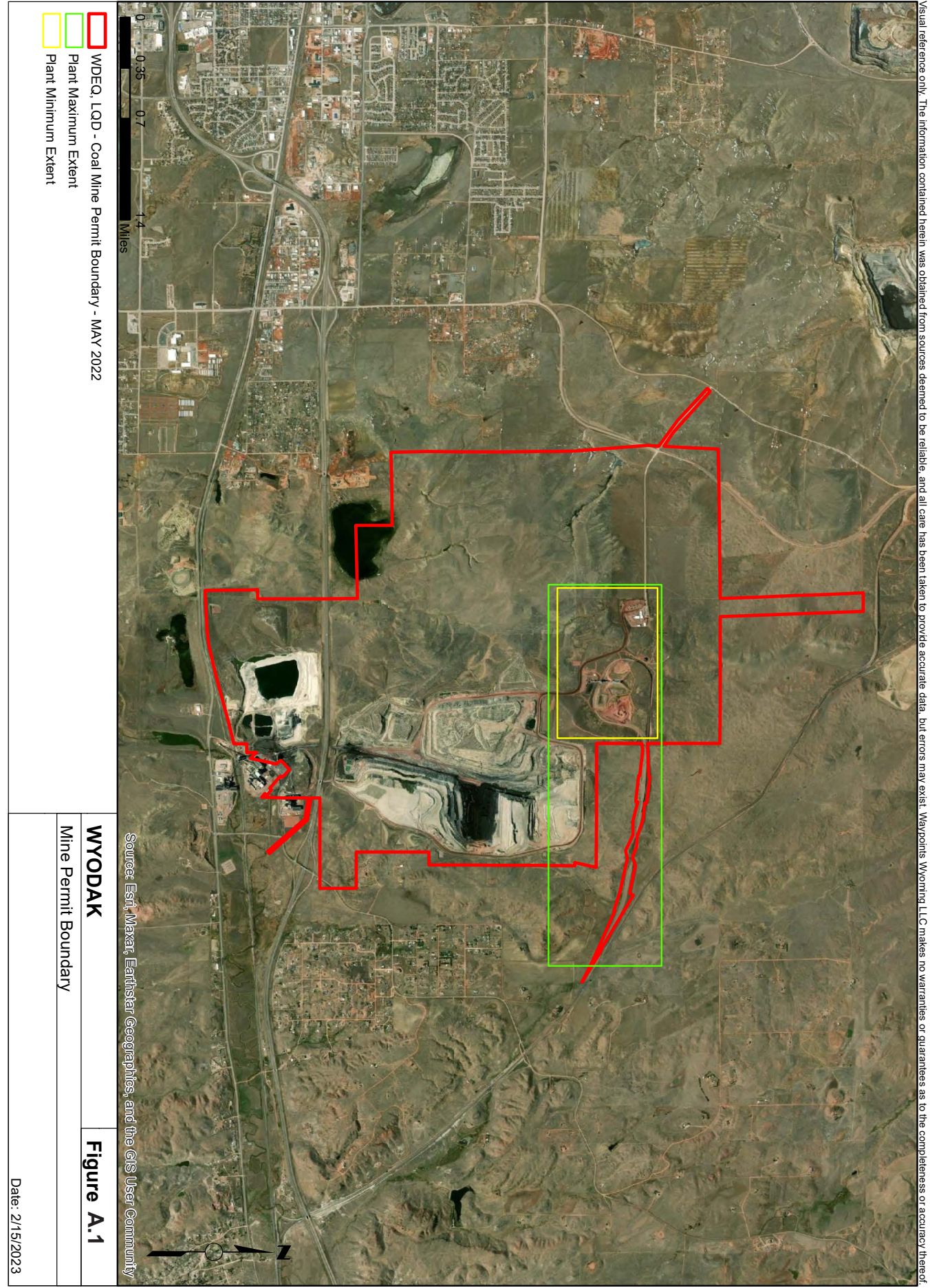




SYNTHETIC FUELS MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P202052.0W	Complete	WESTERN FUELS WYOMING, INC.	PIT 1 DEWATERING SUMP	MIS	1000	250	-105.414219	44.3656
P9928.0W	Fully Adjudicated	GREEN BRIDGE HOLDINGS INC.	SPRINGEN RANCH WATER SUPPLY WELL NO. 1	IND_ GW	510	3685	-105.392389	44.362081
CR UW02/292	Fully Adjudicated	AMOCO PRODUCTION COMPANY	SPRINGEN RANCH WATER SUPPLY WELL NO. 1	IND_ GW	625		-105.392261	44.362131

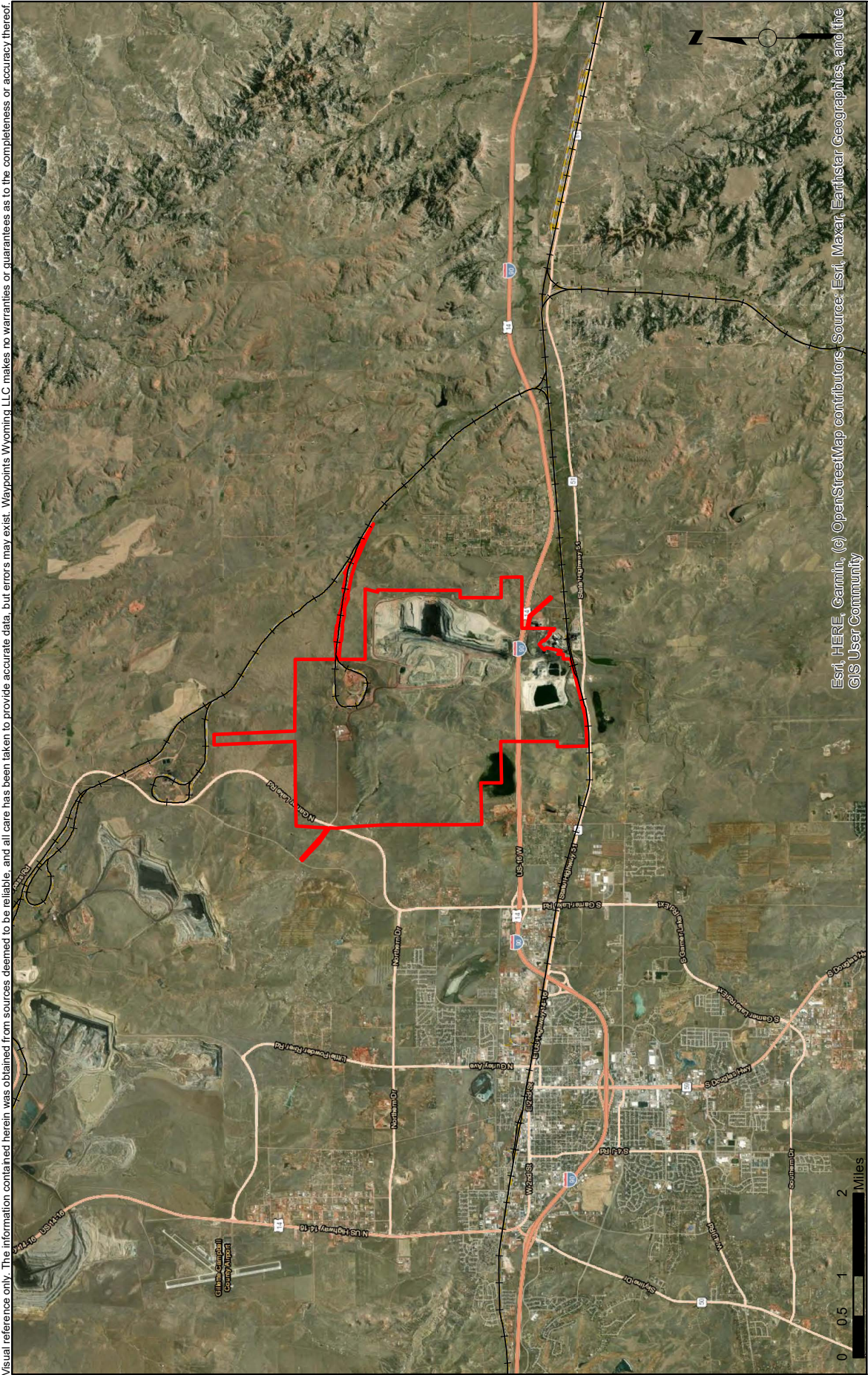


SYNTHETIC FUELS		Figure A.7
Streams		
WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022		
Date: 2/18/2023		



WYODAK SURFACE OWNERSHIP TABLE		
SURFACE OWNER	IDENTIFIER	
ADELS CRAIG A & SHARON	1	
ALLEN JUSTIN	2	
ANDERSON TYREL G	3	
ANTON ROGER & LAVON	4	
ARCHER LORI ANN	5	
BARBER MICHAEL D & JUDY L	6	
BASIN ELECTRIC POWER COOP	7	
BLACK HILLS POWER & LIGHT COMPANY	8	
BOXELDER DEVELOPMENT GROUP LLC	9	
BRICKER LESLIE STEVEN & LINDA K	10	
BRICKER STANLEY L & DIANA	11	
BUDD DAVID & TRACIE	12	
BURKHARDT JACKIE & VICKEY FAM REV TRUST	13	
BURLINGTON NORTHERN RAILROAD CO	14	
CAMPBELL COUNTY	15	
CAMPBELL COUNTY PUBLIC LAND BOARD	16	
CAPPS LINDA R REVOCABLE TRUST	17	
CAPPS LINDA R REVOCABLE TRUST	18	
CLASSON TRACY L	19	
DERKSEN R ROSS & NANCY D	20	
DOM LLC	21	
ELMORE MICHAEL J	22	
ESPONDA JOHN ARTHUR III	23	
FIELDS WILLIAM D & JOANNE C	24	
FOY DENNES M & PATRICIA A LIVING TRUST	25	
FRALICK FAMILY TRUST (THE)	26	
GERWE DAVID M	27	
GILLETTE COLLEGE FOUNDATION	28	
GILLIAM JAMES & KELLY FAMILY REV TRUST	29	
GLADSON FAMILY TRUST	30	
GOMEZ JOSE R ZELIM- &	31	
GREEN BRIDGE HOLDINGS INC	32	
HARDY LARRY & BARBARA FAMILY REV TRUST	33	
HAYDEN RICKY R & JEANINE B	34	
HG PROPERTIES LLC	35	
HOAGLUND TIMOTHY A & TAMMY	36	
JOHNSON COLT & JANET	37	
JOHNSON ROBERT LEE REV TRUST	38	

WYODAK SURFACE OWNERSHIP TABLE		
SURFACE OWNER	IDENTIFIER	
JOLOVICH TODD RUSSELL & TANYA RAE	39	
KERNS EDDIE & DEANNA	40	
KISSACK CLAUDE R JR & KATHY E	41	
KLUVER JOHN MILO TRUST	42	
L & L PROPERTIES WY LLC	43	
LEIKER TONY & BURGUNDY	44	
MADSEN FAMILY TRUST	45	
MCFARLIN GLEN & SUSAN	46	
MELGAARD FAMILY LIMITED PARTNERSHIP	47	
MELGAARD JOHN E & MARY JANE REV TRUSTS	48	
MILLS SAMUEL E ETAL	49	
OKRAY MAURICE & SHARON FAMILY TRUST	50	
OVERBY CLARENCE E & E SHARLIENE	51	
PADOVA ALFRED W & MARY L	52	
PICKREL CLINTON I TRUST &	53	
PICKREL LAND & CATTLE CO INC	54	
PLUMB CRYSTAL RENEE & ALLAN DAVID	55	
RATHBUN RONALD J &	56	
REYNOLDS HARRY GENE & DIANA LOUISE	57	
SAUR VICTOR R & DARLENE	58	
SCHWEITZER SHERYL	59	
SCHWINDT DENNIS D & RAYMOND R REV LIFE TRUST C/O	60	
SHELLY MARK & BRADLEY	61	
SHELLY MARK S & STARLA K	62	
SOUTHWELL VIRGINIA C/O	63	
STARR MARK & KIMBERLY	64	
STATE HWY DEPT	65	
STATE OF WYOMING	State	
THOMAS TAMMY	66	
TOTAL CONSTRUCTION INC	67	
TOTH FELICIA T	68	
TRI-STATE GENERATION & TRANSMISSION &	69	
VANDERVOORT DAVID E & INGA J	70	
VANDERVOORT KEITH R & ANN M	71	
WESTERN FUELS WYOMING INC	72	
WETHERELT D RENEE REVOCABLE TRUST	73	
WYODAK RESOURCES DEVELOPMENT CORP	74	

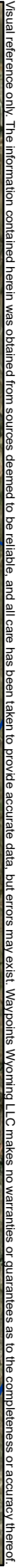


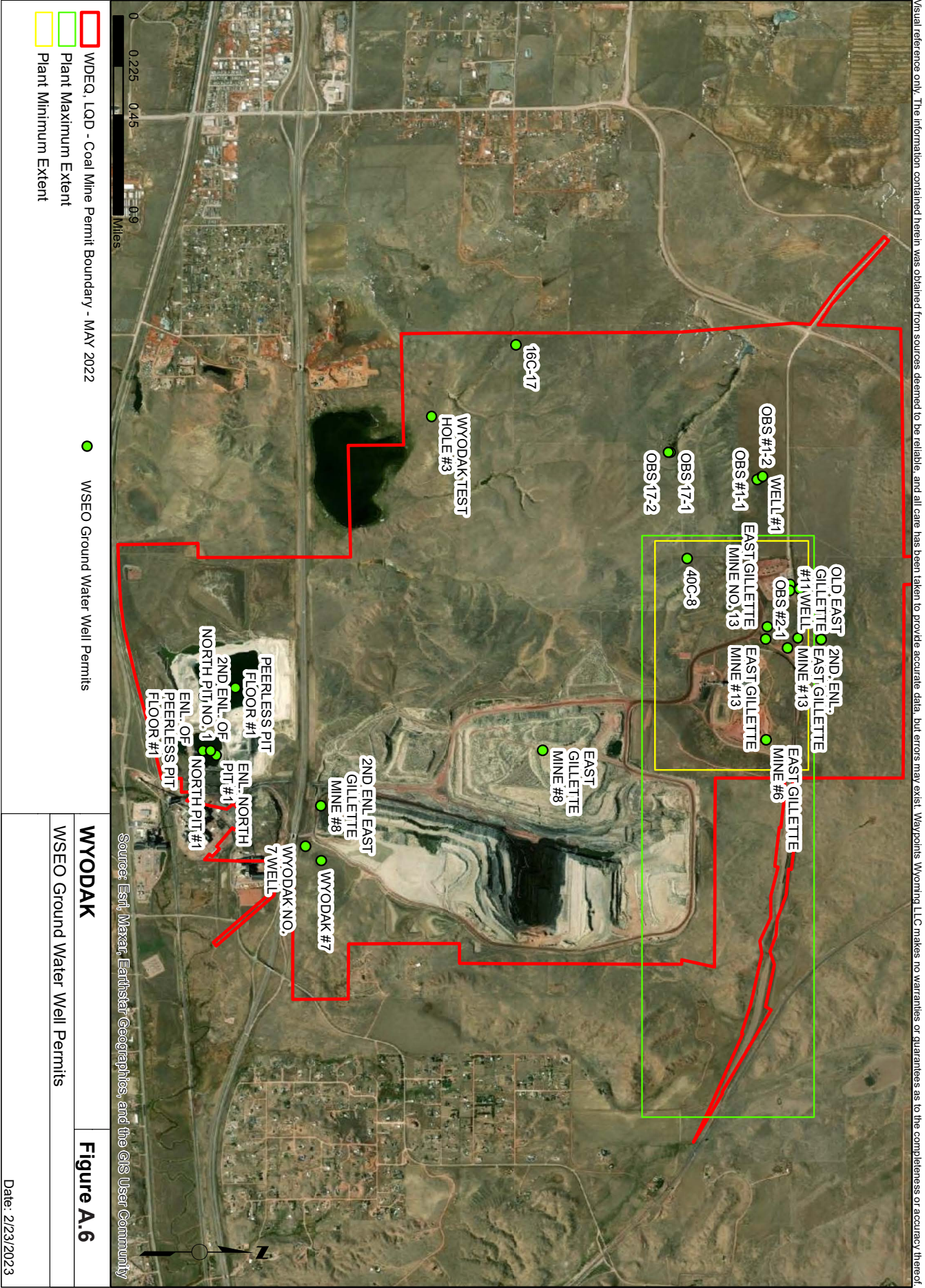
WDEQ, LQD - Coal Mine Permit Boundary - MAY 2022

WYODAK

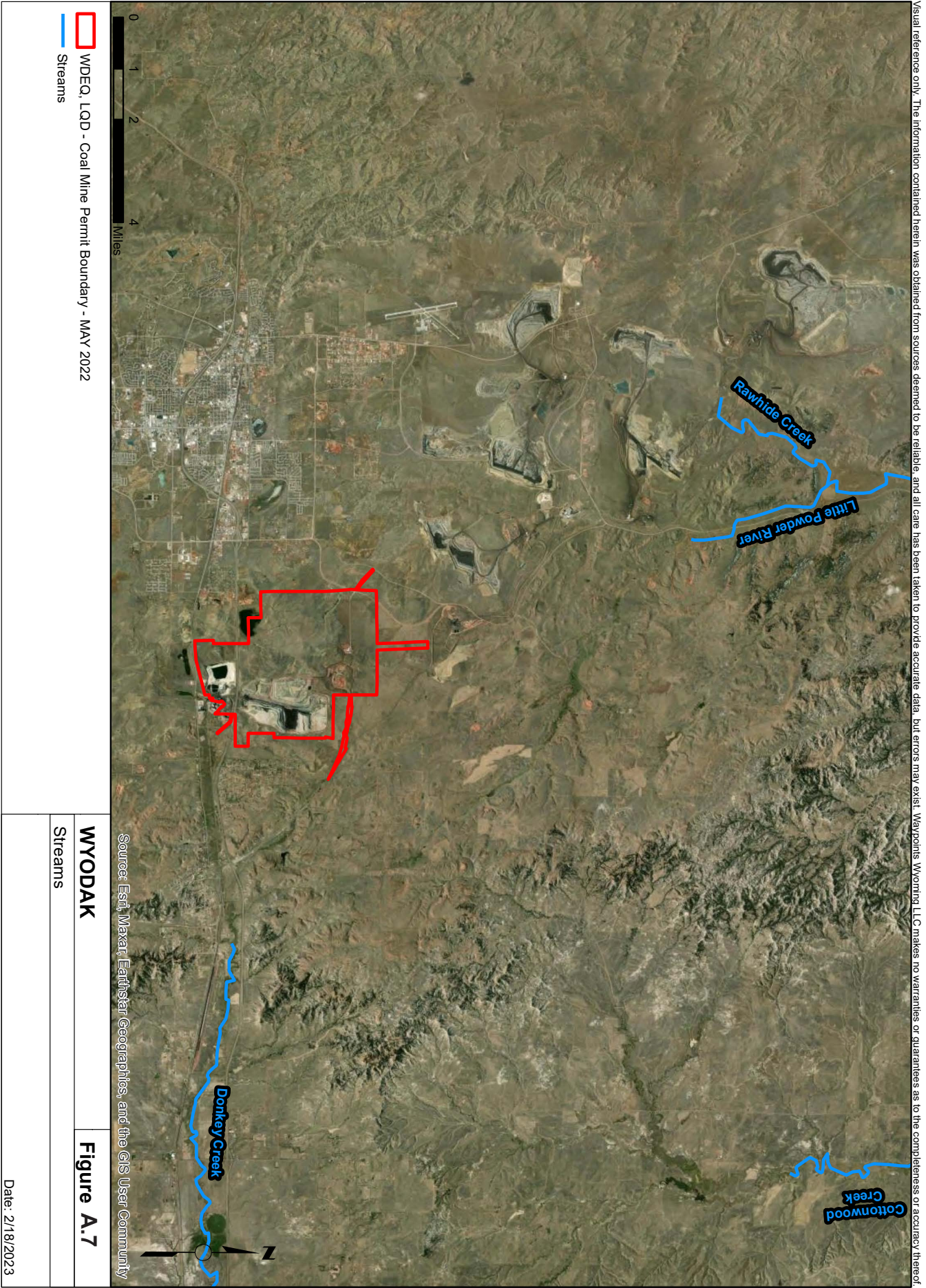
Transportation

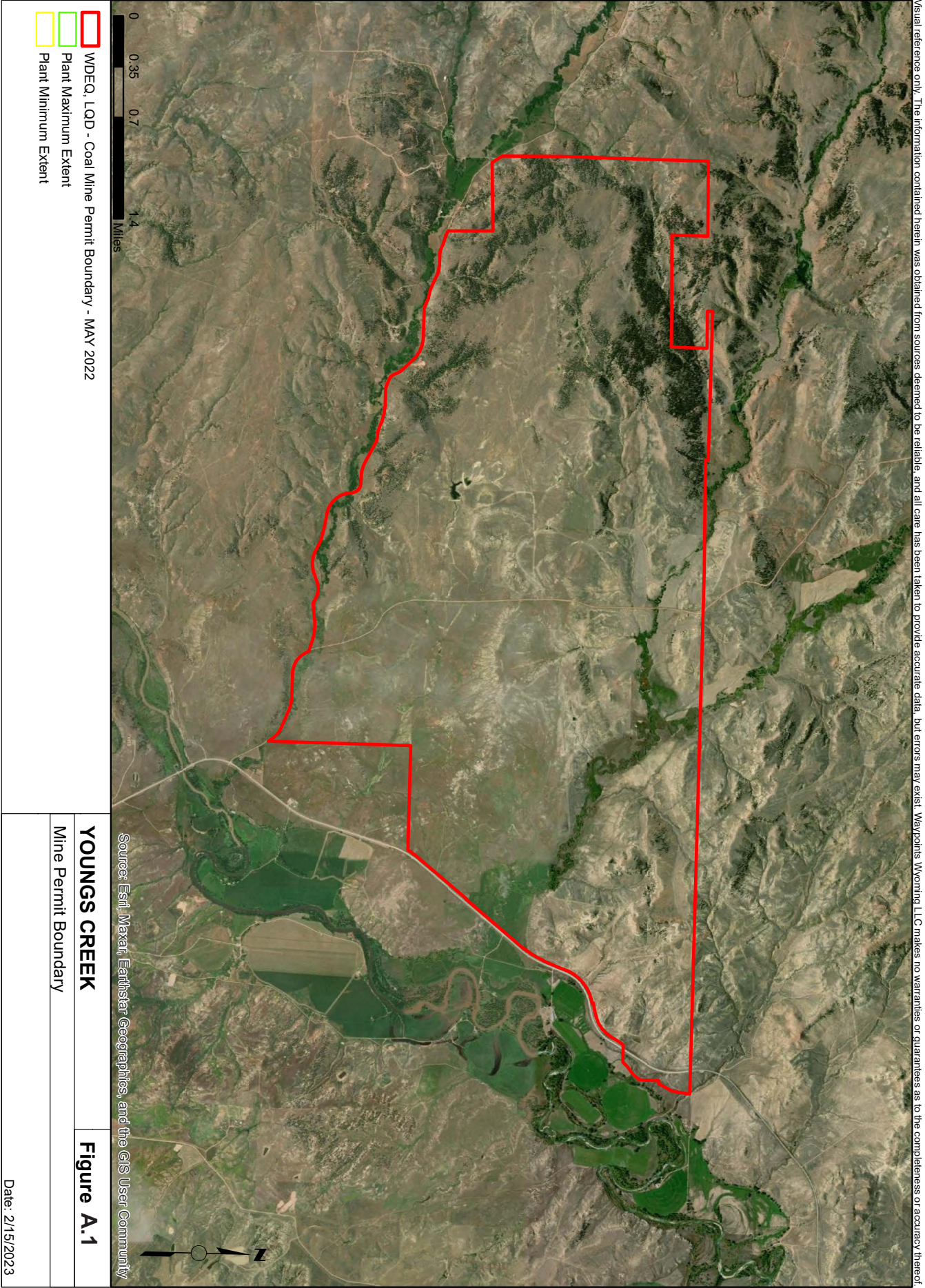
Figure A.3



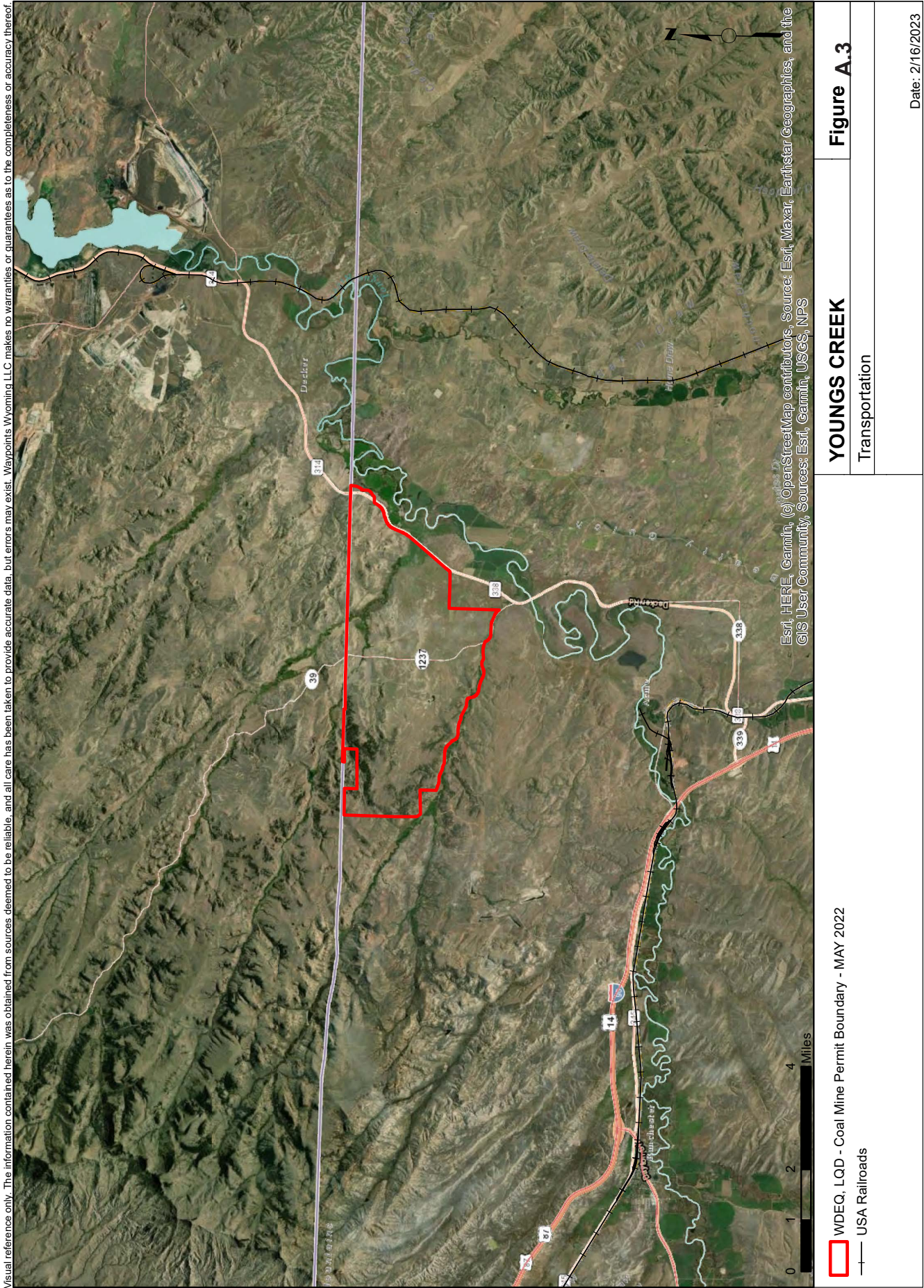


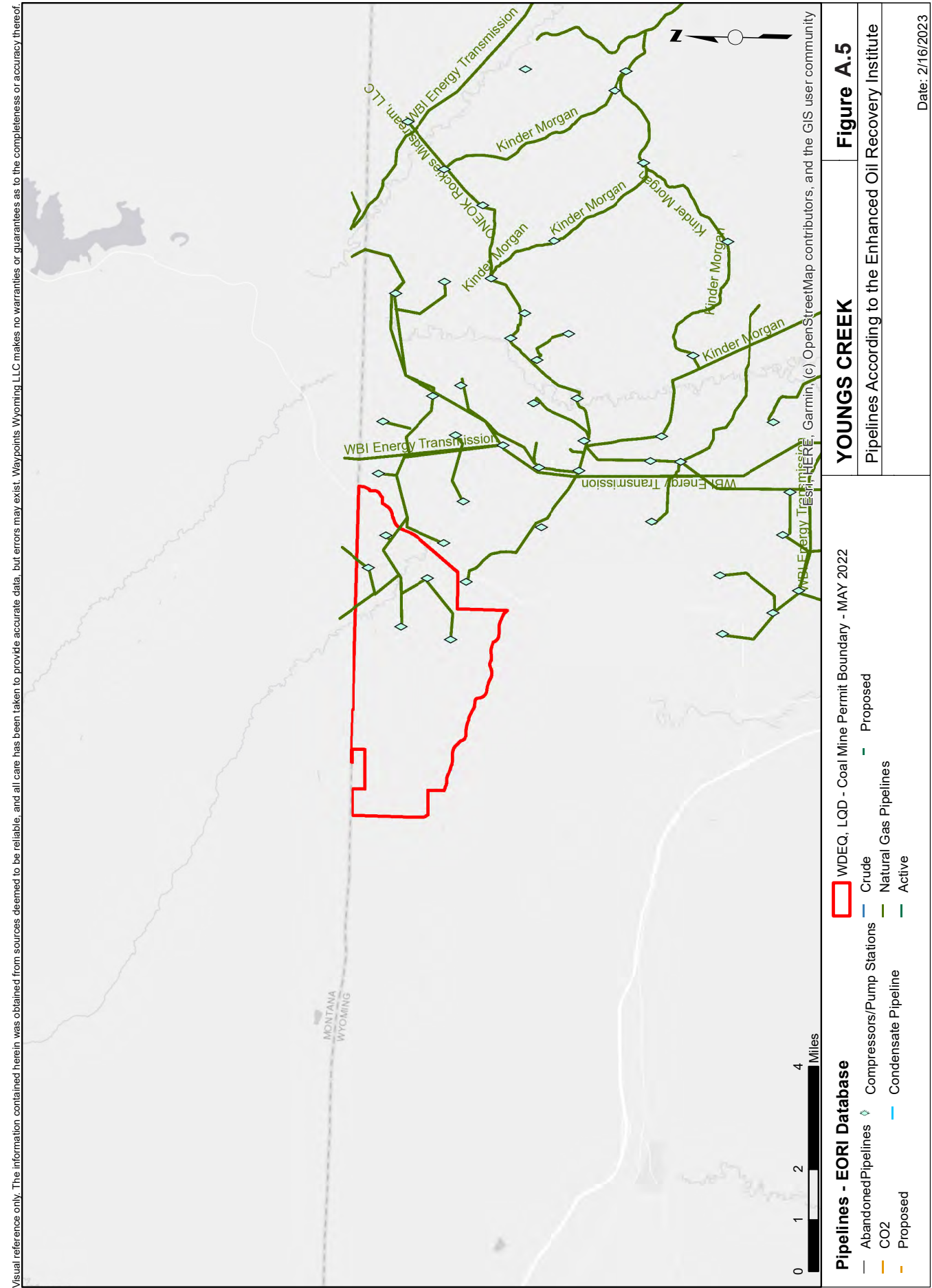
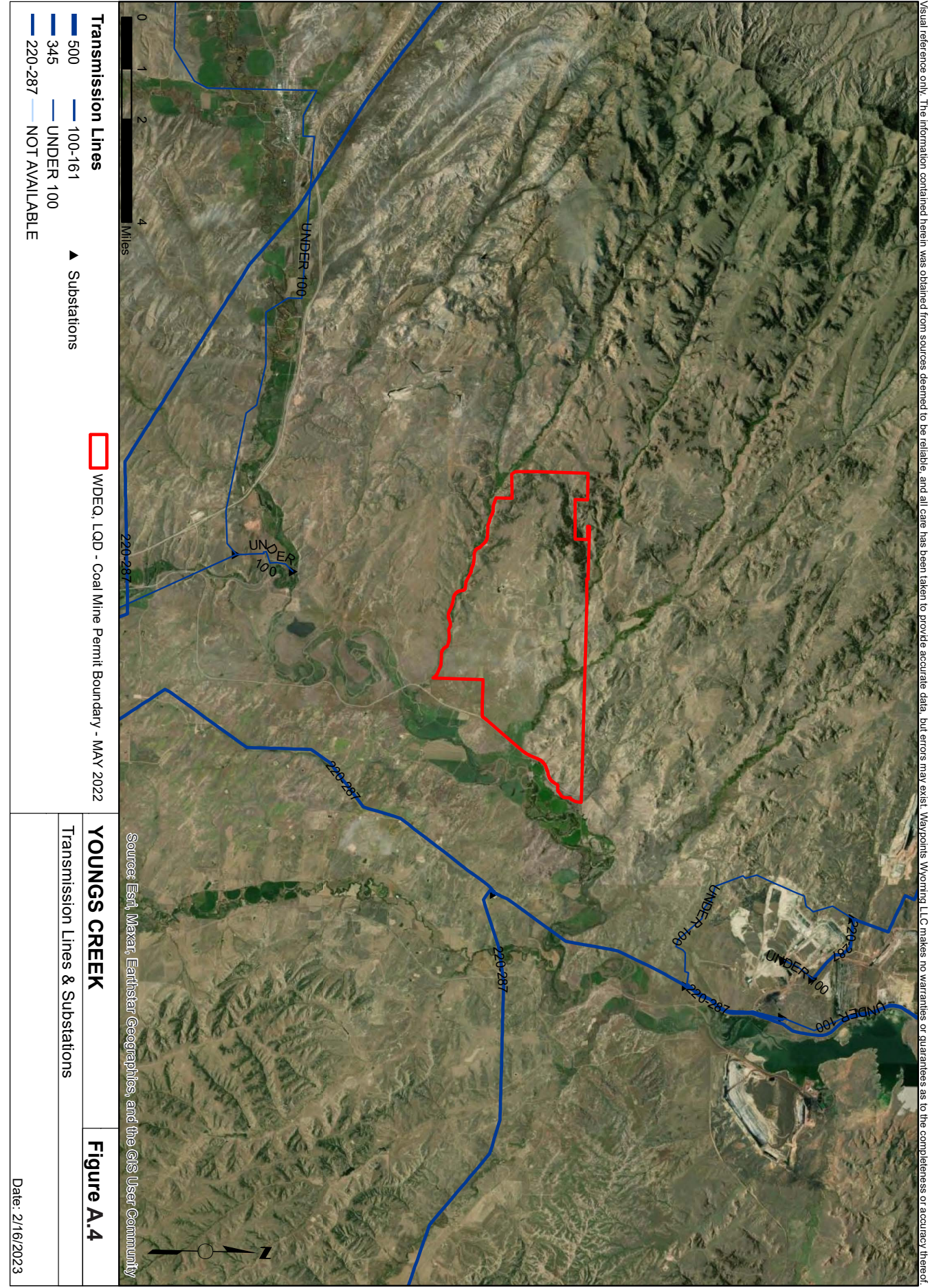
WYODAK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P15412.0W	Complete	Black Hills Power & Light	WYODAK TEST HOLE #3	MIS	0	130	-105.42208	44.3038
P193630.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	2ND. ENL. EAST GILLETTE MINE #13	IND_GW; MIS	0		-105.401092	44.327258
P193632.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	PEERLESS PIT FLOOR #1	IND_GW; MIS	700	50	-105.3972	44.29106
P193633.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	ENL. NORTH PIT #1	IND_GW; MIS	0		-105.391061	44.288803
P198027.0W	Complete	WYODAK RESOURCES DEVELOPEMENT CORP	ENL. OF PEERLESS PIT FLOOR #1	IND_GW; MIS	1430		-105.39645	44.28898
P198028.0W	Complete	WYODAK RESOURCES DEVELOPEMENT CORP	2ND ENL. OF NORTH PIT NO. 1	IND_GW; MIS	300		-105.39145	44.28893
P202767.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	OLD EAST GILLETTE #11 WELL	IND_GW; MIS	40	1225	-105.40692	44.32739
P204175.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	2ND ENL EAST GILLETTE MINE #8	IND_GW; MIS	2600		-105.38647	44.2967
P29431.0W	Complete	WYODAK RESOURCES	WELL #1	MIS	0	160	-105.416664	44.325408
P29432.0W	Complete	WYODAK RESOURCES	OBS #1-1	MIS	0	160	-105.416489	44.325214
P29433.0W	Complete	WYODAK RESOURCES	OBS #1-2	MIS	0	160	-105.416789	44.325542
P29436.0W	Complete	WYODAK RESOURCES	OBS #2-1	MIS	0	180	-105.401992	44.327908
P29437.0W	Complete	WYODAK RESOURCES	OBS 17-1	MIS	0	240	-105.418894	44.319503
P29438.0W	Complete	WYODAK RESOURCES	OBS 17-2	MIS	0	240	-105.418903	44.319364
P30363.0W	Complete	WYODAK RESOURCES	40C-8	MIS	0	240	-105.409244	44.320639
P30364.0W	Complete	WYODAK RESOURCES	16C-17	MIS	0	220	-105.428692	44.309328
P32057.0W	Fully Adjudicated	Jacobs Ranch Coal Co.	EAST GILLETTE MINE #6	MIS	30	190	-105.4019	44.32946
P32059.0W	Fully Adjudicated	JACOBS RANCH COAL CO.	EAST GILLETTE MINE #9	MIS	75	1480	-105.406356	44.327375
P32060.0W	Fully Adjudicated	Jacobs Ranch Coal Co.	EAST GILLETTE MINE #10	MIS	100	223	-105.4019	44.32946
P32237.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	EAST GILLETTE MINE #8	IND_GW; MIS	200	173	-105.39164	44.31122
P36887.0W	Fully Adjudicated	KERR-MCGEE COAL CORPORATION	EAST GILLETTE MINE #11	IND_GW; MIS	50	1480	-105.40649	44.32803
P44150.0W	Fully Adjudicated	Jacobs Ranch Coal Co.	EAST GILLETTE MINE #13	MIS	125	223	-105.40189	44.32583
P47619.0W	Complete	WyDak Resources Development Corp.	NORTH PIT #1	MIS	1200	150	-105.39147	44.28942
P5543.0W	Fully Adjudicated	BLACK HILLS POWER, INC	WYODAK #7	DOM_GW; IND_GW	27	600	-105.38144	44.29673
CR UW01/029	Fully Adjudicated	BLACK HILLS POWER AND LIGHT COMPANY	WYODAK NO. 7 WELL	DOM_GW; IND_GW	27		-105.38277	44.2957
CR UW03/300	Fully Adjudicated	WYOMING BOARD OF LAND COMMISSIONERS	EAST GILLETTE MINE #6	MIS	30		-105.392689	44.325881
CR UW03/301	Fully Adjudicated	WYOMING BOARD OF LAND COMMISSIONERS	EAST GILLETTE MINE #10	MIS	100		-105.399331	44.328419
CR UW03/303	Fully Adjudicated	KERR MCGEE COAL CORPORATION	EAST GILLETTE MINE #11	MIS	50		-105.40649	44.32803
CR UW04/194	Fully Adjudicated	KERR MCGEE COAL CORPORATION	EAST GILLETTE MINE NO. 13	MIS	125		-105.403019	44.325931
CR UW04/340	Fully Adjudicated	KERR MCGEE COAL CORPORATION	EAST GILLETTE MINE #9 WELL AS CHANGED TO EAST GILLETTE MINE #11 WELL	IND_GW	75		-105.40649	44.32803

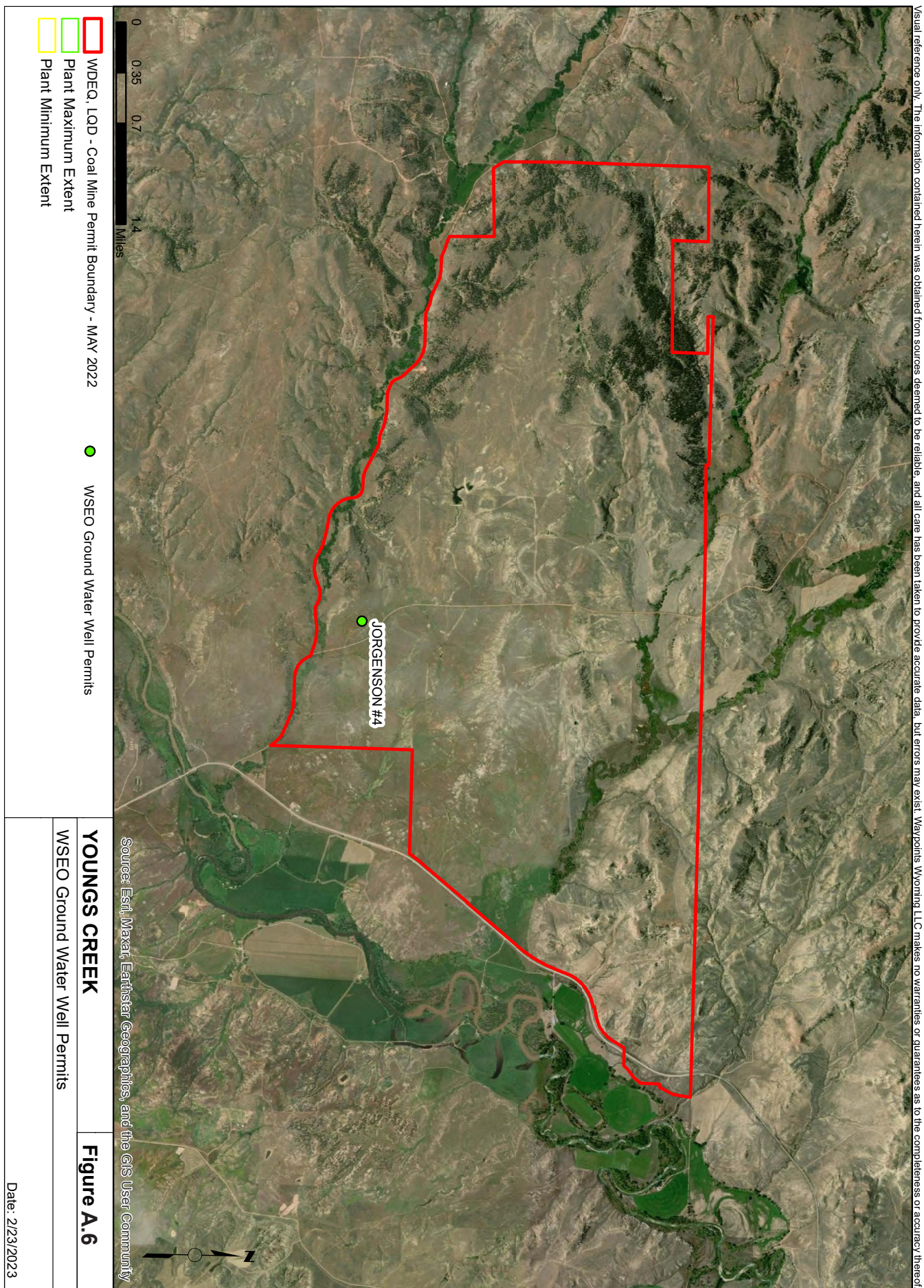




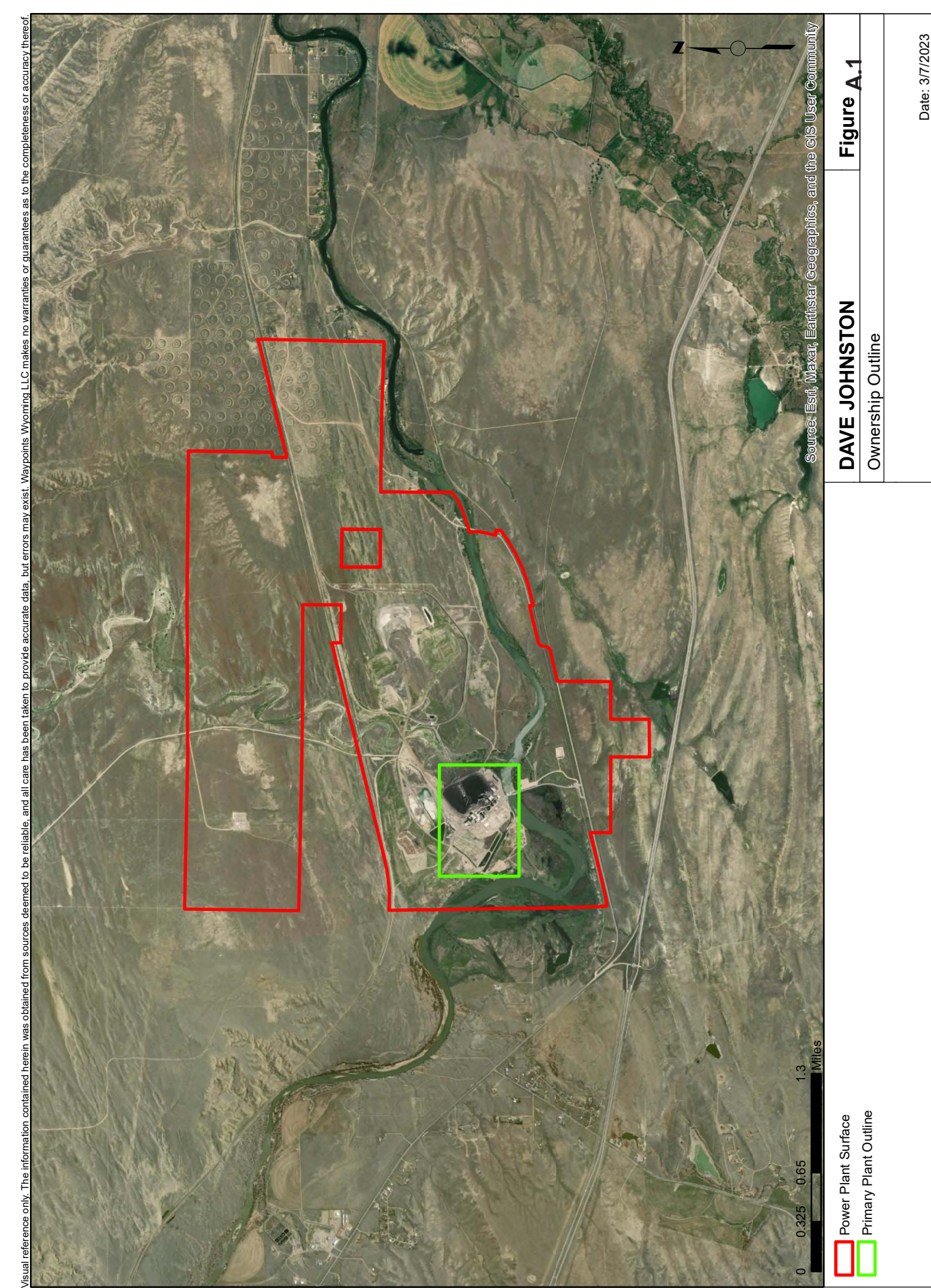
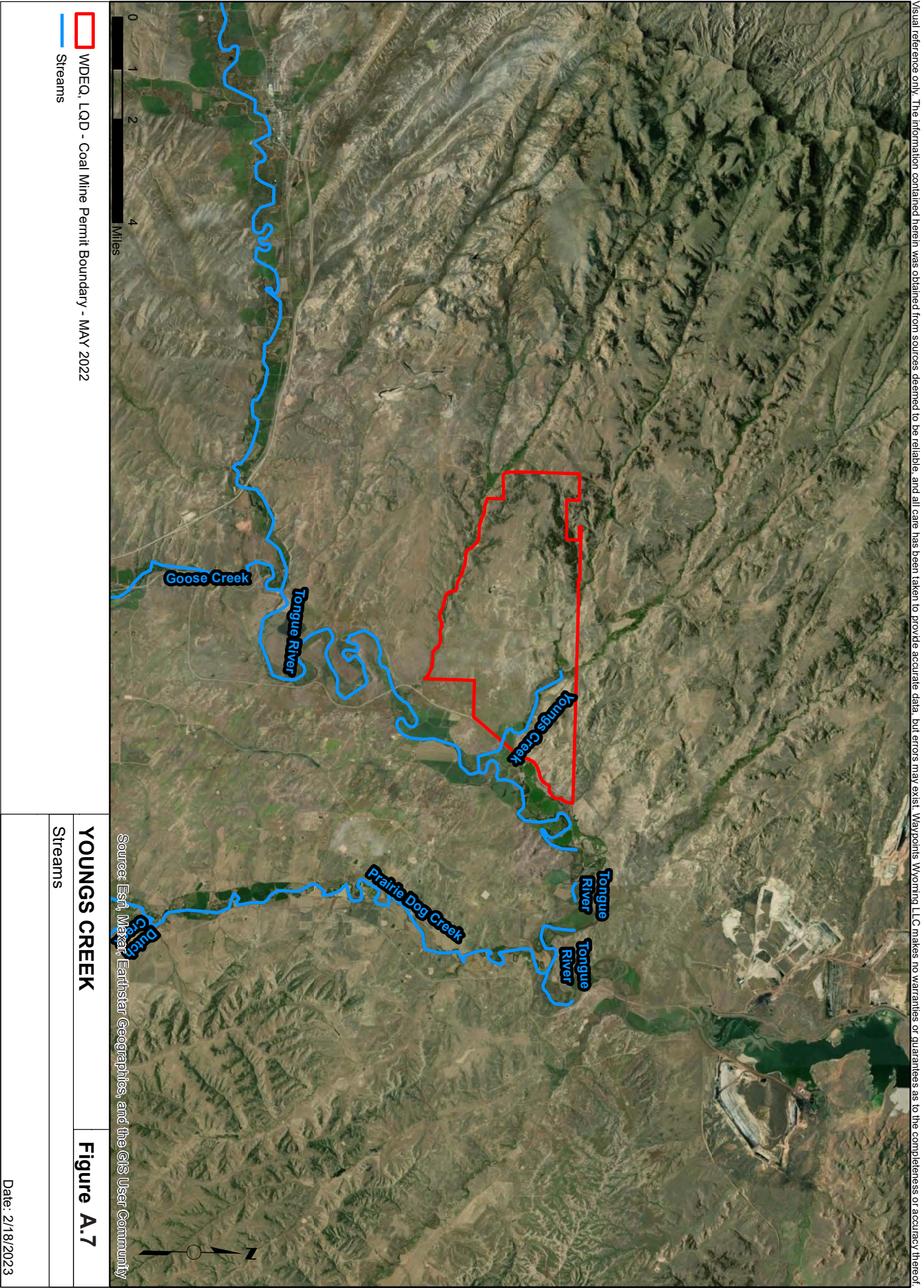
YOUNGS CREEK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ANKNEY SHAWN	1
BLM	Fed
DEWEY CARLTON PATRICK	2
MYER AUDREY A	3
NAVAJO TRANSITIONAL ENERGY COMPANY LLC	4
PADLOCK RANCH CO	5
STATE OF MONTANA	State
USA BUREAU OF LAND MANAGEMENT	Fed
USA IN TRUST FOR CROW TRIBE	Reservation
WILCO LAND LLC	6



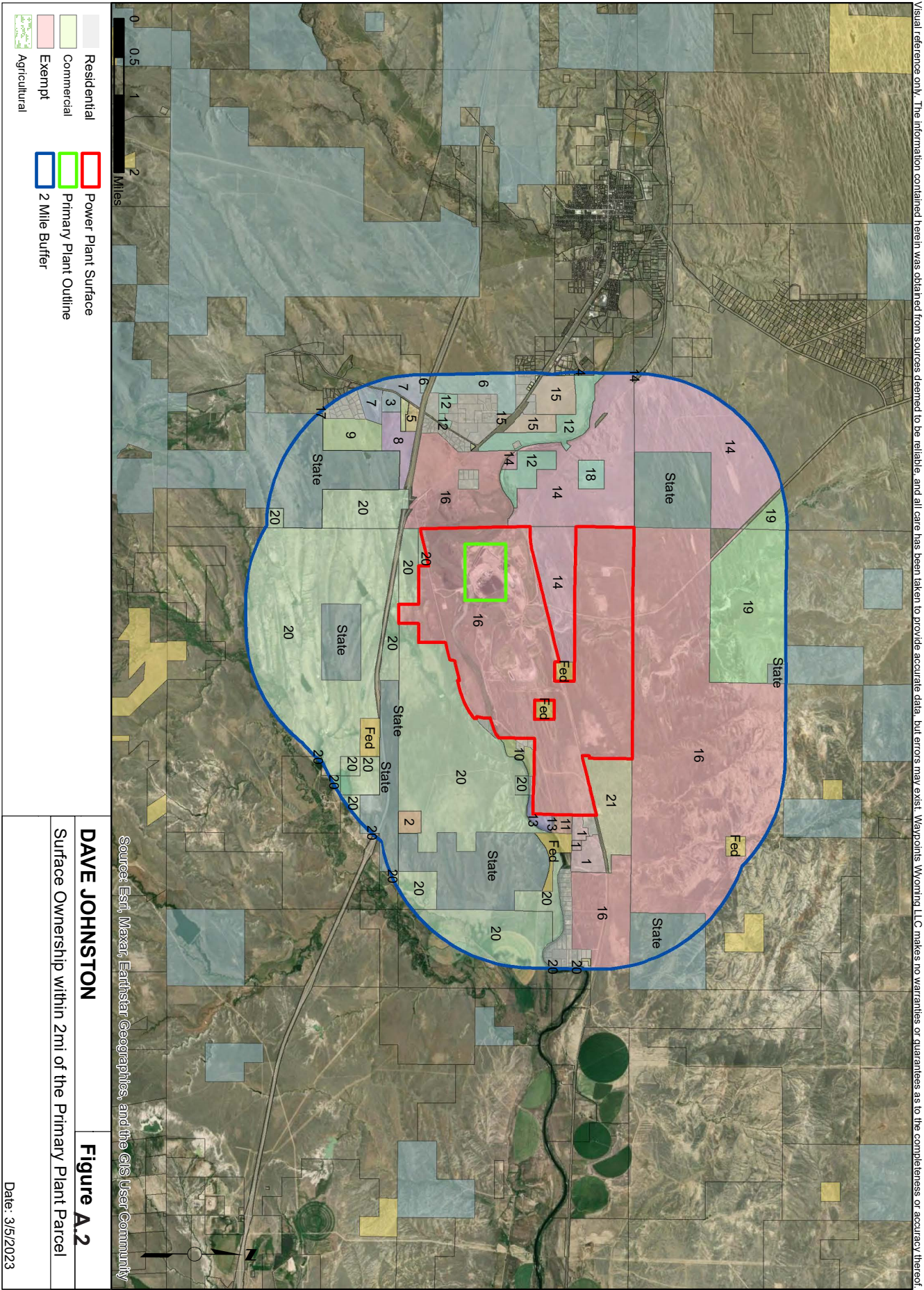


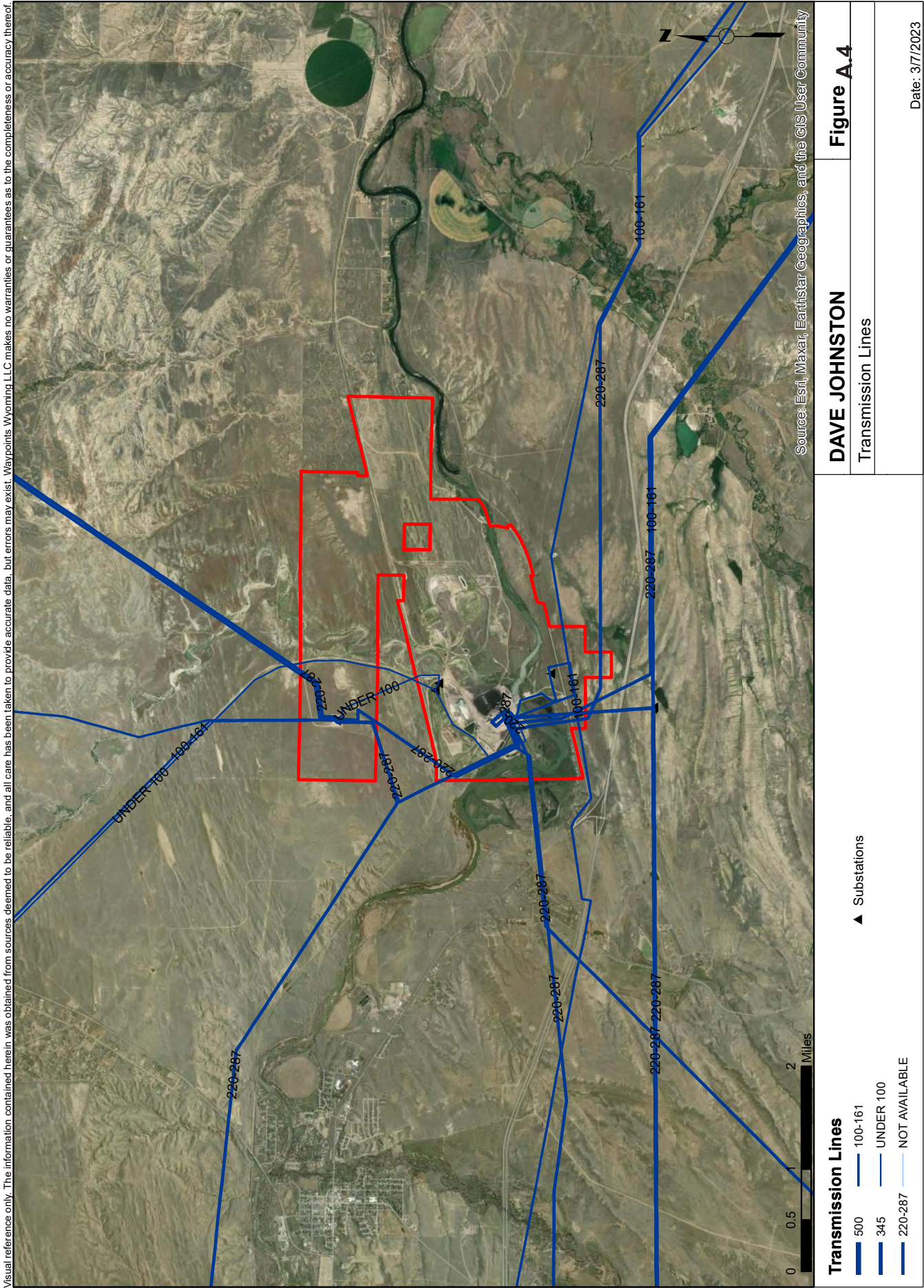
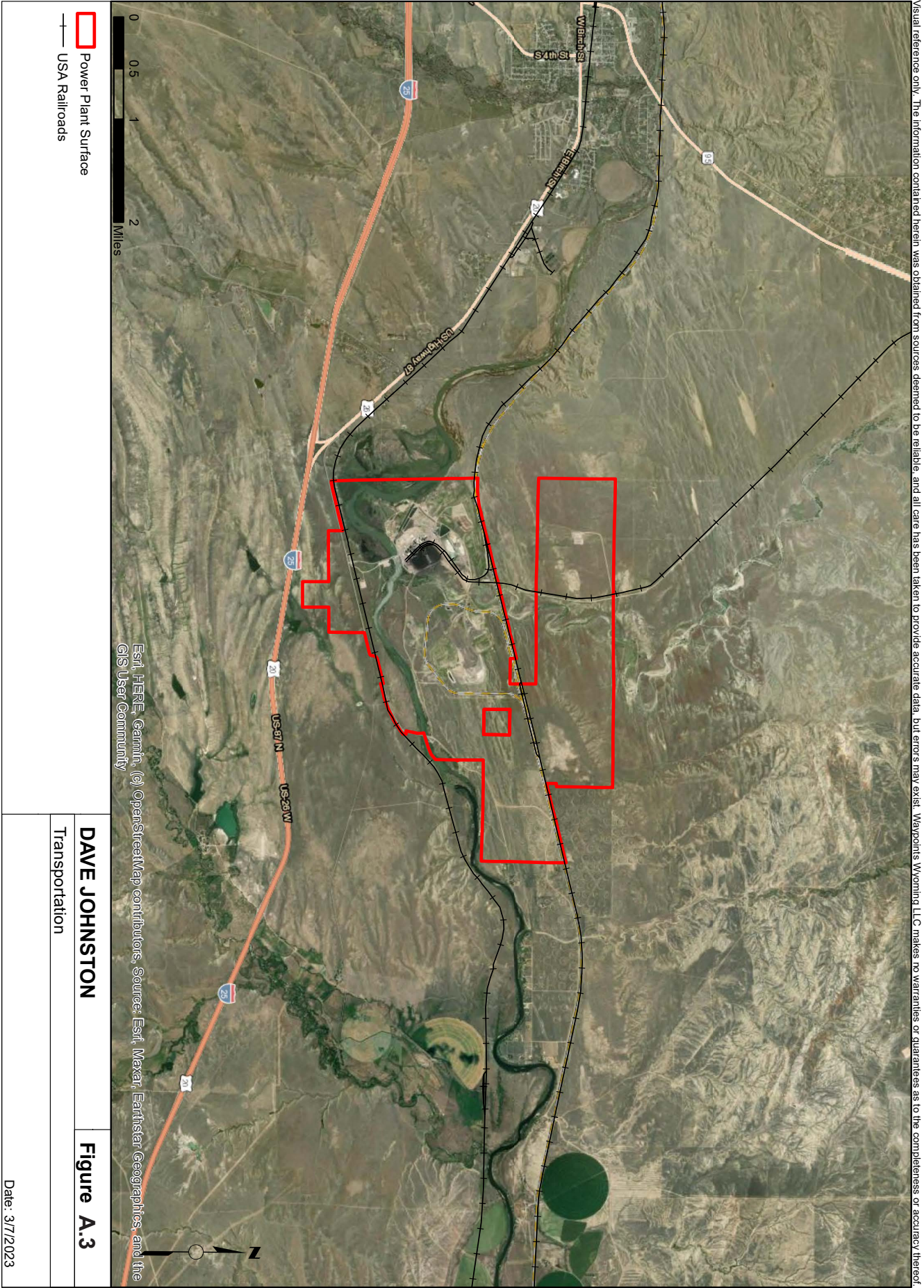


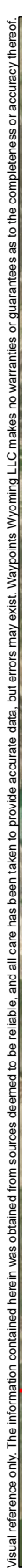
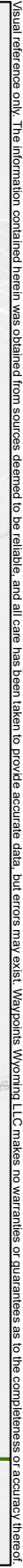
YOUNGS CREEK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P20042.0P	Complete	NAVAJO TRANSITIONAL ENERGY COMPANY	JORGENSEN #4	DOM_ GW; STK	25	200	-106.96435	44.96189



DAVE JOHNSON SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ANDERSON, LINDA M.	1
BASIN ELECTRIC POWER CORP.	2
BLACKBURN, WILLIAM W. ET UX	3
BLM	Fed
CONVERSE COUNTY	4
CUSHMAN, MICHAEL C. ET UX	5
DEER CREEK GRAZING ASSOC. INC. NOTIFY: HOWARD HUXTABLE	6
GRANT, RICHARD C. JR. ET UX	7
GRANT, RICHARD ET AL	8
JONES, BRADLEY A. ET UX	9
LAUDON, BRIAN	10
LEE, MICHAEL JOSEPH ET UX	11
MAGEE LAND & LIVESTOCK LLC	12
MANGUS REVOCABLE TRUST ET AL	13
MART MADSEN SHEEP COMPANY	14
MILLER, RONALD P. ET UX	15
PACIFIC POWER & LIGHT COMPANY	16
SANDRA SHEDD LIVING TRUST	17
STATE OF WYOMING	State
T4, LLC	18
TILLARD 55 LIMITED PARTNERSHIP	19
TRUE RANCHES LLC	20
VOLLMAN RANCHES INC	21

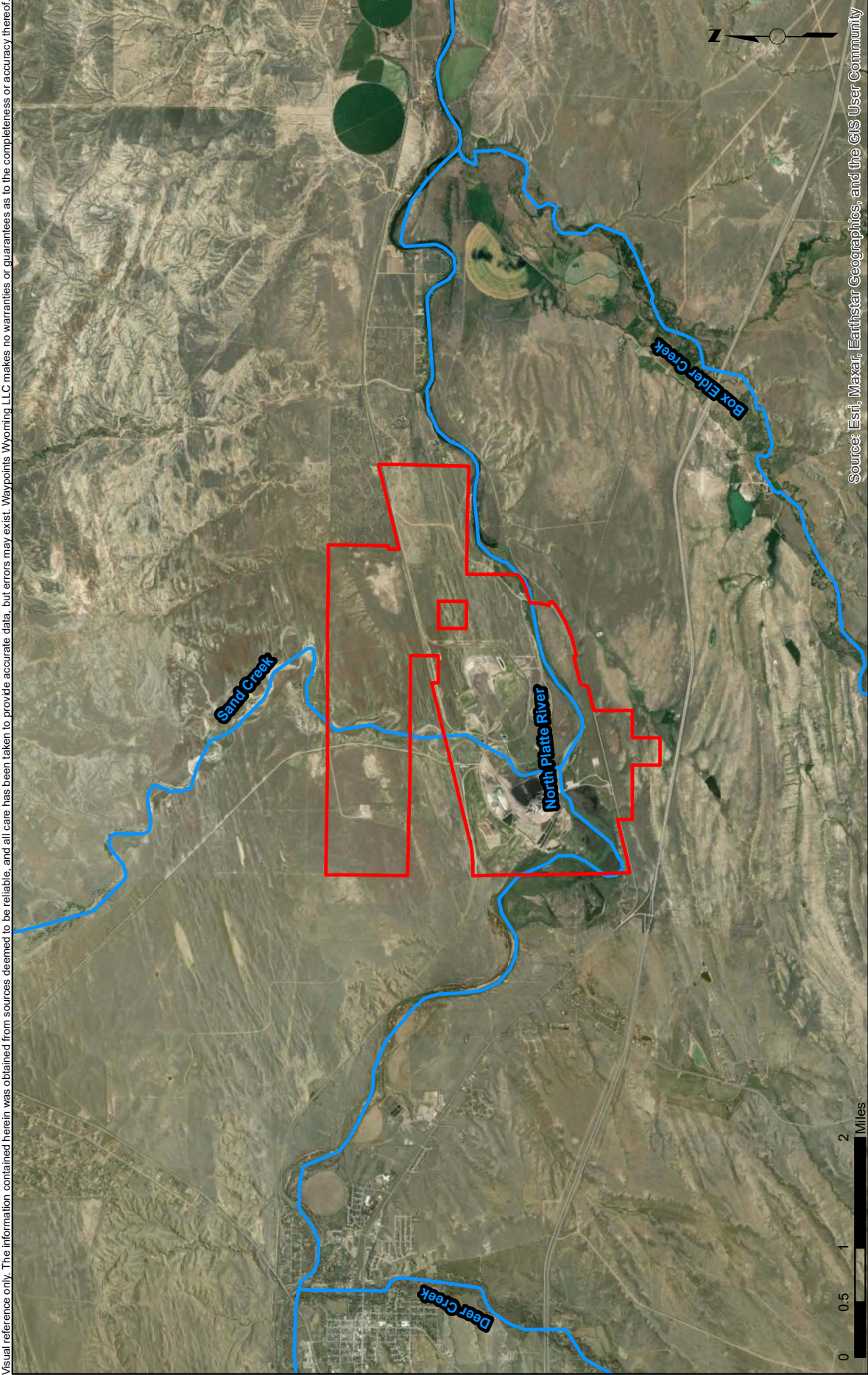






<div><div></div>Power Plant Surface</div> <div><div></div>Streams</div>	DAVE JOHNSTON	Figure A.7
	Streams	

Date: 3/1/2023

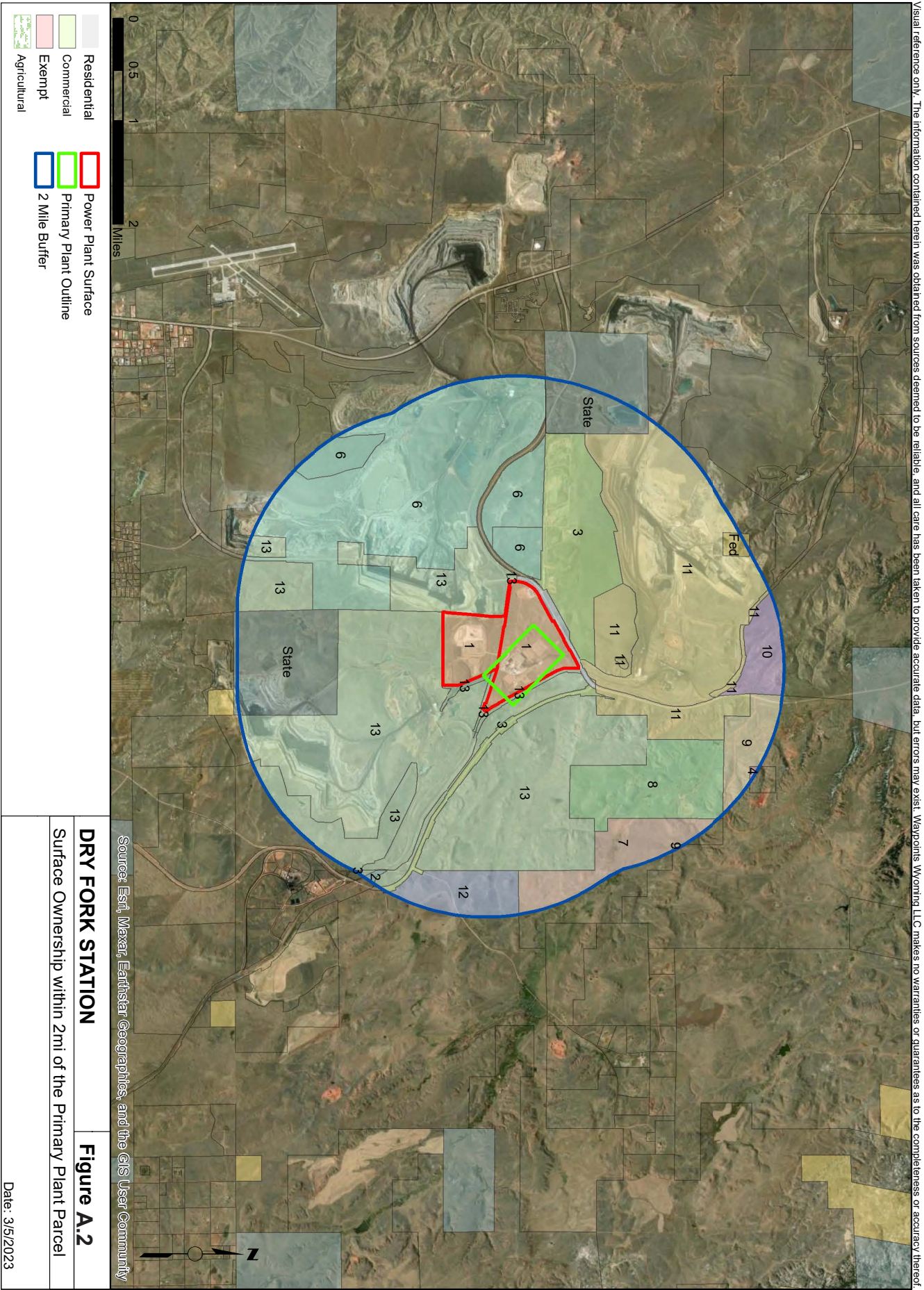


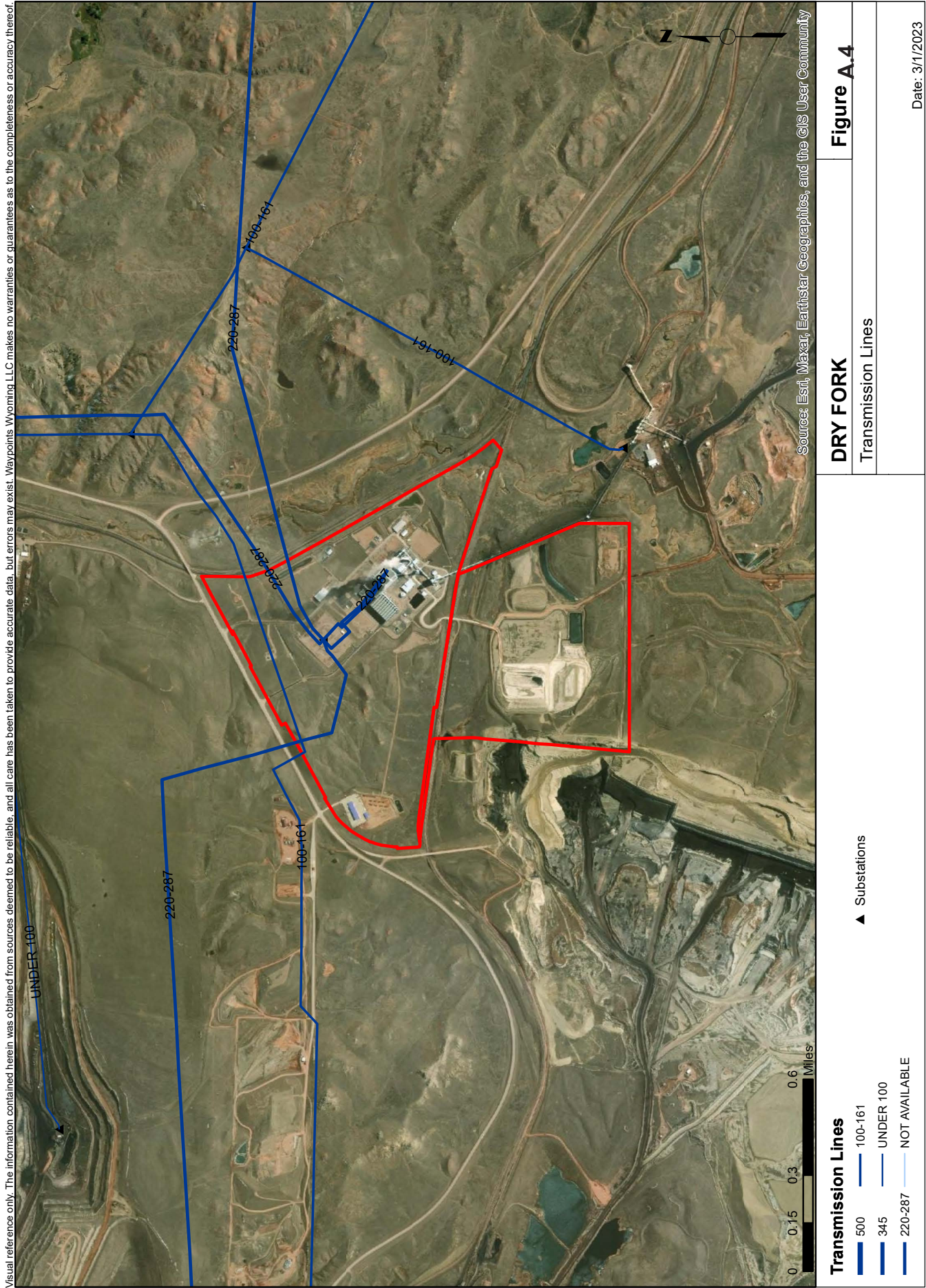
The information contained herein was obtained from sources deemed reliable and is intended to provide accurate data, but errors may exist. Waypoints Wyoming makes no warranties or guarantees as to the completeness or accuracy thereof.

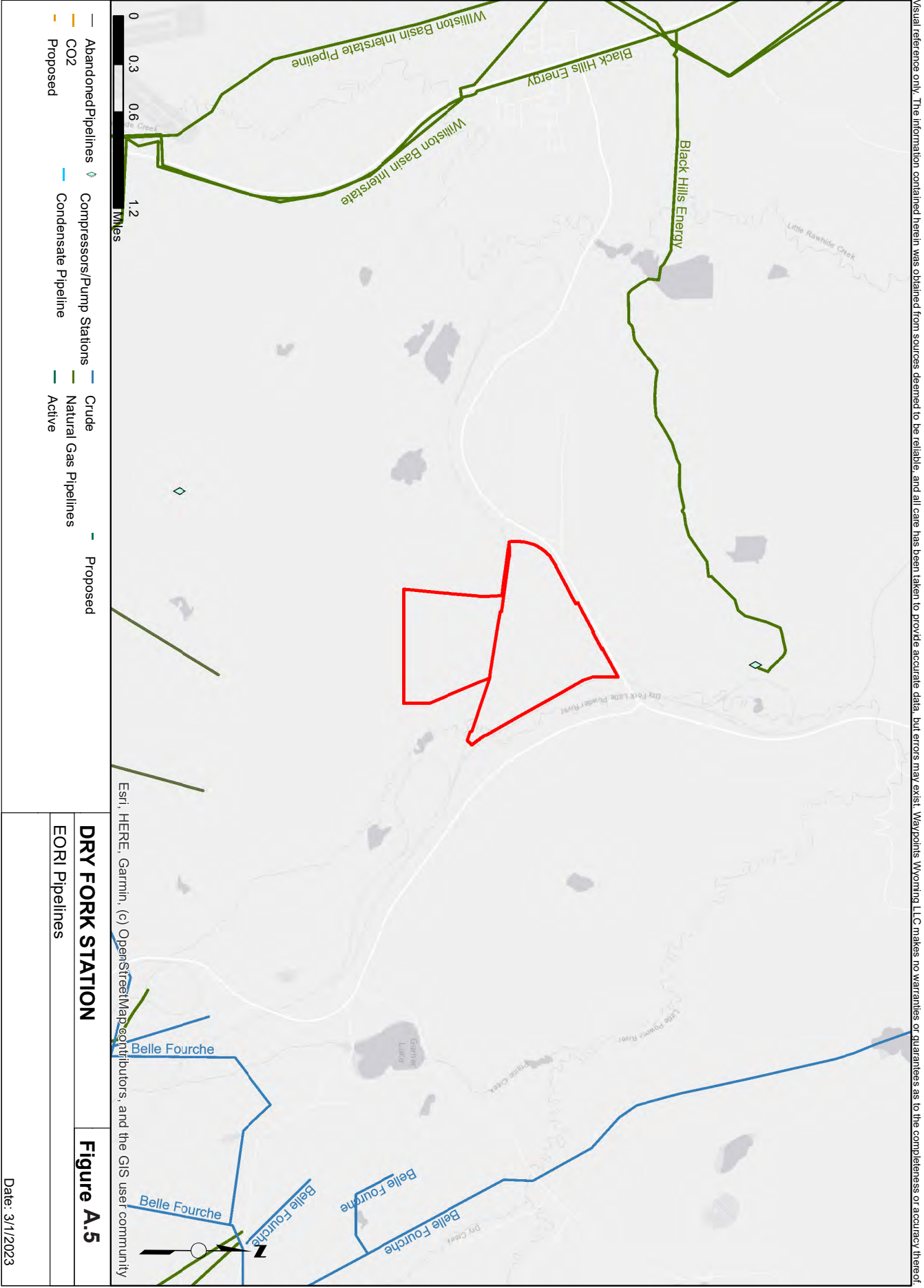
DAVE JOHNSON MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P116523.0W	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	DJ LOAD-IN #1	MIS	13	220	-105.768439	42.843069
P139231.0W	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 1	MIS	20	640	-105.77334	42.83938
P139232.0W	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 2	MIS	20	700	-105.77334	42.83938
P139233.0W	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 3	MIS	20	700	-105.77926	42.83951
P187095.0W	Fully Adjudicated	PACIFICORP	DAVE JOHNSON SECURITY BLDG NO. 1 WELL	MIS	10	120	-105.77402	42.82993
P19409.0P	Complete	Pacific Power Light Corp.	ANDERSON #5 (OLD WERNER'S FARM)	DOM_ GW	25	-1	-105.78813	42.83937
P20513.0W	Complete	PACIFICORP	DJPP POTABLE WATER SUPPLY WELL #1	MIS	3	580	-105.776133	42.837369
P20514.0W	Complete	PACIFICORP	DJPP POTABLE WATER SUPPLY WELL #2	MIS	3	578	-105.776075	42.837414
P25498.0W	Fully Adjudicated	PACIFIC POWER & LIGHT COMPANY	PACIFIC PARK #1	MIS	75	29	-105.773761	42.83575
P83950.0W	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	PACIFIC PARK POTABLE WATER	MIS	10	360	-105.77329	42.8357
CR UW03/178	Fully Adjudicated	PACIFIC POWER AND LIGHT CO	PACIFIC PARK #1	MIS	75		-105.77435	42.835169
CR UW10/601	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	DJ LOAD-IN NO. 1 WELL	MIS	13		-105.768489	42.843081
CR UW17/030	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 1	MIS	20		-105.774181	42.837619
CR UW17/031	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 2	MIS	20		-105.775103	42.838297
CR UW17/032	Fully Adjudicated	PACIFIC POWER AND LIGHT COMPANY	FOAM SUPPRESSION WELL NO. 3	MIS	20		-105.775558	42.838064
CR UW17/160	Fully Adjudicated	PACIFICORP	DAVE JOHNSON SECURITY BUILDING NO. 1	MIS	10		-105.773172	42.827822



DRY FORK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
BASIN ELECTRIC POWER COOPERATIVE	1
BURLINGTON NORTHERN RAILROAD CO	2
CAMPBELL COUNTY	3
CORRAL CREEK HOLDINGS LLC	4
DEPT OF INTERIOR/BLM	Fed
EAGLE SPECIALTY MATERIALS LLC	6
HORSETREE LLC	7
L QUARTER CIRCLE LLC	8
MADER CYNTHIA REV LIVING TRUST	9
MCCLELLAND RANCH LLC	10
PEABODY CABALLO MINING LLC	11
STATE OF WYOMING	State
TOTAL CONSTRUCTION INC	12
WESTERN FUELS WYOMING INC	13







DRY FORK MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P182019.0W	Fully Adjudicated	BASIN ELECTRIC POWER COOPERATIVE	LANCE-FOX HILLS NO. 1 WELL	IND_ GW; MIS	500	3707	-105.4623	44.39595
P184897.0W	Complete	BASIN ELECTRIC POWER COOPERATIVE	GILLETTE TSM WELL	MIS	25	720	-105.474944	44.39075

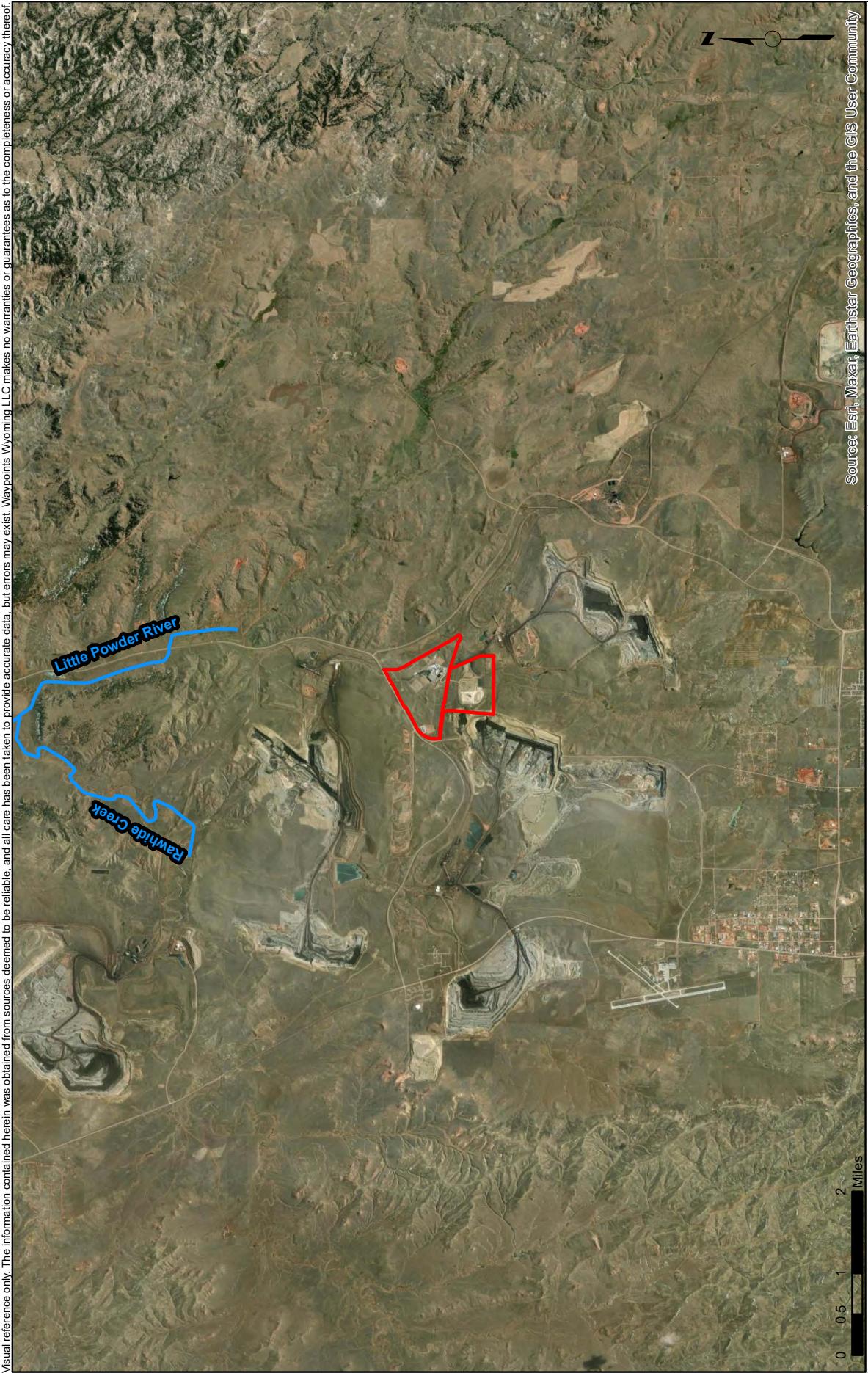
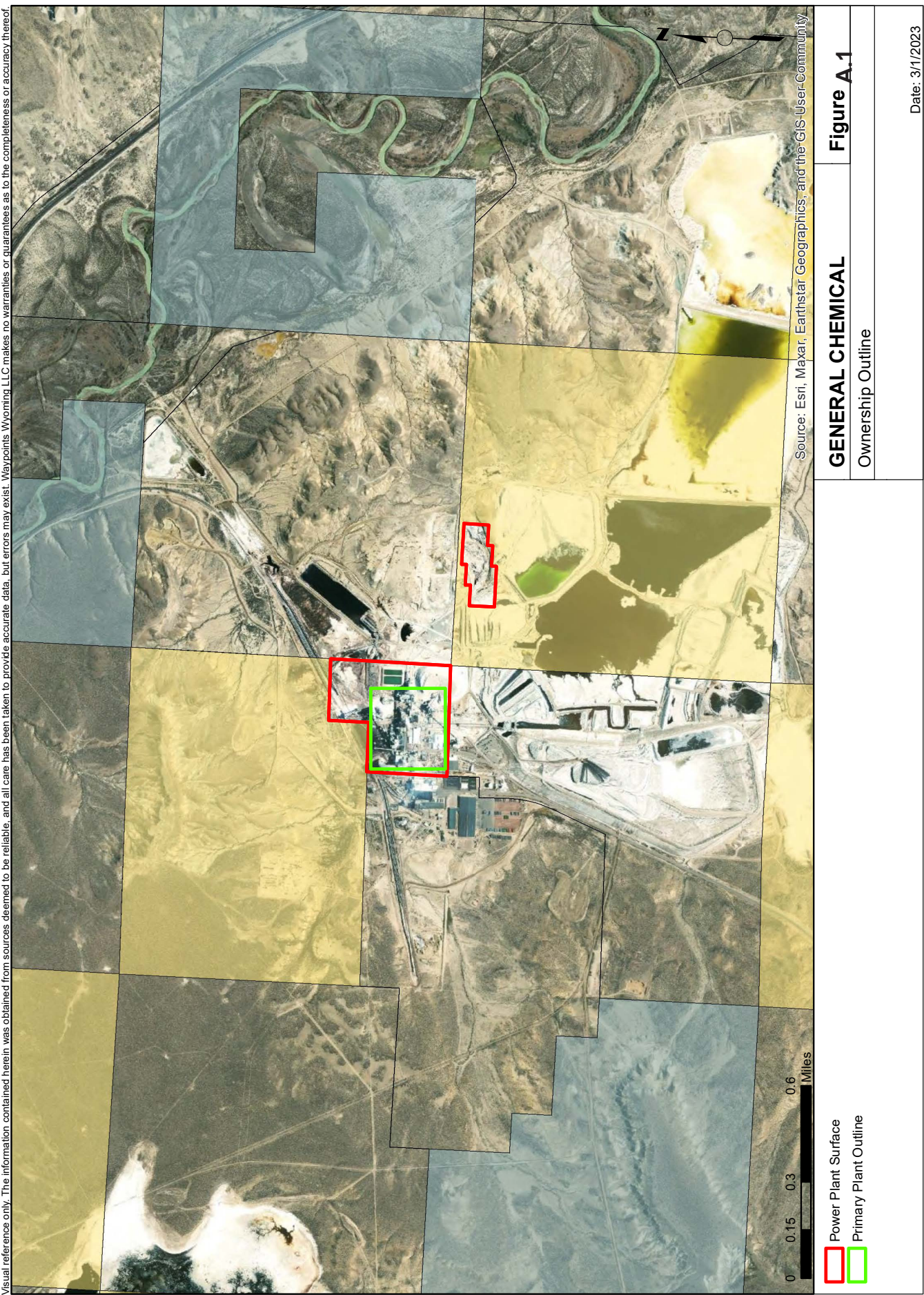


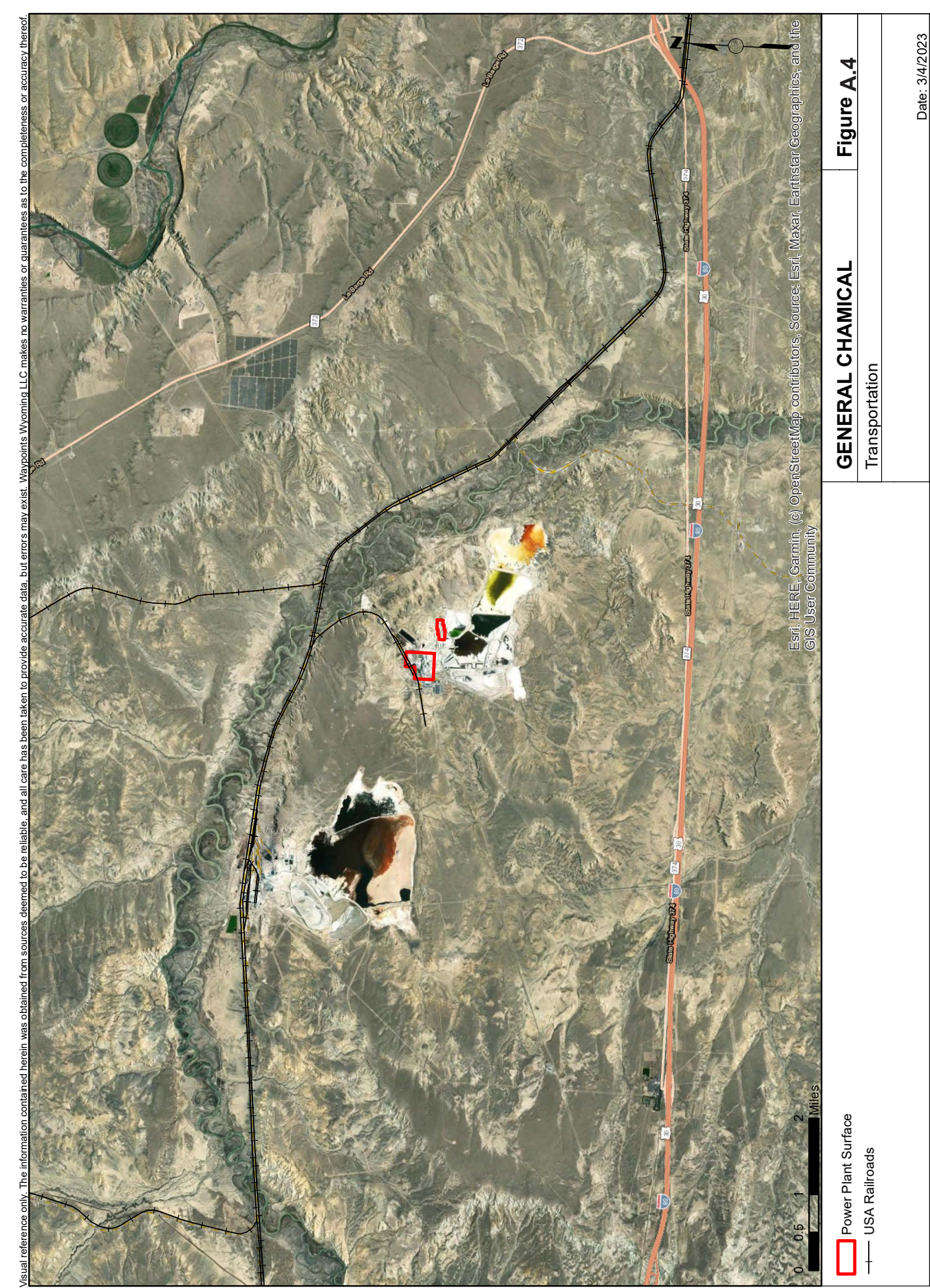
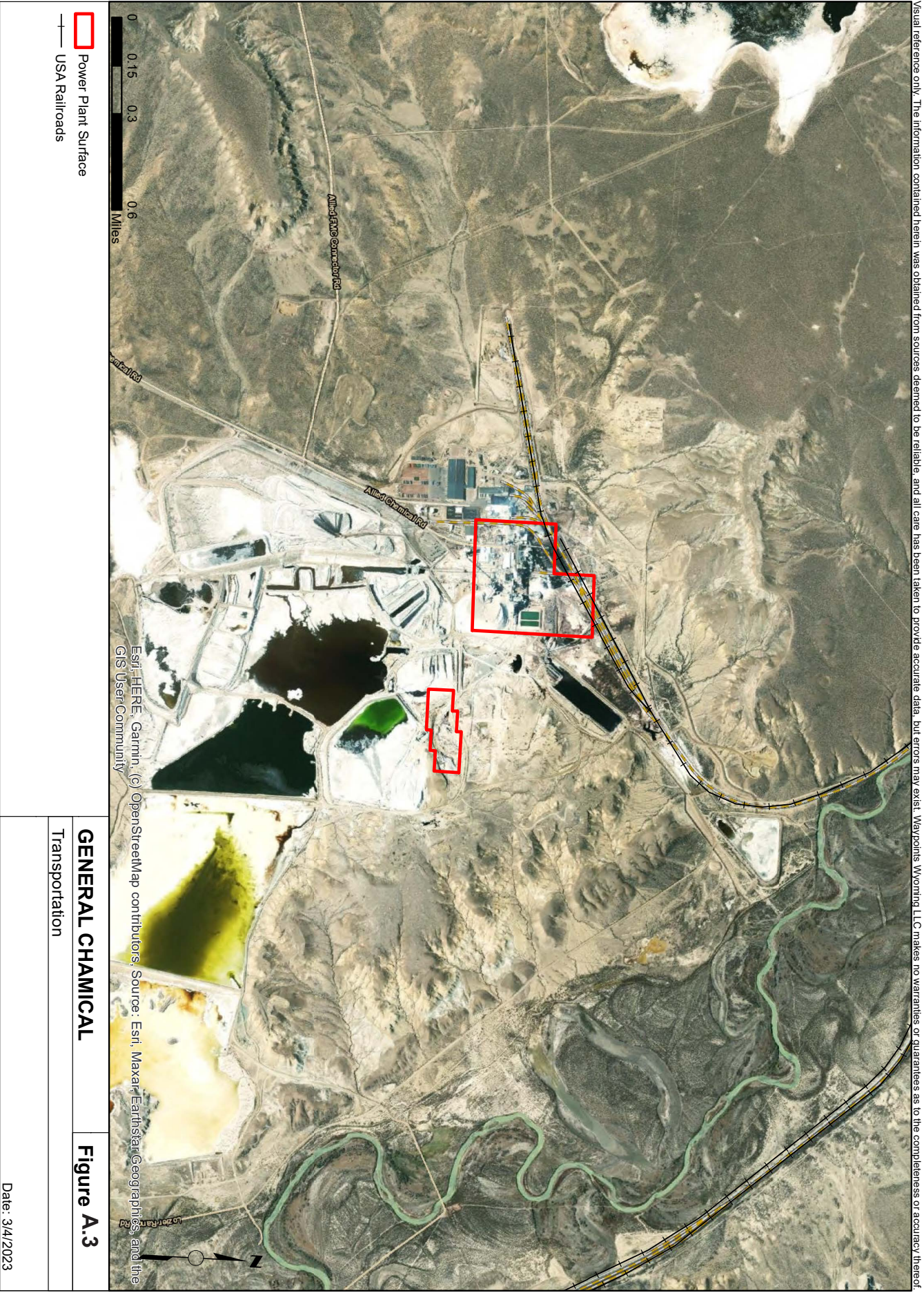
Figure A.7	
DRY FORK STATION	Streams
Date: 3/1/2023	

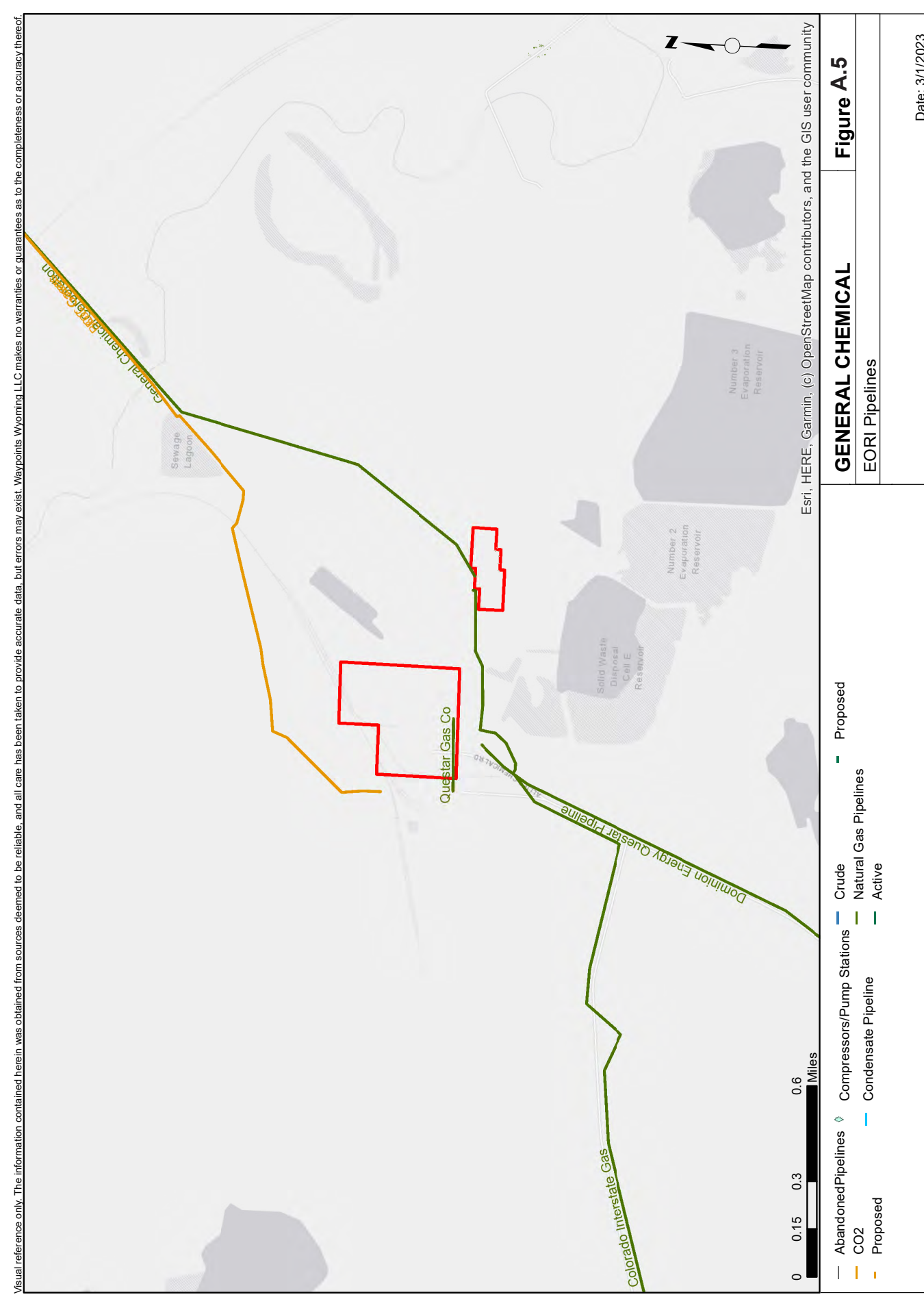
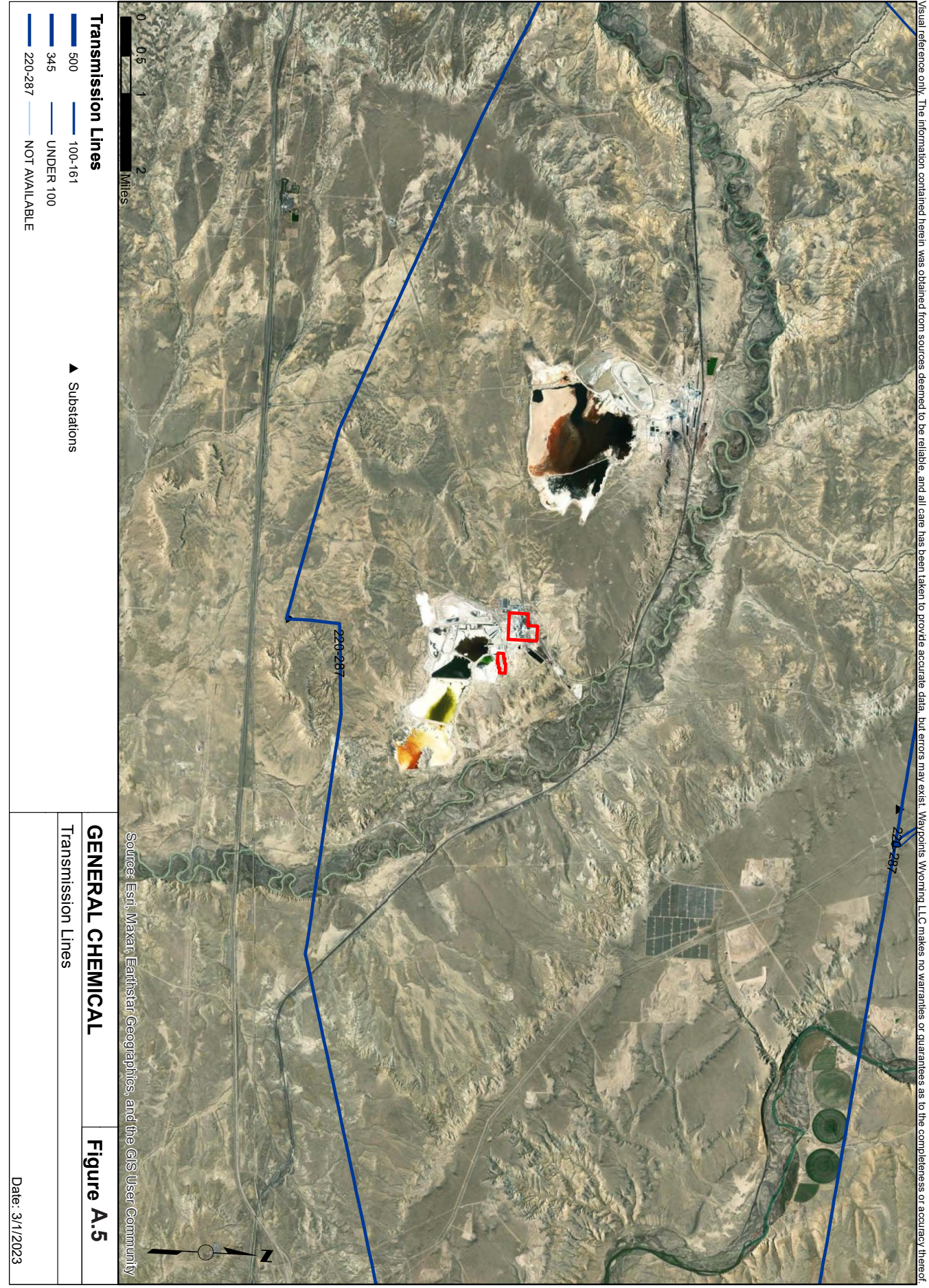


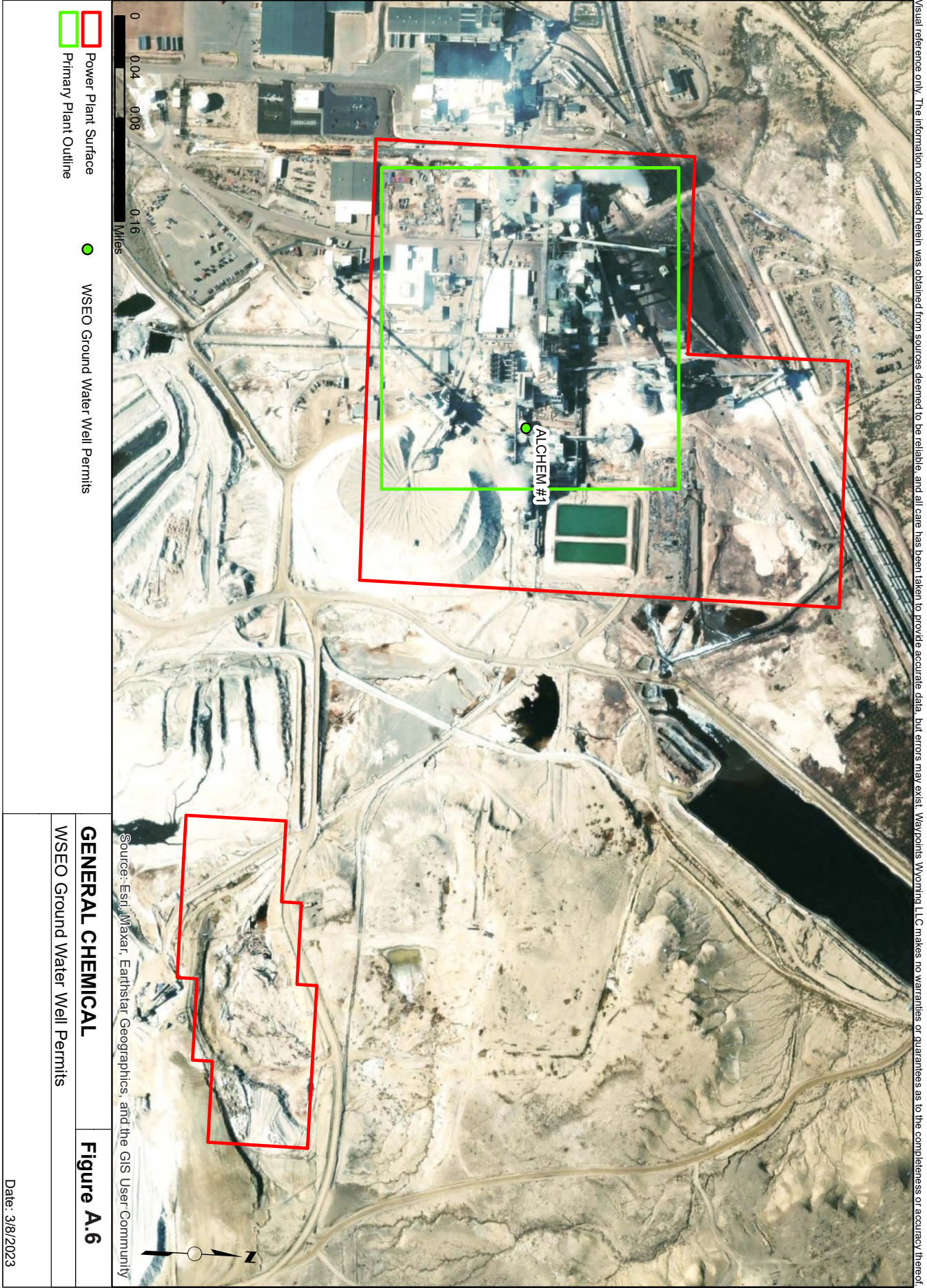
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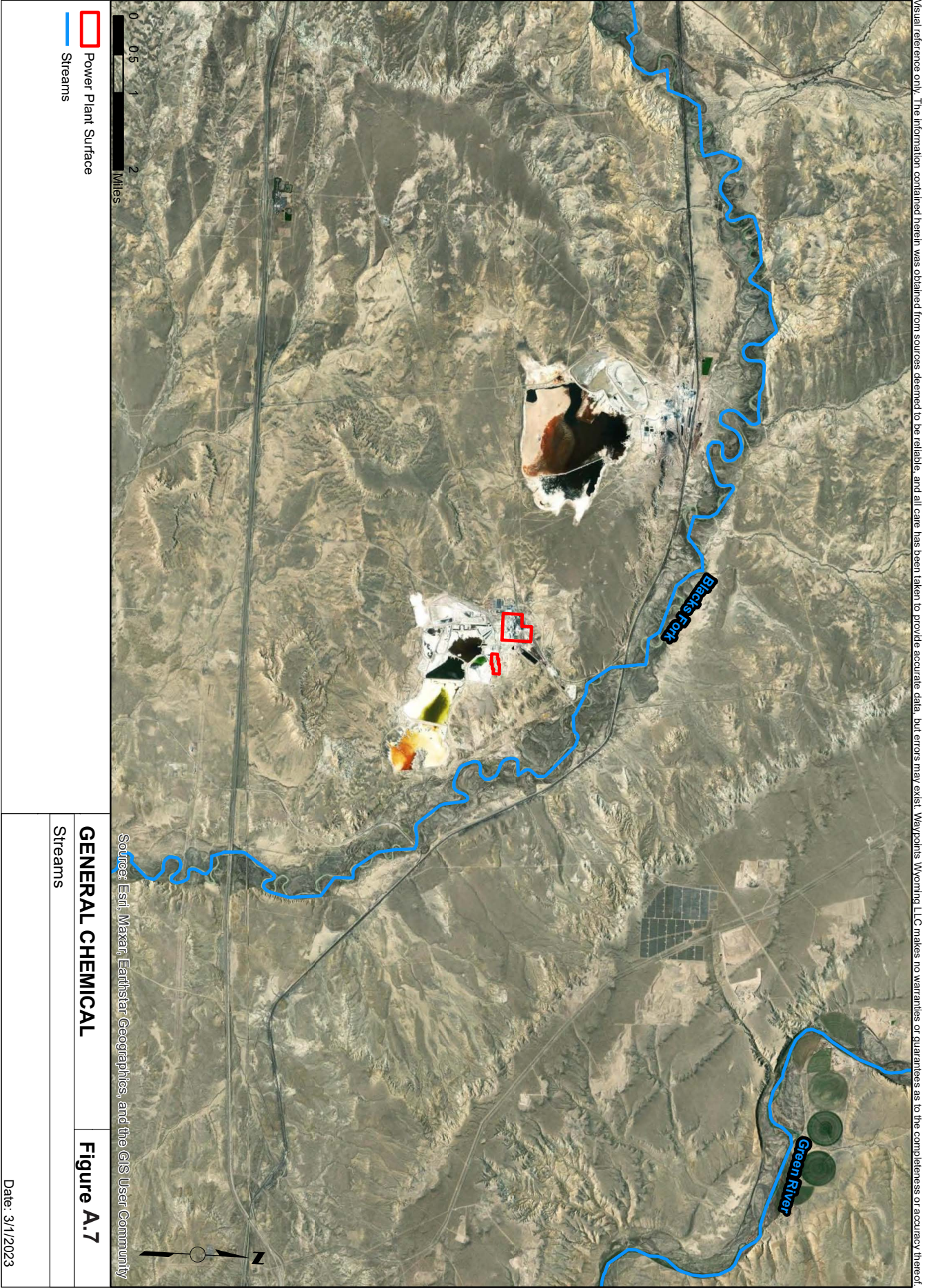
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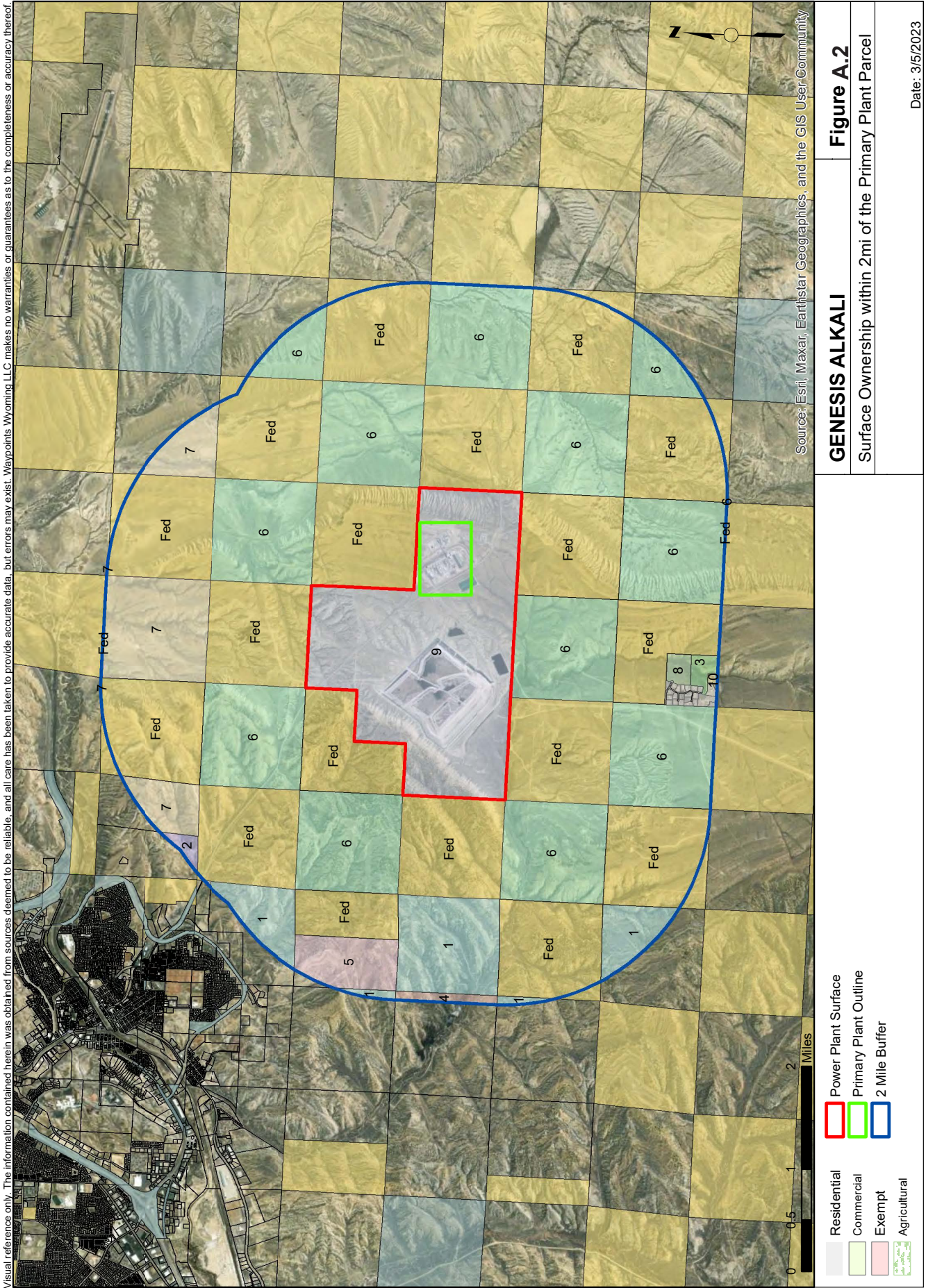
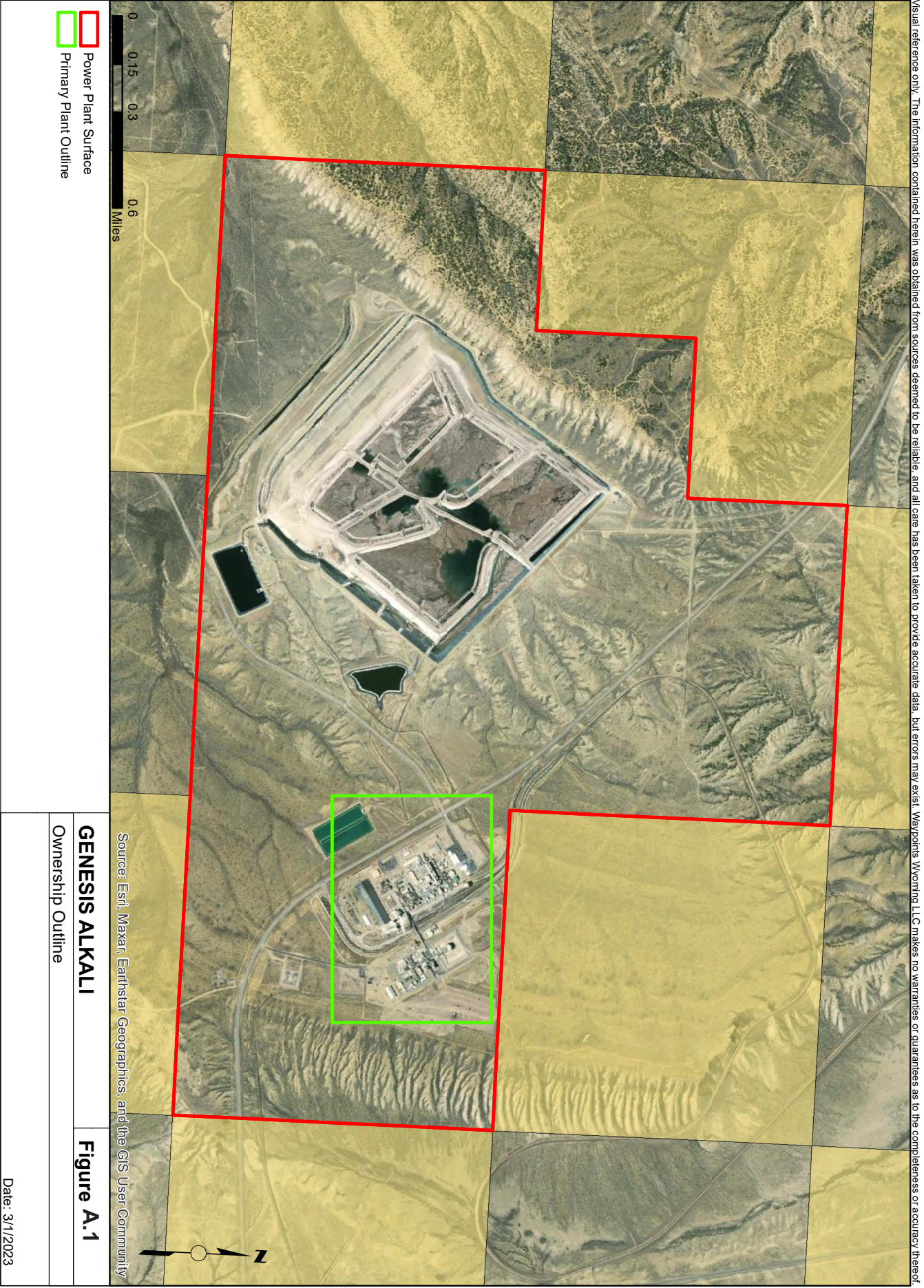




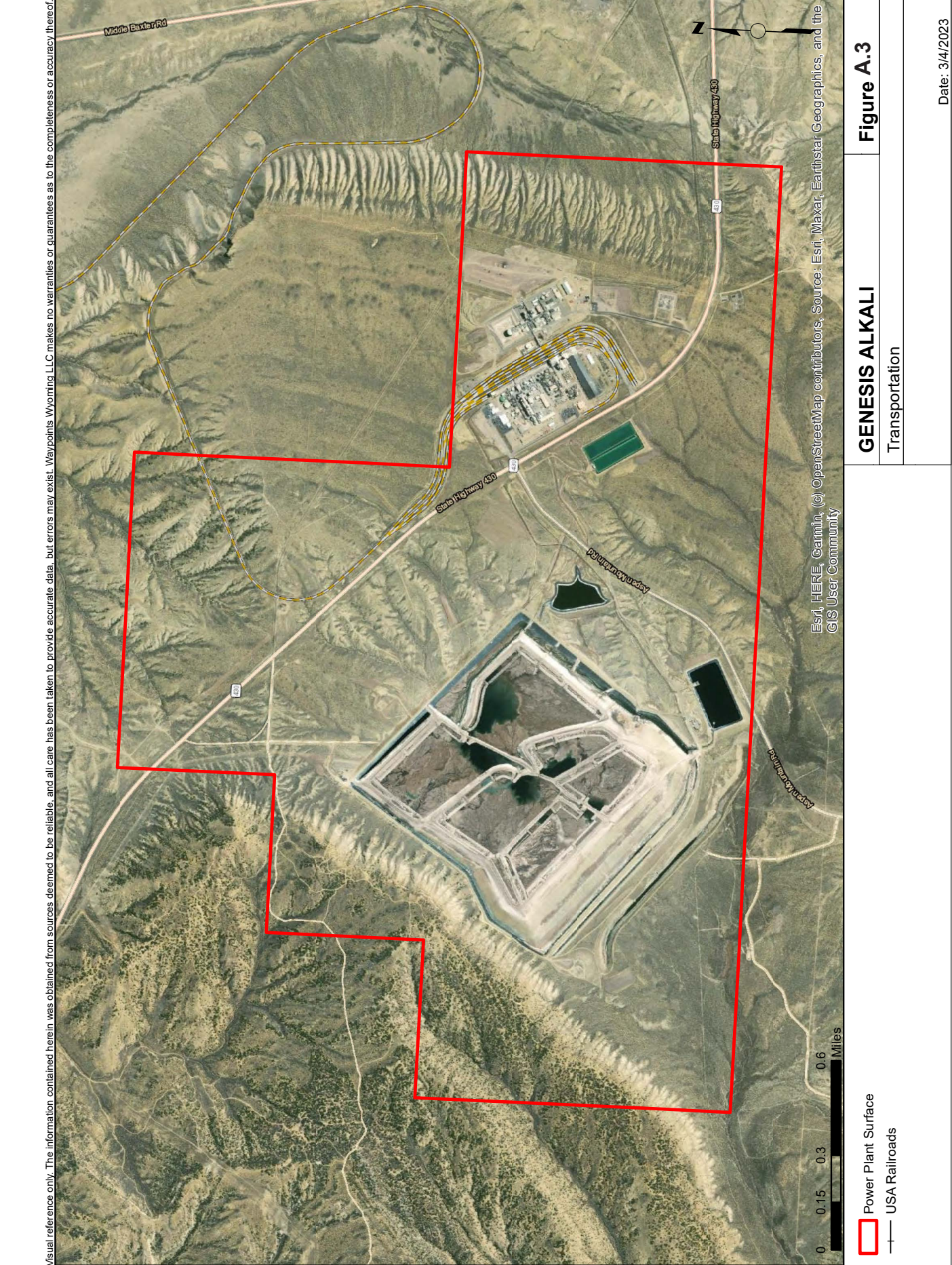


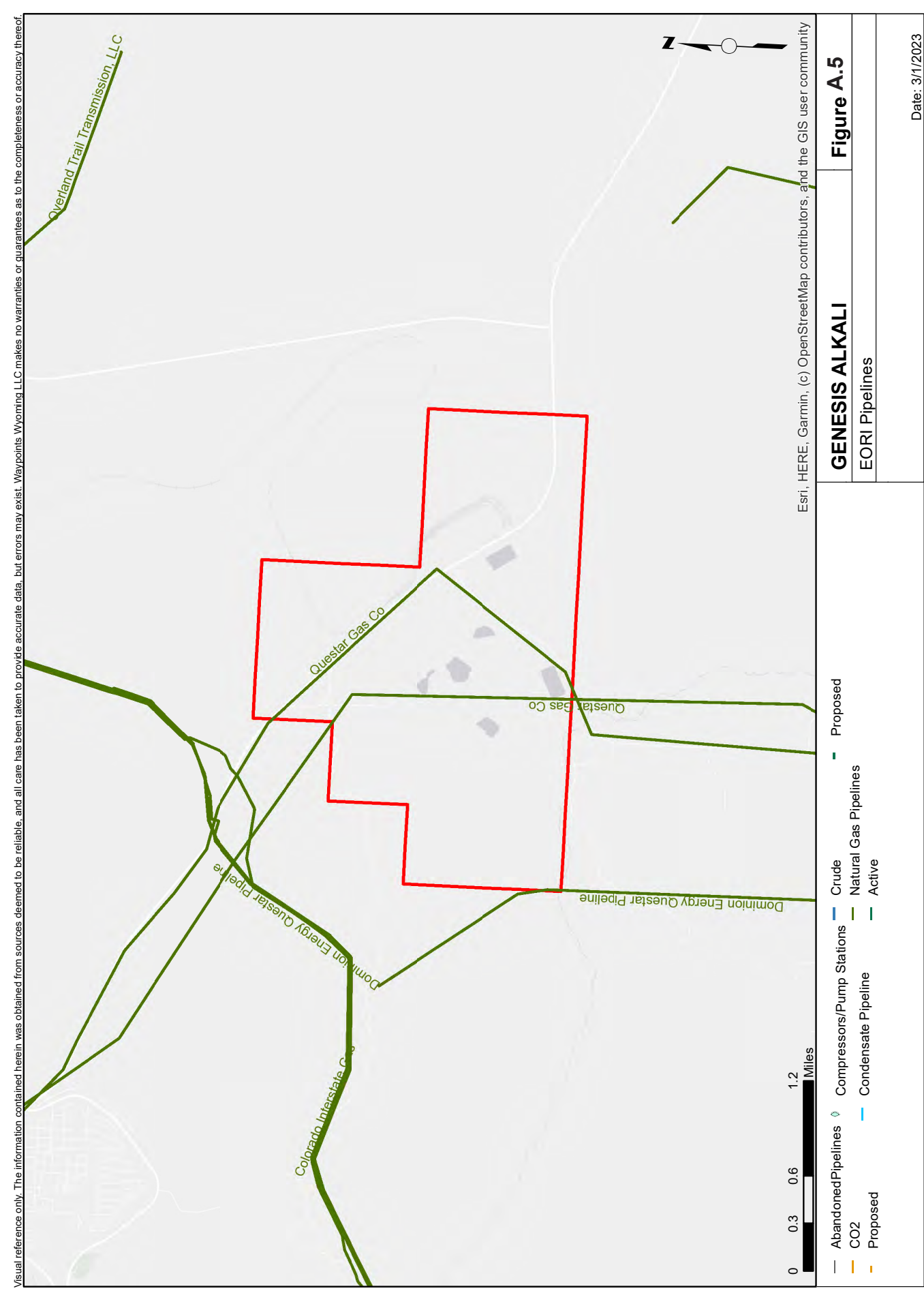
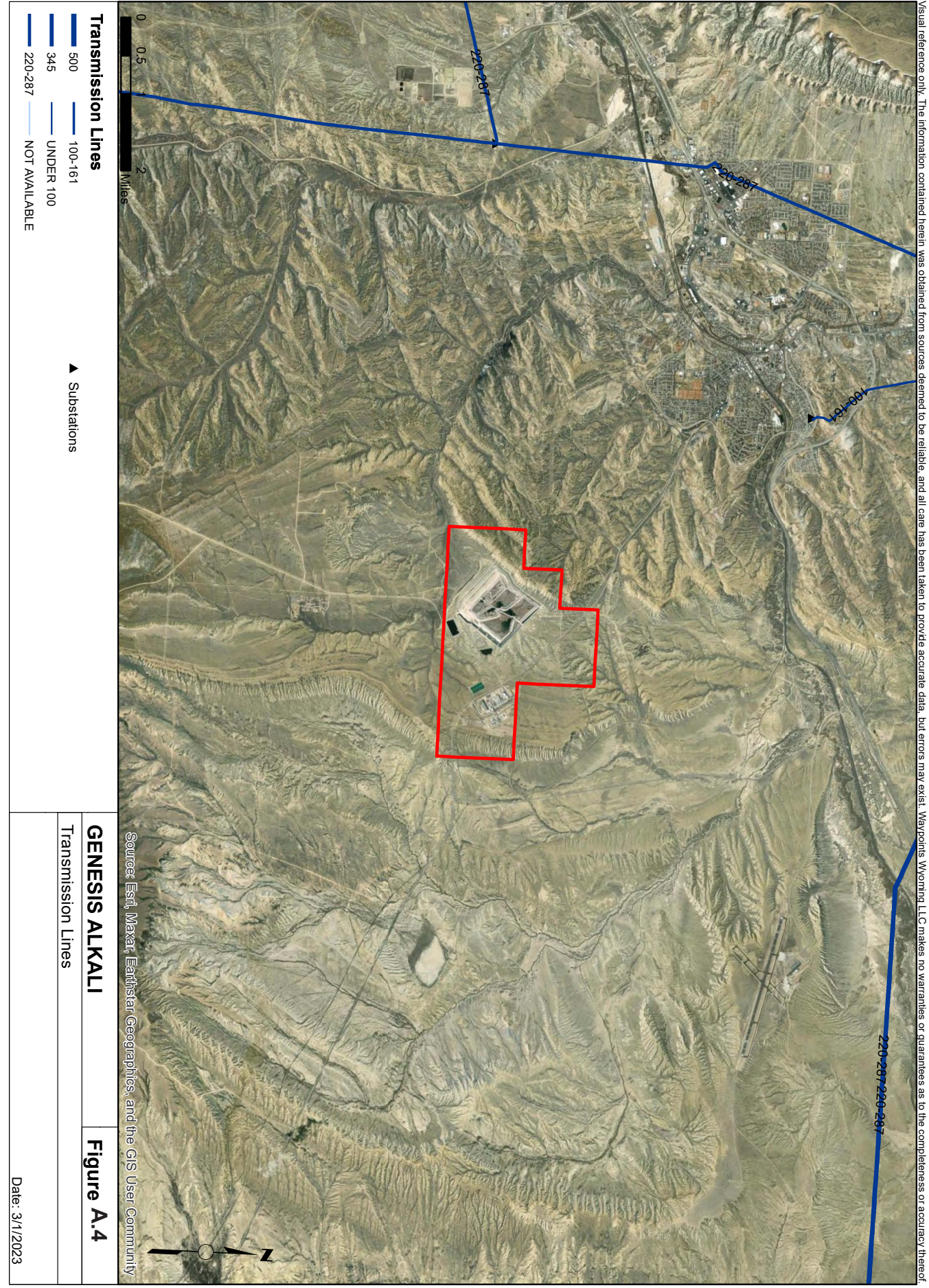
GENERAL CHEMICAL MINE - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P1605.0W	Incomplete	ALLIED CHEMICAL CO.	ALCHEM #1	IND_ GW; MIS	4	1913	-109.75301	41.59314

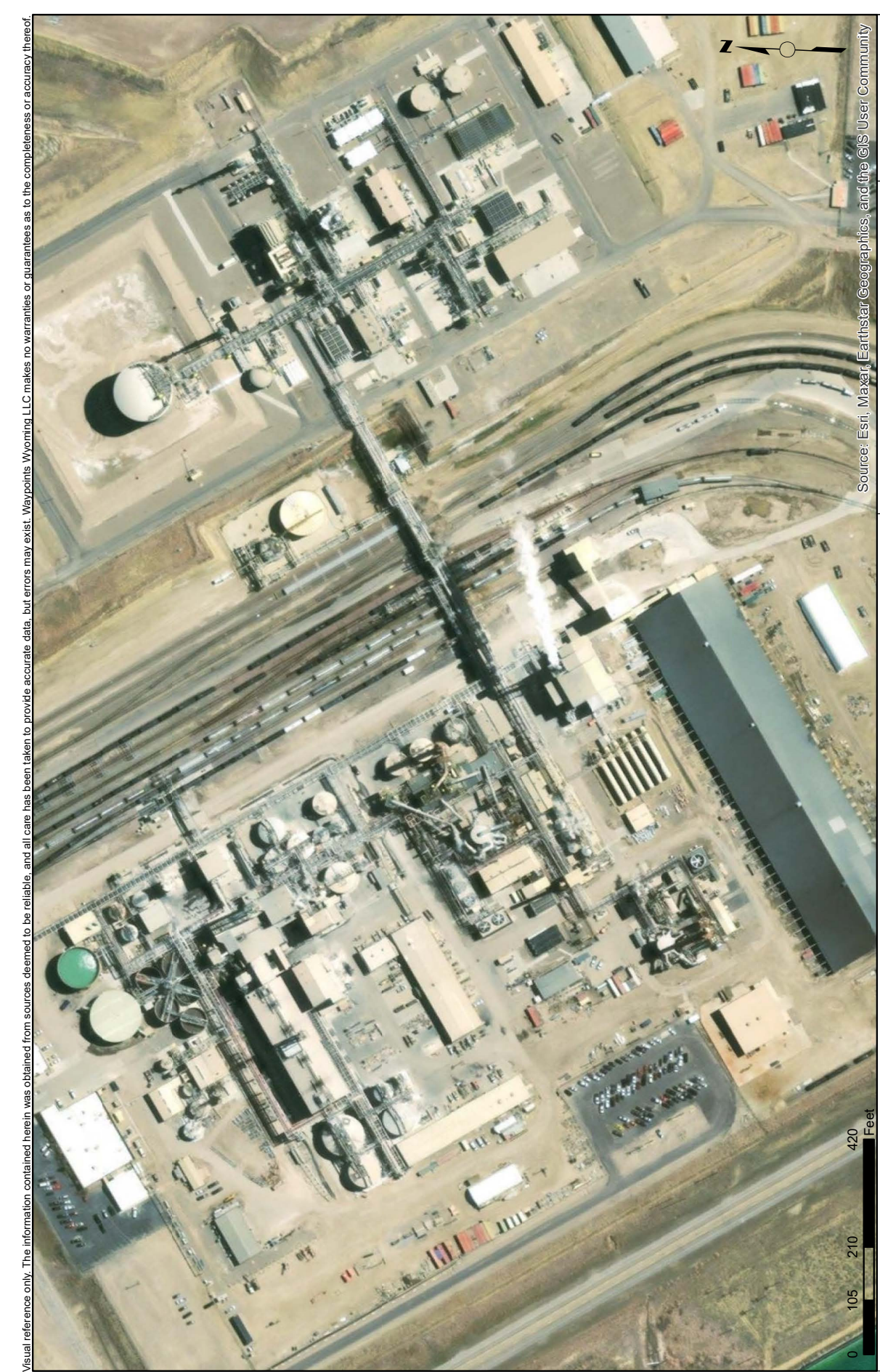
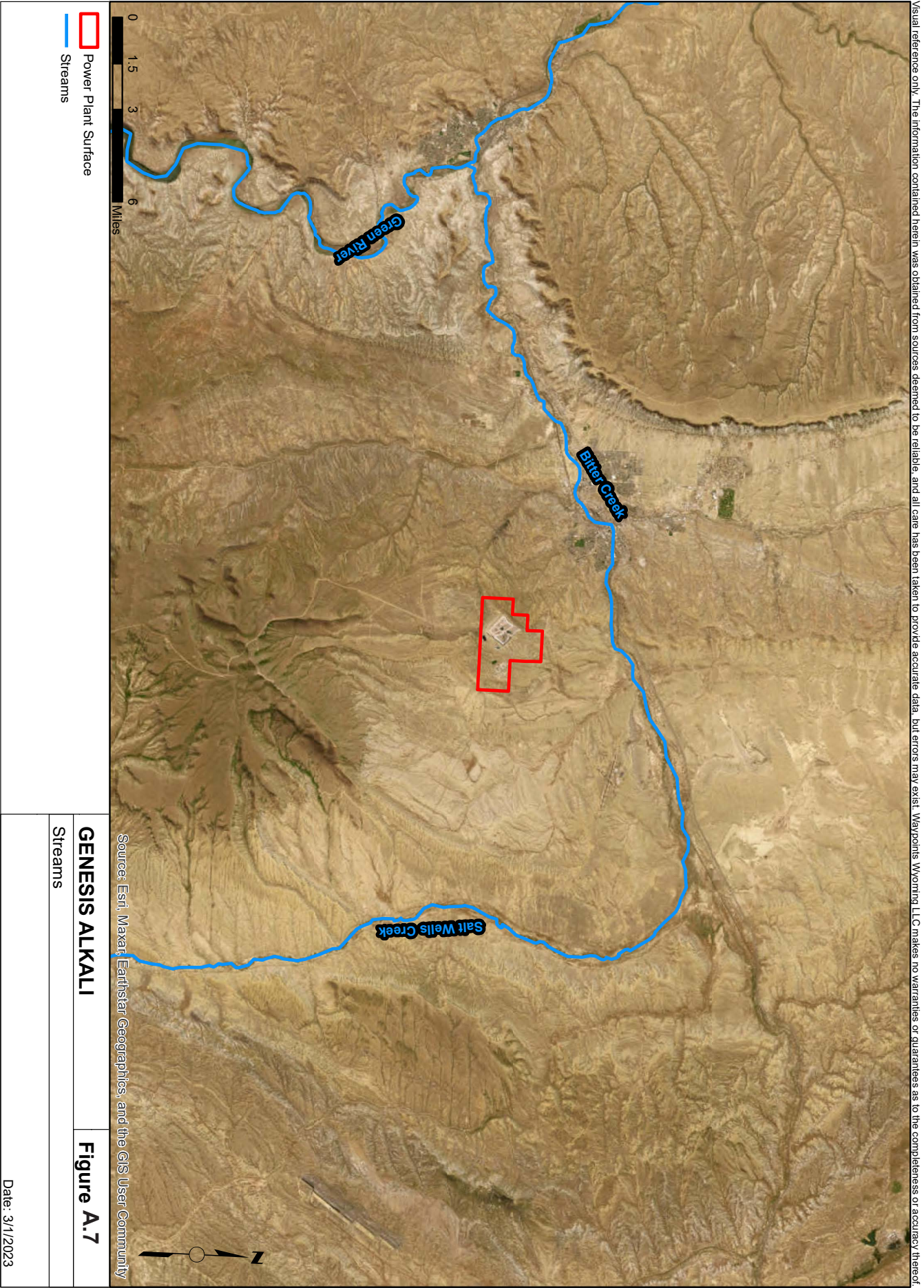


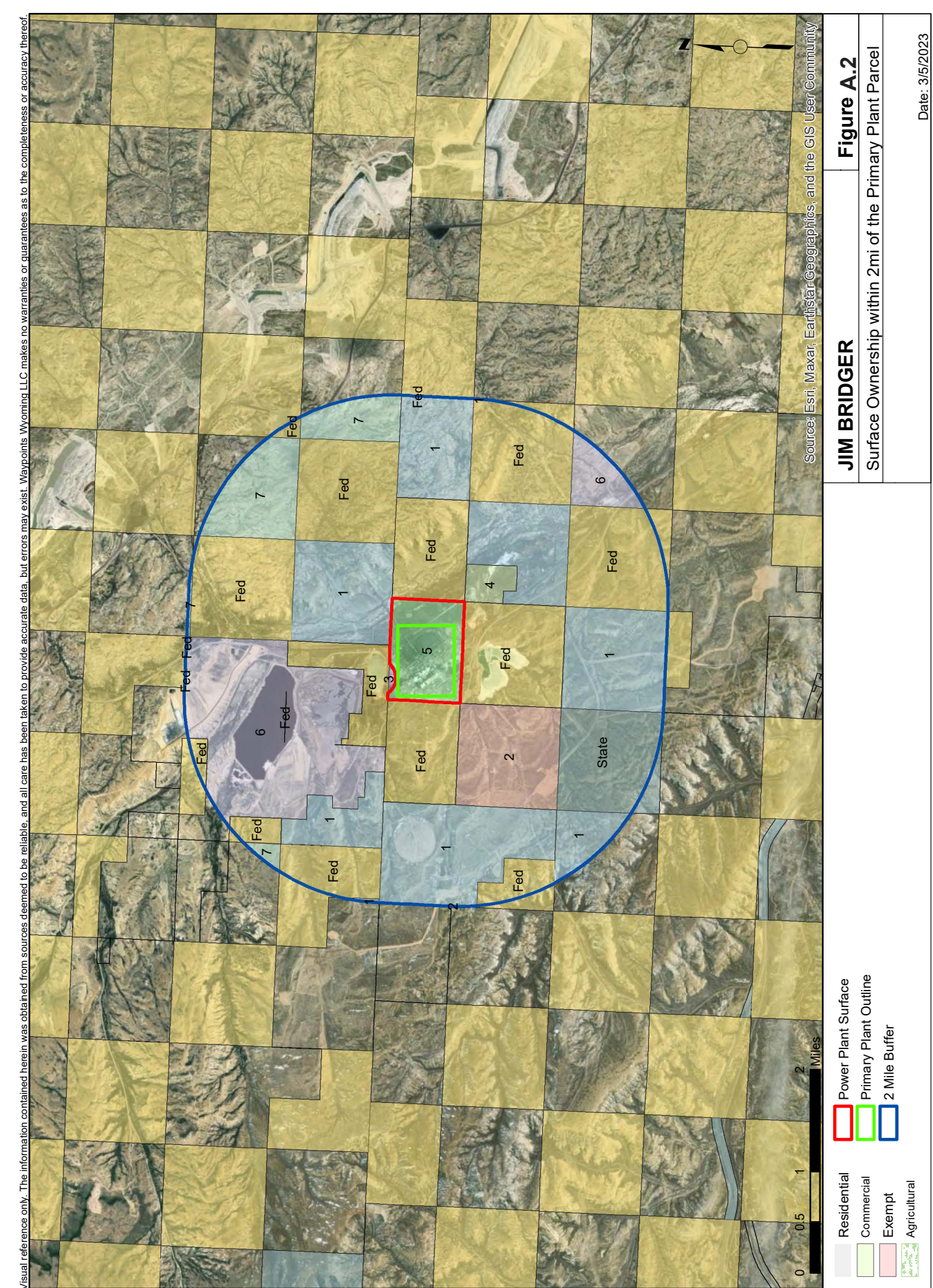
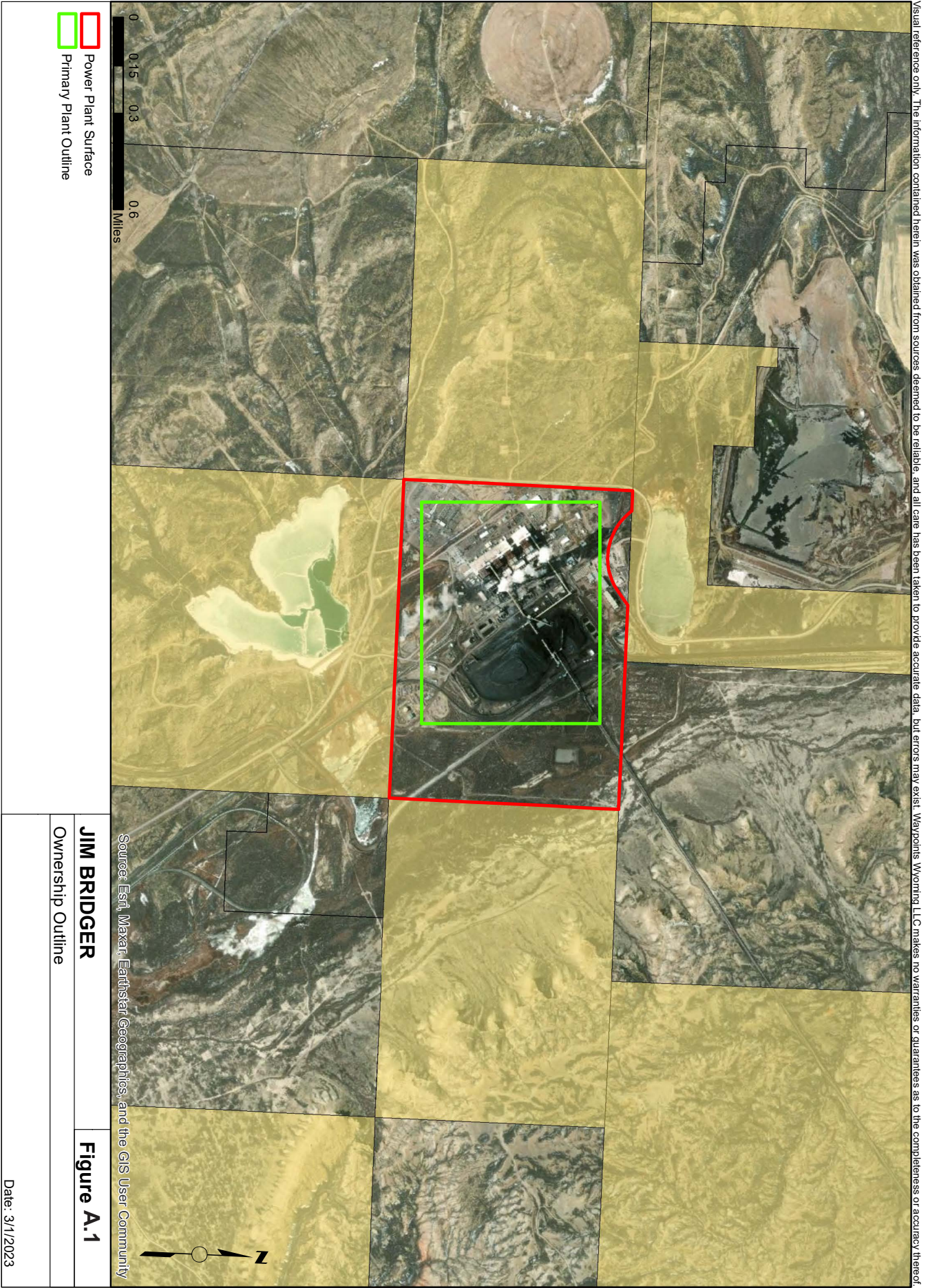


GENESIS ALKALI SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
BLM 180402	Fed
DE CO CORP	2
DLF DEVELOPMENT LLC	3
P4 PRODUCTION LLC C/O MONSANTO CO	4
RED INC	5
ROCK SPRINGS GRAZING ASSN	6
ROCK SPRINGS GRAZING ASSN	7
ROGERS SHAWN & MARTHA	8
SIMPLOT PHOSPHATES LLC C/O J R SIMPLOT CO	9
SWEETWATER COUNTY	10

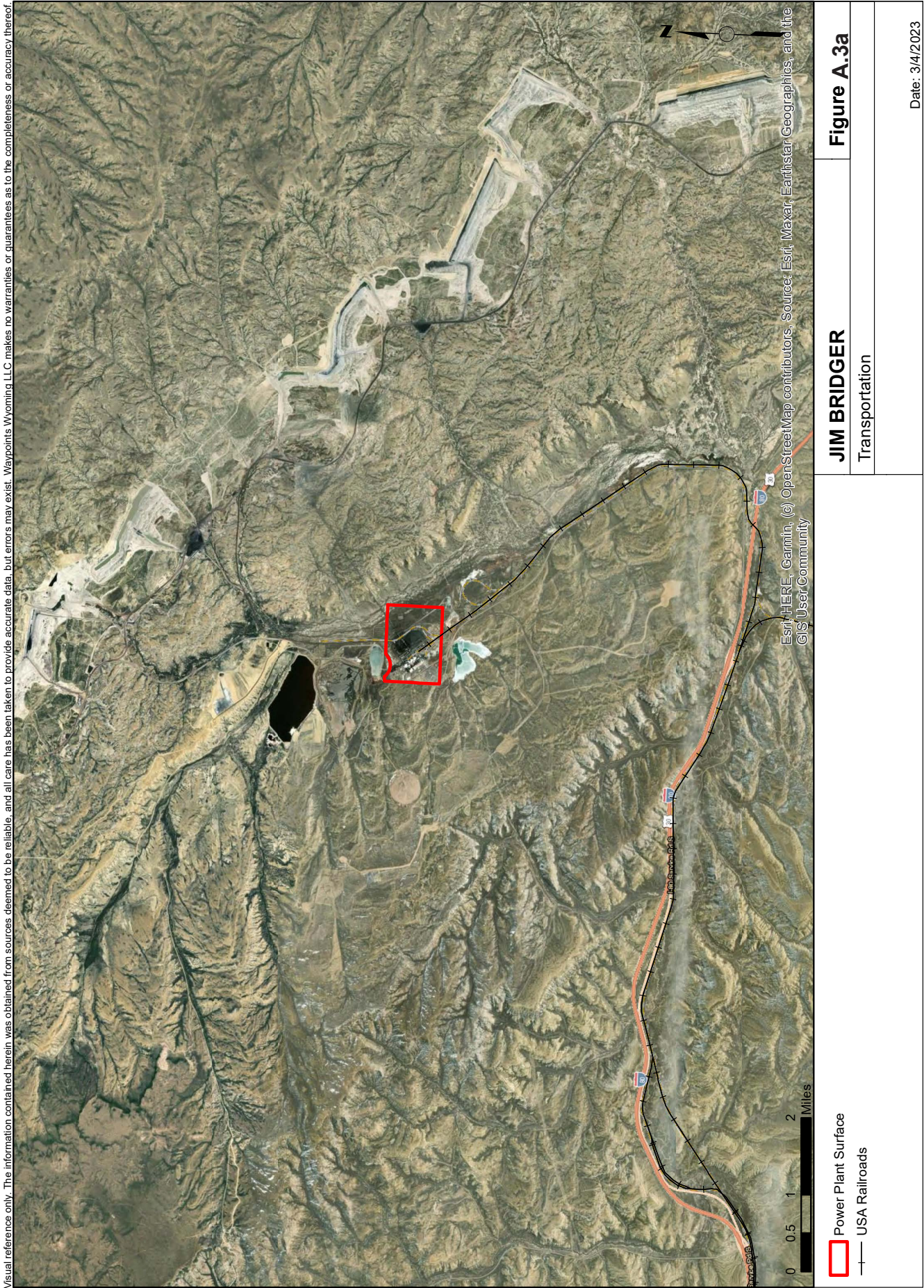


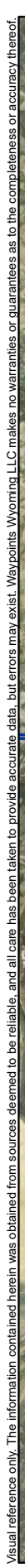
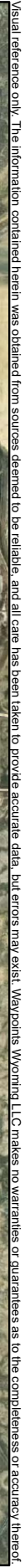


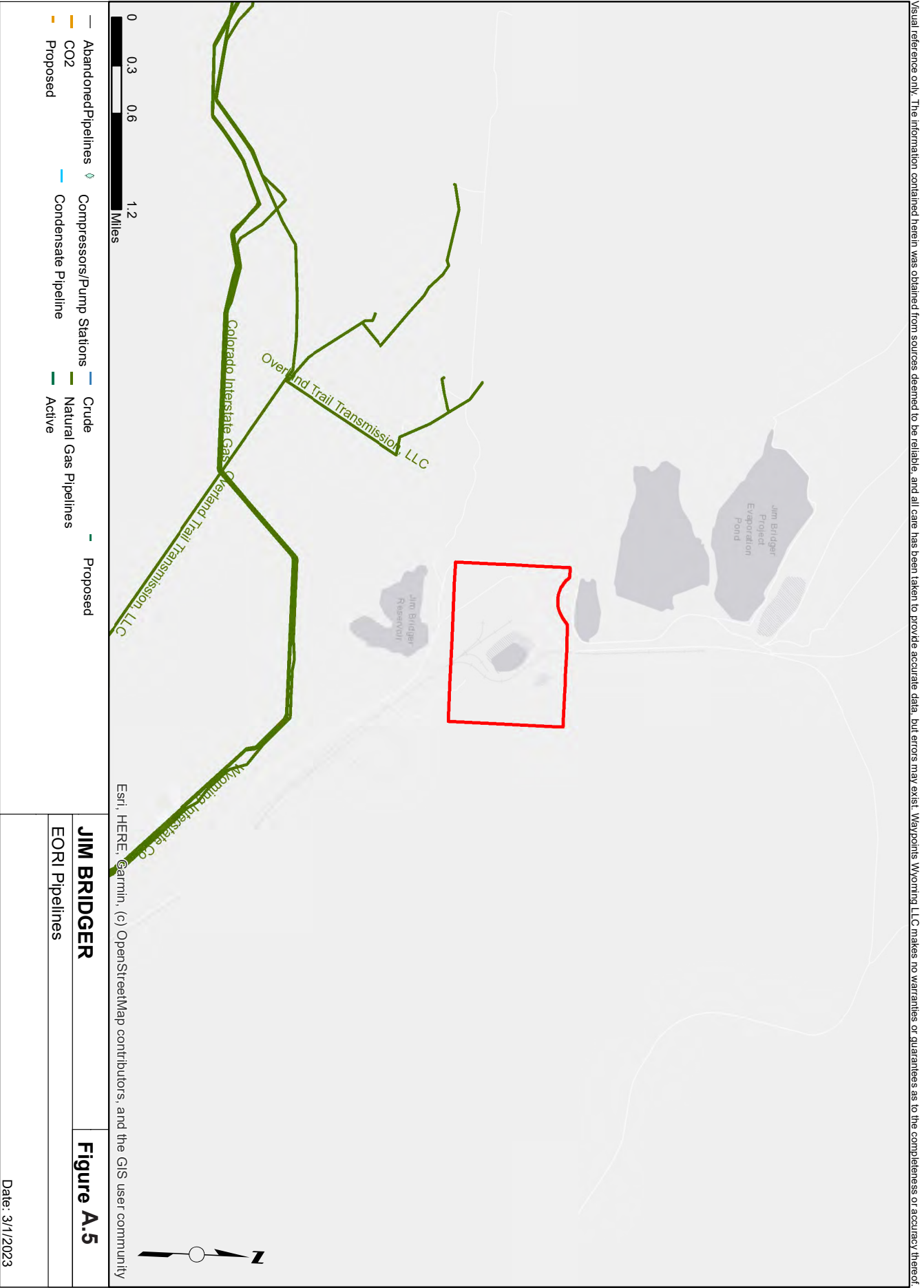




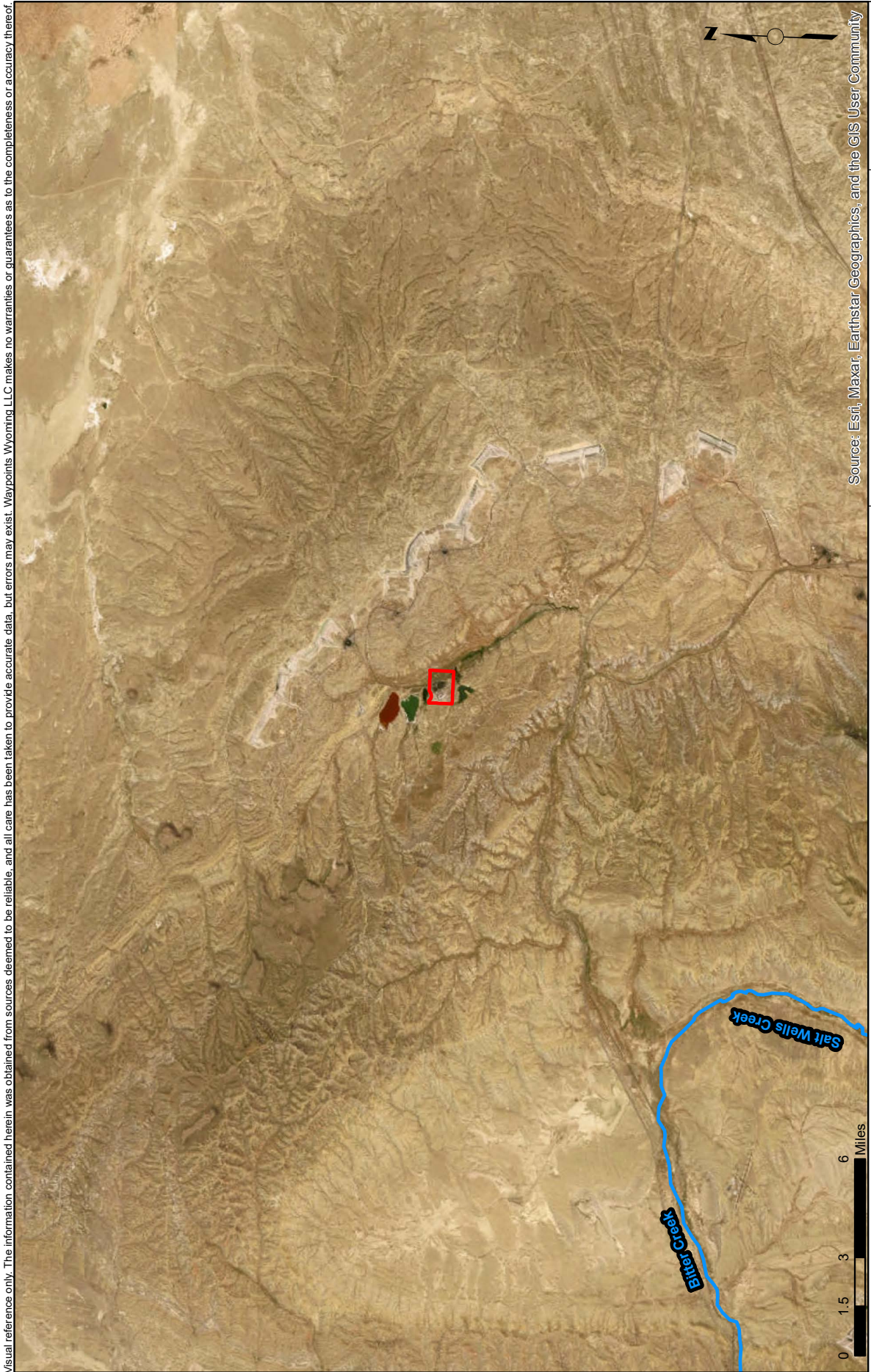
JIM BRIDGER SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
AGGIE GRAZING LLC	1
ANADARKO LAND CORP	2
BLM 200006	Fed
BRIDGER COAL CO	3
LIGHTHOUSE RESOURCES INC (BLACK BUTTE MINE) BLYTHE MASON	4
PACIFIC POWER & LIGHT COMPANY CO PACIFICORP	5
PACIFICORP ATTN NORM ROSS	6
STATE OF WY 200116	State
WILDCAT COAL LLC	7





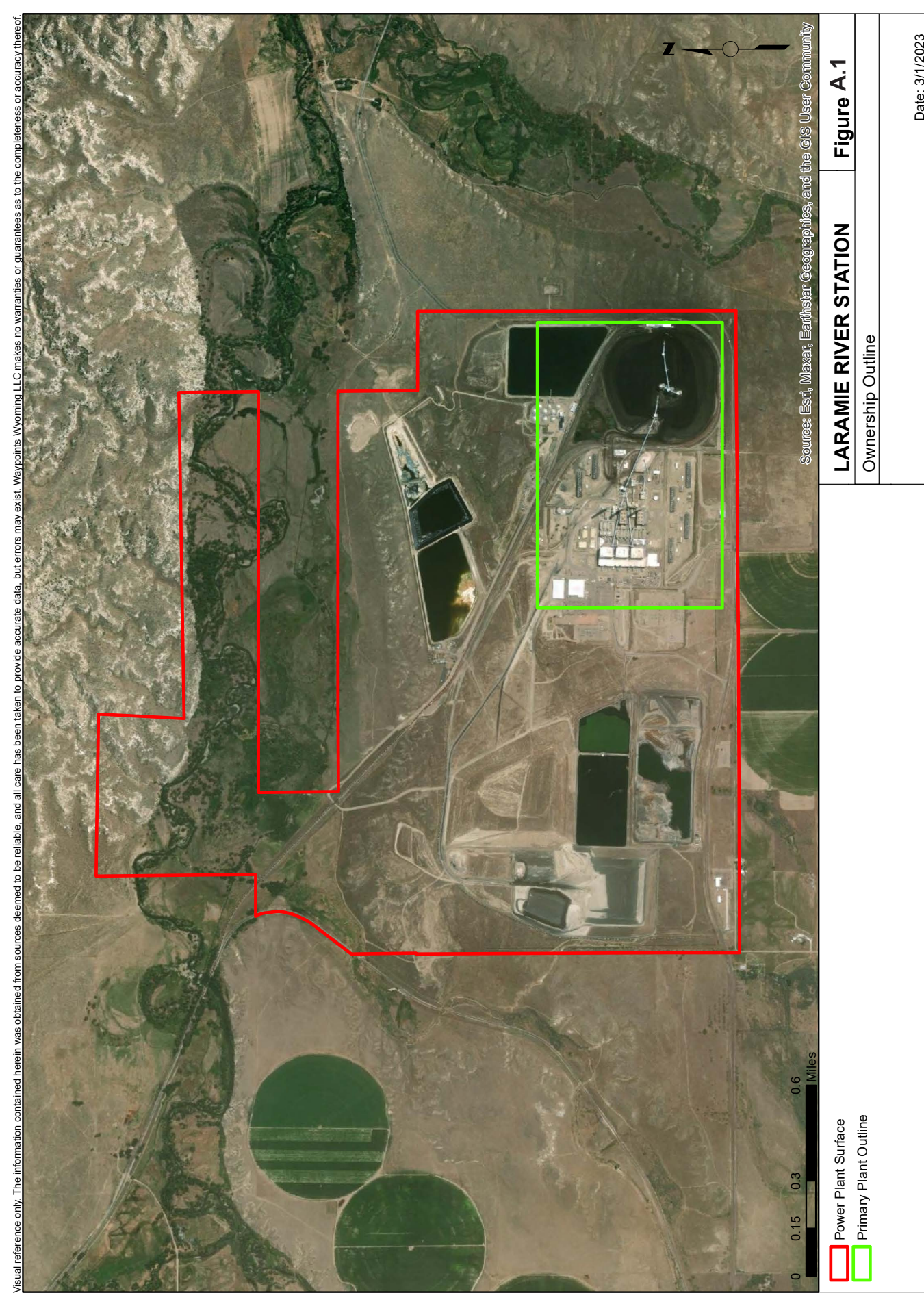
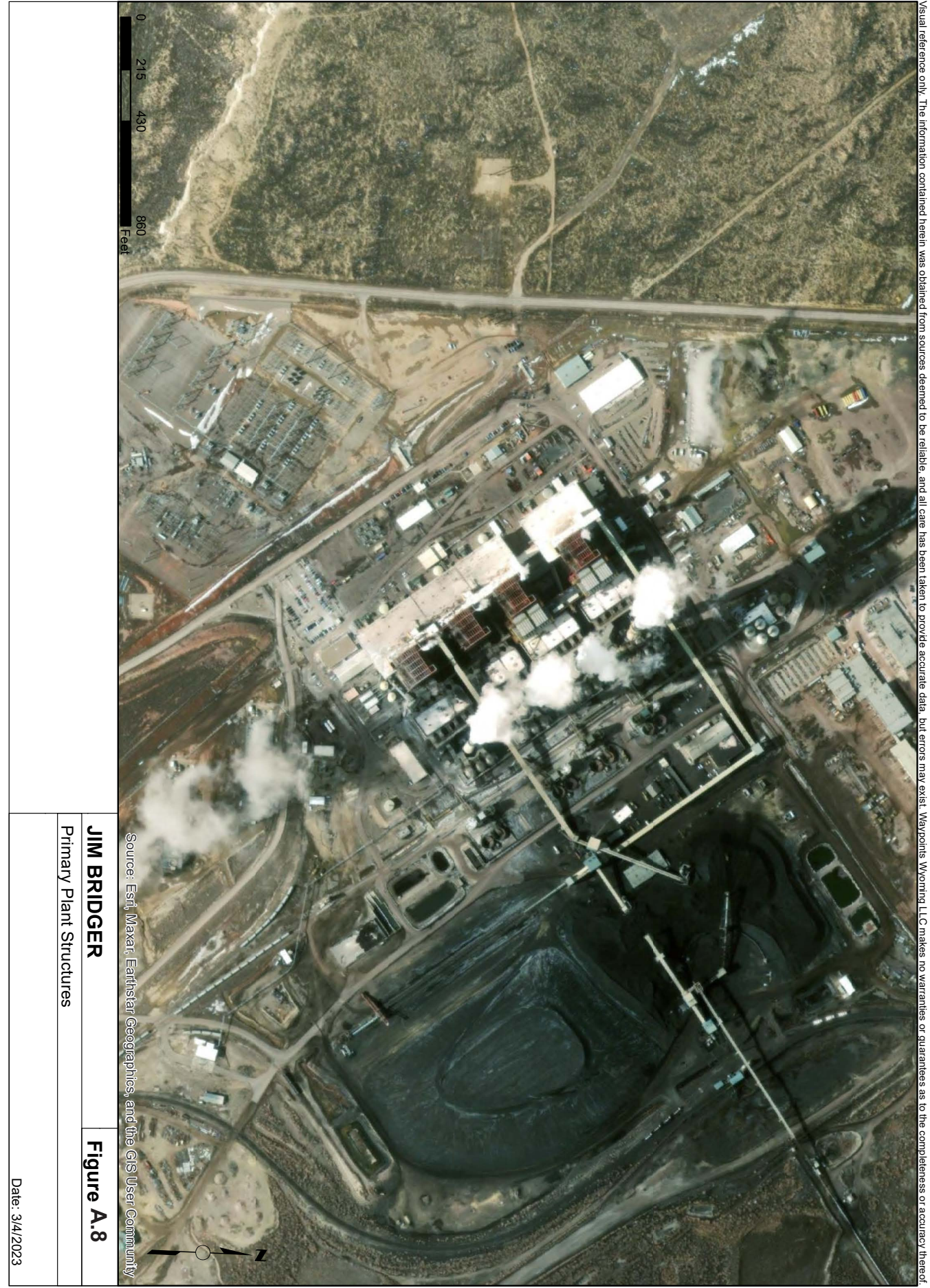


JIM BRIDGER - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P198512.0W	Complete	PACIFICORP	JBRW-22	MIS	10	31	-108.785825	41.736436
P6437.0W	Fully Adjudicated	Pacific Power Light Corp.	JIM BRIDGER #1	IND_ GW	650	1451	-108.78016	41.7346

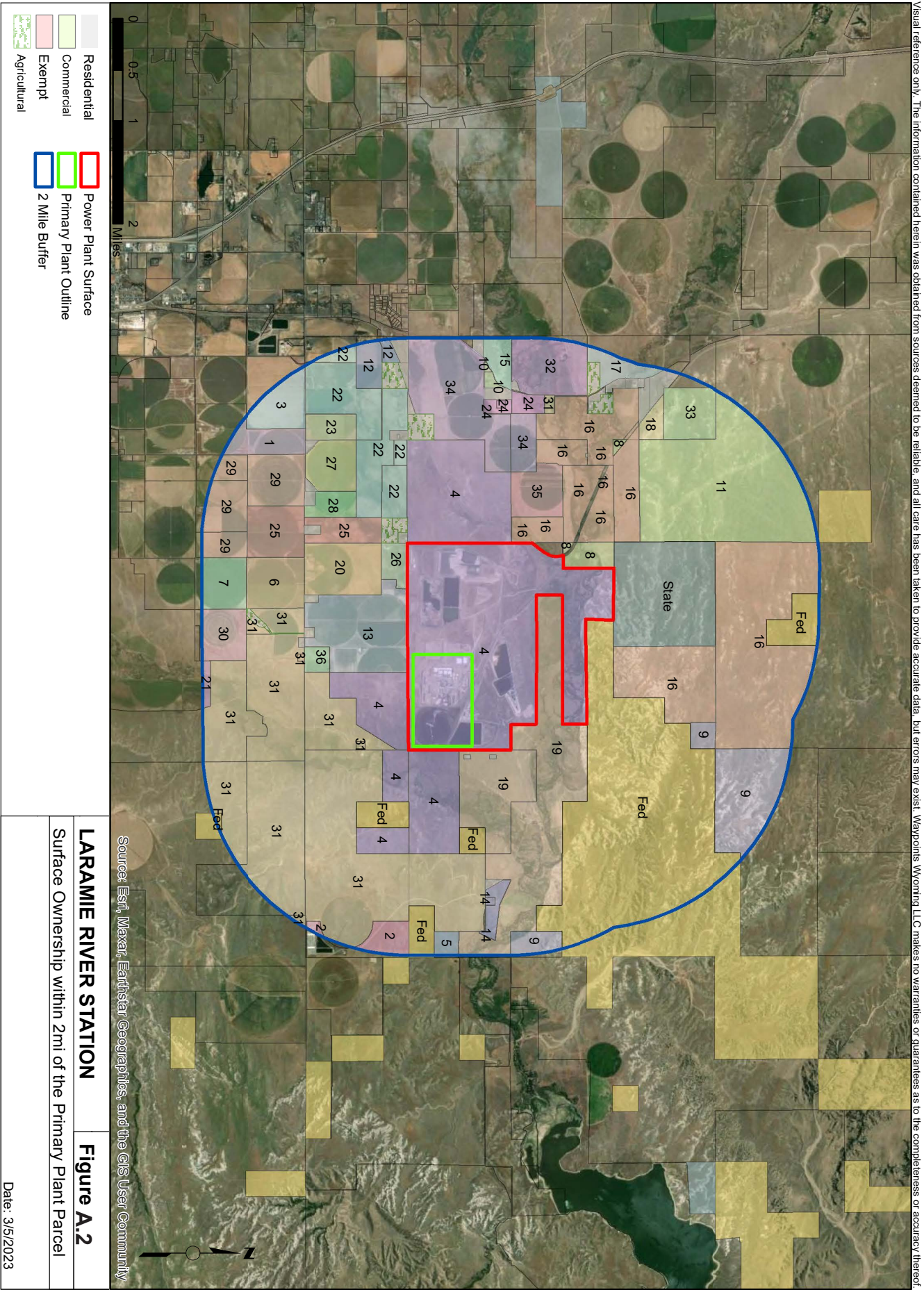


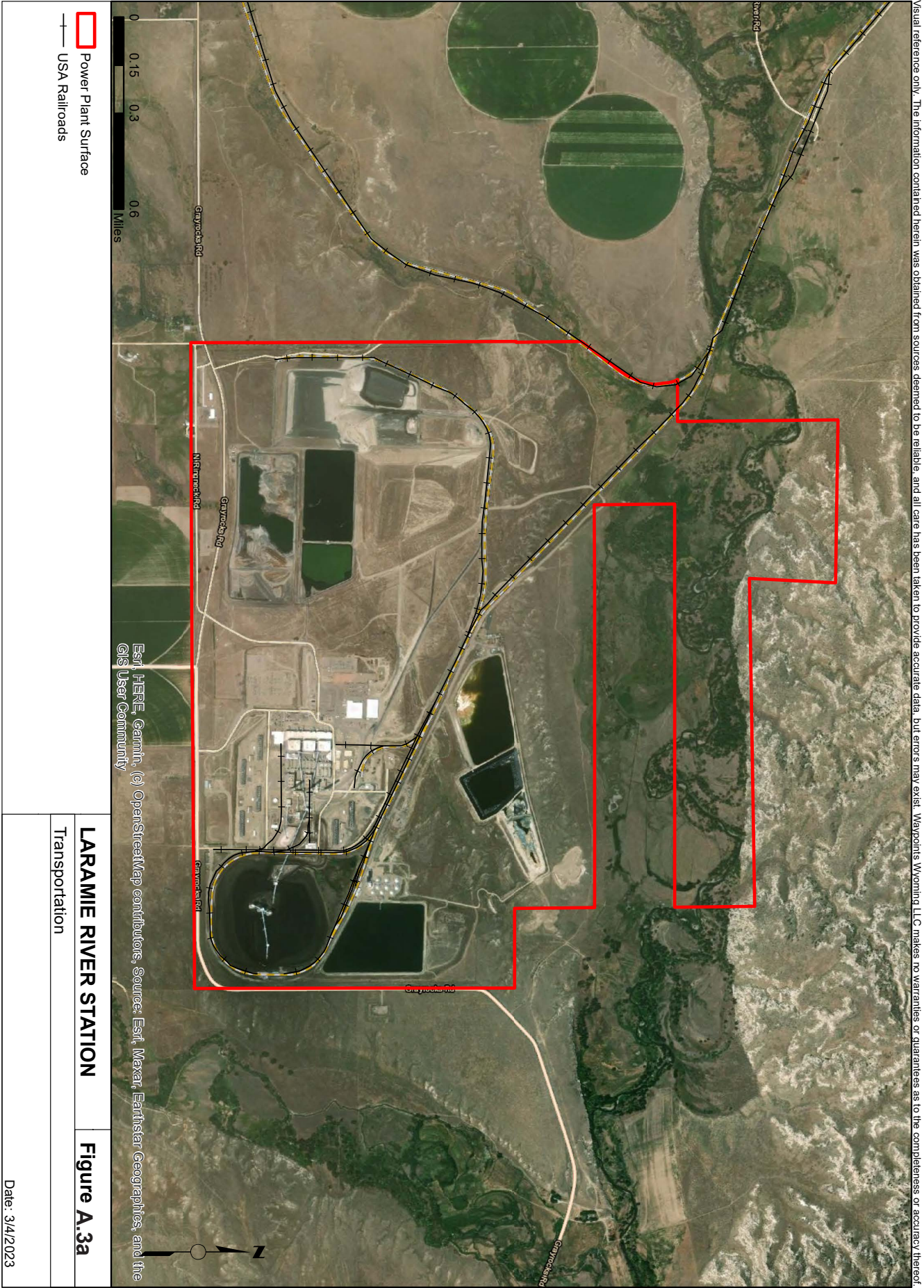
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

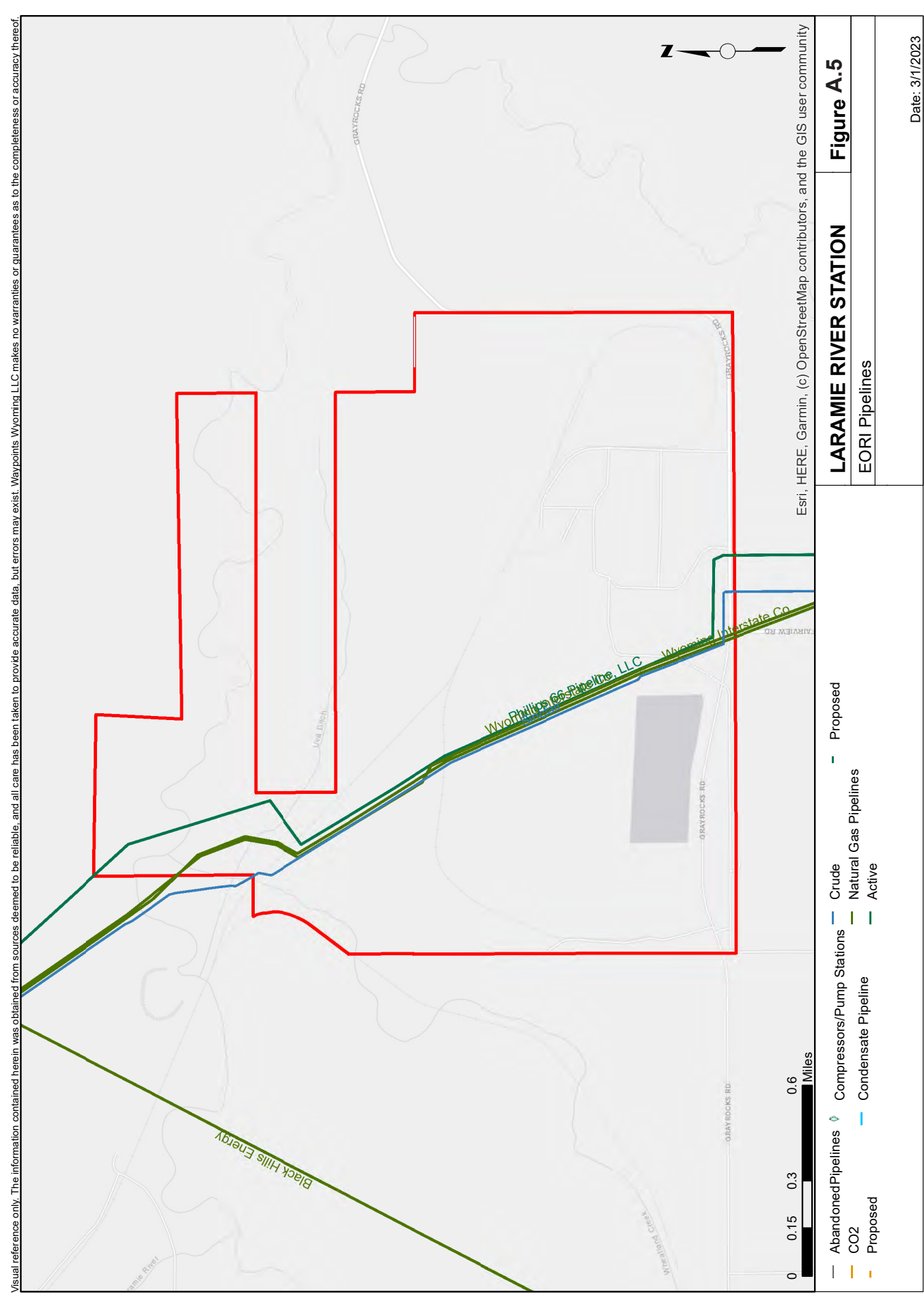
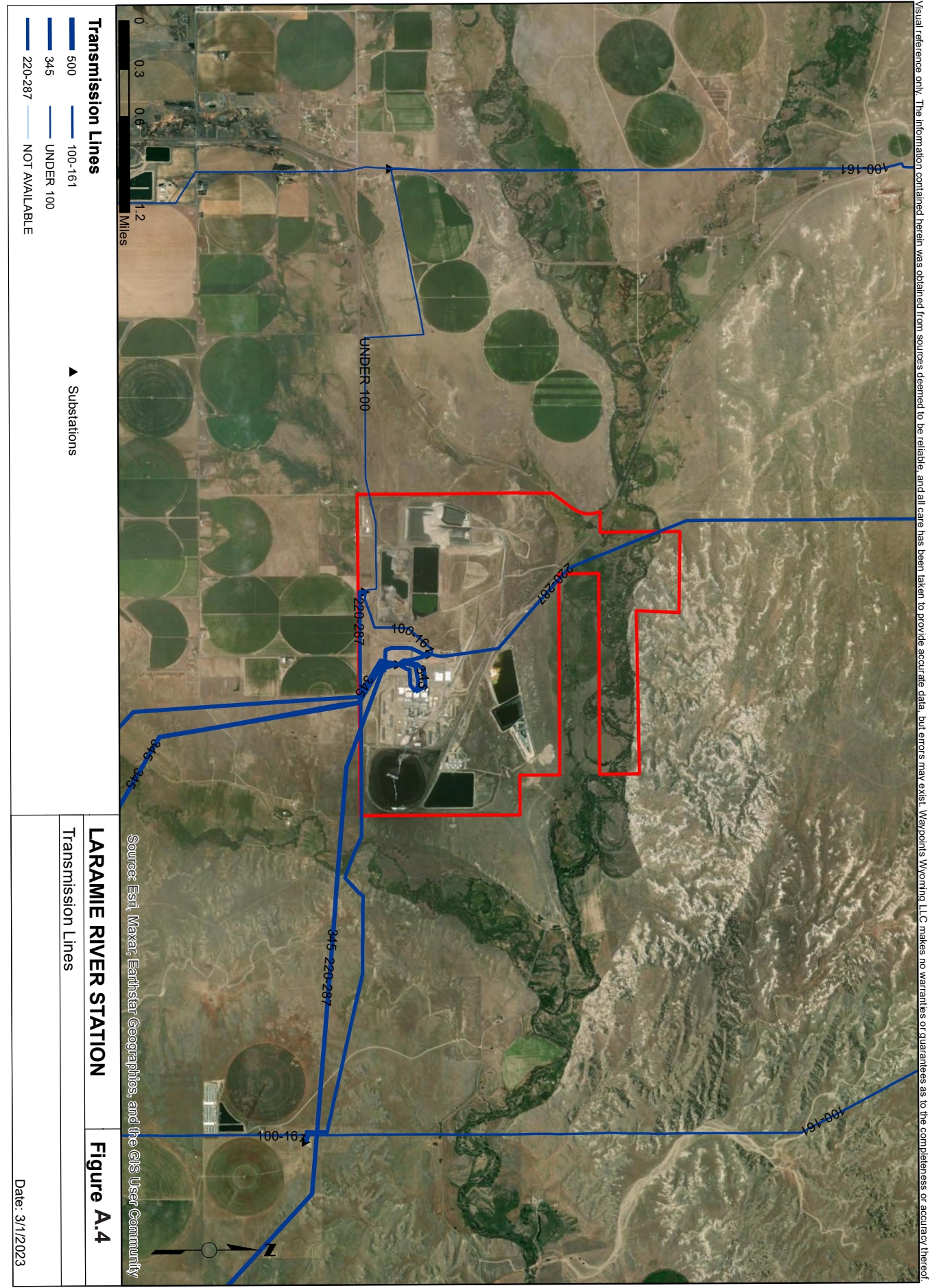
JIM BRIDGER	Figure A.7
Streams	
Date: 3/1/2023	



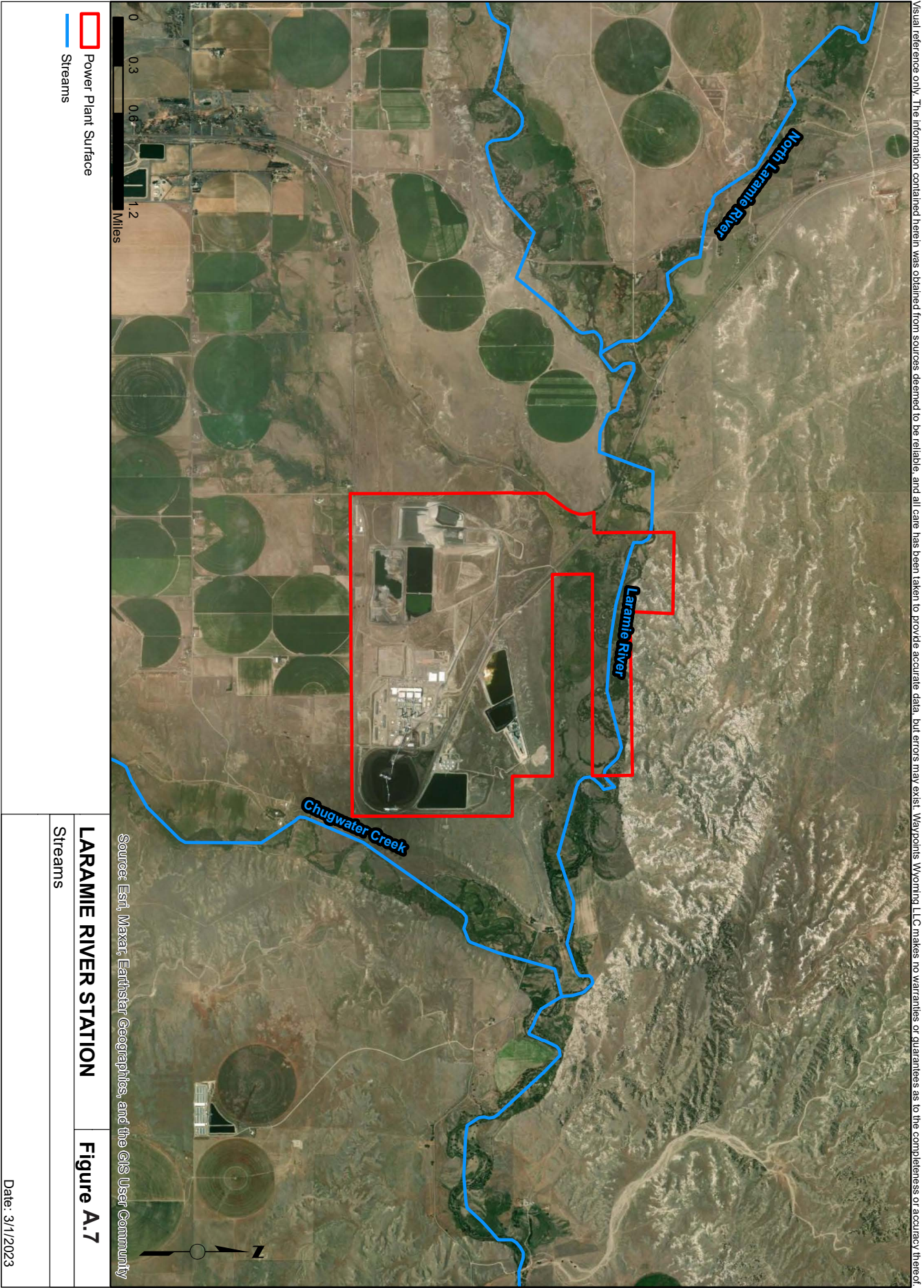
LARAMIE RIVER STATION SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
4 S CATTLE COMPANY	1
AMVC PRODUCTION LLC	2
BARD RANCH COMPANY	3
BASIN ELECTRIC POWER COOPERATIVE	4
BAUER LVG TRUST ROBERT L & HELEN R	5
BENNETT ALAN E & MARJORIE L	6
BENNETT ALVINA	7
BNSF RAILWAY COMPANY	8
CRISS RANCH LLC	9
DAWSON E JAY & DELLA Y	10
DUNLAP DOUG	11
GALE RANCH INC	12
GERINGER JOE AND TAMMY K	13
HATTEN TRACI D	14
HAYNES WILLIAM L R	15
HYCHE RYKER & CARRIE	16
JOE JOHNSON CO	17
KUNTZ DAVID & ELIZABETH	18
LOOMIS CHARITABLE TRUST ZONA & JACK 2/19/1992	19
MORRIS ZANE R & ERIN	20
NOCKELS LVG TRUST CHERYL FERRIS 11/27/2007	21
PREUIT RANCH LLC	22
PREUIT TRACY R	23
ROCHA JOHN P & SUZANNE A	24
ROSENGREEN SAMUEL WESLEY & MARY RUTH	25
RUNYAN MARK D & SHARON K	26
SHEPARD BROOKS & LEANNE	27
SHEPARD LLOYD BROOKS	28
SHEPARD LVG TRUST ROBERT F & LANA S	29
SHEPARD REV TRUST LLOYD BROOKS 7/10/2014	30
STATE OF WYOMING	State
U.S. BUREAU OF LAND MANAGEMENT	Fed
VON FORELL HEREFORDS	31
WILDCAT FEEDERS INC	32
WILEY RICKY L & THERESA B	33
WILHELM BARRY DEAN & TAMBRA SUE	34
WILHELM NICHOLAS JOSEPH	35
WILLSON ROBERT C	36

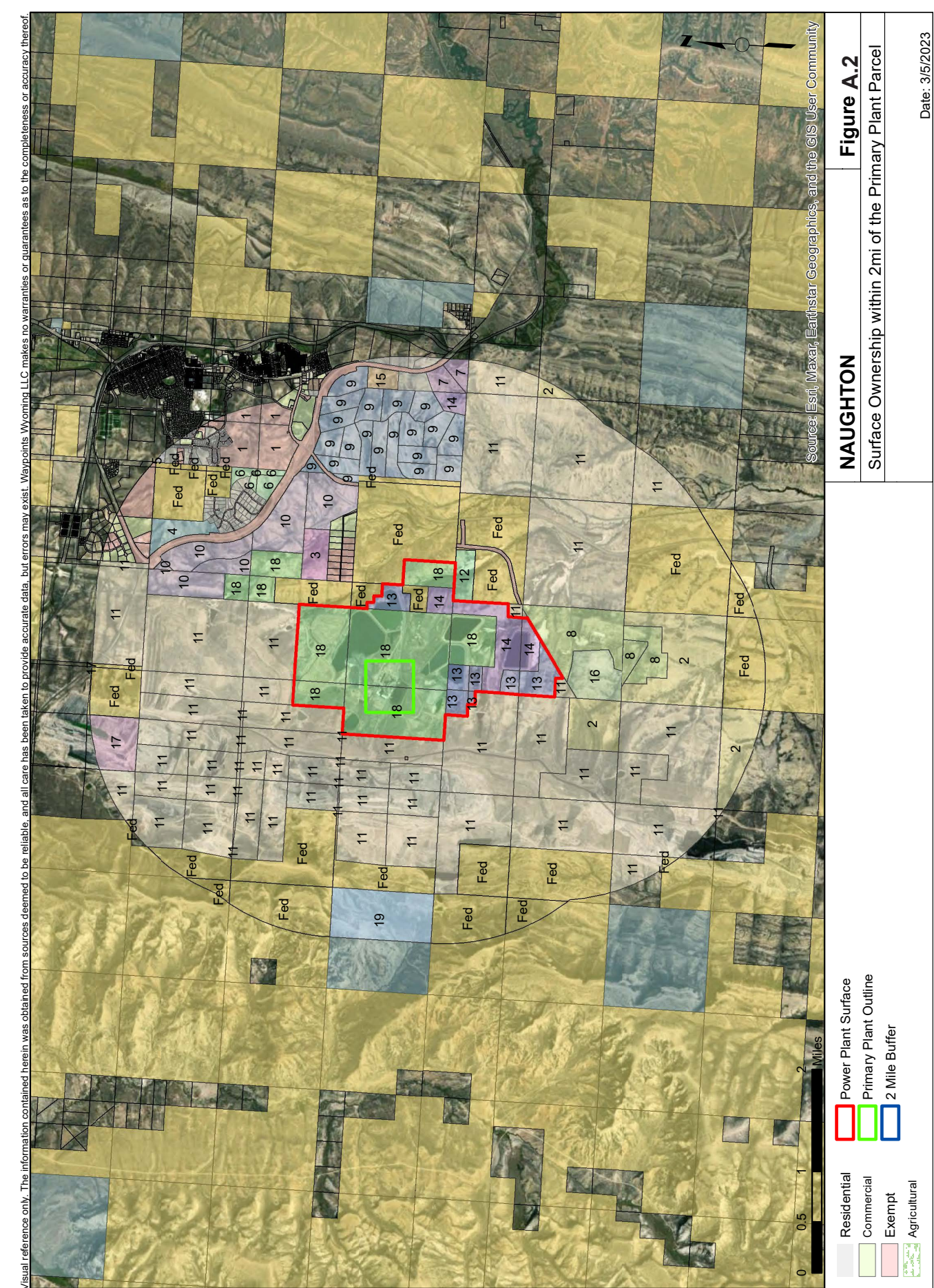
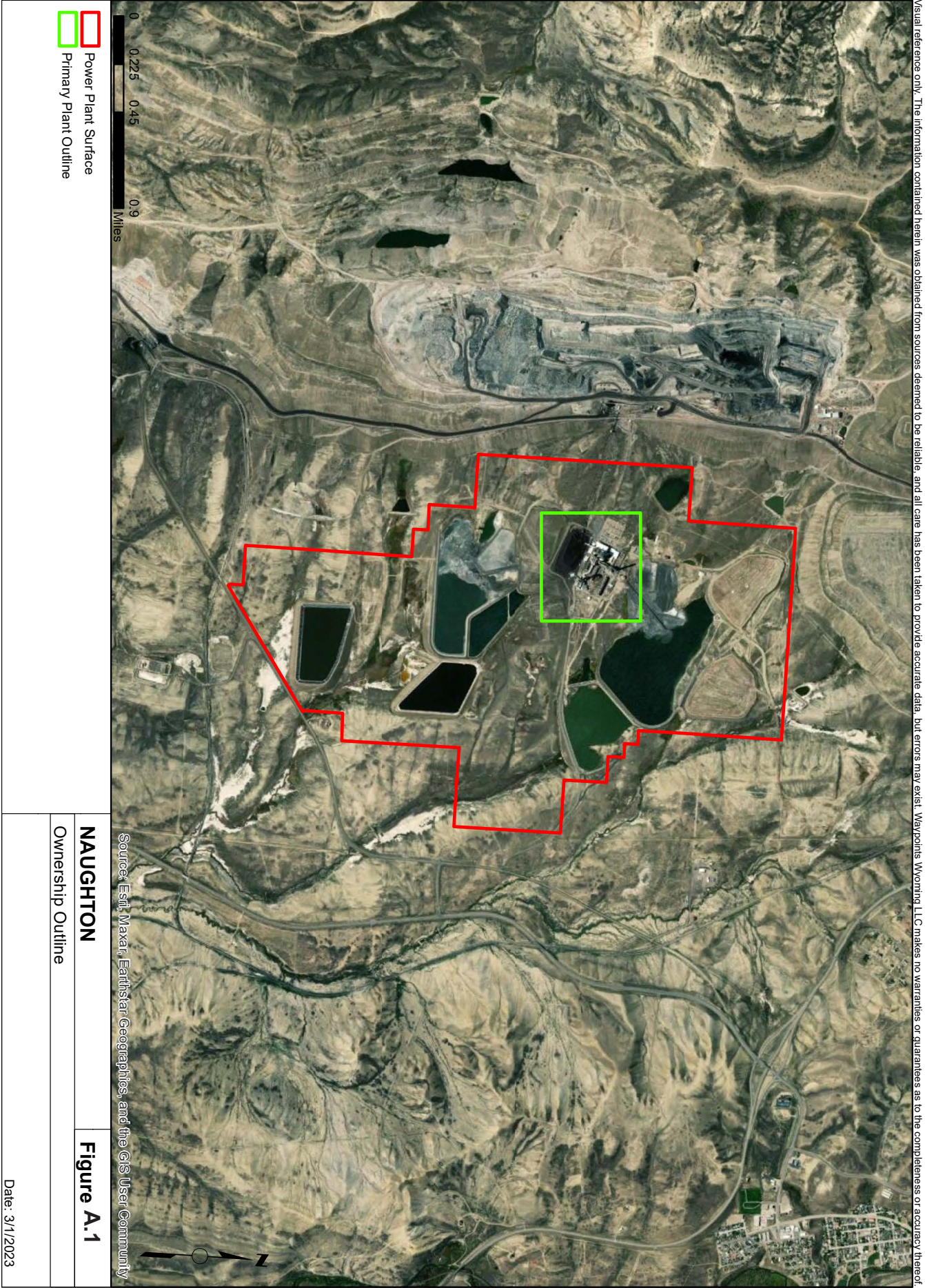






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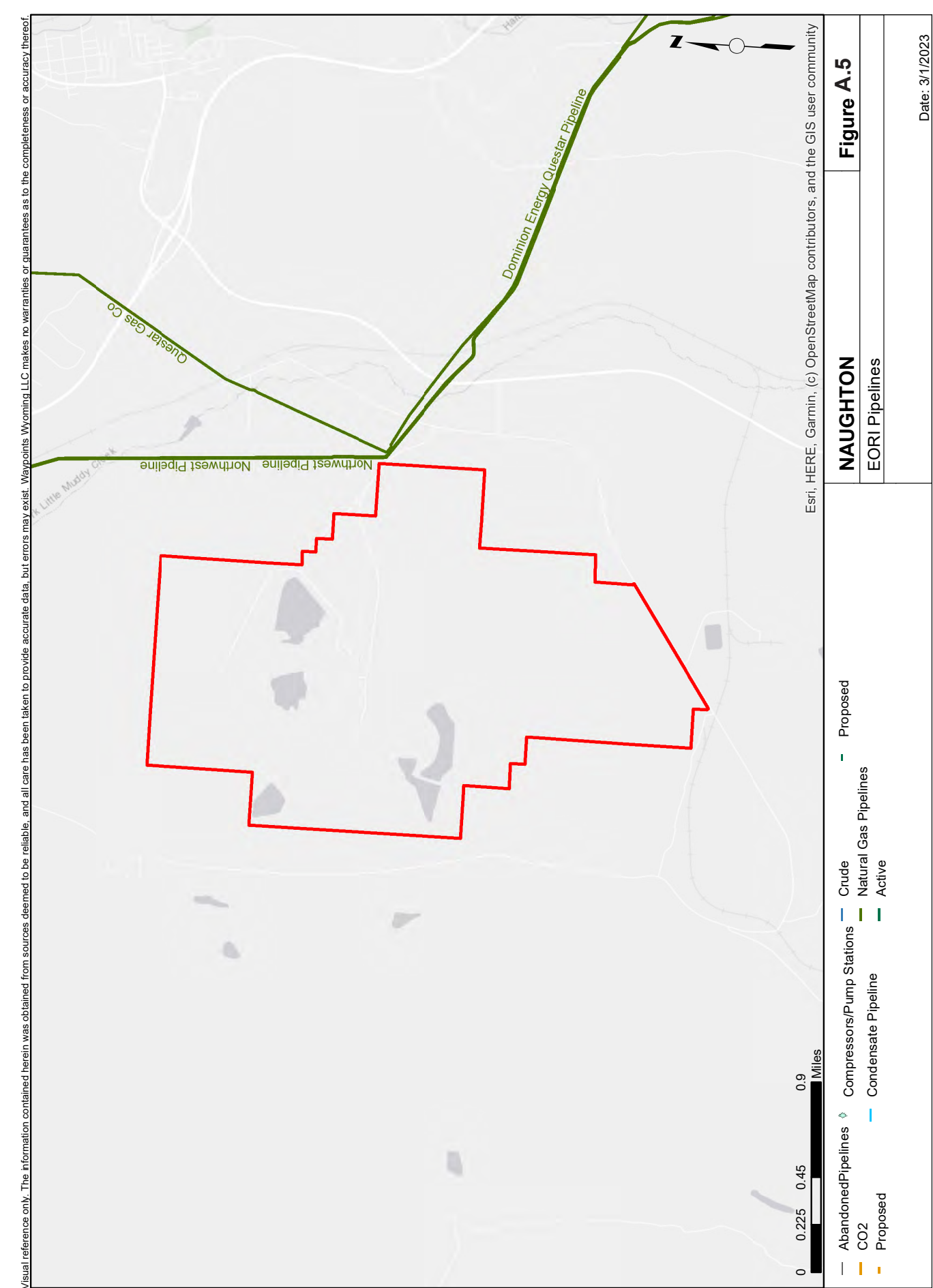
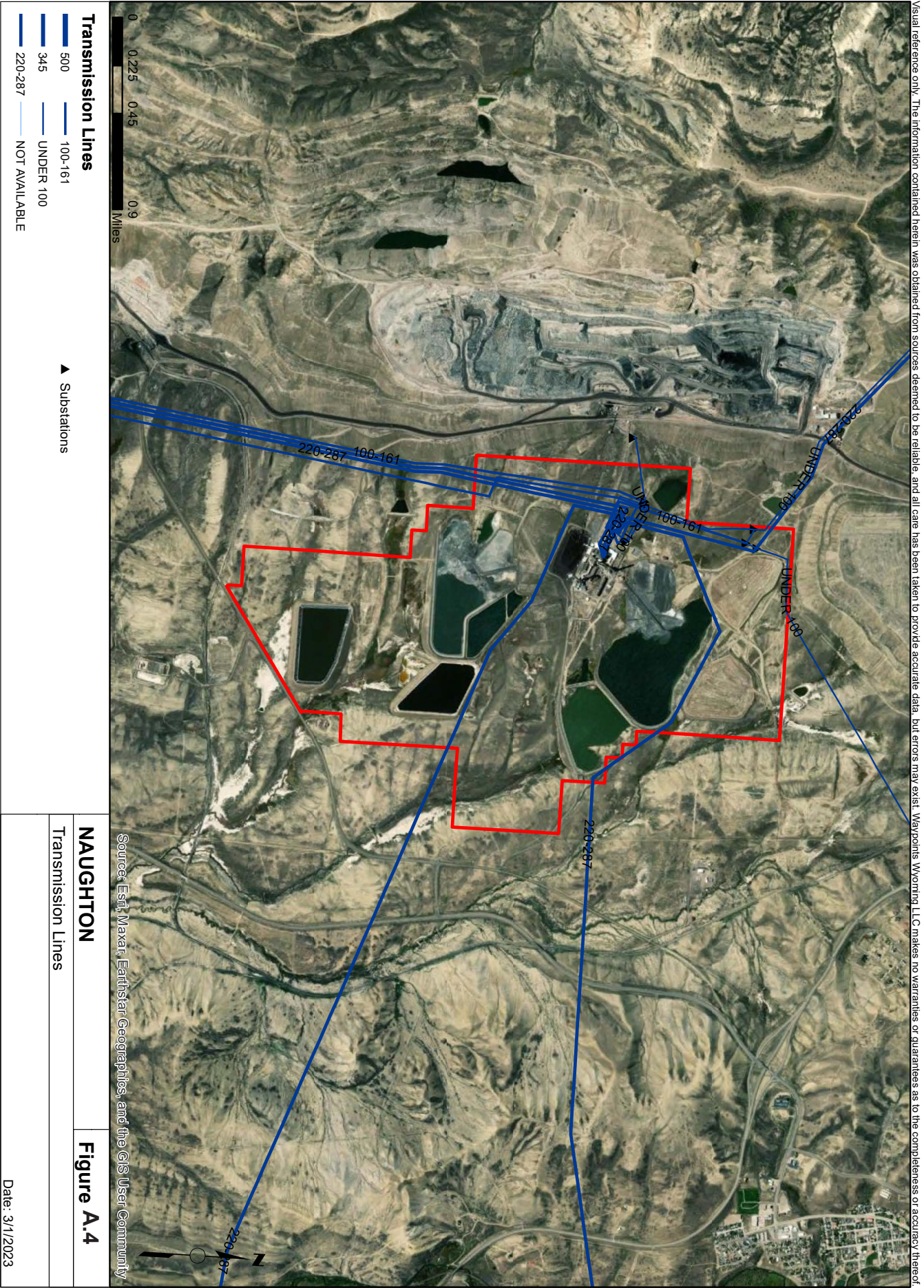


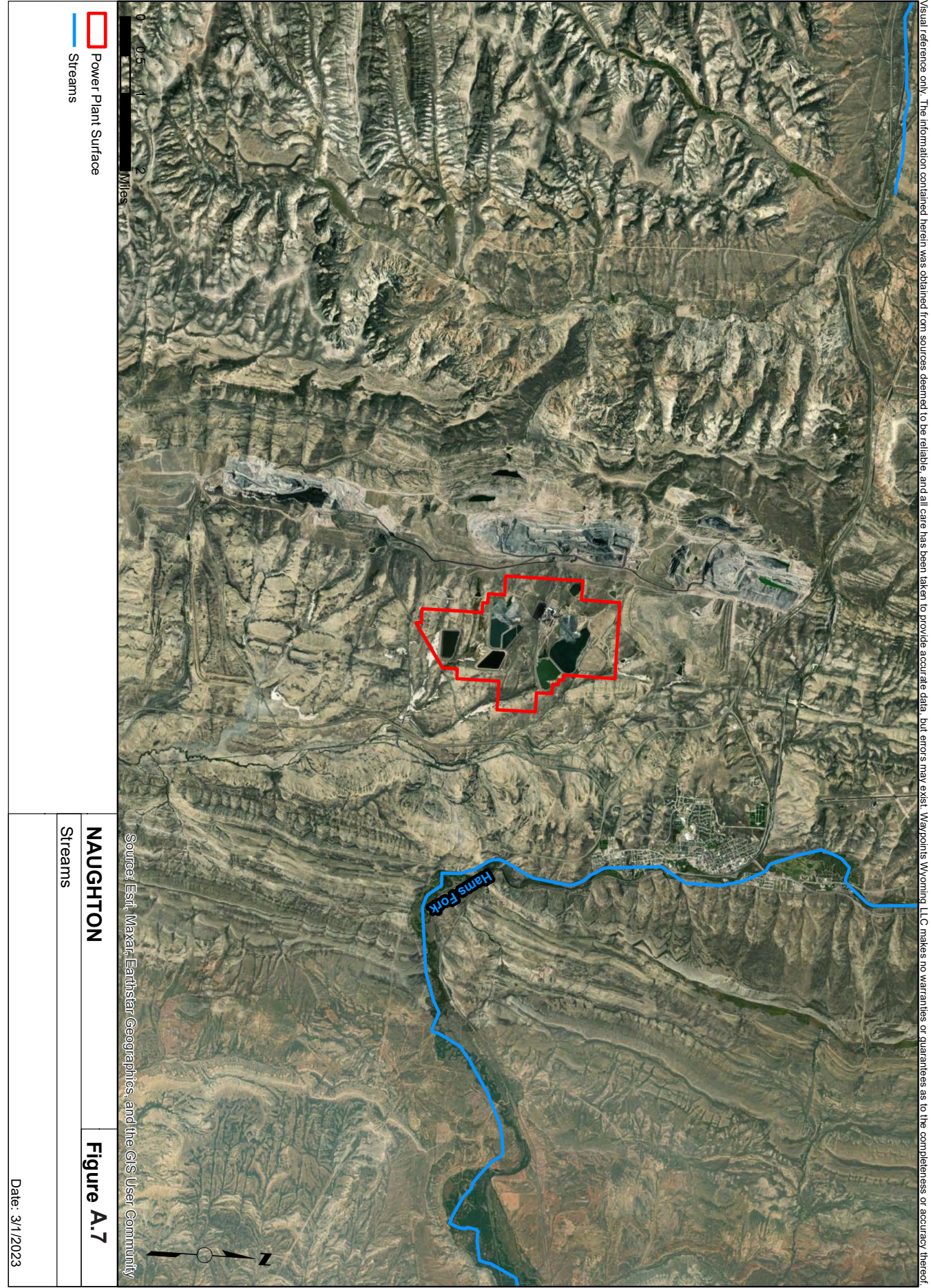


NAUGHTON SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
290, LLC	1
AGGIE GRAZING LLC	2
ALLEMAN FAMILY TRUSTS	3
BACKMAN, ELI & AMANDA	4
BLM	Fed
CANYON ROAD HOLDINGS LLC	5
ELLIS, DAVID & ANNA	6
ELLIS, JERIMIAH S & MCKENZEE L	7
FMC PRODUCTION, LLC	8
FOX, ROBERT B	9
K&L TRST LLC	10
KEMMERER OPERATIONS, LLC	11
PACIFIC POWER AND LIGHT	12
PACIFICORP	13
ROCKY MOUNTAIN POWER	14
SELLERS, TY & SHEENA	15
TRISIGHT WY HOLDINGS LLC	16
UNION PACIFIC LAND RESOURCES	17
UTAH POWER & LIGHT	18
WYO	19

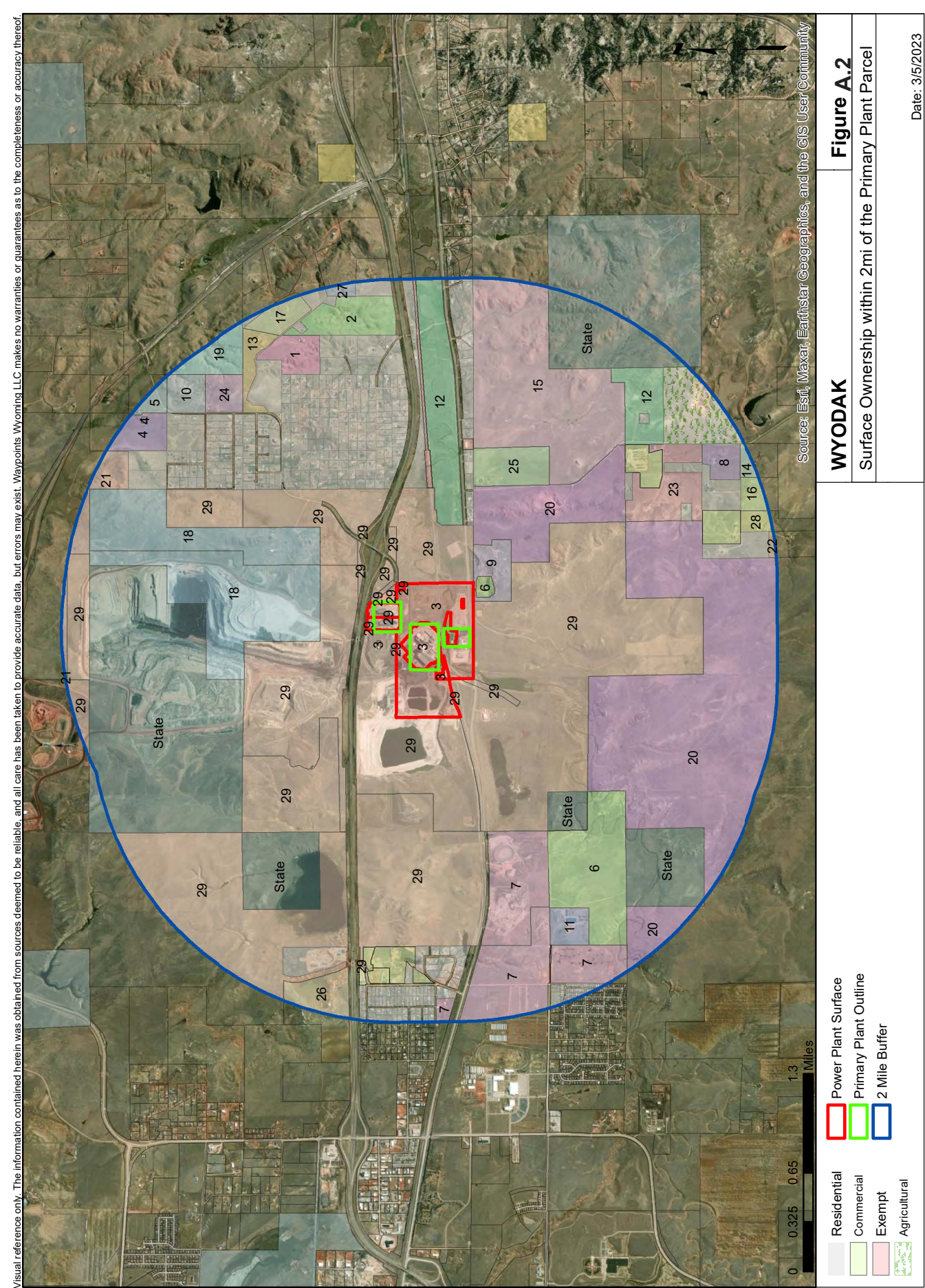
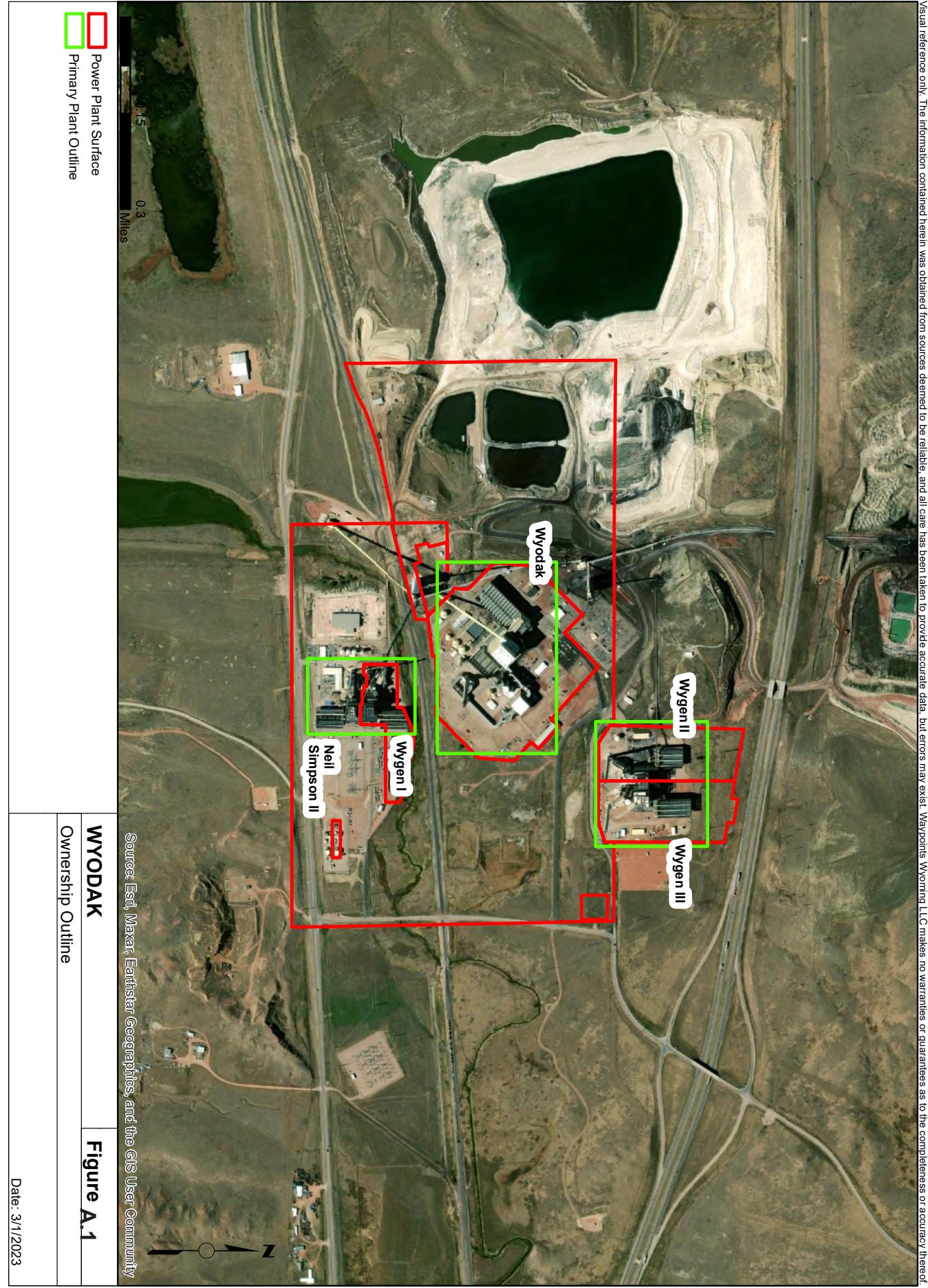


NAUGHTON	Figure A.3
	Transportation
	Date: 3/4/2023



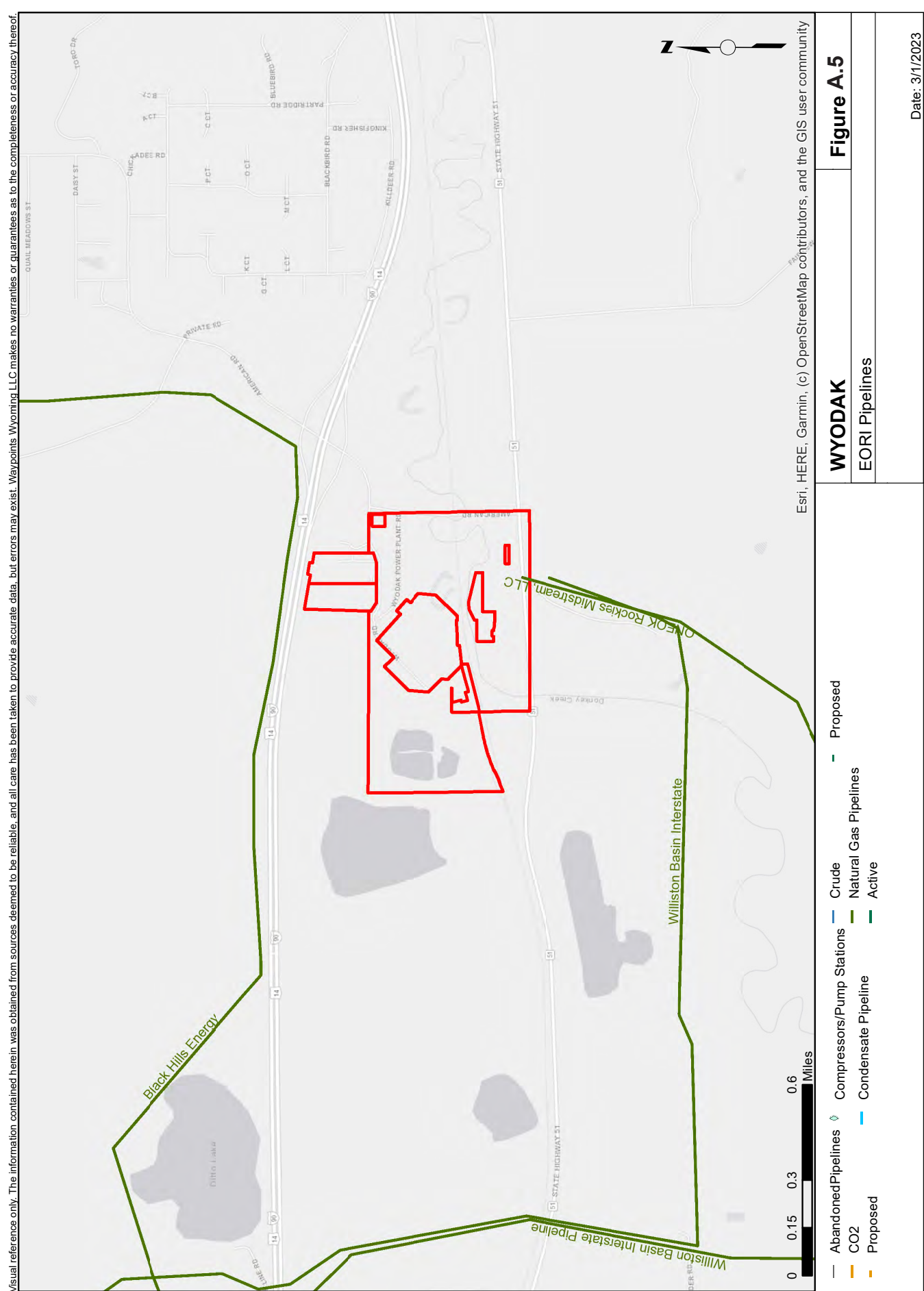
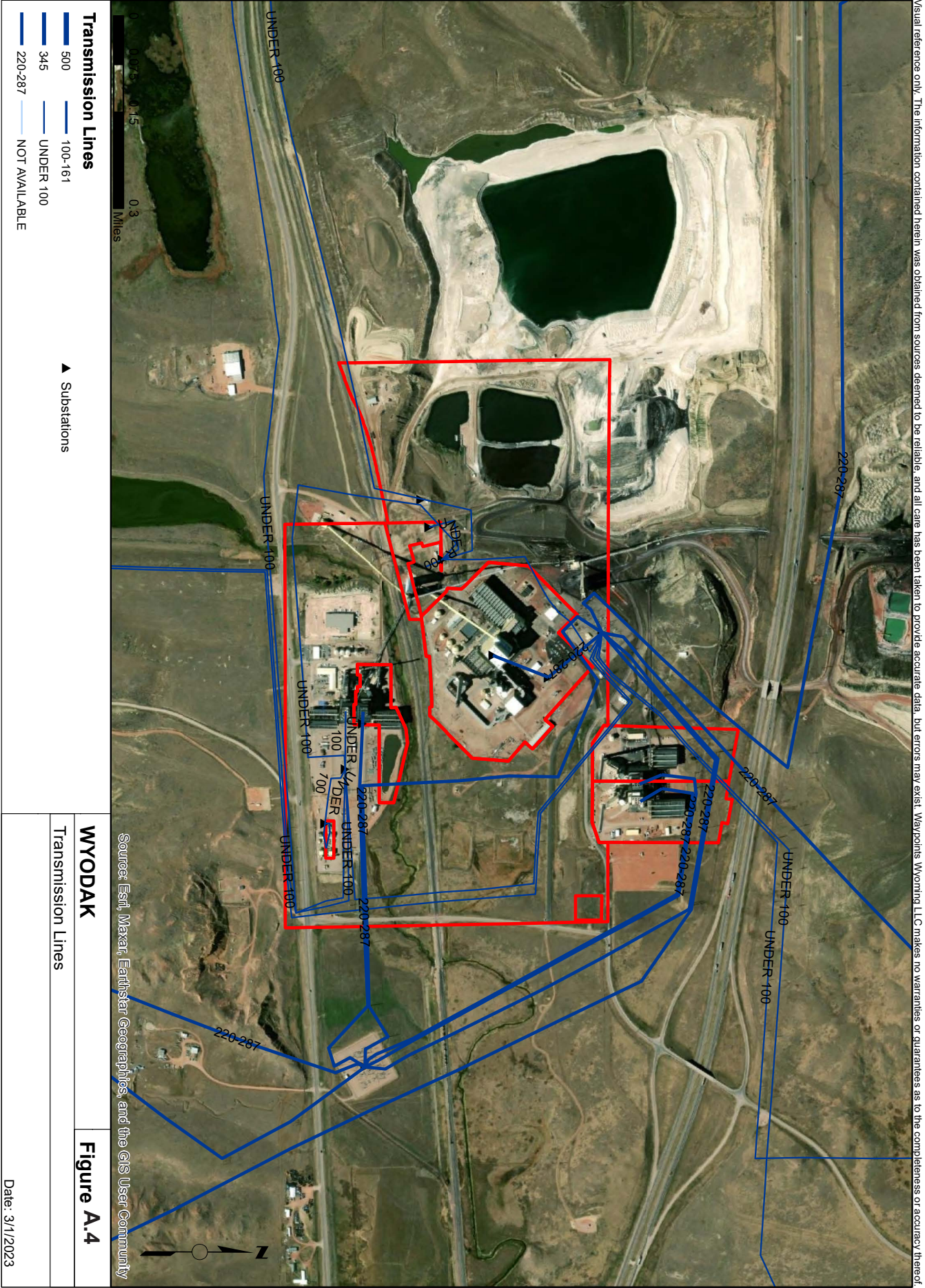


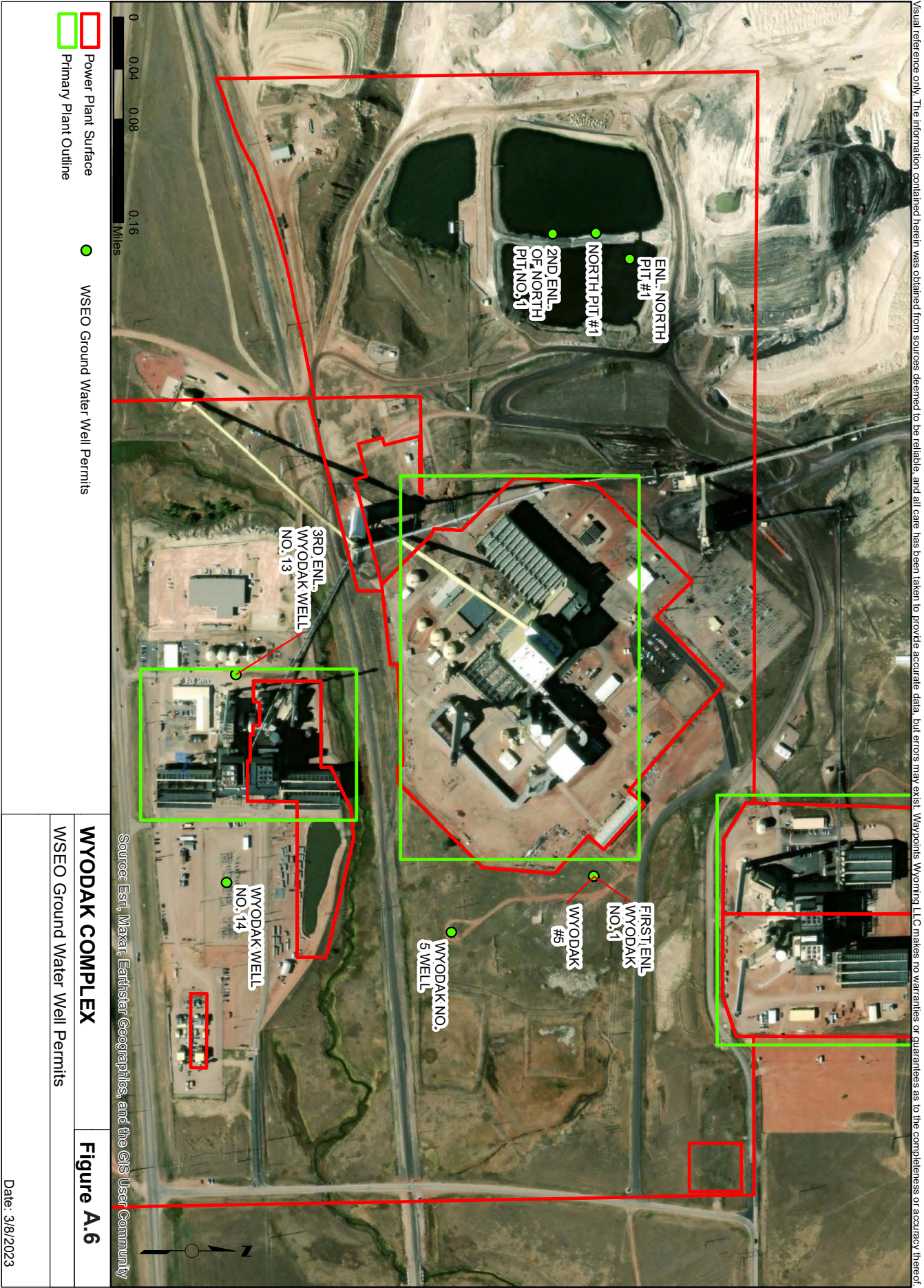
NAUGHTON	Figure A.8
Primary Plant Structures	
Date: 3/4/2023	



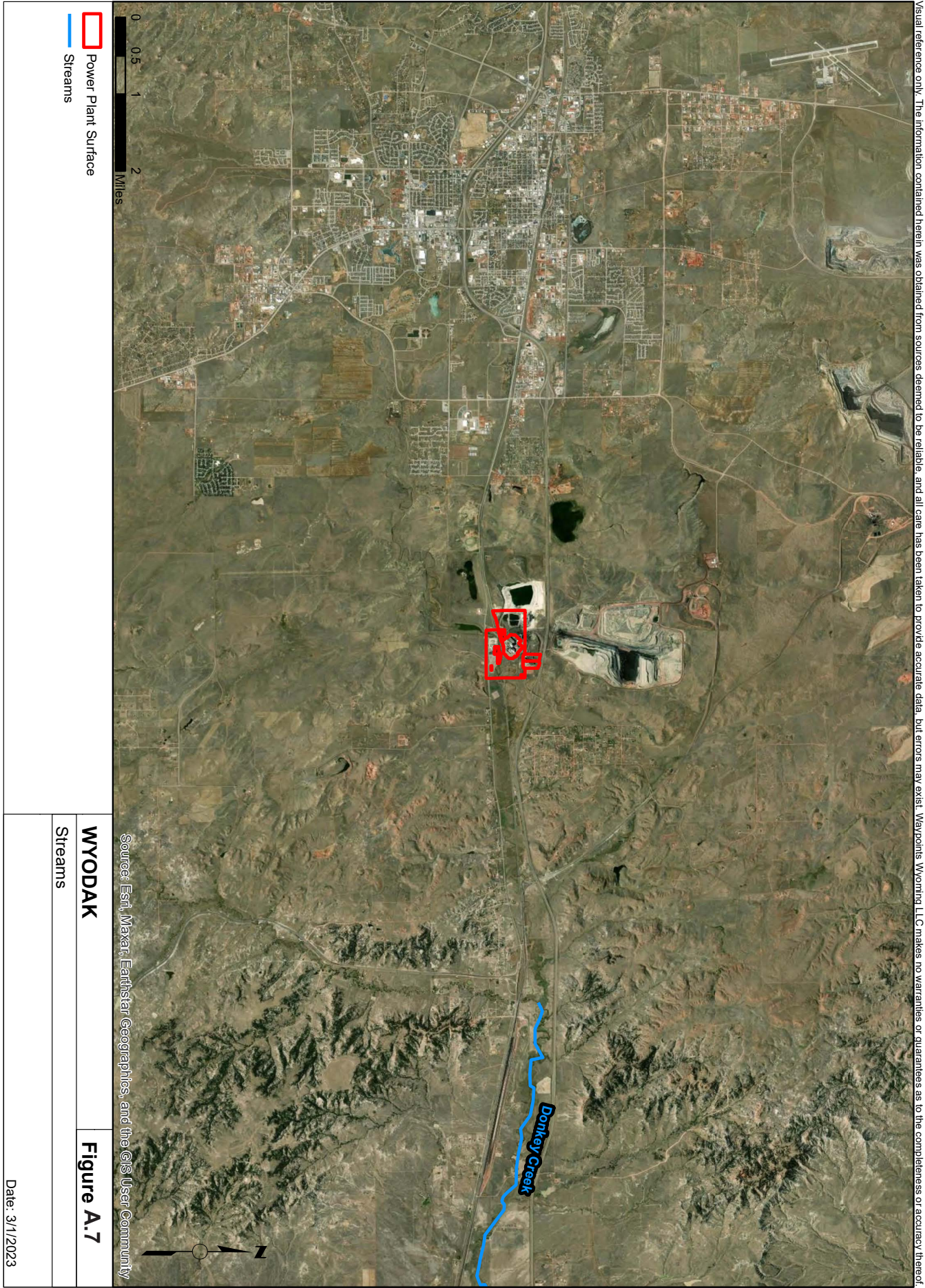
WYODAK SURFACE OWNERSHIP TABLE	
SURFACE OWNER	IDENTIFIER
ARCHER LORI ANN	1
BARBER MICHAEL D & JUDY L	2
BLACK HILLS POWER & LIGHT COMPANY	3
BRICKER LESLIE STEVEN & LINDA K	4
BRICKER STANLEY L & DIANA K	5
CAMPBELL COUNTY	6
CAMPBELL COUNTY PUBLIC LAND BOARD	7
COOK THOMAS L & LAURIE A	8
DOM LLC	9
FIELDS WILLIAM D & JOANNE C	10
GILLETTE COLLEGE FOUNDATION	11
GLADSON FAMILY TRUST	12
GOMEZ JOSE R ZELIM- &	13
HANEY DONALD R & SHELLY K	14
JOHNSON COLT & JANET	15
KEMERLING WILLIAM B &	16
MCFARLIN GLEN & SUSAN	17
MILLS SAMUEL E ETAL	18
OKRAY MAURICE & SHARON FAMILY TRUST	19
PICKREL LAND & CATTLE CO INC	20
PLUMB CRYSTAL RENEE & ALLAN DAVID	21
PONDER NATHAN DEAN &	22
REYNOLDS HARRY GENE & DIANA LOUISE	23
SAUR VICTOR R & DARLENE	24
SCHWEITZER SHERYL	25
SOUTHWELL VIRGINIA C/O	26
STARR MARK & KIMBERLY	27
STATE OF WYOMING	State
WENTLING KIM M & DAWN	28
WYODAK RESOURCE DEV CORP	29

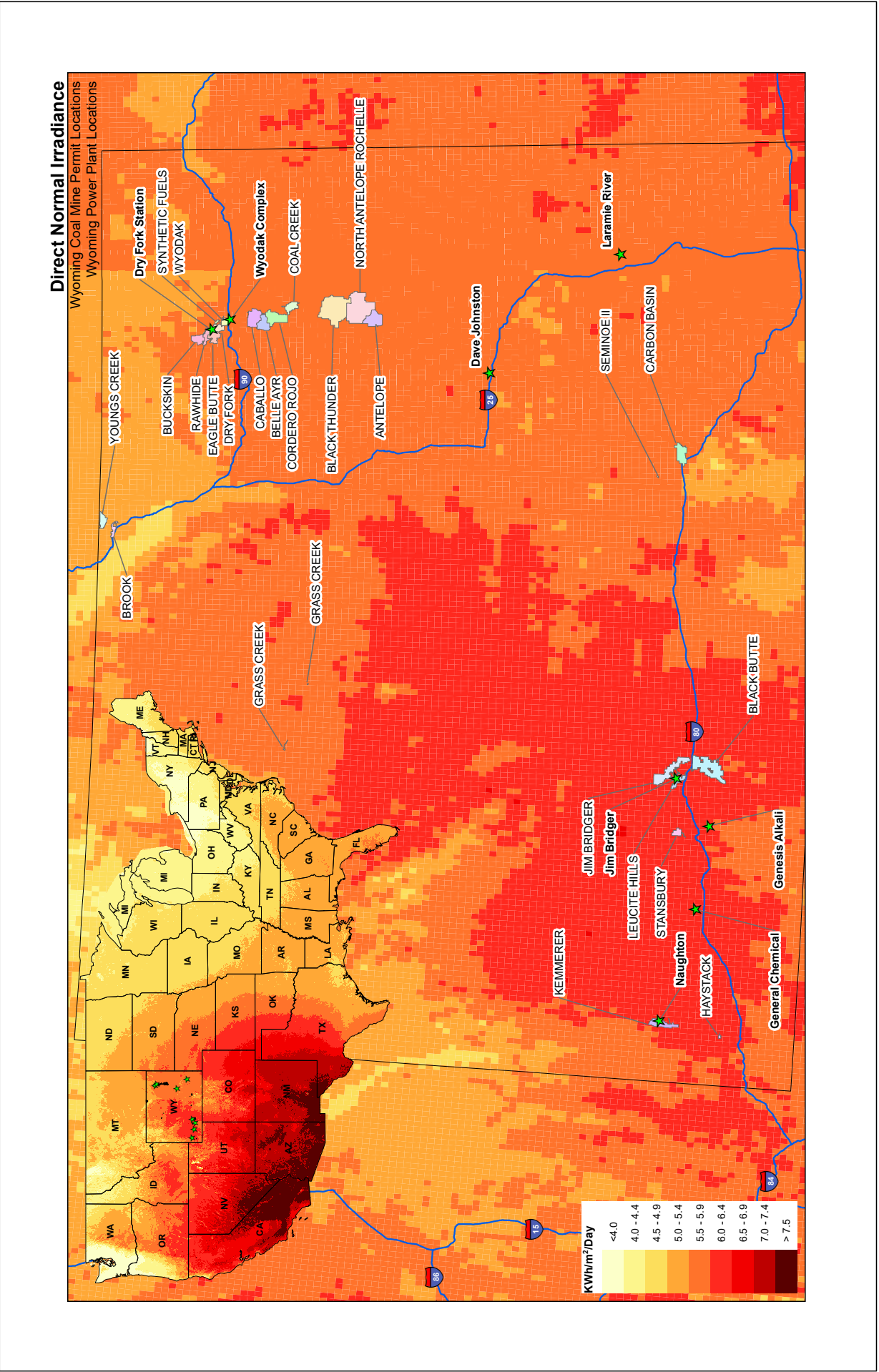
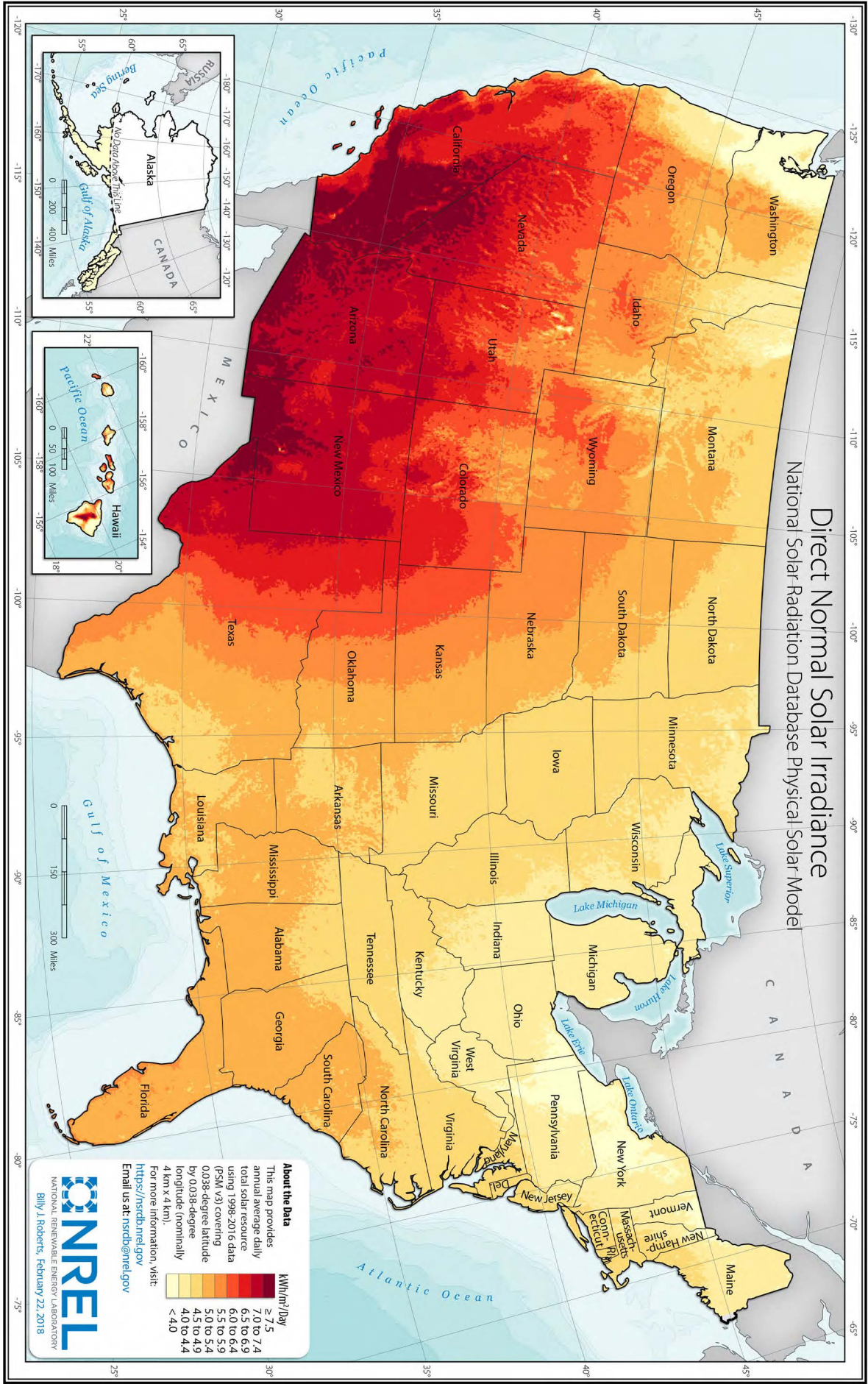






WYODAK - A.6. WATER RIGHTS TABLE								
WR NUMBER	SUMMARY WR STATUS	COMPANY	FACILITY NAME	USES	TOTAL FLOW CFS APPROPRIATION	TOTAL DEPTH (FT)	LONGITUDE	LATITUDE
P149556.0W	Complete	BLACK HILLS CORPORATION D/B/A BLACK HILLS POWER AND LIGHT CO.	WYODAK WELL NO. 14	IND_ GW; MIS	600	3654	-105.381208	44.285275
P189834.0W	Complete	BLACK HILLS CORP. DBA BLACK HILLS POWER AND LIGHT	FIRST ENL WYODAK NO. 1	IND_ GW; MIS	0		-105.381333	44.289428
P193633.0W	Complete	WYODAK RESOURCES DEVELOPMENT CORP	ENL. NORTH PIT #1	IND_ GW; MIS	0		-105.391061	44.289803
P198028.0W	Complete	WYODAK RESOURCES DEVELOPEMENT CORP	2ND ENL. OF NORTH PIT NO. 1	IND_ GW; MIS	300		-105.39145	44.28893
P201722.0W	Complete	BLACK HILLS CORPORATION DBA BLACK HILLS POWER AND	3RD ENL. WYODAK WELL NO. 13	IND_ GW; MIS	30		-105.38449	44.28537
P47619.0W	Complete	WyoDak Resources Development Corp.	NORTH PIT #1	MIS	1200	150	-105.39147	44.28942
P5541.0W	Fully Adjudicated	Black Hills Power & Light	WYODAK #5	DOM_ GW; IND_ GW	38	600	-105.38134	44.28943
CR UW01/027	Fully Adjudicated	BLACK HILLS POWER AND LIGHT COMPANY	WYODAK NO. 5 WELL	DOM_ GW; IND_ GW	40		-105.38044	44.28782





REPORT FIGURES

FIGURE A.1 WYOMING STATEWIDE COAL FIRED POWER PLANTS WITH MINE PERMITS

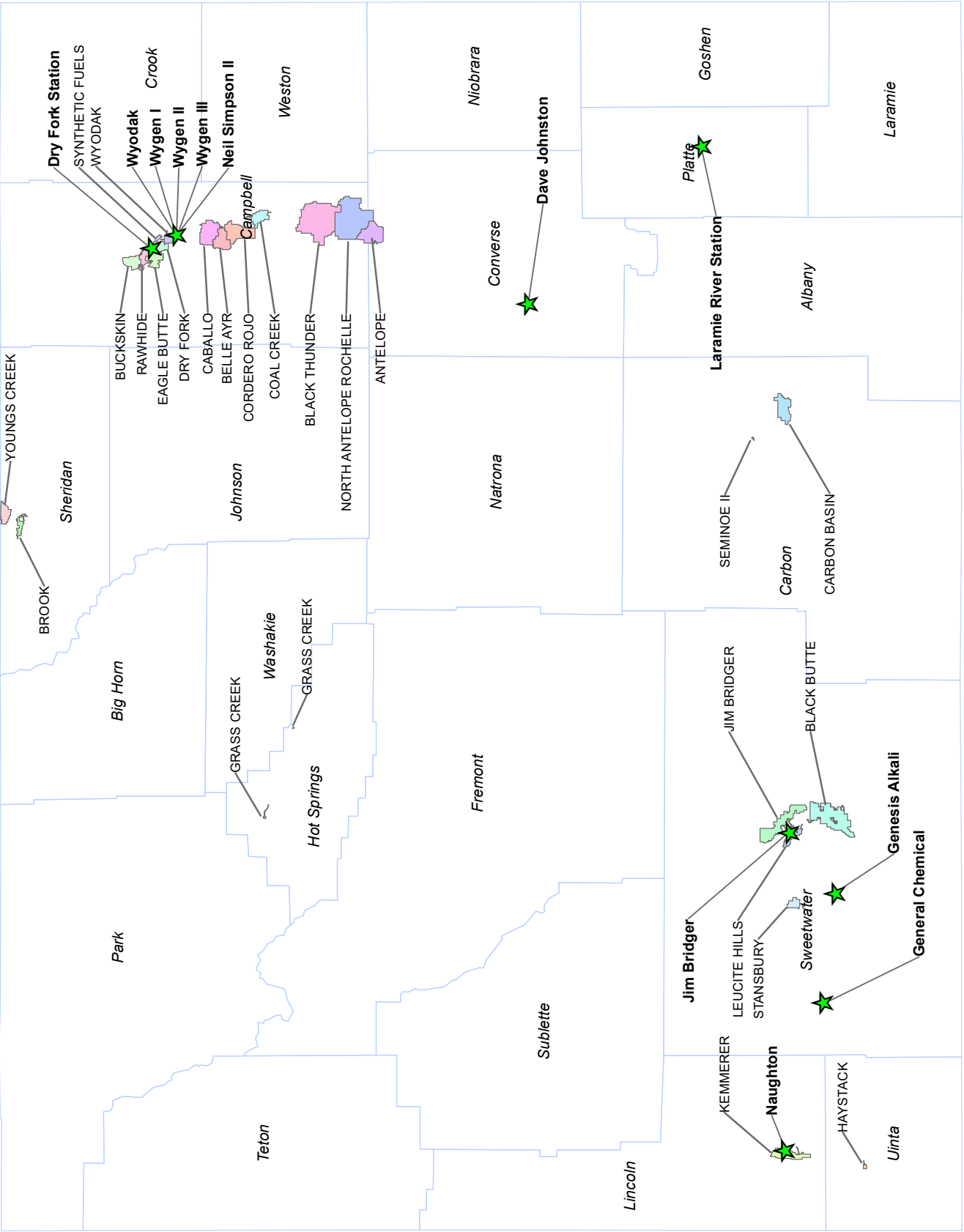


FIGURE A.2

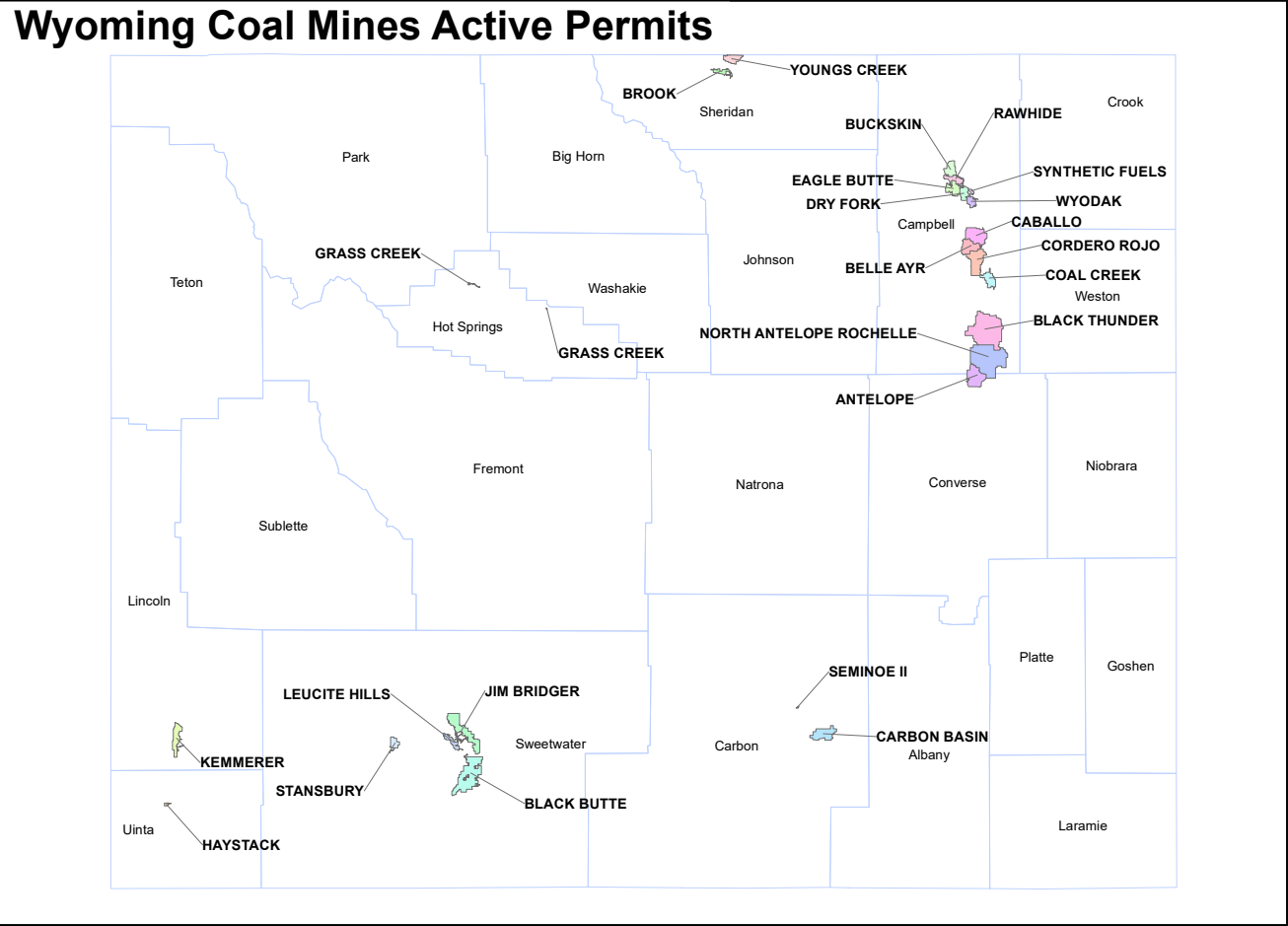


FIGURE A.3

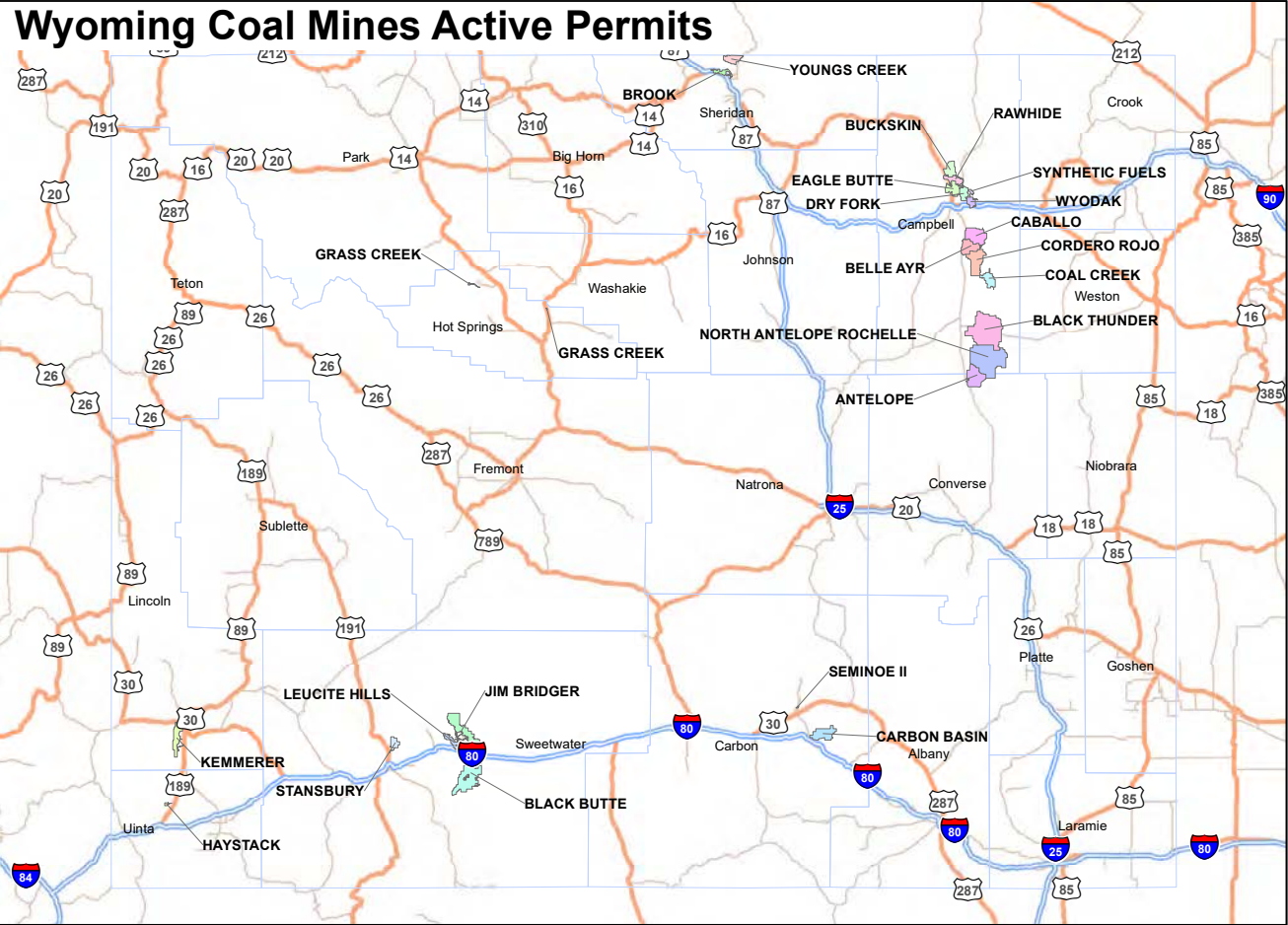


FIGURE A.4

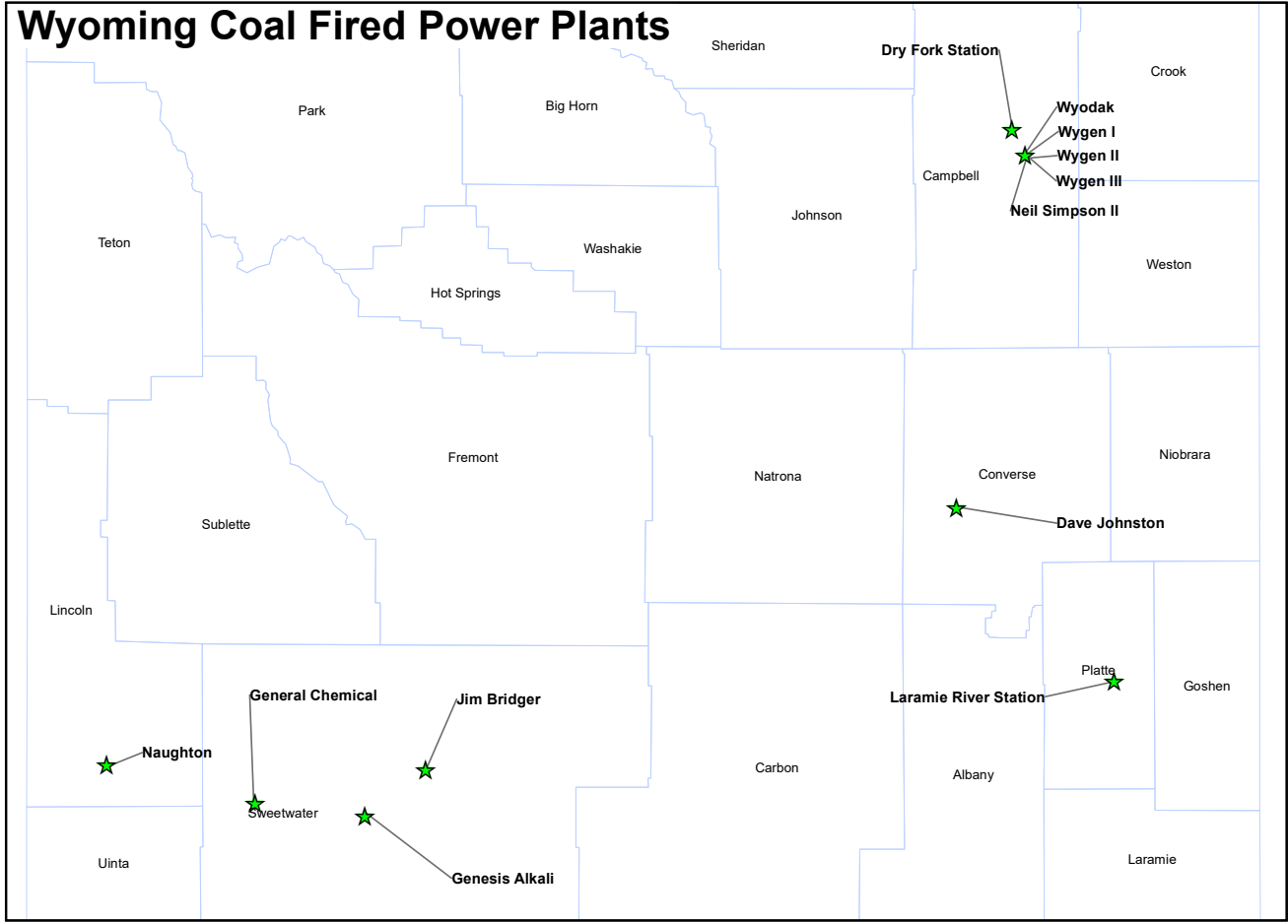


FIGURE A.5

FIGURE B
WMA CONCISE GUIDE TO WYOMING COAL - VOLUME TRENDS
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE 2020-2021

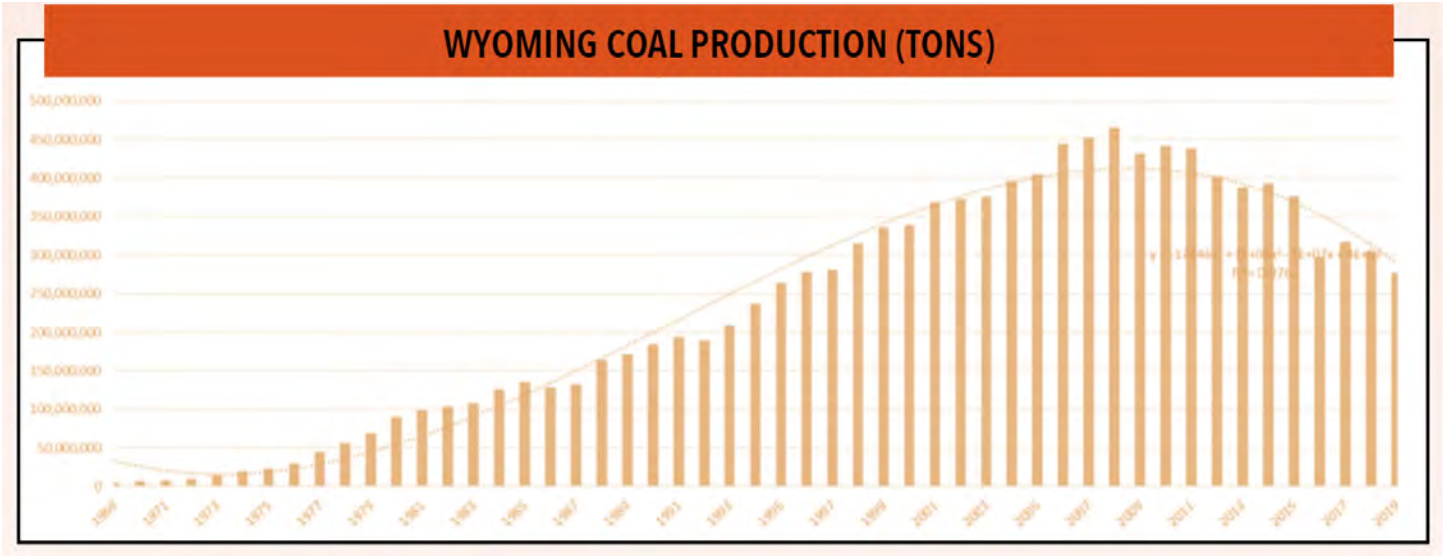


FIGURE C- PART 1
WMA CONCISE GUIDE TO WYOMING COAL - EMPLOYMENT & WAGES
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE 2020-2021

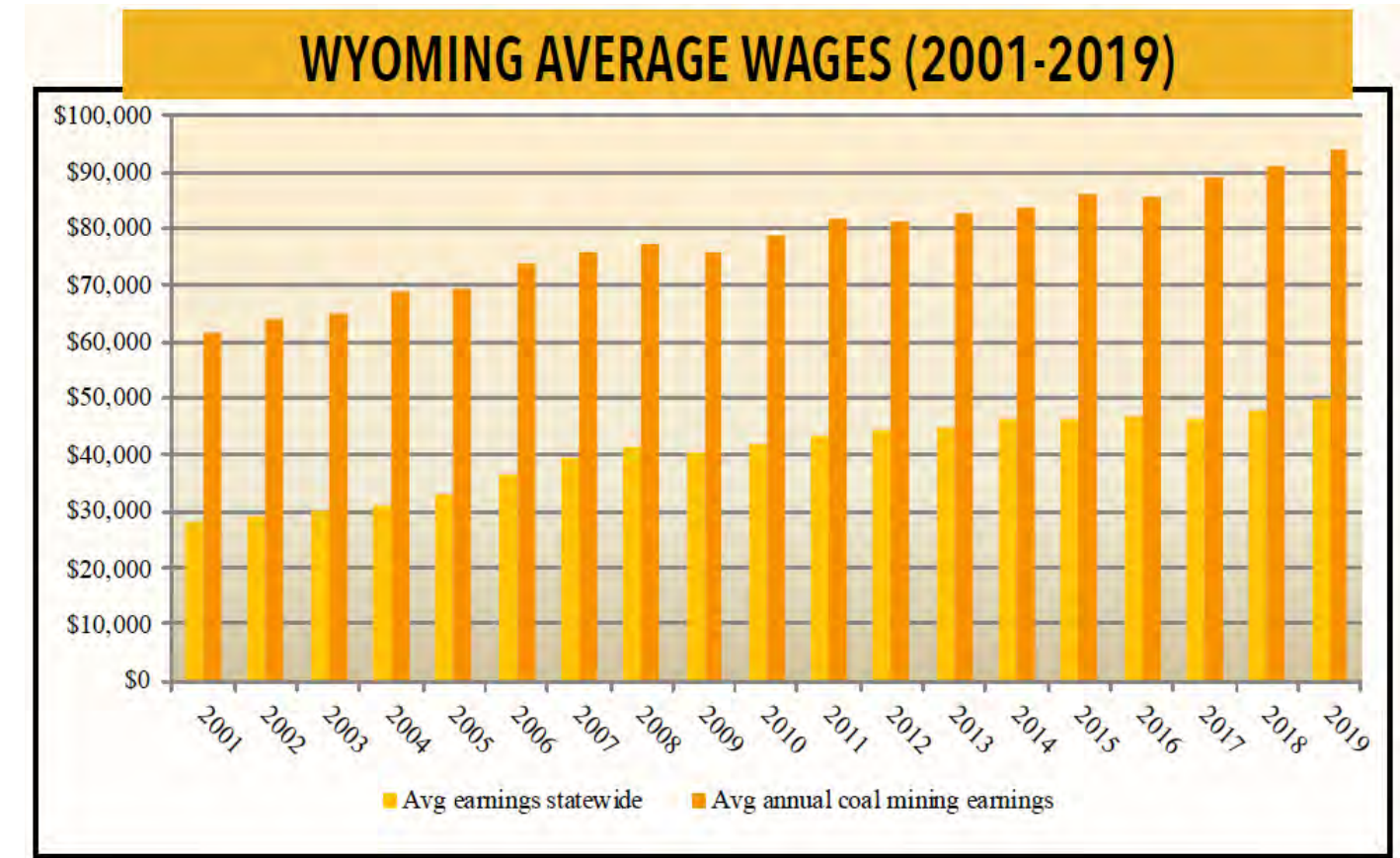


FIGURE C- PART 2
WMA CONCISE GUIDE TO WYOMING COAL - EMPLOYMENT & WAGES
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE 2020-2021

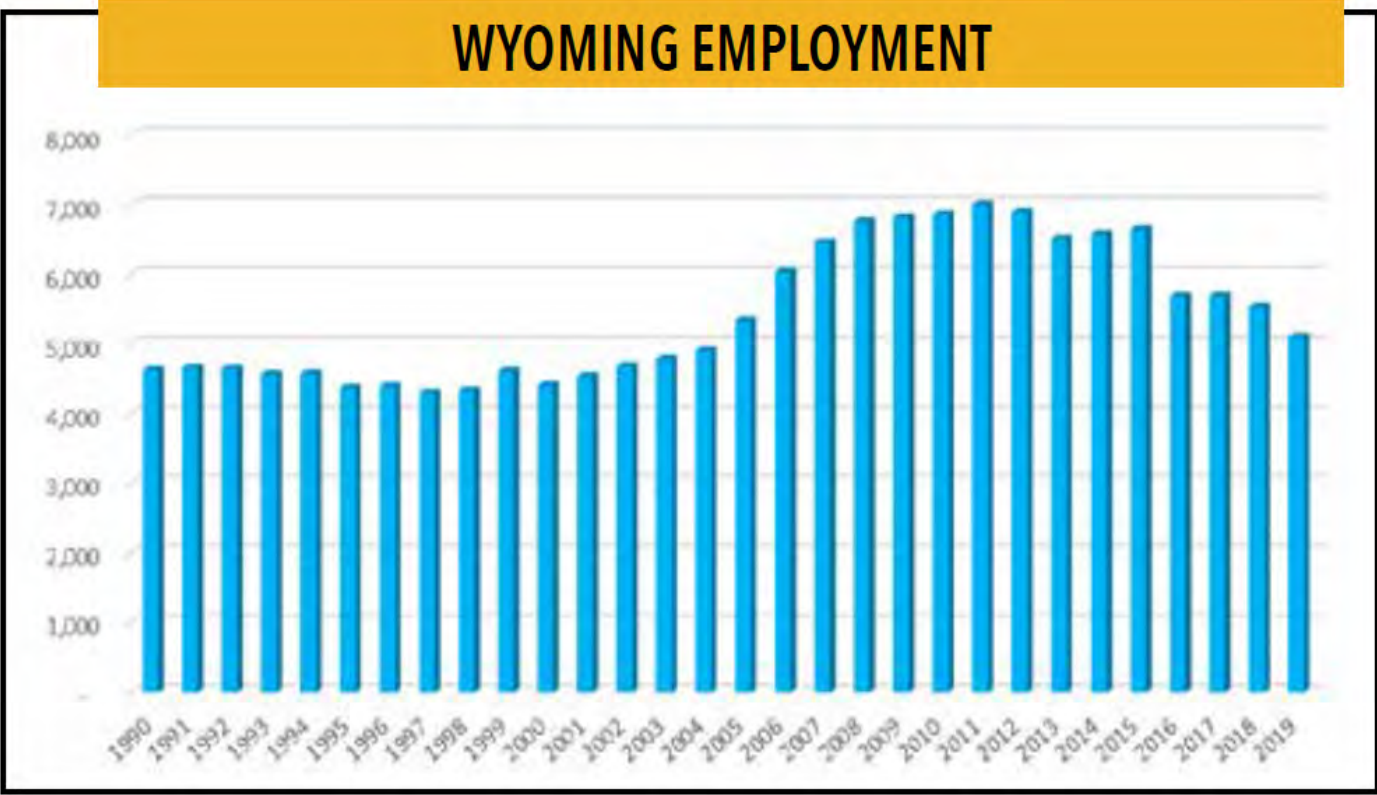


FIGURE D
WMA CONCISE GUIDE TO WYOMING COAL - TAXES CHART
SOURCED: WYOMING MINING ASSOCIATION COAL CONCISE GUIDE 2020-2021

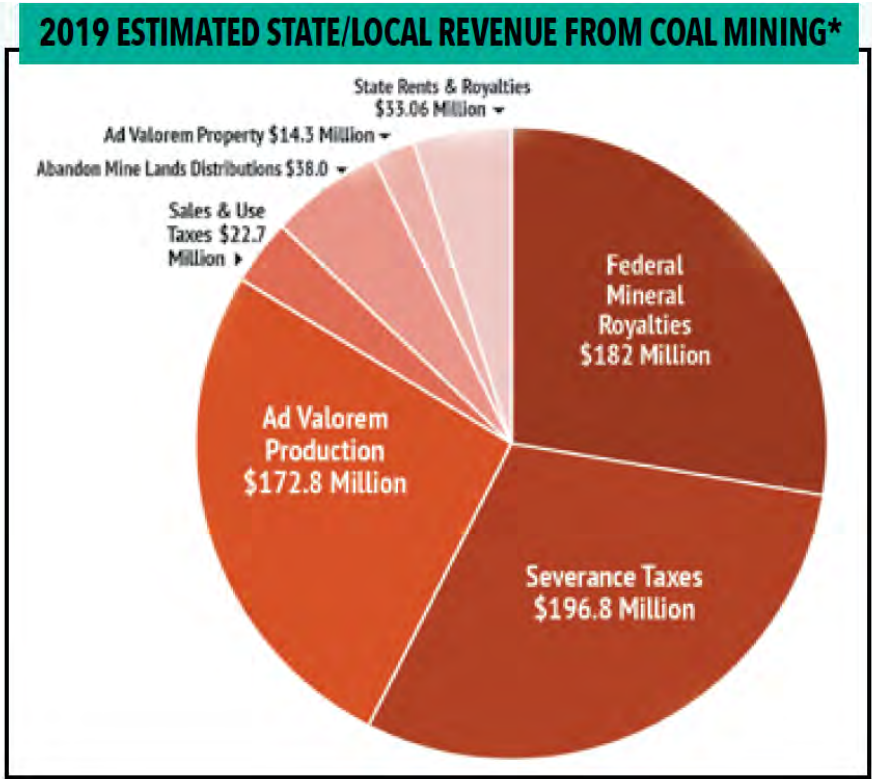


FIGURE E.1
US COAL-FIRED GENERATING CAPACITY & PLANNED RETIREMENTS
SOURCED: US ENERGY INFORMATION ADMINISTRATION, MONTHLY ELECTRIC GENERATOR INVENTORY

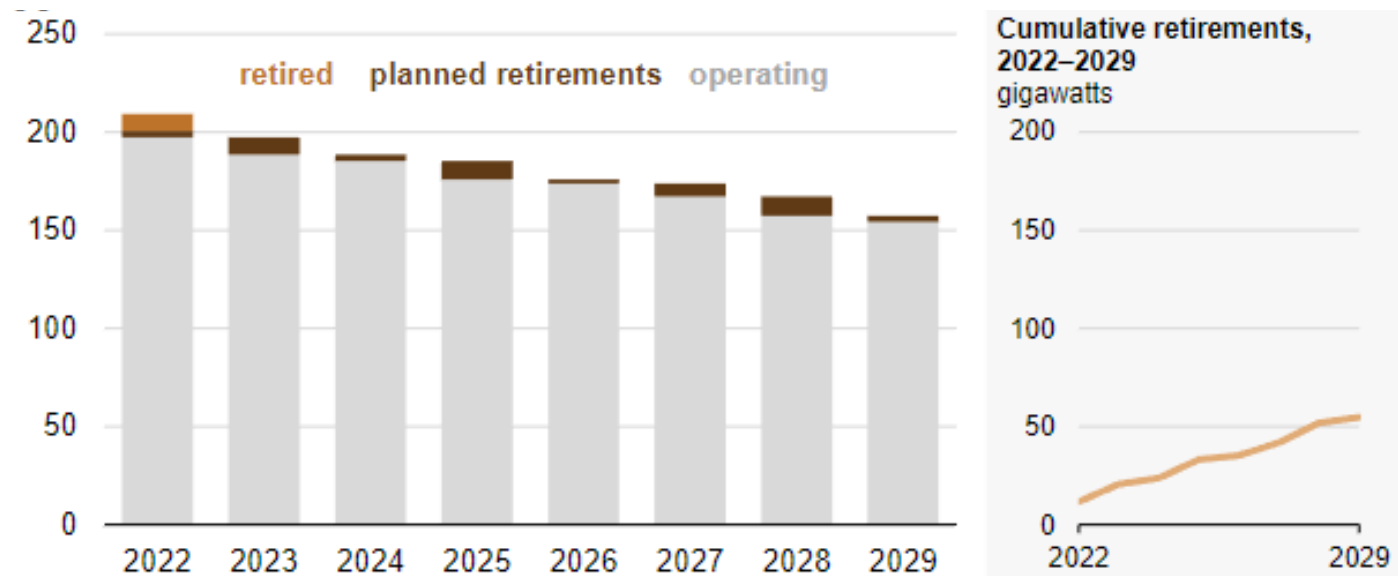


FIGURE E.2
US UTILITY SCALE ELECTRIC GENERATING CAPACITY BY INITIAL OPERATING YEAR
SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

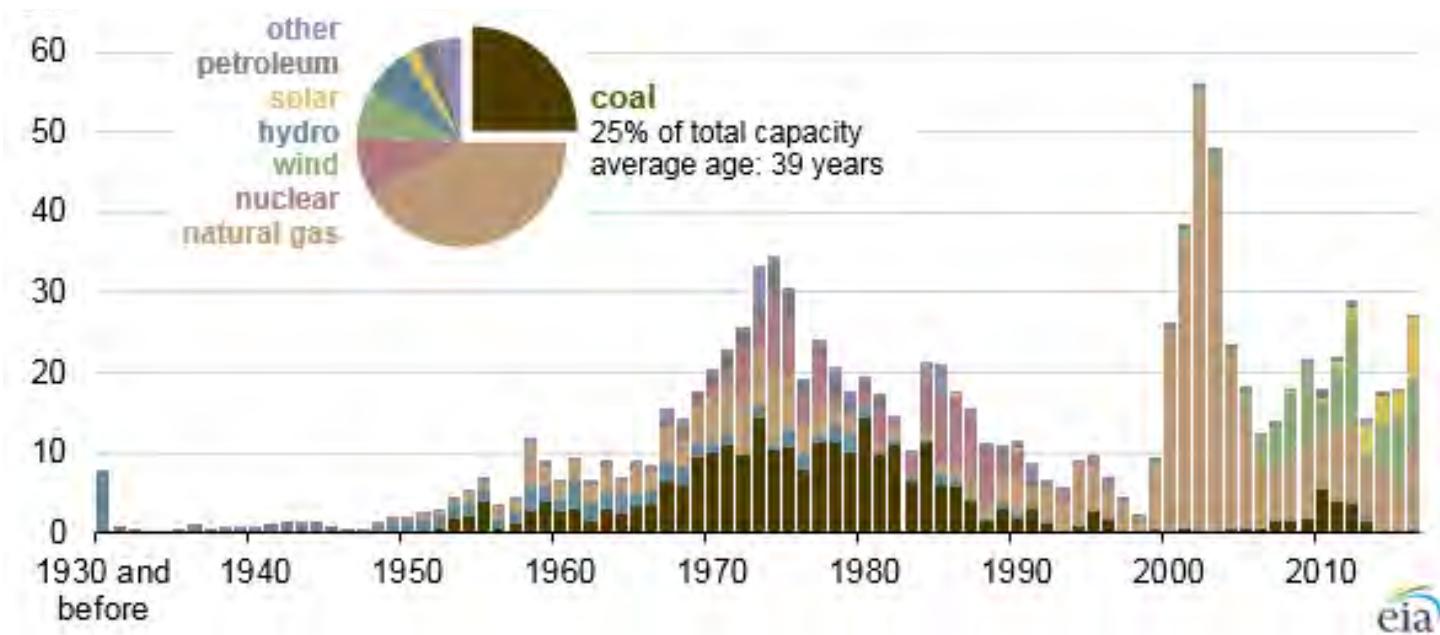


FIGURE E.3
US UTILITY-SCALE COAL-FIRED ELECTRIC GENERATING CAPACITY BY INITIAL OPERATING YEAR
SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

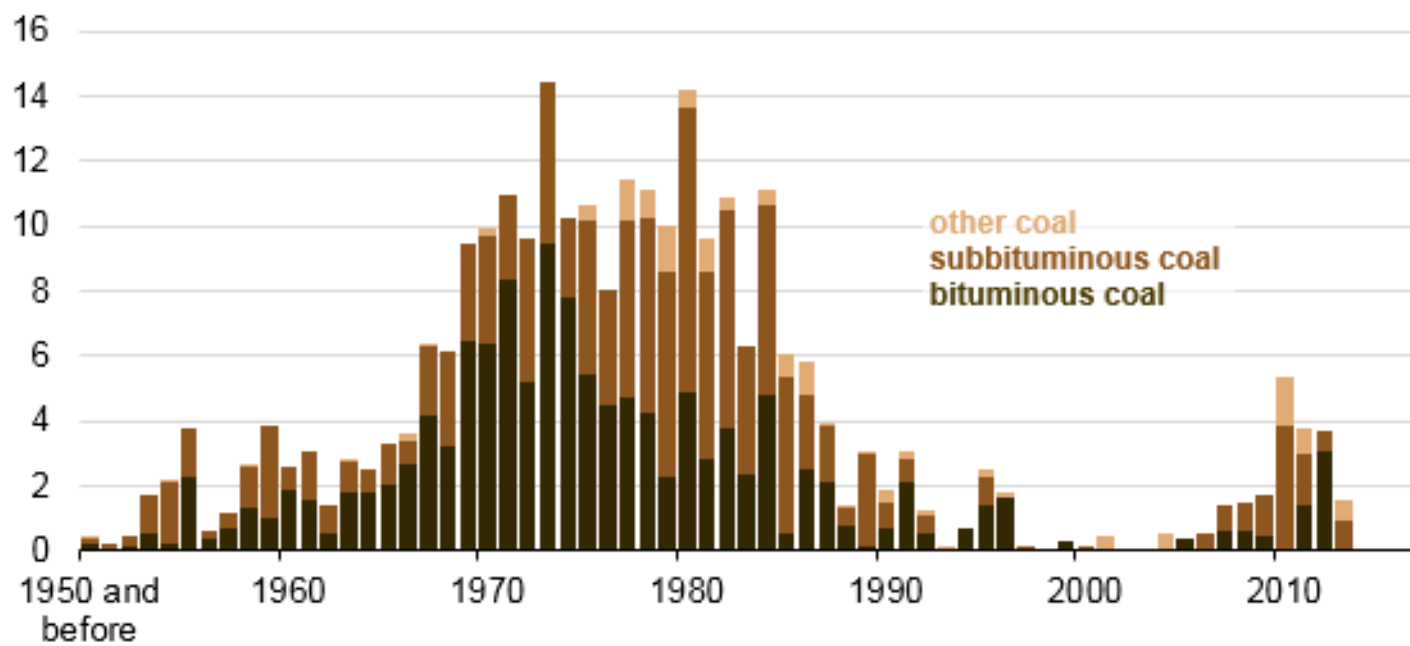


FIGURE E.4
DISTRIBUTION OF COAL PLANTS IN THE LOWER 48 STATES
SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

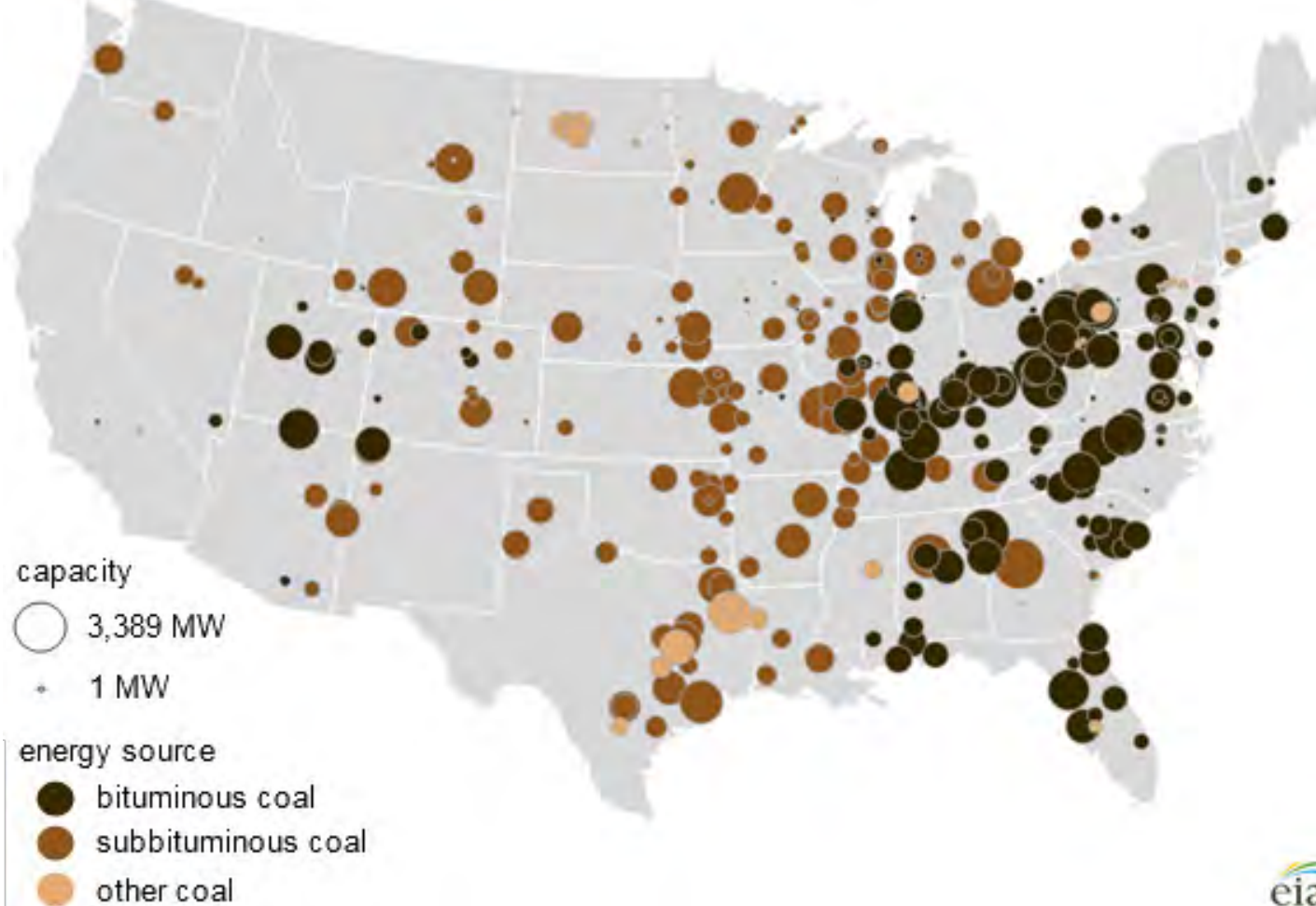


FIGURE E.5
 US COAL PLANT CAPACITY BY INITIAL OPERATING YEAR
SOURCED: US ENERGY INFORMATION ADMINISTRATION, PRELIMINARY MONTHLY ELECTRIC GENERATOR INVENTORY

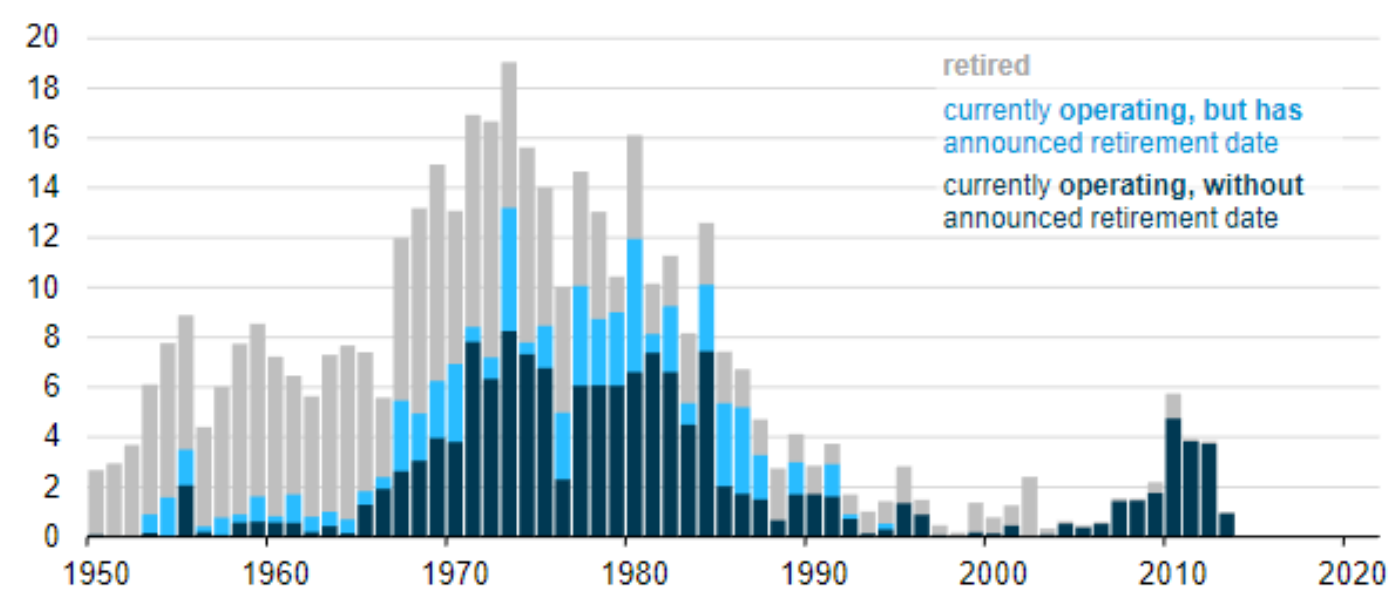
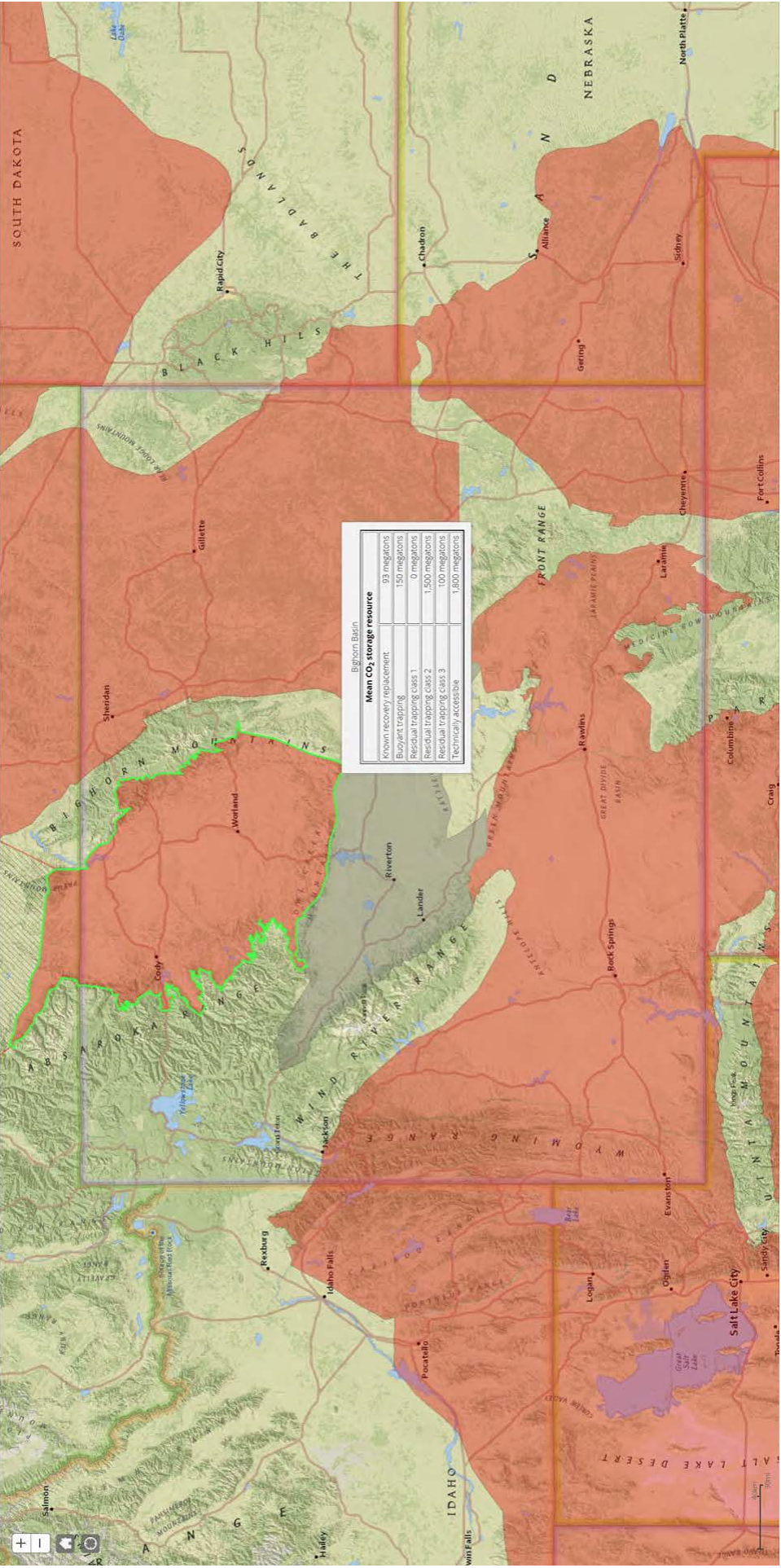


FIGURE F.1
 BIGHORN BASIN CO2 STORAGE POTENTIAL



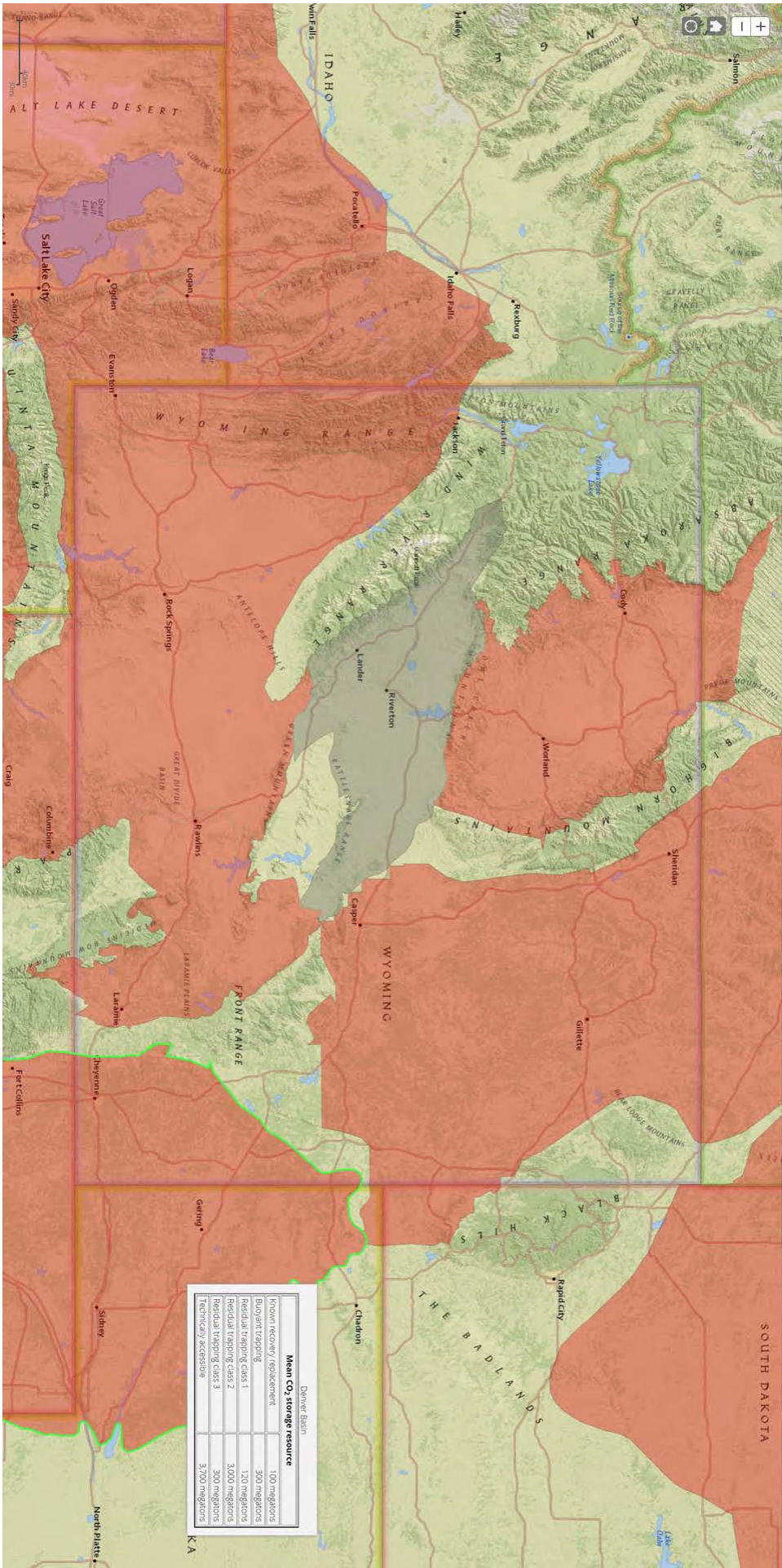
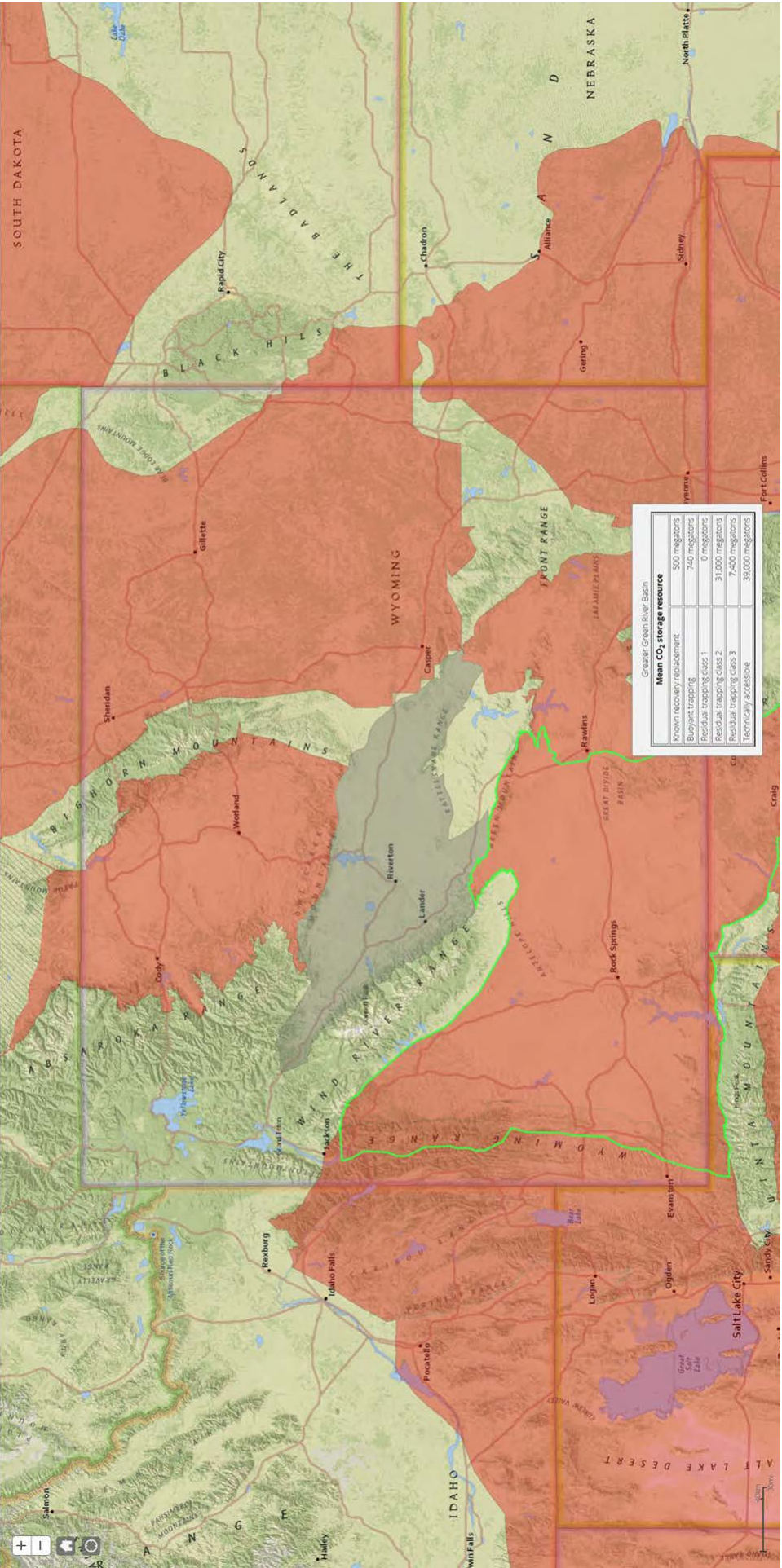


FIGURE F.2
DENVER BASIN CO₂ STORAGE POTENTIAL

FIGURE F.3
GREATER GREEN RIVER CO₂ STORAGE POTENTIAL



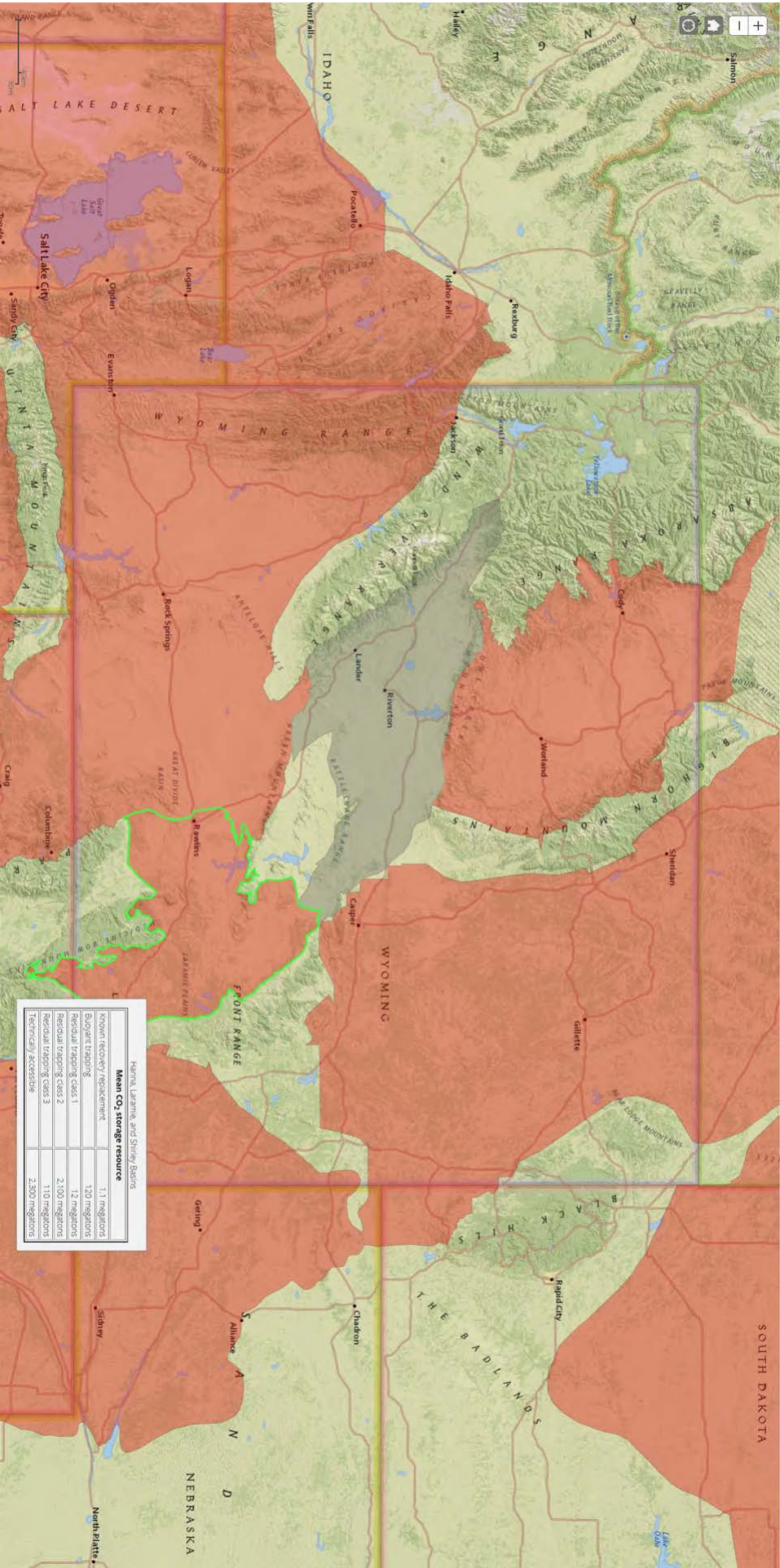
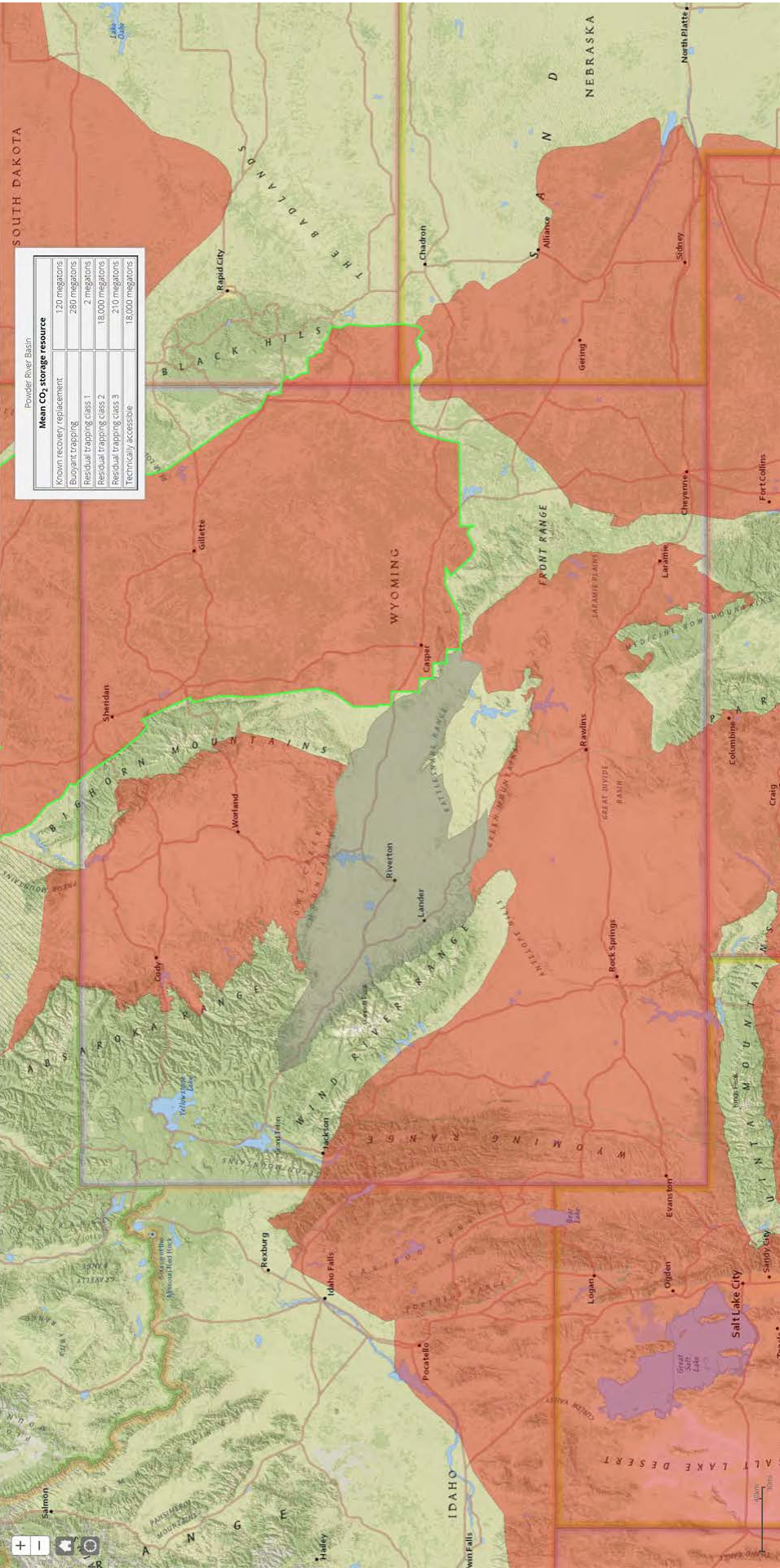


FIGURE F.4
HANNAL/LARAMIE/SHIRLEY BASIN CO2 STORAGE POTENTIAL

FIGURE F.5
POWDER RIVER BASIN CO2 STORAGE POTENTIAL



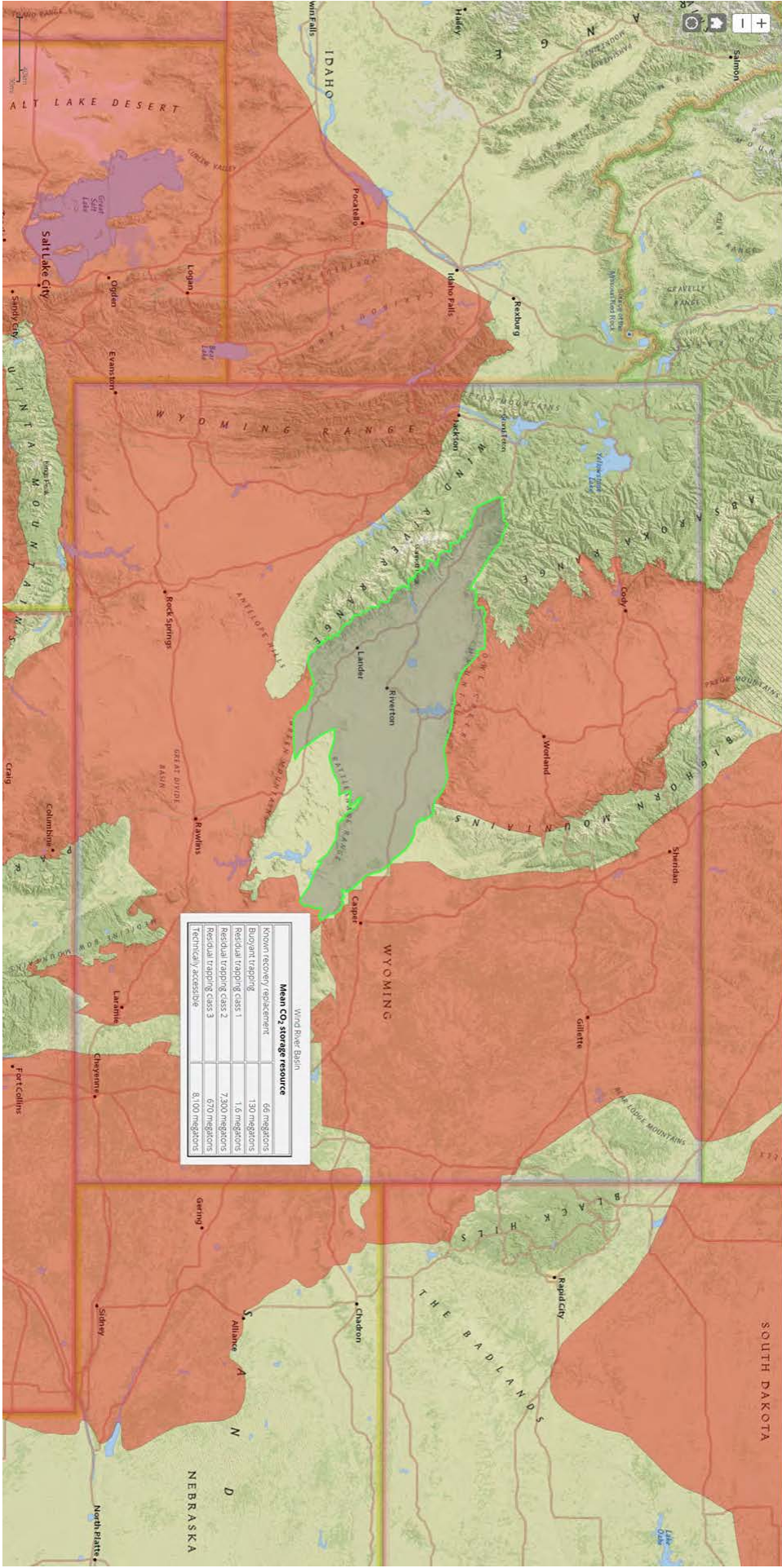
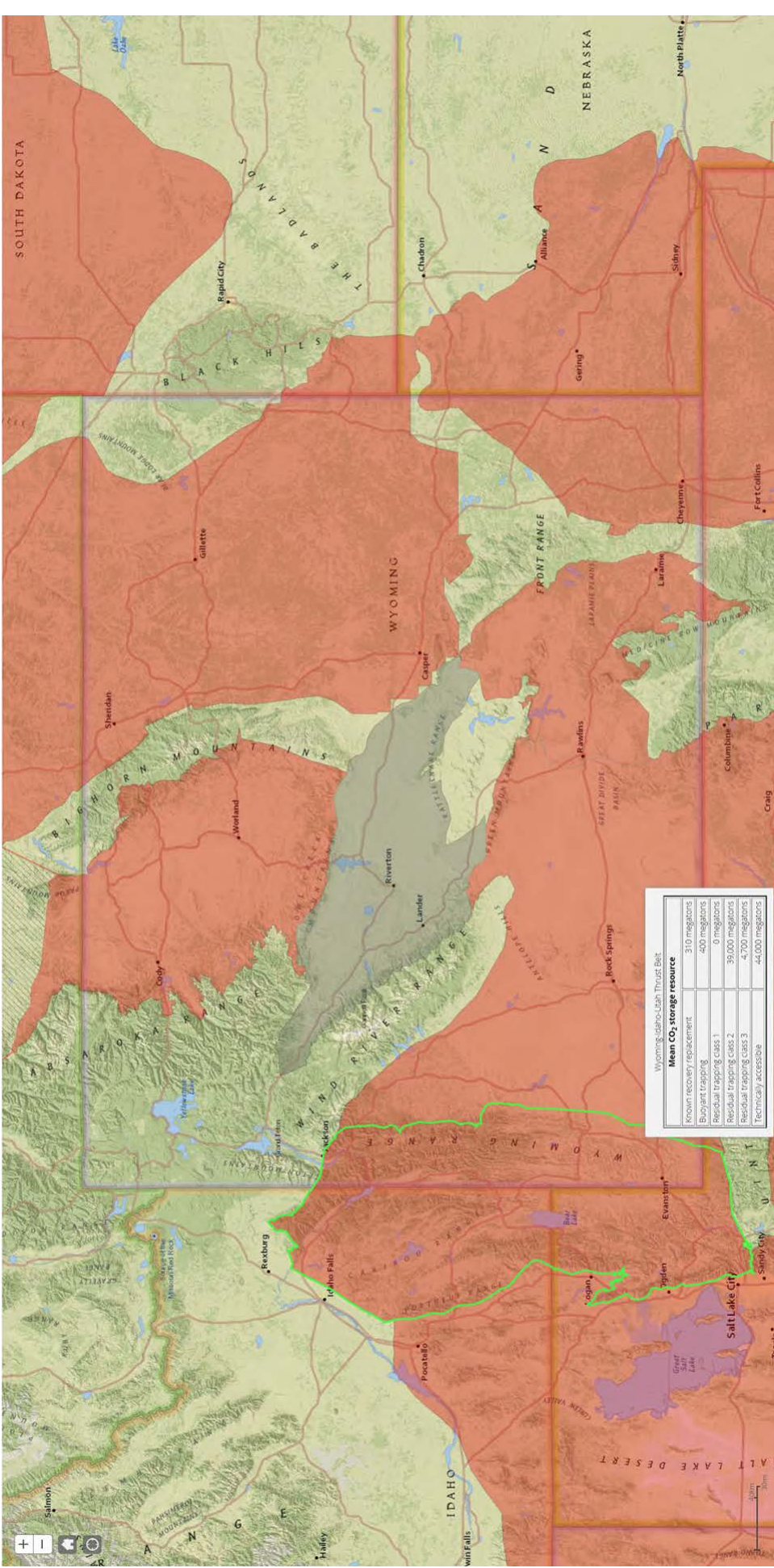


FIGURE F.5
WIND RIVER BASIN CO2 STORAGE POTENTIAL

FIGURE F.6
WYOMING/IDAHO/UTAH THRUST BELT CO2 STORAGE POTENTIAL



COAL INFRASTRUCTURE *REUSE REPORT*

PREPARED FOR:

THE NATURE CONSERVANCY
WYOMING DIVISION



APPENDIX B-D

CHARTS, VALUATIONS
& REFERENCES

PREPARED BY:

WAYPOINTS WYOMING
PO BOX 2023
GILLETTE, WY 82717

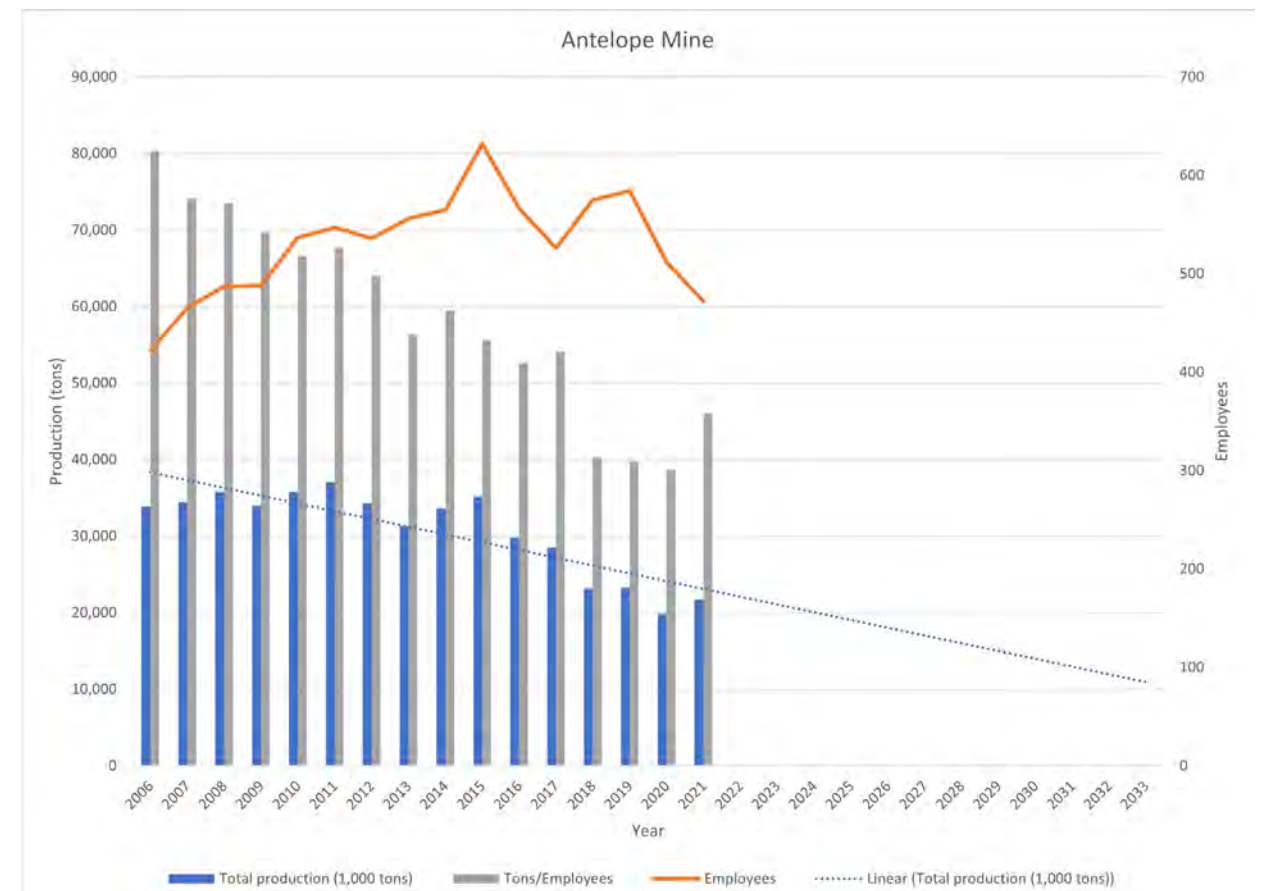
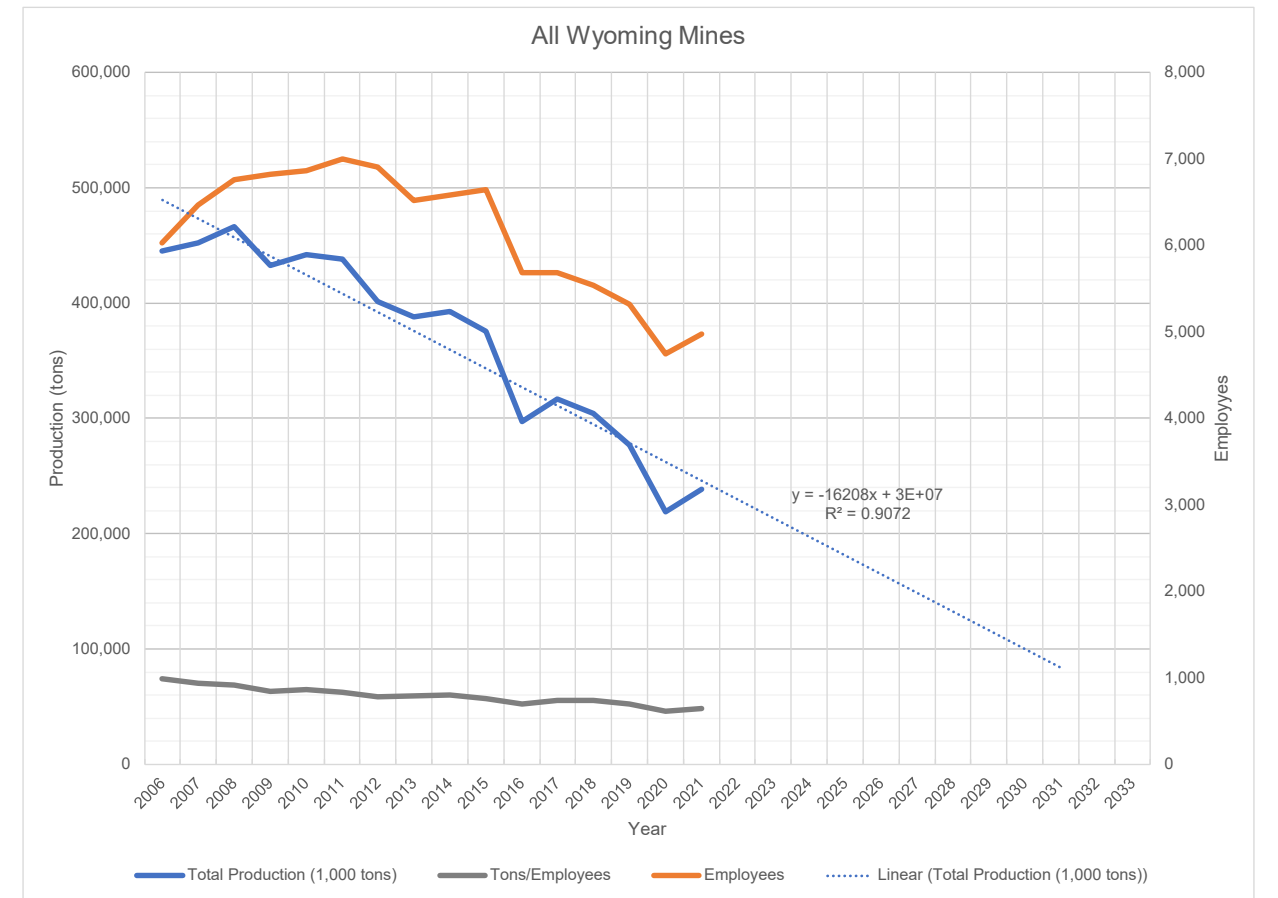
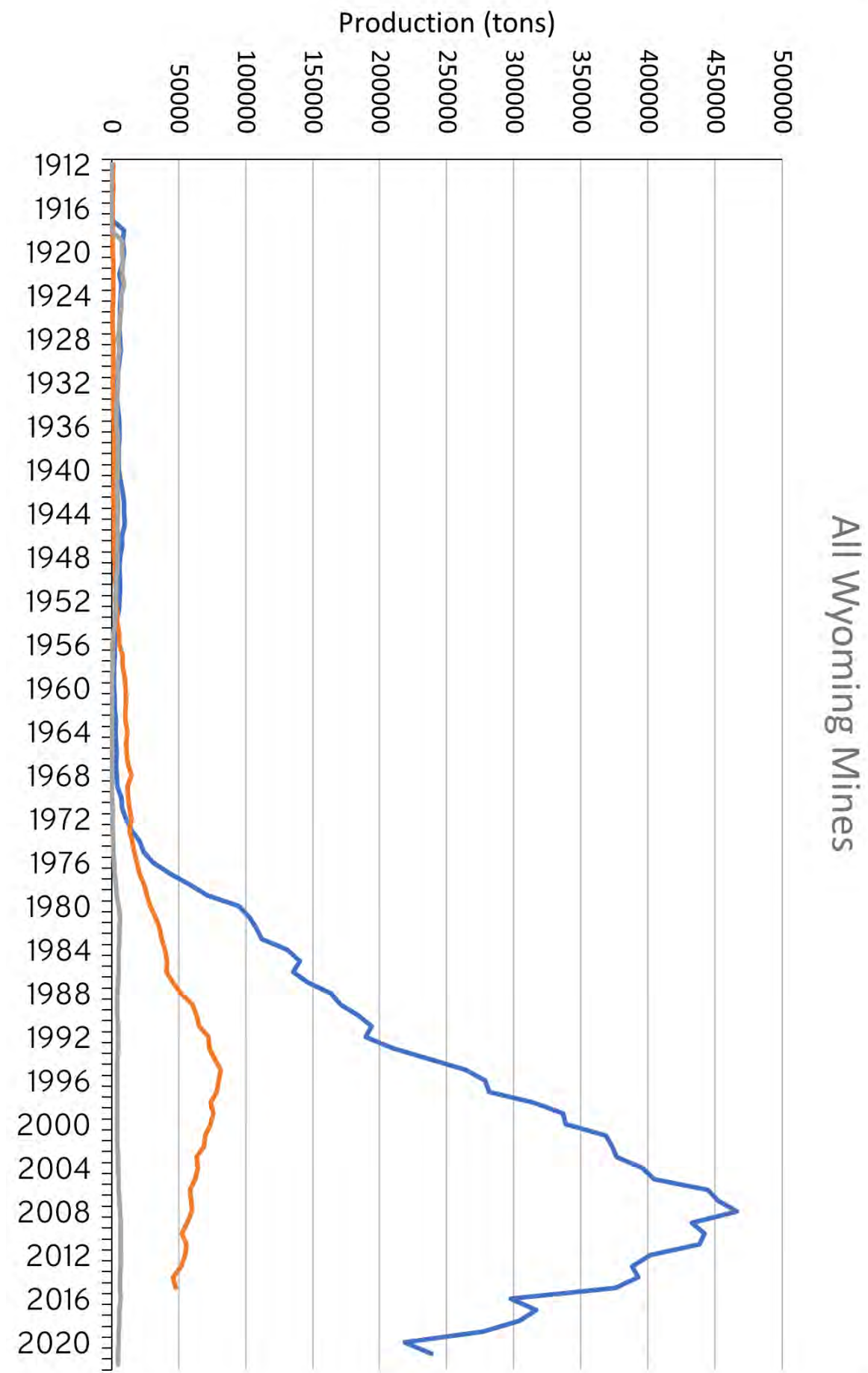
APPENDIX B

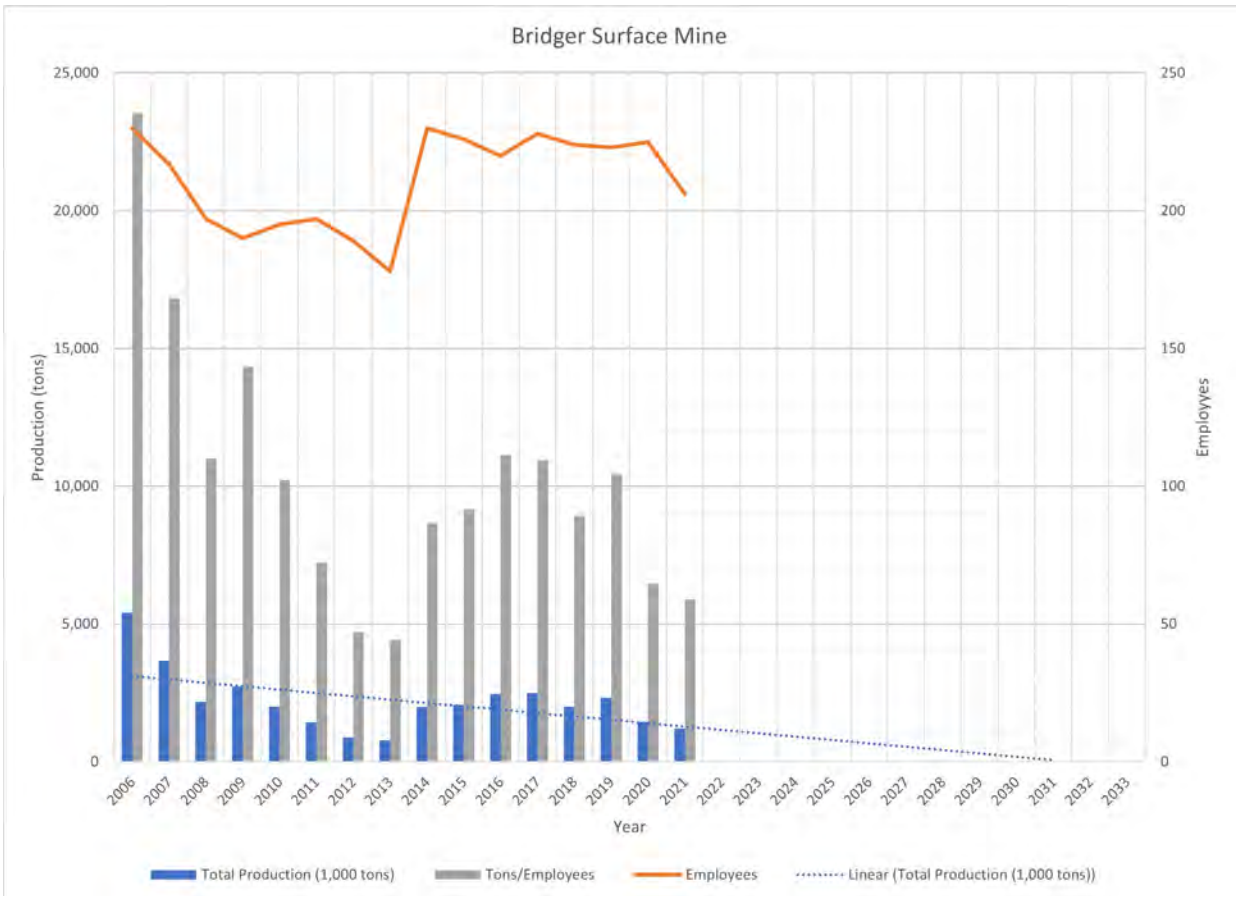
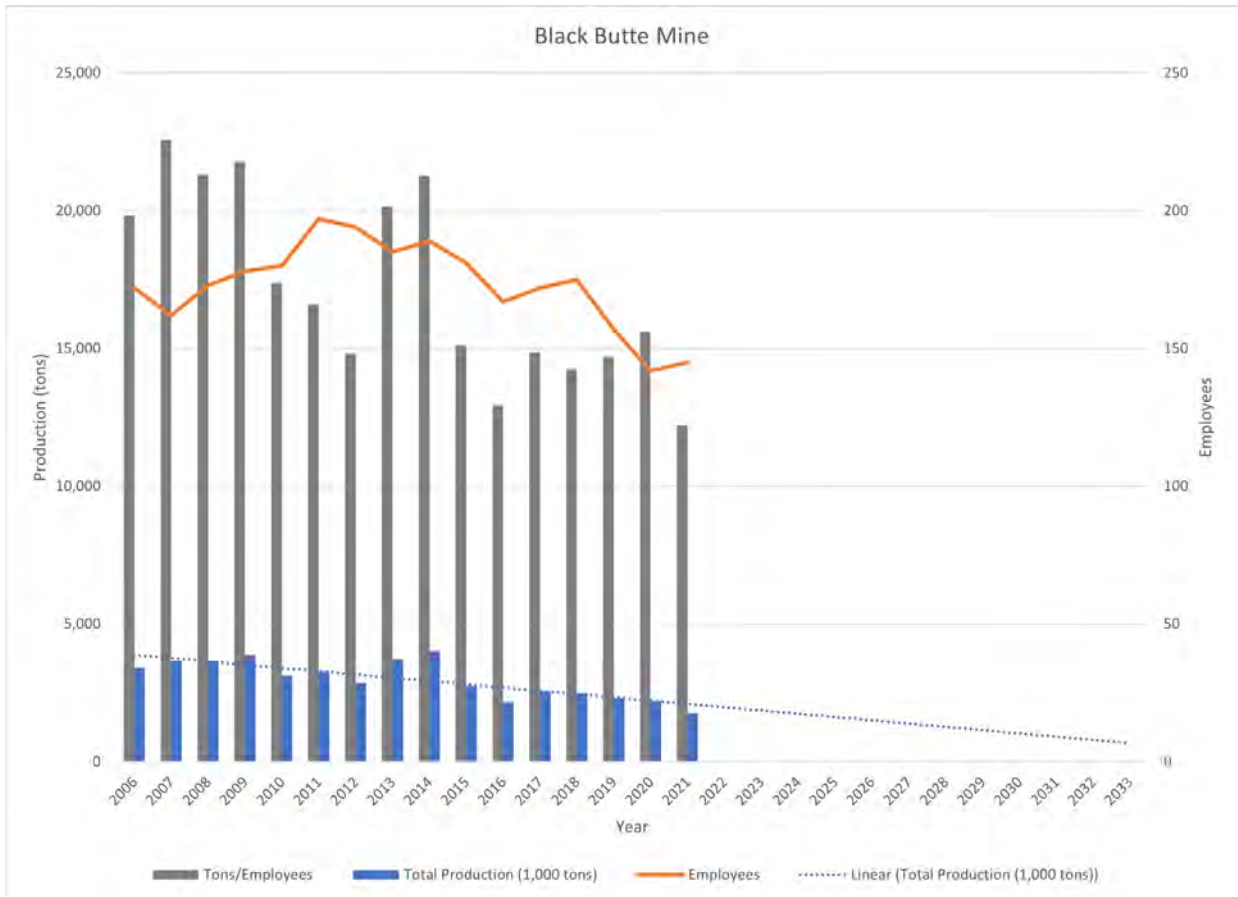
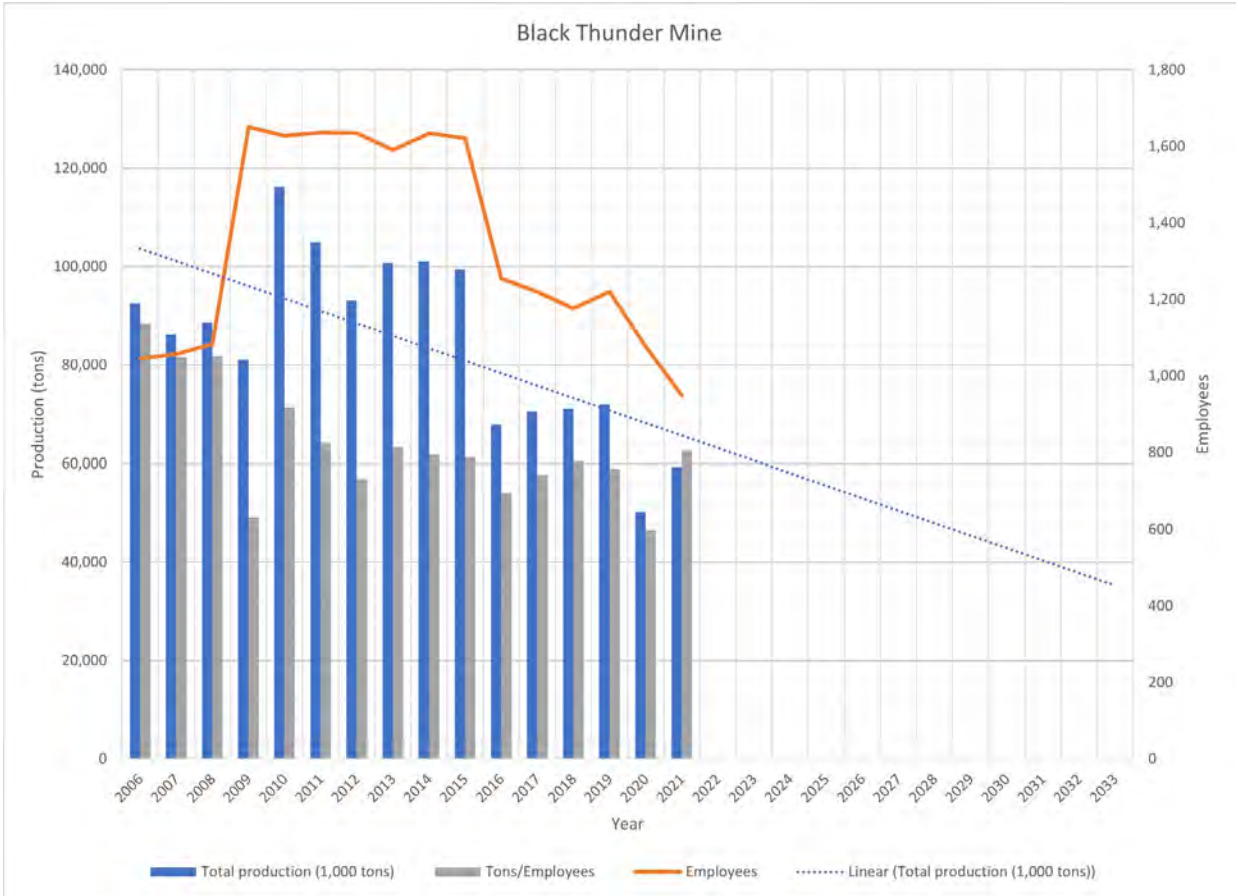
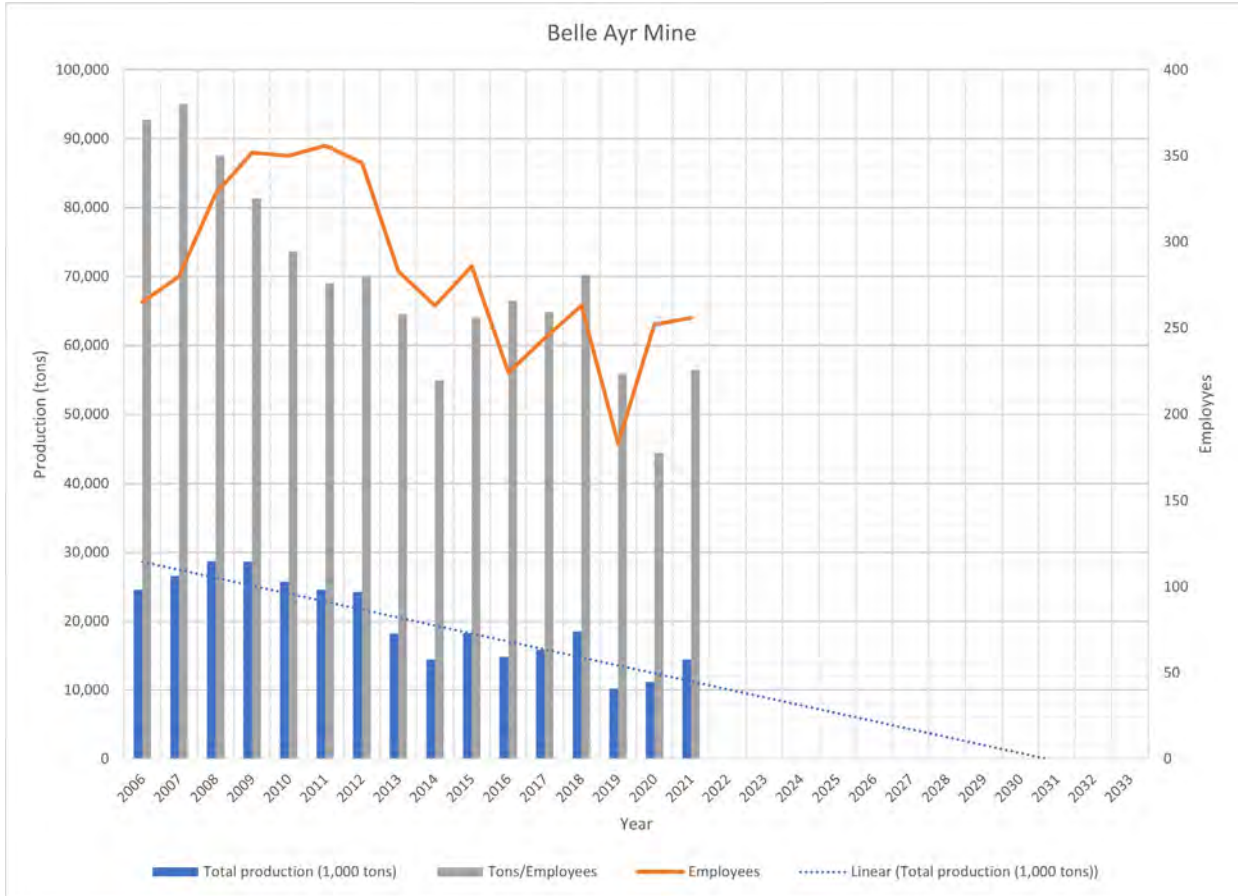
INTRODUCTION – MINE PRODUCTION AND EMPLOYMENT CHARTS

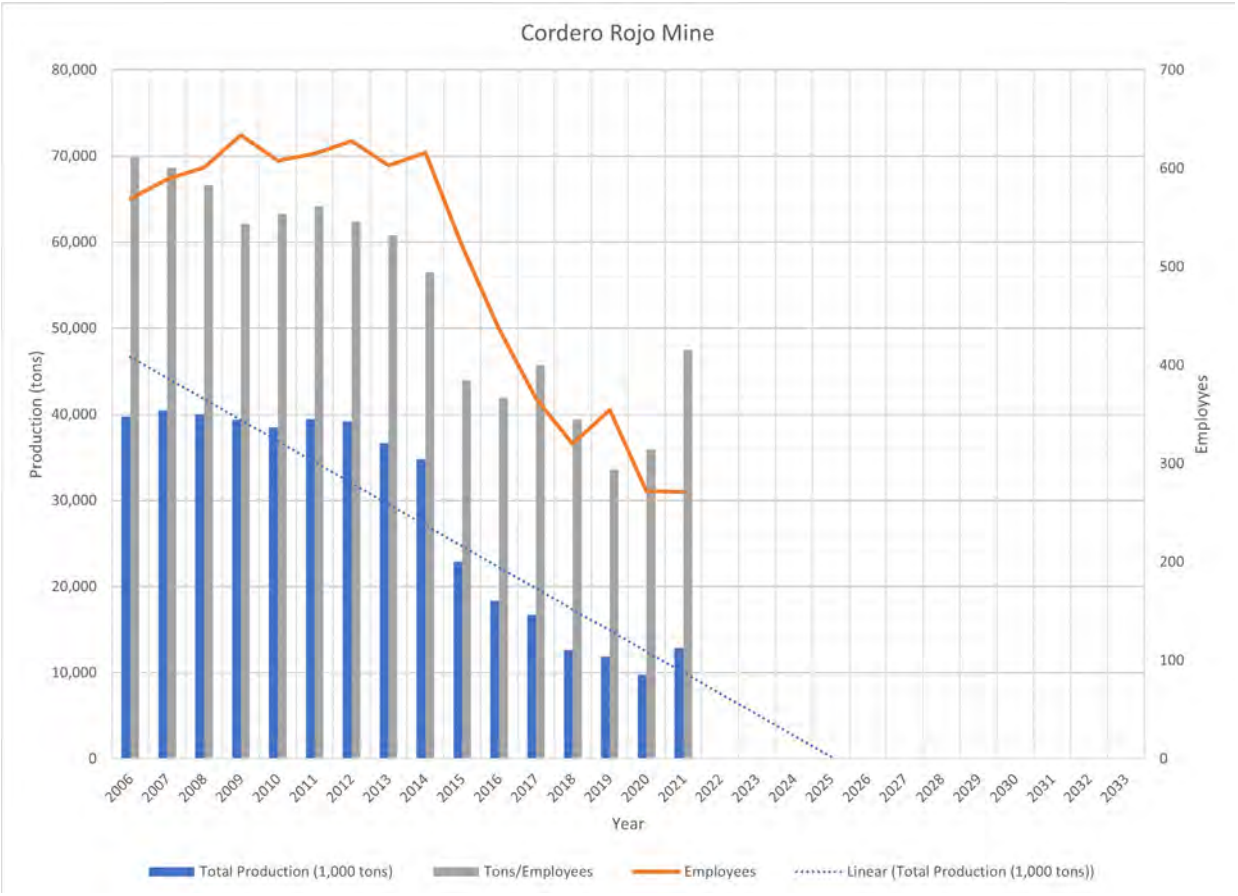
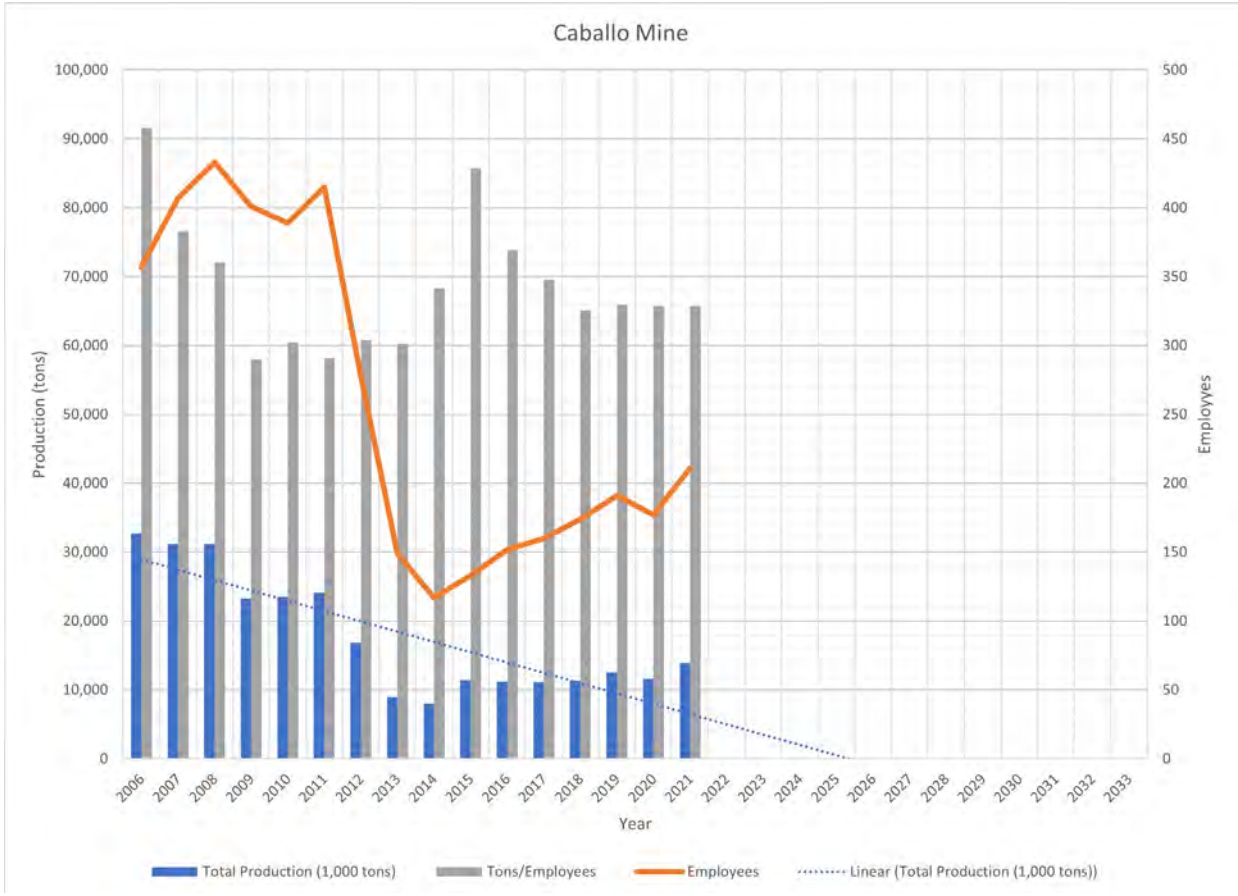
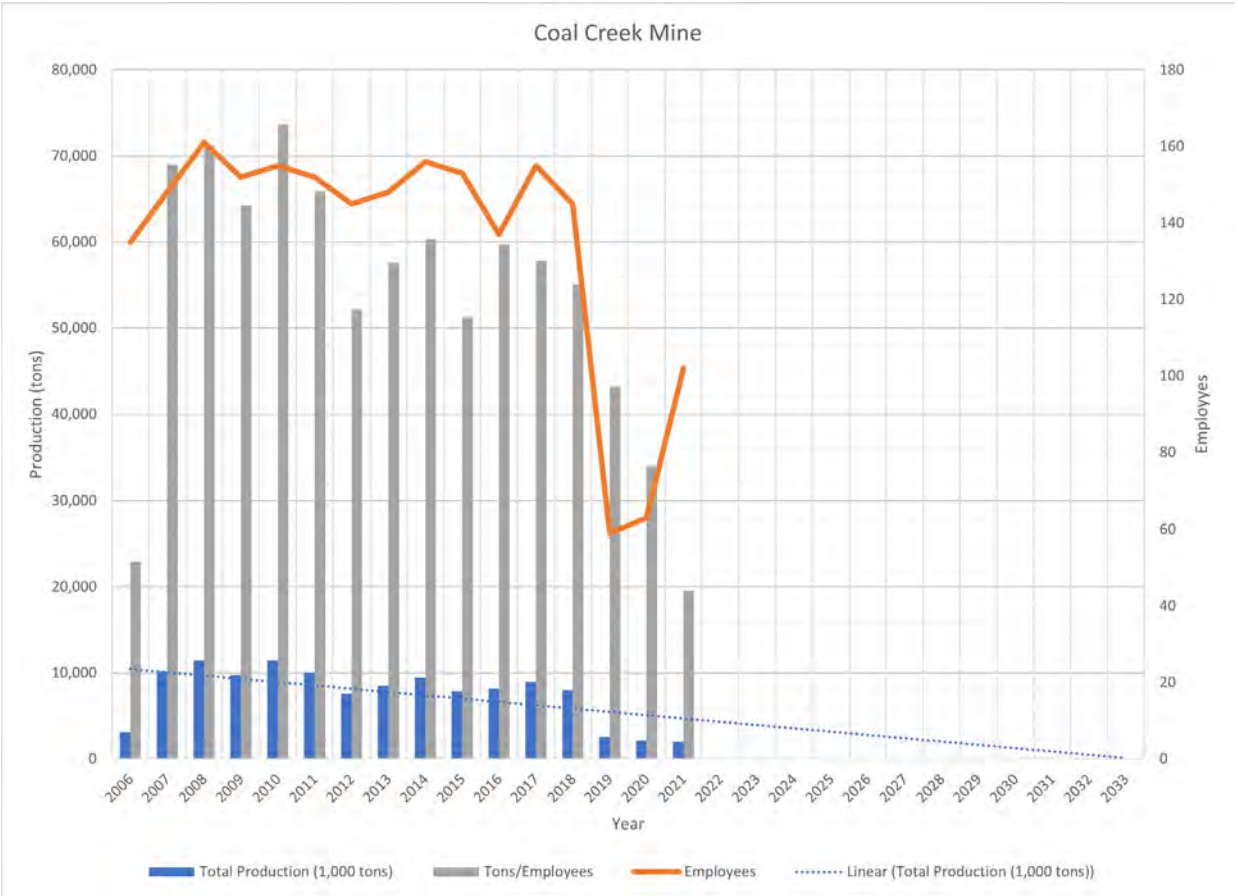
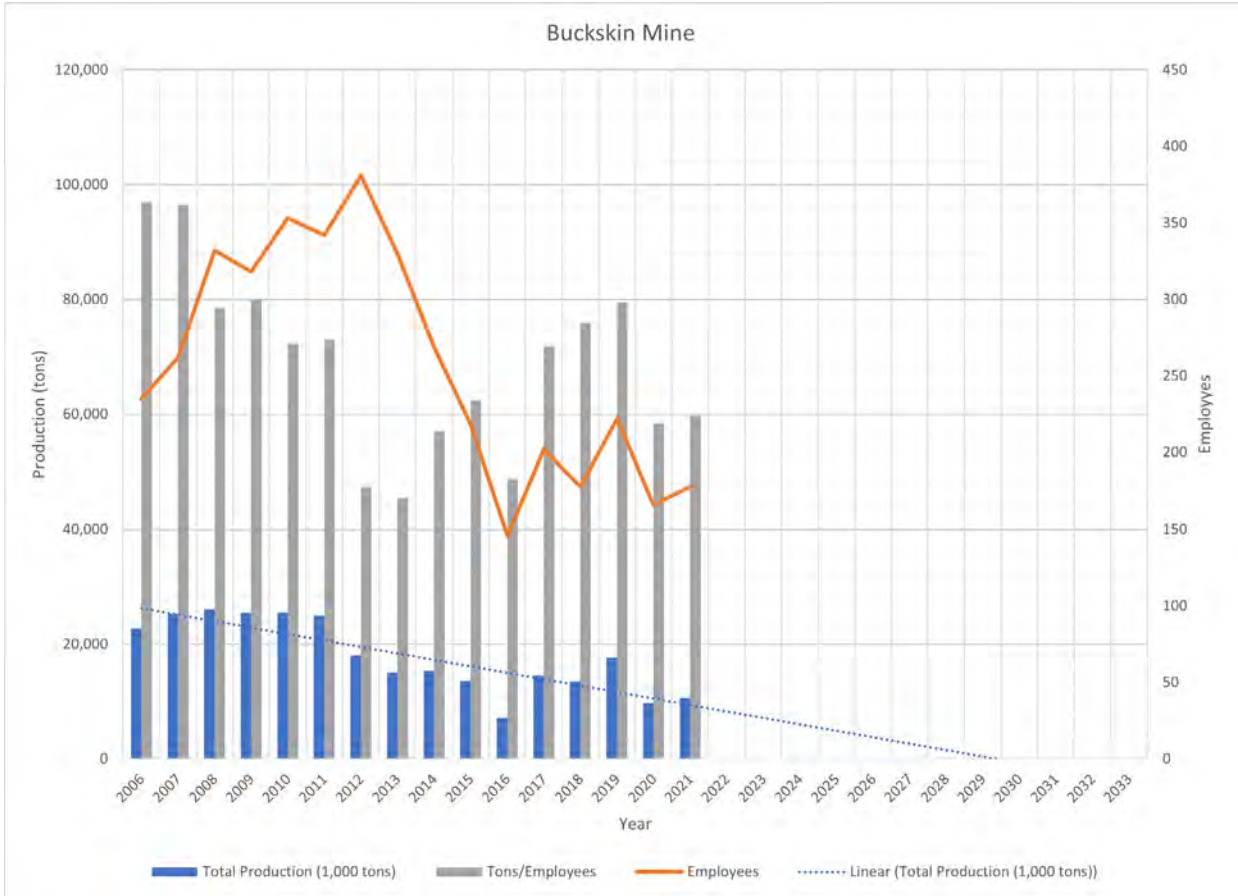
Production and Employment data was obtained to create a series of tables and corresponding charts to provide for a simplified visual analysis of the coal mining in the State of Wyoming. Information was sourced from the Wyoming Mining Association referencing the Office of the Wyoming State Mine Inspector for the period 1912 to 2018, and from the annual reports published by the Wyoming State Mine Inspector for the years 2019 – 2021.

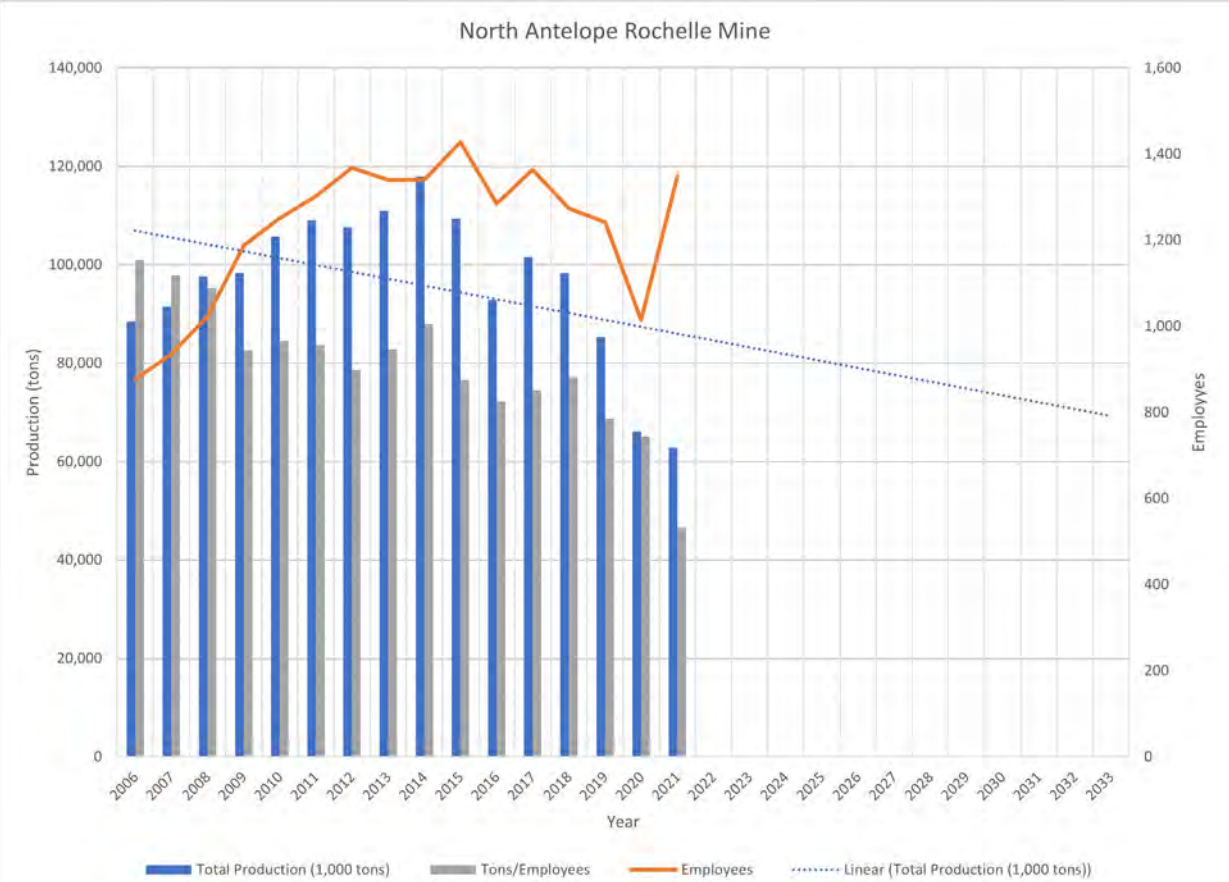
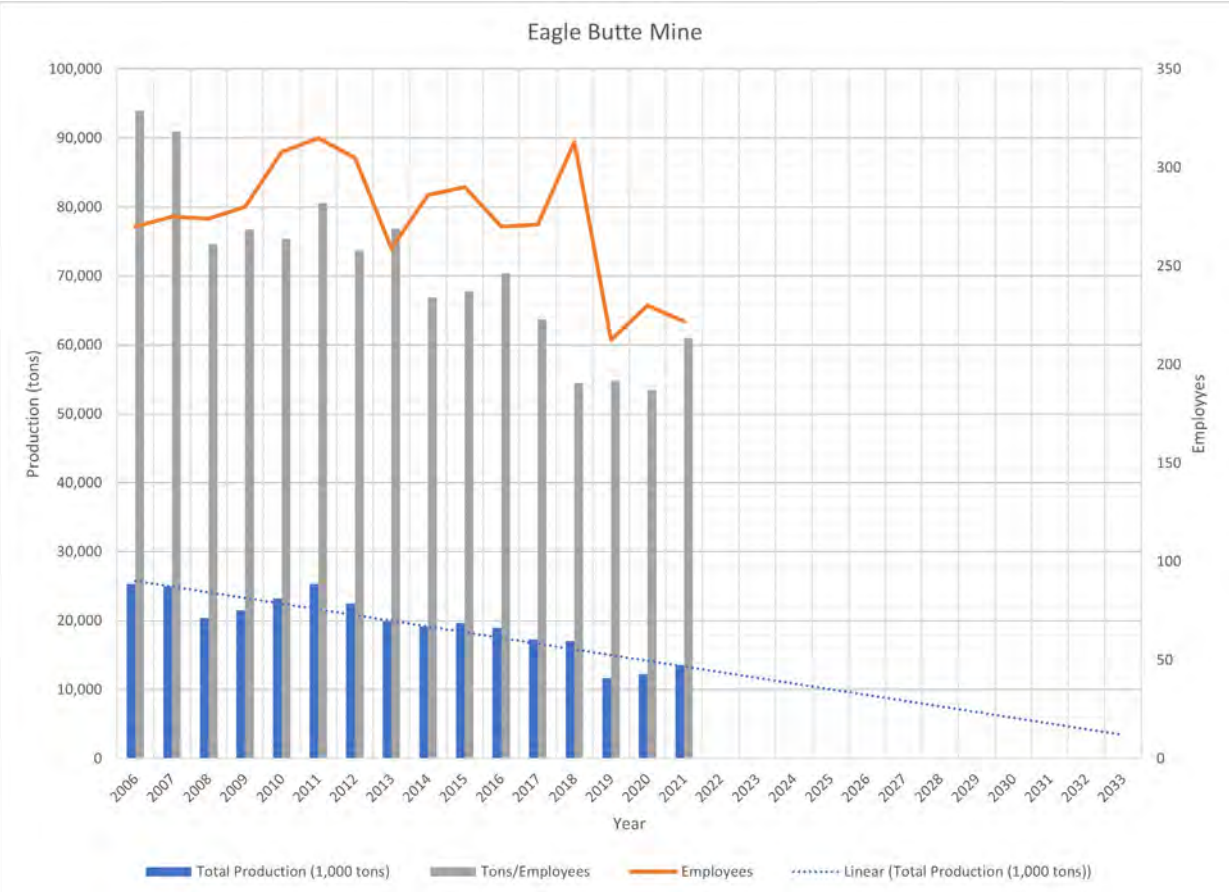
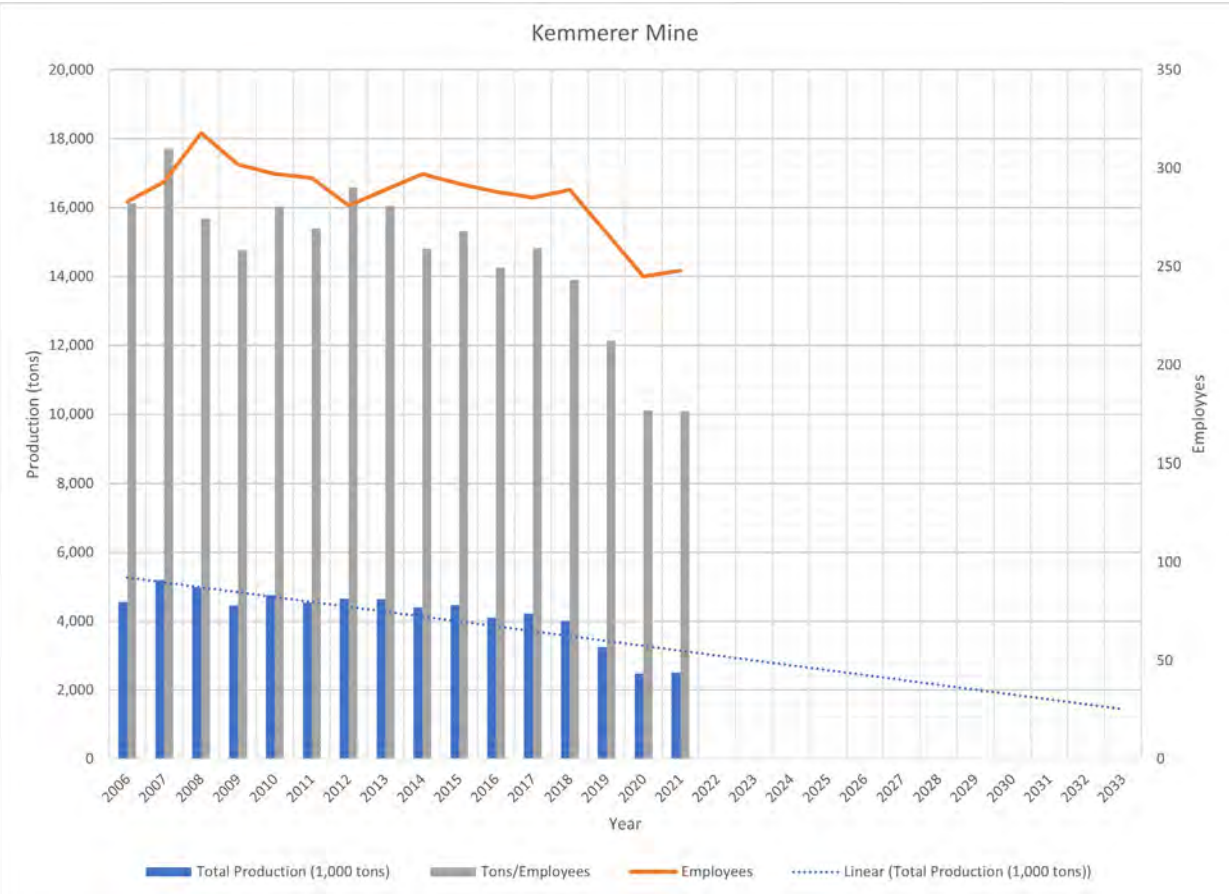
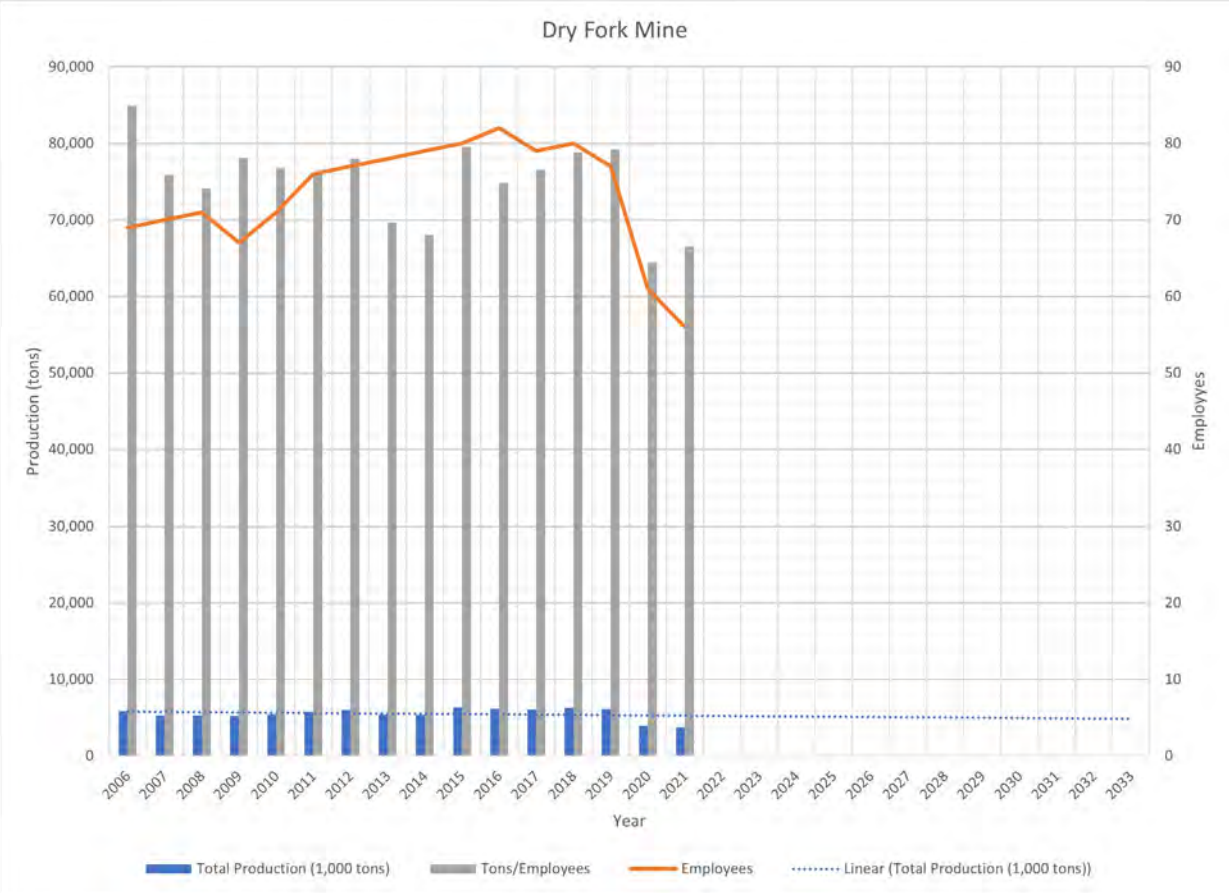
The years 2006 – 2021 were selected to examine in greater detail for 15 mines currently producing in Wyoming. This date range is presented with the intent to capture a two year period prior to the 2008 peak production year for the state and continue to the most recent report year. This data is useful to generally indicate the production trend of the individual mines, their employment and a calculated metric of “tons per employee” as an indication of efficiency of operations.

APPENDIX B - MINE PRODUCTION & EMPLOYMENT CHARTS	
MINE CHARTS	PG.
ALL WYOMING MINES.....	B4
ANTELOPE MINE.....	B4
BELLE AYR MINE.....	B5
BLACK BUTTE MINE.....	B5
BLACK THUNDER MINE.....	B6
BRIDGER MINE.....	B6
BUCKSKIN MINE.....	B7
CABALLO MINE.....	B7
COAL CREEK MINE.....	B8
CORDERO ROJO MINE.....	B8
DRY FORK MINE.....	B9
EAGLE BUTTE MINE.....	B9
KEMMERER MINE.....	B10
NORTH ANTELOPE ROCHELLE MINE.....	B10
RAWHIDE MINE.....	B11
WYODAK MINE.....	B11









APPENDIX C

An outcome desired from this study was to provide a perspective on Valuations of all the properties considered in the report. The author hoped to employ methods that would allow for considerations of values through three particular lenses: current use, utilization in place for other than present purposes, and replacement cost in an assumed greenfields scenario creating similar productive capacity. Analysis reflects only items that are likely to provide value to a future reuse proposition, and ignores those that should be viewed as offering no benefit in a reuse scenario beyond the original intended purpose.

Obtaining relevant Valuations for Mines and Power Plants through traditional marked based channels proved to be the most challenging aspect of the study. In keeping with the stated intent to identify, access and report reliable and repeatable data sources for information throughout the report, publicly available tax assessment records were determined to be the most appropriate statements of value. Individual tax assessment tables for each respective coal mine follow that include listed values for Original Costs, Replacement Costs and Present Worth (depreciated) for the 3 property types, Buildings, Site Improvements and Plant Machinery & Equipment under each of 4 categories: Taxable, Fire Equipment, Pollution Control and Mining-Surface.

Of the twenty-four (24) mines considered in this study eight (8) including Brook, Carbon Basin, Grass Creek, Haystack, Leucite Hills, Seminole II, Stansbury and Youngs Creek are represented in the standard form assessed value table, but only for the purpose of indicating the authors opinion that no materially significant value could be derived from these sites at the present time in a reuse scenario. The current status of these mines individually are one of the following: Non-Development, Temporary Cessation or Reclamation.

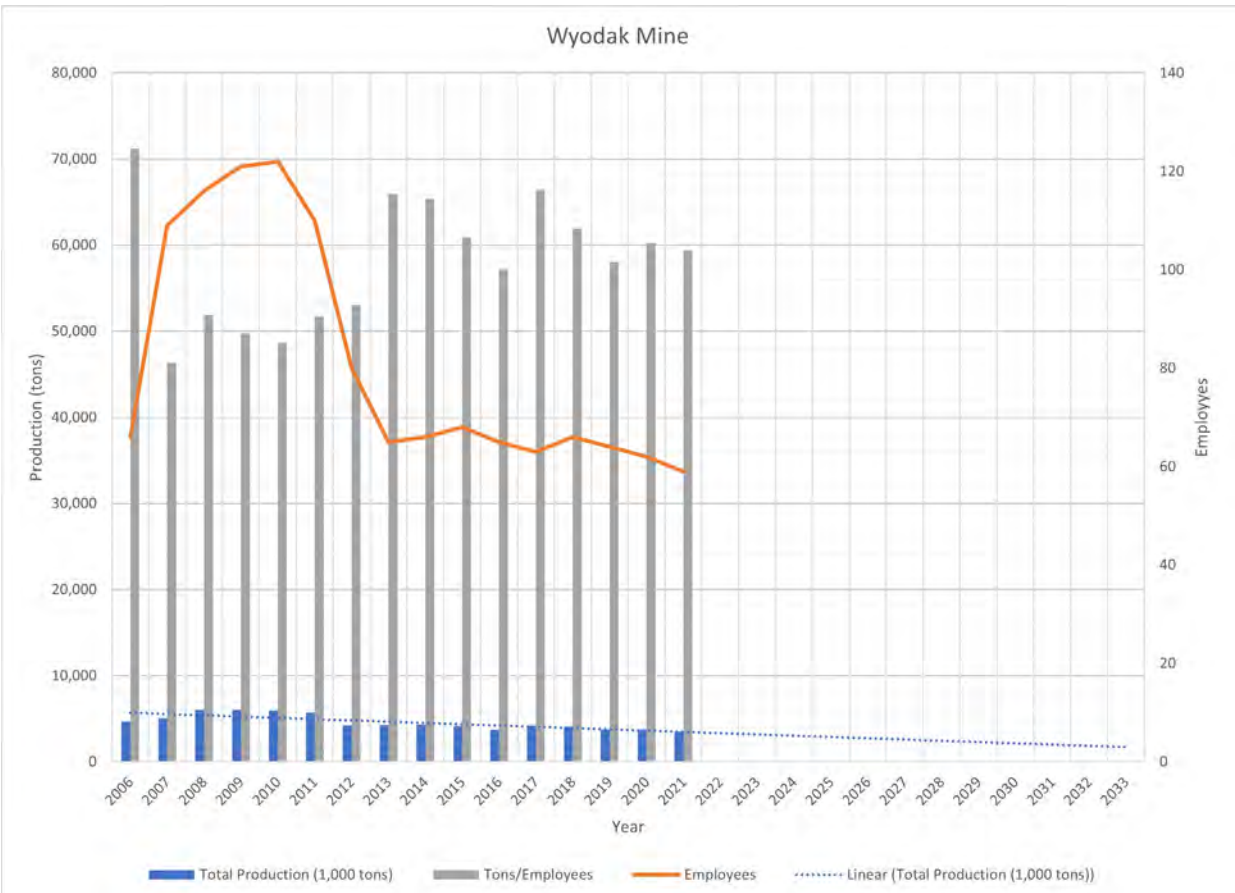
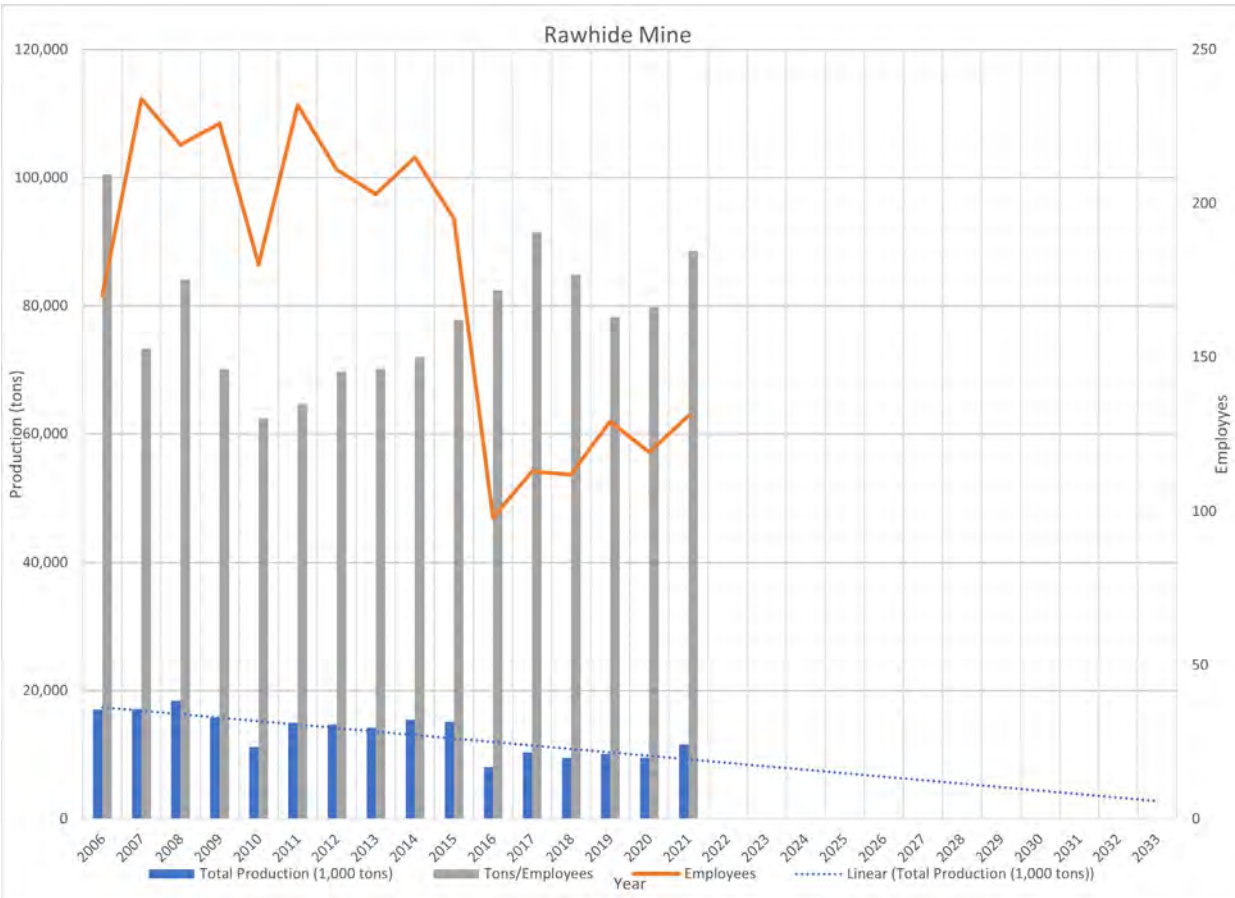
Of the twenty-four (24) mines considered in this study publicly available tax assessment data was obtained for twelve (12) coal mines currently operating in Campbell County, Wyoming including Belle Ayr, Black Thunder, Buckskin, Caballo, Coal Creek, Corderro Rojo, Dry Fork, Eagle Butte, North Antelope Rochelle, Rawhide, Synthetic Fuels, and Wyodak.

For the purpose of estimating values for the remaining four (4) mines including Antelope, Black Butte, Jim Bridger and Kemmerer, author projected values for Original Costs, Replacement Costs and Present Worth based upon the averages for similarly sized mines in the Powder River Basin. Value matching was keyed to historical maximum annual production rate.

No values for Power Plants are presented in this study. Continuation on this topic may be warranted for future investigation into subject properties valuations.

Coal industry development was and is characterized as being dependent on an immense scale to capture operating efficiencies, so a truly impressive array of infrastructure was developed in the state. \$10's to \$100's of millions in original infrastructure investment, including rail, materials handling facilities, large industrial maintenance, repair and fabrication buildings, offices, high capacity power lines and substations, water infrastructure is typical across the range of sites considered.

Land ownership of the mining companies in the near vicinity of their operations ranges from approximately 1,000 acres up to nearly 25,000 acres adding significant value to the sites considered. Lands in Wyoming associated with coal mining comprise ~ 390,000 acres within active mine permits, ~ 245,000 acres privately owned by mining companies within and proximal to permit boundaries, and ~ 170,000 acres in



active or reclamation status, in current or prior disturbance disturbance or undergoing some phase of reclamation

Gross reclamation bond reserve funds for mines by class are ~ \$1.9 billion in Total mine reclamation bonds, ~ \$990 million in Area Bonds (mostly dedicated to pit area backfill), ~ \$360 million in Incremental Bonds (includes infrastructure demolition funds). A typical mid-sized mine in the Powder River Basin will allocate \$4.5 to \$8.0 million dollars to infrastructure demolition alone.

Indicated in this work is a simple financial spread of ~ \$1.35 billion exists between the Incremental Bond amounts for reclamation and the Replacement Costs of select lands, improvements and infrastructure on coal mines in Wyoming. (see Table 1.B Reclamation Bond Amounts and Assessed Values for Wyoming Coal Mines)

Efforts to develop a strategic framework that pursues policy, statute and regulation that result in reuse as a preferential pathway are encouraged to avoid unnecessary and regressive destruction of assets and infrastructure that would return lands to a lesser productive condition and value.

APPENDIX C - VALUATIONS	
VALUATIONS	PG.
TABLE 1.B RECLAMATION BOND AMOUNTS AND SELECT ASSESSED VALUES FOR WYOMING COAL MINES	C4-5
SUMMARY - ALL CAMPBELL COAL MINES	C6
ANTELOPE MINE.....	C7
BELLE AYR MINE.....	C8
BLACK BUTTE MINE.....	C9
BLACK THUNDER MINE.....	C10
BROOK MINE.....	C11
BUCKSKIN MINE.....	C12
CABALLO MINE.....	C13
CARBON BASIN MINE.....	C14
COAL CREEK MINE.....	C15
CORDERO ROJO MINE.....	C16
DRY FORK MINE.....	C17
EAGLE BUTTE MINE.....	C18
GRASS CREEK MINE.....	C19
HAYSTACK MINE.....	C20
JIM BRIDGER MINE.....	C21
KEMMERER MINE.....	C22
LEUCITE HILLS MINE.....	C23
NORTH ANTELOPE ROCHELLE MINE.....	C24
RAWHIDE MINE.....	C25
SEMINOE II MINE.....	C26
STANSBURY MINE.....	C27
SYNTHETIC FUELS MINE.....	C28
WYODAK MINE.....	C29
YOUNGS CREEK MINE.....	C30

TABLE 1.B RECLAMATION BOND AMOUNTS AND SELECT ASSESSED VALUES FOR WYOMING COAL MINES				
COAL MINE	PERMIT #	COMPANY	COUNTY	MINE STATUS
Belle Ayr	PT0214	Eagle Speciality Materials, LLC	Campbell	Active
Black Thunder	PT0233	Thunder Basin Coal Company, LLC	Campbell	Active
Buckskin	PT0500	Buckskin Mining Company	Campbell	Active
Caballo	PT0433	Peabody Caballo Mining, LLC	Campbell	Active
Coal Creek Mine	PT0483	Thunder Basin Coal Company, LLC	Campbell	Active
Cordero Rojo	PT0237	Navajo Transitional Energy Company, LLC (NTEC)	Campbell	Active
Dry Fork	PT0599	Western Fuels WY, Inc.	Campbell	Active
Eagle Butte	PT0428	Contura Coal West, LLC	Campbell	Active
North Antelope Rochelle (NARM)	PT0569	Peabody Powder River Mining, LLC	Campbell	Active
Rawhide	PT0240	Peabody Caballo Mining, LLC	Campbell	Active
Synthetic Fuels Mine	PT0486	Green Bridge Holdings, Inc.	Campbell	In Reclamation
Wyodak	PT0232	Wyodak Resources Development Corporation	Campbell	Active
Carbon Basin	PT0730	Arch of WY LLC	Carbon	In Reclamation
Seminole II	PT0377	Arch of WY LLC	Carbon	Active
Antelope	PT0525	Navajo Transitional Energy Company, LLC (NTEC)	Converse	Active
Grass Creek	PT0211	Spring Gulch Coal Co (The)	Hot Springs	Active
Kemmerer	PT0379	Kemmerer Operations, LLC	Lincoln	Inactive
Brook	PT0841	Brook Mining Company, LLC	Sheridan	Non-Development
Youngs Creek	PT0407	Navajo Transitional Energy Company, LLC (NTEC)	Sheridan	Active
Black Butte	PT0467	Black Butte Coal Company	Sweetwater	Active
Jim Bridger	PT0338	Bridger Coal Company	Sweetwater	In Reclamation
Leucite Hills	PT0520	Black Butte Coal Company	Sweetwater	In Reclamation
Stansbury	PT0264	Rocky Mountain Coal Company	Sweetwater	Active
Haystack	PT0786	Westmoreland Haystack Mining, LLC	Uinta	Temporary Cessation

Notes: Area Bond, Incremental Bond and Total Bond amounts are sourced directly from the most recent Annual Report submitted to WDEQ – LQD by the facility operator or permit holder. Contingency/Miscellaneous have been adjusted slightly to account for variations in reporting standards and timing on annual calculation or reconciliation of bond releases.

Area Bond - the area bond specifies the costs associated with bringing the main coal pits up to the bond topography also known as the “Interim” post mining topography (PMT). Specifically, these costs include the equipment and materials for backfilling the pits and final grading of the backfill. Interim post-mining topography (PMT) is designed to maximize available backfill area and minimize the disturbance of lands that are in permanent reclamation and native borrow area.

Incremental Bond - the incremental bond specifies the costs associated with reclaiming all disturbed areas within the permit area except the main coal pit area which was calculated in the Area Bond. These costs include overburden redistribution, demolition of facilities, removal of monitoring structures, scarification of compacted surfaces, topsoil redistribution on all disturbed surfaces and revegetation of all disturbed lands. Also included in this section are monies to cover reclamation of the anticipated exploratory drilling program, miscellaneous items and contingencies.

Data Sources - Bond data from Current Coal Mine Annual Reports on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit. Assessed values from County level public tax records.

TABLE 1.B TABLE 1.B RECLAMATION BOND AMOUNTS AND SELECT ASSESSED VALUES FOR WYOMING COAL MINES (CONTINUED)						
RECLAMATION BOND - AMOUNTS				ASSESSED- SELECT ASSET CATEGORIES & TYPES		
TOTAL	AREA BOND	INCREMENTAL BOND	"CONTINGENCIES/ MISCELLANEOUS"	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH -
\$ 92,759,500	\$ 55,146,900	\$ 17,278,000	\$ 20,334,600	\$ 21,765,754	\$ 28,273,659	\$ 21,991,260
\$ 421,369,000	\$ 252,611,000	\$ 66,591,800	\$ 102,166,200	\$ 20,915,059	\$ 27,673,191	\$ 20,482,710
\$ 128,546,086	\$ 65,770,692	\$ 14,448,445	\$ 48,326,949	\$ 26,852,151	\$ 43,626,712	\$ 20,104,550
\$ 143,353,337	\$ 85,110,216	\$ 15,553,931	\$ 42,689,190	\$ 3,941,713	\$ 4,862,638	\$ 3,594,340
\$ 22,691,600	\$ 7,952,400	\$ 8,877,100	\$ 5,862,100	\$ 8,420,365	\$ 11,161,036	\$ 6,616,210
\$ 140,127,000	\$ 77,518,000	\$ 32,838,000	\$ 29,771,000	\$ 123,586,281	\$ 252,812,752	\$ 38,889,430
\$ 34,100,000	\$ 18,069,257	\$ 8,410,449	\$ 7,620,294	\$ 61,122,380	\$ 106,903,658	\$ 50,654,040
\$ 123,230,000	\$ 61,937,300	\$ 13,899,000	\$ 47,393,700	\$ 6,473,685	\$ 8,373,127	\$ 6,553,340
\$ 291,318,287	\$ 168,813,669	\$ 64,061,254	\$ 58,443,364	\$ 118,905,976	\$ 153,360,054	\$ 92,354,150
\$ 32,878,000	\$ 16,179,356	\$ 7,216,872	\$ 9,481,772	\$ 11,244,012	\$ 14,538,143	\$ 10,320,430
\$ 584,167	N/A	\$ 452,730	\$ 131,437	\$ 80,310	\$ 114,358	\$ 60,690
\$ 25,756,918	\$ 10,884,648	\$ 9,226,127	\$ 5,646,143	\$ 46,421,870	\$ 77,323,325	\$ 28,828,330
\$ 745,443	N/A	\$ 95,443	\$ 650,000	N/A	N/A	N/A
\$ 1,026,192	N/A	\$ 181,134	\$ 845,058	N/A	N/A	N/A
\$ 106,783,000	\$ 45,298,000	\$ 16,797,000	\$ 44,688,000	\$ 32,310,599	\$ 58,747,839	\$ 16,908,892
\$ 299,505	\$ 87,882	\$ 110,185	\$ 101,438	N/A	N/A	N/A
\$ 66,350,130	\$ 22,553,082	\$ 11,285,595	\$ 32,511,453	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 1,248,015	\$ 457,913	\$ 524,776	\$ 265,326	N/A	N/A	N/A
\$ 229,000	N/A	N/A	N/A	N/A	N/A	N/A
\$ 95,428,911	\$ 38,193,518	\$ 36,947,873	\$ 20,287,520	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 155,173,109	\$ 60,497,270	\$ 30,607,626	\$ 64,068,213	\$ 38,654,872	\$ 65,129,340	\$ 28,699,527
\$ 4,585,000	N/A	\$ 2,918,593	\$ 1,666,407	N/A	N/A	N/A
\$ 1,938,681	N/A	\$ 1,557,173	\$ 381,508	N/A	N/A	N/A
\$ 4,384,251	\$ 2,168,270	\$ 637,131	\$ 1,578,850	N/A	N/A	N/A
\$ 1,894,905,132	\$ 989,249,373	\$ 360,516,237	\$ 544,910,522	\$ 598,004,770	\$ 983,158,511	\$ 403,456,952

Notes: Area Bond, Incremental Bond and Total Bond amounts are sourced directly from the most recent Annual Report submitted to WDEQ – LQD by the facility operator or permit holder. Contingency/Miscellaneous have been adjusted slightly to account for variations in reporting standards and timing on annual calculation or reconciliation of bond releases.

Area Bond - the area bond specifies the costs associated with bringing the main coal pits up to the bond topography also known as the “Interim” post mining topography (PMT). Specifically, these costs include the equipment and materials for backfilling the pits and final grading of the backfill. Interim post-mining topography (PMT) is designed to maximize available backfill area and minimize the disturbance of lands that are in permanent reclamation and native borrow area.

Incremental Bond - the incremental bond specifies the costs associated with reclaiming all disturbed areas within the permit area except the main coal pit area which was calculated in the Area Bond. These costs include overburden redistribution, demolition of facilities, removal of monitoring structures, scarification of compacted surfaces, topsoil redistribution on all disturbed surfaces and revegetation of all disturbed lands. Also included in this section are monies to cover reclamation of the anticipated exploratory drilling program, miscellaneous items and contingencies.

Data Sources - Bond data from Current Coal Mine Annual Reports on file with the WDEQ Land Quality Division for each respective Wyoming coal mine with an active mine permit. Assessed values from County level public tax records.

SUMMARY - ALL CAMPBELL COAL MINES ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$64,910,582	\$103,361,942	\$47,783,190
	Site Improvements	\$61,899,900	\$103,802,352	\$37,773,820
	Plant Machinery & Equipment	\$186,165,092	\$292,699,048	\$129,715,430
		\$312,975,574	\$499,863,342	\$215,272,440
B - Fire Equipment	Buildings	\$3,664,037	\$5,469,043	\$2,890,820
	Site Improvements	\$737,371	\$907,796	\$673,260
	Plant Machinery & Equipment	\$5,555,316	\$7,636,332	\$4,433,590
		\$9,956,724	\$14,013,171	\$7,997,670
C - Pollution Control	Buildings	\$35,592,288	\$79,447,066	\$13,639,590
	Site Improvements	\$26,700,454	\$39,657,033	\$18,603,450
	Plant Machinery & Equipment	\$57,845,069	\$86,399,372	\$41,284,970
		\$120,137,811	\$205,503,471	\$73,528,010
D - Mining Surface	Buildings	\$6,247,593	\$12,845,731	\$4,697,630
	Plant Machinery & Equipment	\$7,779,875	\$11,563,659	\$5,021,480
		\$14,027,468	\$24,409,390	\$9,719,110
PROPERTY TOTALS:		\$573,062,192	\$743,789,374	\$306,517,230

*An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.

** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.

NAVAJO TRANSITIONAL ENERGY COMPANY, LLC (NTEC). - ANTELOPE MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$32,310,599	\$58,747,839	\$16,908,892

*An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.

** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.

EAGLE SPECIALTY MATERIALS, LLC - BELLE AYR MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$3,419,766	\$4,462,795	\$3,453,300
	Site Improvements	\$2,145,810	\$2,800,282	\$2,166,850
	Plant Machinery & Equipment	\$16,200,178	\$21,010,582	\$16,371,110
		\$21,765,754	\$28,273,659	\$21,991,260
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$21,765,754	\$28,273,659	\$21,991,260

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

BLACK BUTTE COAL COMPANY - BLACK BUTTE MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$38,654,872	\$65,129,340	\$28,699,527

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

THUNDER BASIN COAL COMPANY - BLACK THUNDER MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$244,100	\$324,165	\$238,350
	Site Improvements	\$4,048,410	\$5,331,030	\$3,999,200
	Plant Machinery & Equipment	\$14,340,876	\$18,987,935	\$14,017,750
		\$18,633,386	\$24,643,130	\$18,255,300
B - Fire Equipment	Buildings	\$5,000	\$6,640	\$4,880
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$151,421	\$201,087	\$147,830
		\$156,421	\$207,727	\$152,710
C - Pollution Control	Buildings	\$500	\$664	\$490
	Site Improvements	\$661,400	\$878,339	\$645,670
	Plant Machinery & Equipment	\$1,462,352	\$1,942,003	\$1,427,560
		\$2,124,252	\$2,821,006	\$2,073,720
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$1,000	\$1,328	\$980
		\$1,000	\$1,328	\$980
PROPERTY TOTALS:		\$20,915,059	\$27,673,191	\$20,482,710

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BROOK MINING COMPANY, LLC - BROOK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$0	\$0	\$0

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BUCKSKIN MINING COMPANY - BUCKSKIN MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$15,271,481	\$23,940,850	\$11,833,460
	Site Improvements	\$3,719,822	\$6,453,564	\$2,827,050
	Plant Machinery & Equipment	\$5,724,504	\$9,513,409	\$3,844,230
		\$24,715,807	\$39,907,823	\$18,504,740
B - Fire Equipment	Buildings	\$680,844	\$1,062,797	\$525,140
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$680,844	\$1,062,797	\$525,140
C - Pollution Control	Buildings	\$35,000	\$67,585	\$28,360
	Site Improvements	\$750,000	\$1,448,250	\$607,760
	Plant Machinery & Equipment	\$670,500	\$1,140,257	\$438,550
		\$1,455,500	\$2,656,092	\$1,074,670
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$26,852,151	\$43,626,712	\$20,104,550

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PEABODY CABALLO MINING, LLC - CABALLO MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$149,509	\$195,109	\$135,870
	Site Improvements	\$640,543	\$835,909	\$582,150
	Plant Machinery & Equipment	\$324,826	\$417,431	\$299,450
		\$1,114,878	\$1,448,449	\$1,017,470
B - Fire Equipment	Buildings	\$825,499	\$825,499	\$742,950
	Site Improvements	\$5,800	\$7,569	\$5,270
	Plant Machinery & Equipment	\$6,500	\$8,554	\$4,550
		\$837,799	\$841,622	\$752,770
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$1,965,818	\$2,542,268	\$1,803,000
	Plant Machinery & Equipment	\$23,218	\$30,299	\$21,100
		\$1,989,036	\$2,572,567	\$1,824,100
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$3,941,713	\$4,862,638	\$3,594,340

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ARCH OF WYOMING, LLC - CARBON BASIN MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$0	\$0	\$0

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THUNDER BASIN COAL COMPANY - COAL CREEK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$2,904,394	\$3,857,035	\$1,612,230
	Site Improvements	\$610,900	\$811,275	\$572,510
	Plant Machinery & Equipment	\$4,318,748	\$5,727,227	\$4,057,160
		\$7,834,042	\$10,395,537	\$6,241,900
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$1,300	\$1,726	\$1,220
		\$1,300	\$1,726	\$1,220
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$373,138	\$495,527	\$163,340
		\$373,138	\$495,527	\$163,340
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$211,885	\$268,246	\$209,750
		\$211,885	\$268,246	\$209,750
	PROPERTY TOTALS:	\$8,420,365	\$11,161,036	\$6,616,210

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NAVAJO TRANSITIONAL ENERGY COMPANY, LLC - CORDERO ROJO MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$9,471,744	\$20,123,388	\$3,400,100
	Site Improvements	\$27,502,327	\$52,870,372	\$9,201,670
	Plant Machinery & Equipment	\$34,781,778	\$74,023,657	\$9,633,000
		\$71,755,849	\$147,017,417	\$22,234,770
B - Fire Equipment	Buildings	\$412,995	\$695,497	\$173,190
	Site Improvements	\$63,500	\$149,225	\$21,730
	Plant Machinery & Equipment	\$125,092	\$234,955	\$36,930
		\$601,587	\$1,079,677	\$231,850
C - Pollution Control	Buildings	\$28,801,345	\$65,497,633	\$8,419,650
	Site Improvements	\$9,119,384	\$14,190,468	\$3,895,550
	Plant Machinery & Equipment	\$8,099,614	\$17,270,130	\$1,643,290
		\$46,020,343	\$96,958,231	\$13,958,490
D - Mining Surface	Buildings	\$374,748	\$578,986	\$68,870
	Plant Machinery & Equipment	\$4,833,754	\$7,178,441	\$2,395,450
		\$5,208,502	\$7,757,427	\$2,464,320
PROPERTY TOTALS:		\$123,586,281	\$252,812,752	\$38,889,430

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WESTERN FUELS WY, INC. - DRY FORK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$10,650,248	\$19,279,790	\$9,013,380
	Site Improvements	\$3,893,140	\$9,069,984	\$3,044,680
	Plant Machinery & Equipment	\$11,652,155	\$24,109,727	\$9,337,650
		\$26,195,543	\$52,459,501	\$21,395,710
B - Fire Equipment	Buildings	\$1,405,157	\$2,242,079	\$1,287,360
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$1,626,613	\$2,320,206	\$1,374,910
		\$3,031,770	\$4,562,285	\$2,662,270
C - Pollution Control	Buildings	\$5,872,845	\$12,266,745	\$4,628,760
	Site Improvements	\$1,495,176	\$2,499,976	\$1,438,990
	Plant Machinery & Equipment	\$24,527,046	\$35,115,151	\$20,528,310
		\$31,895,067	\$49,881,872	\$26,596,060
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$61,122,380	\$106,903,658	\$50,654,040

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EAGLE SPECIALTY MATERIALS, LLC - EAGLE BUTTE MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$1,447,096	\$1,888,516	\$1,460,110
	Site Improvements	\$864,475	\$1,128,140	\$872,950
	Plant Machinery & Equipment	\$4,162,114	\$5,356,471	\$4,220,280
		\$6,473,685	\$8,373,127	\$6,553,340
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$6,473,685	\$8,373,127	\$6,553,340

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SPRING GULCH COAL COMPANY - GRASS CREEK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$0	\$0	\$0

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WESTMORELAND HAYSTACK MINING, LLC - HAYSTACK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$0	\$0	\$0

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BRIDGER COAL COMPANY - JIM BRIDGER MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$38,654,872	\$65,129,340	\$28,699,527

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KEMMERER OPERATIONS, LLC - KEMMERER MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$38,654,872	\$65,129,340	\$28,699,527

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BLACK BUTTE COAL COMPANY - LEUCITE HILLS MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$0	\$0	\$0

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PEABODY CABALLO MINING, LLC - NORTH ANTELOPE ROCHELLE MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$15,749,883	\$20,553,597	\$12,310,040
	Site Improvements	\$10,334,696	\$12,399,016	\$8,569,040
	Plant Machinery & Equipment	\$62,741,274	\$79,573,873	\$48,368,960
		\$88,825,853	\$112,526,486	\$69,248,040
B - Fire Equipment	Buildings	\$38,071	\$49,683	\$29,770
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$2,933,310	\$3,827,970	\$2,292,660
		\$2,971,381	\$3,877,653	\$2,322,430
C - Pollution Control	Buildings	\$398,602	\$520,176	\$311,540
	Site Improvements	\$7,657,534	\$11,617,249	\$5,568,090
	Plant Machinery & Equipment	\$17,863,396	\$23,266,571	\$13,974,600
		\$25,919,532	\$35,403,996	\$19,854,230
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$1,189,210	\$1,551,919	\$929,450
		\$1,189,210	\$1,551,919	\$929,450
PROPERTY TOTALS:		\$118,905,976	\$153,360,054	\$92,354,150

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PEABODY CABALLO MINING, LLC - RAWHIDE MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$2,718,515	\$3,545,161	\$2,608,630
	Site Improvements	\$580,580	\$757,657	\$556,960
	Plant Machinery & Equipment	\$2,588,879	\$3,388,386	\$1,988,980
		\$5,887,974	\$7,691,204	\$5,154,570
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$593,770	\$652,553	\$588,930
	Plant Machinery & Equipment	\$435,010	\$567,688	\$417,310
		\$1,028,780	\$1,220,241	\$1,006,240
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$3,937,202	\$5,117,675	\$3,785,420
	Plant Machinery & Equipment	\$341,206	\$445,274	\$327,340
		\$4,278,408	\$5,562,949	\$4,112,760
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$48,850	\$63,749	\$46,860
		\$48,850	\$63,749	\$46,860
PROPERTY TOTALS:		\$11,244,012	\$14,538,143	\$10,320,430

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ARCH OF WYOMING, LLC - SEMINOE II MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$0	\$0	\$0

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

ROCKY MOUNTAIN COAL COMPANY - STANSBURY MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$0	\$0	\$0

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

GREEN BRIDGE HOLDINGS, INC. - SYNTHETIC FUELS MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$29,650	\$42,874	\$21,890
	Site Improvements	\$35,660	\$51,564	\$26,330
	Plant Machinery & Equipment	\$15,000	\$19,920	\$12,470
		\$80,310	\$114,358	\$60,690
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$80,310	\$114,358	\$60,690

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

BLACK HILLS CORPORATION - WYODAK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$2,854,196	\$5,148,662	\$1,695,830
	Site Improvements	\$7,523,537	\$11,293,559	\$5,354,430
	Plant Machinery & Equipment	\$29,314,760	\$50,570,430	\$17,564,390
		\$39,692,493	\$67,012,651	\$24,614,650
B - Fire Equipment	Buildings	\$296,471	\$586,848	\$127,530
	Site Improvements	\$74,301	\$98,449	\$57,330
	Plant Machinery & Equipment	\$276,070	\$474,146	\$158,180
		\$646,842	\$1,159,443	\$343,040
C - Pollution Control	Buildings	\$483,996	\$1,094,263	\$250,790
	Site Improvements	\$1,113,940	\$1,362,808	\$858,970
	Plant Machinery & Equipment	\$4,484,599	\$6,694,160	\$2,760,880
		\$6,082,535	\$9,151,231	\$3,870,640
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
	PROPERTY TOTALS:	\$46,421,870	\$77,323,325	\$28,828,330

**An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.*

*** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.*

APPENDIX D

The reclamation bond worksheets are used for determining the three bond elements; 1) Area Bond, 2) Incremental Bond, and 3) Contingency Bond - needed to derive the total reclamation bond amount required by WDEQ LQD for the subsequent annual reporting period. The WDEQ LQD's Guideline 12 Standardized Reclamation Performance Bond Format and Cost Calculation Methods is utilized by all the mines to derive these cost elements. These 3 elements are described below:

- **Area Bond** – Following Wyoming DEQ/LQD Guideline 12 , the Area Bond covers native topsoil removal, native overburden removal, backfill, rough grade backfill and final grade backfill costs, and special construction techniques, according to procedures and postmining topography approved in the current term of the Permit to Mine.
- **Incremental Bond** – Following Wyoming DEQ/LQD Guideline 12, the incremental bond covers the costs for overburden redistribution, stream and lake construction, and the removal of monitoring stations. Of particular use and importance to the Valuation task of this report are the data related to demolition of facilities buildings, materials handling facilities and support facilities. The incremental bond further covers scarification or ripping of all compacted surfaces, topsoil redistribution, revegetation, and reclamation status and bond liability status of all lands within the permit area. Within the Reclamation Performance Bond section of the Annual Report, the coals mine (most, not all) often provide a Summary of Demolition Costs, providing the removal

costs for the following 7 categories: Fences, Powerlines, Hard-surfaced roads (asphalt ripping, roads and parking lots), Bridges, Culverts, Railroads and Buildings and Facilities.

- **Contingency Items** – Contingency items are set by WDEQ LQD Guideline 12 but may be specific to cost factors applicable and defined by LQD Districts 1, 2 or 3. An example of a contingency cost would be the transporting of very large and expensive mining equipment, ie. a dragline or shovel. Environmental contingency costs include diesel fuel spill remediation, including excavation and treatment (land-farming) and hazardous material removal (if present).

Reclamation bond references for all 24 coal mines are provided in Appendix D to this report. These references may include the following:

- Reclamation Bond Summary (Guideline 12 Table 1 or other designation)
- Demolition Cost Summary (Guideline 12 Table 6 or other designation)
- Facilities Buildings to be Removed (Guideline 12 Table 8 or other designation)
- Material Handling Facilities to be Removed (Guideline 12 Table 9 or other designation), and
- Support Facilities to be Removed (Guideline 12 Table 10 or other designation)

In the case of coal mines which are currently in the interim or final phases of reclamation, the reclamation reference may be only a statement of the current bond amount as required by WDEQ.

APPENDIX D - RECLAMATION BOND REFERENCES	
	PG.
ANTELOPE MINE.....	D2
BELLE AYR MINE.....	D4
BLACK BUTTE MINE.....	D12
BROOK MINE.....	D20
BUCKSKIN MINE.....	D22
CABALLO MINE.....	D26
CARBON BASIN MINE.....	D30
COAL CREEK MINE.....	D33
CORDERO ROJO MINE.....	D38
DRY FORK MINE.....	D43
EAGLE BUTTE MINE.....	D47
GRASS CREEK MINE.....	D53

HAYSTACK MINE.....	D55
JIM BRIDGER MINE.....	D59
KEMMERER MINE.....	D65
LEUCITE HILLS MINE.....	D67
NORTH ANTELOPE ROCHELLE MINE.....	D69
RAWHIDE MINE.....	D77
SEMINOE II MINE.....	D84
STANSBURY MINE.....	D86
SYNTHETIC FUELS MINE.....	D90
WYODAK MINE.....	D93
YOUNGS CREEK MINE.....	D95

NAVAJO TRANSITIONAL ENERGY COMPANY, LLC - YOUNGS CREEK MINE ASSESSED VALUES FOR SELECT ASSET CATEGORIES AND TYPES				
CATEGORY	TYPE	ORIGINAL COST	"REPLACEMENT COST - NEW"	PRESENT WORTH - DEPRECIATED
A - Taxable	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
B - Fire Equipment	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
C - Pollution Control	Buildings	\$0	\$0	\$0
	Site Improvements	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
D - Mining Surface	Buildings	\$0	\$0	\$0
	Plant Machinery & Equipment	\$0	\$0	\$0
		\$0	\$0	\$0
		\$0	\$0	\$0
PROPERTY TOTALS:		\$0	\$0	\$0

*An entry of \$0 indicates that there was no property tax levied on infrastructure at this site as of the current reporting period or that no information was available.

** In an effort to maintain a level of consistency in reporting asset values across the full range of Wyoming Mines, report author projected Property Totals based on other similarly sized mines referencing historical maximum annual production.

Table 5-1 Bond Summary				
	BCY's (1000's)	\$/Task (1000's)	Total \$ (1000's)	
Truck/Shovel Polygons	83,638.0	\$ 36,352		
657G Scraper Areas	1,222.0	\$ 723		
D11R Carry Dozer Polygons	23,018.0	\$ 8,223		
Subtotal - Area Bond	107,878.0	\$ 45,298	\$	45,298
Surface Preparation & Revegetation		\$ 8,913		
Total Topsoil		\$ 5,929		
Facilities & Structures Demolition		\$ 1,955		
Subtotal - Incremental Bond		\$ 16,797	\$	62,095
Contingency Items				
	<u>Rate</u>	<u>Years</u>		
Project Design	\$ 250,000	1	\$ 250	
Profit, Mob./Demob.	13.50%		\$ 8,383	
Preconstruction Work	1.50%		\$ 931	
Project Management	2.00%		\$ 1,242	
Post Mine Monitoring	1.00%		\$ 621	
Site Security and Liability Insurance	\$ 250,000	5	\$ 1,250	
Administration & Accounting	\$ 505,000	1	\$ 505	
Unknowns / Miscellaneous	5.00%		\$ 3,105	
Subtotal - Administration, Profit, Overhead and Contingencies		\$ 16,287	\$	78,382
Shovel Capital (Used 4 years)				
		\$ 28,401		
Total Estimate			\$	106,783
Notes				
1. Shovel Cost (Guideline 12 Cost for 80CY Shovel)				

Table 5-10 Facilities Demolition									
Structures & Const. Types	Quantity	Debris (0.33 factor applied to bids)	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	Disposal \$/Unit	Equip or Reference Section	Notes/Source
1.0 Remove of Facilities & Structures									
1.1 Railroad	211,160		211,160 LF	0	-	\$ 8,790	\$ -		Guideline 12 Appendix K
1.2 Reinforced Earth Wall (Truck Dump)	1		1 EA	0	0	\$ -	\$ 186.00		CPI Adjusted from 2020 Bond
1.3a Miscellaneous Existing Foundations - Mixture of Types - Demo	33,864		33,864 SF	0	-	\$ 7,422,000	\$ -		Guideline 12 Appendix K
1.3b Miscellaneous Existing Foundations - Mixture of Types - Dispos	627		627 CY	0	-	\$ 0.780	\$ -		Guideline 12 Appendix K
1.4 Railroad Underpass	1		1 EA	0	-	\$ -	\$ 9,740		Guideline 12 Appendix K
1.5 Fencing - 5 ft high Chain link	2,600		2,600 LF	0	-	\$ 14,043,000	\$ -		CPI Adjusted from 2020 Bond
1.6a Well Pump House - Building	6,132		2,024 CF	0	-	\$ 2,200	\$ -		RS Means 2021 Heavy Construction Sec 02 41.13.62 0600
1.6b Well Pump House - Foundation	511		511 SF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.7a Well Pump House 2 - Building	3,120		1,030 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.7b Well Pump House 2 - Foundation	260		260 SF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.8 Truck Ready Line (Office/Shop Area)	1		1 EA	0	-	\$ 7,234,000	\$ -		CPI Adjusted from 2020 Bond
1.9a Access Road Backstop	8		8 AC	0	-	\$ 619,900	\$ -		Guideline 12 Appendix K
1.9b Disposal of Asphalt in Railloop Backfill Area	4,169		4,169 CY	2500	0	\$ 0.888	\$ -		Guideline 12 Appendix I
1.10a Secondary Crusher	1		1 EA	0	-	\$ 15,552,000	\$ -		Guideline 12 Appendix B
1.10b Secondary Crusher Disposal	39,113		39,113 CF	0	-	\$ -	\$ 0.361		CPI Adjusted from 2020 Bond
1.11a Transfer Building - Building	62,720		20,698 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.11b Transfer Building - Foundation	2,940		2,940 SF	0	-	\$ 5,320	\$ 0.339		Guideline 12 Appendix K
1.12a Silo - 12,500 Ton Capacity - Demolition & Disposal	840,000		277,200 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.12b Silo - 12,500 Ton Capacity - Demolition & Disposal	1		1 EA	0	-	\$ -	\$ -		Guideline 12 Appendix K
1.13a Silo - 15,500 Ton Capacity - Demolition & Disposal	920,000		303,600 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.13b Silo - 15,500 Ton Capacity - Demolition & Disposal	1		1 EA	0	-	\$ -	\$ -		Guideline 12 Appendix K
1.14 Overland Conveyor - Demolition and Disposal	34,043		34,043 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.15 Office Complex including 2001 expansion	135,973		44,838 CF	0	-	\$ 35,931,000	\$ -		Guideline 12 Appendix K
1.16a Fuel Tanks (16 Tanks)	1		2,874 CF	0	-	\$ -	\$ 0.361		CPI Adjusted from 2020 Bond
1.16b Fuel Tanks Disposal	2,874		2,874 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.17a Water Tank	2,190		2,190 CF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.17b Water Tank - Foundation	1,400		1,400 SF	0	-	\$ 5,320	\$ 0.339		Guideline 12 Appendix K
1.18a Shop & Wareh. Including 2006 expansion and parts wing.	0		0 CF	0	-	\$ -	\$ -		Guideline 12 Appendix K
1.18b Shop & Wareh. Including 2006 expansion and parts wing. - F.	0		0 CF	0	-	\$ -	\$ -		Guideline 12 Appendix K
1.19 Meteorological Site & Hivul Sites (3 Hivul & 1 Met site)	4		4 EA	0	-	\$ 812,070	\$ -		Guideline 12 Appendix O
1.20 Hydrology Monitoring Stations (7 sites)	7		7 EA	0	-	\$ 2,117,490	\$ -		Guideline 12 Appendix N
1.21 Production Ready Line Fuel Tank	2,406		2,406 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.22a Acid neutralization building - Foundation	512		169 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.22b Acid neutralization building - Foundation	128		128 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.23a Sample Prep Building - Foundation	768		253 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.23b Sample Prep Building - Foundation	432		432 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.25a Bulk Lube Storage	31,250		10,313 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.25b Bulk Lube Storage - Foundation	3,780		3,780 SF	0	-	\$ 5,320	\$ 0.339		Guideline 12 Appendix K
1.26a Men's and Womens Showers	6,000		1,980 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.26b Men's and Womens Showers - Foundation	2,200		2,200 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.27 NE Mining Area Overland Conveyor	29,550		29,550 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.28 NE Mining Area Truck Dump (Includes primary crusher and ch	1		1 EA	0	-	\$ 48,423,000	\$ -		CPI Adjusted from 2020 Bond
1.29 New Guard Shack	900		297 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.30a Riprap & Gabion Removal at NE Conveyor Bridge and Deadh	23,567		23,567 CY	4000	0	\$ 1,238	\$ -		CAT 992K Loader and Cat 777F Trucks
1.30b Gabion Baskets	8,022		8,022 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix A
1.31a Riprap & Gabion Removal at CMA/HUMA Creek Crossing	24,000		24,000 CY	4000	0	\$ 1,238	\$ -		Guideline 12 Appendix A
1.31b Gabion Baskets	1,481		1,481 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix A
1.32 Facilities Conveyor Upgrade (Concrete Pad at Secondary)	21,300		21,300 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.33 NE Mining Area Conveyor Bridge	15,000		15,000 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.34a Foam Building - Foundation	7,500		2,475 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.34b Foam Building - Foundation	1,500		1,500 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.35a Fire Proof Vault - Foundation	2,900		957 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.35b Fire Proof Vault - Foundation	1,000		1,000 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.37a Shop & ambul. bay - Foundation	70,000		231,000 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.37b Shop & ambul. bay - Foundation	60,000		60,000 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.41a Haz. Waste Build.	18,000		5,940 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.41b Haz. Waste Build.	1,500		1,500 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.42a New Lab Facility - Foundation	20,000		6,600 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.42b New Lab Facility - Foundation	3,000		3,000 SF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.43 Riprap & Gabion Removal at NWMA/NWMAN Creek Crossing	24,760		24,760 CY	4000	0	\$ 1,238	\$ -		CAT 992K Loader and Cat 777F Trucks
1.44 Railroad Expansion	19,420		19,420 LF	0	-	\$ 8,790	\$ -		Guideline 12 Appendix B
1.45 PC Dam Embankment	434,443		434,443 CY	1000	0	\$ 0.630	\$ -		CAT 657G Scaper
1.46 Pumphouse Removal	91,880		3,025 CF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.47 Horse Creek Flood Control Pipeline - Bury in Place	24,000		24,000 LF	0	-	\$ -	\$ -		No removal will occur.
1.50a Water Tank New Fire System - Foundation	39,000		39,000 CF	0	-	\$ 0.780	\$ 0.339		Guideline 12 Appendix K
1.50b Water Tank New Fire System - Foundation	2,700		2,700 SF	0	-	\$ 0.270	\$ 0.361		Guideline 12 Appendix K
1.51a Foundations 2005 shop expansion	58,590		19,335 CF	0	-	\$ 0.805	\$ 9,740		Guideline 12 Appendix K
1.52a Foundations Office Complex/staging wing 2005 expansion	2,390		2,390 CY	2000	0	\$ 0.805	\$ 9,740		Guideline 12 Appendix B
1.52b Disposal on site	395		395 CY	0	-	\$ -	\$ 9,740		Guideline 12 Appendix K

Table 5-10

Facilities Demolition

Structures & Const. Types	Quantity	Debris (0.33 factor applied to bldgs)	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	Disposal \$/Unit	\$ (1000's)	Equip or Reference Section	Notes/Source
1.54 Rooster Draw FC Reservoir	9,828	9,828 CY		1000	0	\$ 0.630	\$ -	\$ 6.19	CAT 657G Staper	Guideline 12 Appendix B
1.55 Well Pump House 3 - Building	5,000	1,650 CF		0	0	\$ 0.270	\$ 0.361	\$ 1.04		Guideline 12 Appendix K
1.56 Well Pump House 3 - Foundation	600	600 SF		0	0	\$ 0.780	\$ 0.339	\$ 0.67		Guideline 12 Appendix K
1.57a Silo Dustreat Facility	5,500	1,815 CF		0	0	\$ 0.270	\$ 0.361	\$ 1.15		Guideline 12 Appendix K
1.57b Silo Dustreat Facility - Foundation	1,100	1,100 SF		0	0	\$ 0.780	\$ 0.339	\$ 1.23		Guideline 12 Appendix K
1.58a Silo Storage Facility	2,750	908 CF		0	0	\$ 0.270	\$ 0.361	\$ 0.57		Guideline 12 Appendix K
1.58b Silo Storage Facility - Foundation	550	550 SF		0	0	\$ 0.780	\$ 0.339	\$ 0.62		Guideline 12 Appendix K
1.59 Plant Office Facility	15,000	4,950 CF		0	0	\$ 0.270	\$ 0.361	\$ 3.12		Guideline 12 Appendix K
1.60a NEMA Dustreat Facility	2,500	825 CF		0	0	\$ 0.270	\$ 0.361	\$ 0.52		Guideline 12 Appendix K
1.60b NEMA Dustreat Facility - Foundation	500	500 SF		0	0	\$ 0.780	\$ 0.339	\$ 0.56		Guideline 12 Appendix K
1.61a SMA Dustreat Facility	2,500	825 CF		0	0	\$ 0.270	\$ 0.361	\$ 0.52		Guideline 12 Appendix K
1.61b SMA Dustreat Facility - Foundation	500	500 SF		0	0	\$ 0.780	\$ 0.339	\$ 0.56		Guideline 12 Appendix K
1.62a D88 Shop Facility	2,500	825 CF		0	0	\$ 0.270	\$ 0.361	\$ 0.52		Guideline 12 Appendix K
1.62b D88 Shop Facility - Foundation	500	500 SF		0	0	\$ 0.780	\$ 0.339	\$ 0.56		Guideline 12 Appendix K
1.64 SMA Truck Dump (Including primary crusher and chutes)	1	1 EA		0	0	\$ 48,423,000	\$ -	\$ 48.42		CPI Adjusted from 2020 Bond
1.66 Abandon Groundwater Monitor Wells (Avg 200 ft deep)	68	68 EA		0	0	\$ 814,706	\$ -	\$ 55.40		Guideline 12 Appendix L
1.67 Deep Water Well WS-1 (3620 ft deep)	1	1 EA		0	0	\$ 11,951,333	\$ -	\$ 11.95		Guideline 12 Appendix L
1.69 Deep Water Well WS-2 (3000 ft deep)	1	1 EA		0	0	\$ 13,623,333	\$ -	\$ 13.62		Guideline 12 Appendix L
1.70 Deep Water Well WS-3 (3000 ft deep)	1	1 EA		0	0	\$ 14,943,333	\$ -	\$ 14.94		Guideline 12 Appendix L
1.71a Riprap & Gabion Removal at Scoria Pit LWC Crossing	4,500	4,500 CY		4000	0	\$ 1,238	\$ -	\$ 5.57	CAT 992K Loader and Cat 777F Trucks	Guideline 12 Appendix L
1.71b Gabion Baskets	1,620	1,620 CF		0	0	\$ 0.270	\$ 0.361	\$ 1.02	CAT 992K Loader and Cat 777F Trucks	Guideline 12 Appendix A, Added for scoria pit LWC
DEMOLITION & LONG-TERM MONITORING COST UPDATE										\$ 1,951.00

TABLE 1
Belle Ayr Mine - Reclamation Bond Summary
November 1, 2020 to October 31, 2021 Bond Period

I. AREA BOND

Backfill	\$31,598,400
Rough Grade Backfill	\$0
Final Grade Backfill	\$237,800
Native Topsoil Removal	\$402,077
Native Overburden Removal	\$22,908,661
Area Bond Subtotal	\$55,146,900

II. INCREMENTAL BOND

Overburden Redistribution	\$45,788
Stream & Lake Reconstruction	\$1,721,307
Demolition	\$4,184,904
Removal of Monitoring Structures	\$128,844
Scarification of All Compacted Surfaces	\$244,990
Topsoil Redistribution on All Disturbed Areas	\$5,191,590
Revegetation of All Disturbed Areas	\$3,052,400
Reclamation Status of All Disturbed Lands	\$2,708,139
Reclamation of Exploratory Drill Holes	\$0
Incremental Subtotal	\$17,278,000

Area and Incremental Total \$72,424,900

Contingencies:

Miscellaneous Items (Table 22)	\$14,868,059
Unknown Costs (5% - Guideline 12)	\$3,621,200
Rounding Amount	\$841
Contingencies Subtotal	\$18,490,100

O. Transporting of 80 CY Shovel from Eagle Butte \$1,844,500

RECLAMATION BOND TOTAL \$92,759,500

Table 6
Summary of Demolition Costs

Item	Units	Unit Costs	Costs
Fences			
Removal of existing fence	4.5 miles	\$ 1,584 \$/mile	\$7,128
Removal of existing electric fence	- miles	\$ 792 \$/mile *	\$0
Removal of chain link fence	1,500.0 feet	\$ 3.12 \$/ft	\$4,680
Installation of new fence	0.0 miles	\$ 9,187 \$/mile	\$0
Powerlines			
Removal of powerlines			\$0
Hard-surfaced roads			
Asphalt ripping, roads and parking lots	4.6 acres	\$ 653.30 \$/ac.	\$3,034
Asphalt disposal on site	2,497.1 cu yd	\$ 3.80 \$/cy yd	\$9,489
Bridges			
Cost to remove all bridges (See text)			\$0
Culverts			
Culvert removal (See Table 7)	663 sections	\$ 110.10 \$/sec.	\$72,969
Railroads			
Track removal	48,100 feet	\$ 8.79 \$/ft	\$422,799
Ballast and subballast removal	24,050 cu yd	\$ 4.49 \$/cu yd	\$107,985
Building and Facilities Removal			
Facility Buildings (Table 8)			\$1,515,944
Material Handling Facilities (Table 9)			\$1,779,842
Support Facilities (Table 10)			\$261,034
Total Cost for Demolition			\$4,184,904

* Unit cost for electric fence removal based on one half of the normal fence removal cost based on telephone conversation with Doug Emme.
Chain link fence removal cost from 2019 Means Building Construction Cost Data Guide.

Table 8
Facility Buildings To Be Removed

Building Description	Building/ Disposal Type	Quantity	Unit	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Maintenance Building bldg demolition	M.T.	22,300	cu ft	\$0.280	\$6,244
disposal	D.A.	200	cu yd	\$9.910	\$1,982
slab, 8" thick w rebar	S.L.08	1,710	sq ft	\$5.320	\$9,097
Footings- 2' Thick, 3' Wide	F.R.	170	lin ft	\$15.630	\$2,657
concrete disposal on-site	D.C.	80	cy yd	\$8.330	\$666
Reclamation Building bldg demolition	M.T.	51,410	cu ft	\$0.280	\$14,395
disposal	D.A.	480	cu yd	\$9.910	\$4,757
slab, 6" thick w rebar	S.L.06	3,020	sq ft	\$4.560	\$13,771
Footings- 2' Thick, 3' Wide	F.R.	230	lin ft	\$15.630	\$3,595
concrete disposal on-site	D.C.	200	cy yd	\$8.330	\$1,666
Service Building complex, bldg demolition	M.T.	2,864,800	cu ft	\$0.280	\$802,144
disposal	D.A.	22,500	cu yd	\$9.910	\$222,975
slab, 6" thick w rebar	S.L.04	1,740	sq ft	\$3.800	\$6,612
slab, 12" thick w rebar	S.L.12	56,000	sq ft	\$6.840	\$383,040
Footings- 2' Thick, 3' Wide	F.R.	1,430	lin ft	\$15.630	\$22,351
concrete disposal on-site	D.C.	2,400	cy yd	\$8.330	\$19,992
Total					\$1,515,944 (Summarized in Table 6)

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12

- A.W. = All Wood
- D.A. =Disposal, average
- E.A. = Explosive Demolition, All Buildings
- E.C. = Explosive Demolition, Concrete
- F.R. = Footing Removal
- L.C. = Large Concrete Building
- L.S. = Large Steel Building
- M.T. = Mixed type building
- S.C. = Small Concrete Building
- S.L.04 = Slab Removal, 4" thick w rebar
- S.L.06 = Slab Removal, 6" thick w rebar
- S.L.08 = Slab Removal, 8" thick w rebar
- S.L.12 = Slab Removal, 12" thick w rebar
- S.S. = Small Steel Building

Table 9
Material Handling Facilities To Be Removed

Facility Description		Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition Costs
Batch Loadout Facility	facility demolition	M.T.	162,500	cu ft	\$0.280	\$45,500
	disposal	D.A.	1,500	cu yd	\$9.910	\$14,865
	slab, 8" thick w rebar	S.L.08	1,200	sq ft	\$5.320	\$6,384
	Footings- 2' Thick, 3' Wide	F.R.	140	lin ft	\$15.630	\$2,188
	concrete disposal on-site	D.C.	60	cy yd	\$8.330	\$500
Conveyor System	facility demolition	M.T.	61,700	cu ft	\$0.280	\$17,276
	disposal	D.A.	1,370	cu yd	\$9.910	\$13,577
Overland Conveyor / Near Pit Truck Dump						
Overland Conveyor						
CV-01	facility demolition	M.T.	109,800	cu ft	\$0.280	\$30,744
CV-02	facility demolition	M.T.	410,900	cu ft	\$0.280	\$115,052
CV-03	facility demolition	M.T.	30,600	cu ft	\$0.280	\$8,568
CV-04	facility demolition	M.T.	29,600	cu ft	\$0.280	\$8,288
Crusher tower	facility demolition	M.T.	36,300	cu ft	\$0.280	\$10,164
Transfer tower	facility demolition	M.T.	46,600	cu ft	\$0.280	\$13,048
Truck dump strctr.	facility demolition	M.T.	216,500	cu ft	\$0.280	\$60,620
Foundations for above facilities						
	slab, 12" thick w rebar	S.L.08	1,430	sq ft	\$5.320	\$7,608
	slab, 24" thick w rebar	S.L.24	7,695	sq ft	\$13.680	\$105,268
	slab, 32" thick w rebar	S.L.32	3,927	sq ft	\$18.240	\$71,628
	Footings- 2' Thick, 3' Wide	F.R.	0	lin ft	\$15.630	\$0
	Footings- 1.5' Thick, 2' Wide	F.R.	0	cy yd	\$15.630	\$0
	concrete disposal on-site	D.C.	1,023	cy yd	\$8.330	\$8,522
Prep Plants						
Prep Plant #1	facility demolition	M.T.	41,600	cu ft	\$0.280	\$11,648
	disposal	D.A.	460	cu yd	\$9.910	\$4,559
	slab, 8" thick w rebar	S.L.08	1,300	sq ft	\$5.320	\$6,916
	Footings- 2' Thick, 3' Wide	F.R.	160	lin ft	\$15.630	\$2,501
	concrete disposal on-site	D.C.	70	cy yd	\$8.330	\$583
Prep Plant #1	facility demolition	M.T.	119,700	cu ft	\$0.280	\$33,516
	disposal	D.A.	3,000	cu yd	\$9.910	\$29,730
	slab, 8" thick w rebar	S.L.08	2,660	sq ft	\$5.320	\$14,151
	Footings- 2' Thick, 3' Wide	F.R.	200	lin ft	\$15.630	\$3,126
	concrete disposal on-site	D.C.	110	cy yd	\$8.330	\$916
Silos, 4 @ 70'Dx193.8H	facility demolition	E.C.	2,983,300	cu ft	\$0.260	\$775,658
	concrete disposal on-site	D.C.	4,730	cu yd	\$8.330	\$39,401
Dryer Complex Silos No 5 & 6, facility demolition	facility demolition	E.C.	888,610	cu ft	\$0.260	\$231,039
	concrete disposal on-site	D.C.	2,030	cu yd	\$8.330	\$16,910

Table 9
Material Handling Facilities To Be Removed

Facility Description		Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition Costs
Transfer Houses						
Transfer House #1	facility demolition	M.T.	52,650	cu ft	\$0.280	\$14,742
	disposal	D.A.	490	cu yd	\$9.910	\$4,856
	slab, 8" thick w rebar	S.L.08	1,350	sq ft	\$5.320	\$7,182
	Footings- 2' Thick, 3' Wide	F.R.	150	lin ft	\$15.630	\$2,345
	concrete disposal on-site	D.C.	70	cy yd	\$8.330	\$583
Transfer House #2	facility demolition	M.T.	26,880	cu ft	\$0.280	\$7,526
	disposal	D.A.	250	cu yd	\$9.910	\$2,478
	slab, 8" thick w rebar	S.L.08	840	sq ft	\$5.320	\$4,469
	Footings- 2' Thick, 3' Wide	F.R.	120	lin ft	\$15.630	\$1,876
	concrete disposal on-site	D.C.	50	cy yd	\$8.330	\$417
Transfer House #3	facility demolition	M.T.	26,750	cu ft	\$0.280	\$7,490
	disposal	D.A.	250	cu yd	\$9.910	\$2,478
	slab, 8" thick w rebar	S.L.08	700	sq ft	\$5.320	\$3,724
	Footings- 2' Thick, 3' Wide	F.R.	110	lin ft	\$15.630	\$1,719
	concrete disposal on-site	D.C.	40	cy yd	\$8.330	\$333
Truck Hopper/Crusher Rooms						
Trk Hopper/Crush. Rm #1	facility demolition	M.T.	7,980	cu ft	\$0.280	\$2,234
	disposal	D.A.	0	cu yd	\$9.910	\$0
Trk Hopper/Crush. Rm #2	facility demolition	M.T.	17,640	cu ft	\$0.280	\$4,939
	disposal	D.A.	0	cu yd	\$9.910	\$0

\$1,779,842
(Summarized in
Table 6)

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
D.A. =Disposal, average
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
F.R. = Footing Removal
L.C. = Large Concrete Building
L.S. = Large Steel Building
M.T. = Mixed type building
S.C. = Small Concrete Building
S.L.04 = Slab Removal, 4" thick w rebar
S.L.06 = Slab Removal, 6" thick w rebar
S.L.08 = Slab Removal, 8" thick w rebar
S.L.09 = Slab Removal, 9" thick w rebar
S.L.12 = Slab Removal, 12" thick w rebar
S.S. = Small Steel Building

Table 10 Support Facilities To Be Removed						
Facility/Building and Action Description	Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition & Disposal Costs	
Bulk Diesel Storage (Fuel Island) Tanks and Facilities						
6 tks @ 35,000 gal demolition	S.S.	28,071	cu ft	\$0.280	\$7,860	
disposal	D.A.	30	cu yd	\$9.910	\$297	
Containment Structure (concrete)						
demolition	E.C.	9,300	cu ft	\$0.260	\$2,418	
12" reinf concrete slab	S.R.12	3,500	sq ft	\$6.840	\$23,940	
8" reinf concrete slab	S.R.08	1,700	sq ft	\$6.840	\$11,628	
9" reinf concrete slab	S.R.09	2,300	sq ft	\$6.840	\$15,732	
Footings- 2' Thick, 3' Wide	F.R.	240	lin ft	\$15.630	\$3,751	
concrete disposal on-site	D.C.	300	cu yd	\$8.330	\$2,499	
Bulk Oil Tanks (Lube Room) Tanks and Facilities						
3 tks @ 6,000 gal demolition	S.S.	2,406	cu ft	\$0.280	\$674	
2 tks @ 2,000 gal demolition	S.S.	535	cu ft	\$0.280	\$150	
1 tk @ 580 gal demolition	S.S.	78	cu ft	\$0.280	\$22	
1 tk @ 320 gal demolition	S.S.	43	cu ft	\$0.280	\$12	
disposal	D.A.	30	cu yd	\$9.910	\$297	
Containment Structure (concrete)						
demolition	E.C.	20,819	cu ft	\$0.260	\$5,413	
disposal misc.	D.A.	15	cu yd	\$9.910	\$149	
8" reinf concrete slab	S.R.08	1,230	sq ft	\$6.840	\$8,413	
9" reinf concrete slab	S.R.09	711	sq ft	\$6.840	\$4,863	
Footings- 2' Thick, 3' Wide	F.R.	140	lin ft	\$15.630	\$2,188	
concrete disposal on-site	D.C.	81	cu yd	\$8.330	\$675	
Gasoline Island Tanks and Facilities						
1 tk @ 15,000 gal demolition	S.S.	2,005	cu ft	\$0.280	\$561	
disposal	D.A.	2	cu yd	\$9.910	\$20	
Containment Structure (concrete)						
demolition	E.C.	4,275	cu ft	\$0.260	\$1,112	
8" reinf concrete pvt slab	S.R.08	570	sq ft	\$6.840	\$3,899	
9" reinf concrete slab	S.R.09	570	sq ft	\$6.840	\$3,899	
Footings- 2' Thick, 3' Wide	F.R.	110	lin ft	\$15.630	\$1,719	
concrete disposal on-site	D.C.	79	cu yd	\$8.330	\$658	
Fuel Oil Storage Tanks						
2 tks @ 300,000 gal demolition	S.S.	80,203	cu ft	\$0.280	\$22,457	
disposal	D.A.	70	cu yd	\$9.910	\$694	
Plant Tanks						
1 tk @ 550 gal demolition	S.S.	74	cu ft	\$0.280	\$21	
1 tk @ 150 gal demolition	S.S.	20	cu ft	\$0.280	\$6	
1 tk @ 12,600 gal demolition	S.S.	1,684	cu ft	\$0.280	\$472	
1 tk @ 8000 gal demolition	S.S.	1,069	cu ft	\$0.280	\$299	
1 tk @ 8000 gal demolition	S.S.	1,069	cu ft	\$0.280	\$299	
disposal	D.A.	4	cu yd	\$9.910	\$40	

Table 10 Support Facilities To Be Removed						
Facility/Building and Action Description		Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition & Disposal Costs
Shop Tanks						
1 tk @ 8,000 gal	demolition	S.S.	1,069	cu ft	\$0.280	\$299
2 tks @ 350 gal	demolition	S.S.	94	cu ft	\$0.280	\$26
2 tk @ 8,000 gal	demolition	S.S.	2,139	cu ft	\$0.280	\$599
	disposal	D.A.	3	cu yd	\$9.910	\$30
Misc. Tanks						
1 tk @ 2,000 gal	demolition	S.S.	267	cu ft	\$0.280	\$75
1 tk @ 100,000 gal	demolition	S.S.	13,367	cu ft	\$0.280	\$3,743
2 tk @ 15,000 gal	demolition	S.S.	4,010	cu ft	\$0.280	\$1,123
	disposal	D.A.	20	cu yd	\$9.910	\$198
Fuel Island						
12" reinf concrete slab		S.R.12	1,230	sq ft	\$6.840	\$8,413
concrete disposal on-site		D.C.	81	cu yd	\$8.330	\$675
Tire Change Pad						
12" reinf concrete slab		S.R.12	5,400	sq ft	\$6.840	\$36,936
concrete disposal on-site		D.C.	200	cu yd	\$8.330	\$1,666
Truck Ready Line						
	demolition	M.T.	4,050	cu ft	\$0.280	\$1,134
	disposal	D.C.	1	cu yd	\$8.330	\$8
Wash Bay						
	facility demolition	M.T.	129,600	cu ft	\$0.280	\$36,288
	disposal	D.A.	960	cu yd	\$9.910	\$9,514
	slab, 8" thick w rebar	S.R.08	2,880	sq ft	\$6.840	\$19,699
	slab, 12" thick w rebar	S.R.12	1,260	sq ft	\$6.840	\$8,618
	Footings- 2' Thick, 3' Wide	F.R.	220	lin ft	\$15.630	\$3,439
	concrete disposal on-site	D.C.	170	cy yd	\$8.330	\$1,416
Total						\$261,034
(Summarized in Table 6)						

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12

A.W. = All Wood
D.A. =Disposal, average
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
F.R. = Footing Removal
L.C. = Large Concrete Building
L.S. = Large Steel Building
M.T. = Mixed type building
S.C. = Small Concrete Building
S.L.04 = Slab Removal, 4" thick w rebar
S.L.06 = Slab Removal, 6" thick w rebar
S.L.08 = Slab Removal, 8" thick w rebar
S.L.09 = Slab Removal, 9" thick w rebar
S.L.12 = Slab Removal, 12" thick w rebar
S.S. = Small Steel Building

COAL ANNUAL REPORT

Permit Number: 467-T8

Operator Name: Black Butte Coal Company

Mine Name: Black Butte Mine

Annual Report Period: Beginning date: January 1, 2020 End date: December 31, 2020

Current Bond Amount: \$98,665,000

Wyoming Reclamation Status Table - 2020			
Evaluation Year (EY)			Acres
1	Disturbed Area	EY	113.00
2		Total (All Years)	13,343
3	Long-Term Mining or Rec Facilities		2,787
4	Active Mining Areas		2,985
5	Areas Backfilled and Graded	EY	86
6		Total (All Years)	7,571
7	Areas Released Phase 1 Bond	EY	0
8		Total (All Years)	5,801
9	Areas Soiled and Seeded/Planted	EY	50
10		Total (All Years)	6,677
11	Areas Released Phase 2 Bond	EY	0
12		Total (All Years)	2,324
13	Final Areas Seeded/Planted for 10 Years	EY	52
14		Total (All Years)	5,233
15	Areas Released Phase 3 Bond	EY	0
16		Total (All Years)	0

Report Period Coal Production (tons): 2,255,639 tons

LQD Report Period Data		Acres
Projected acres to be affected in the upcoming report period		84
Acres in Temporary Cessation of Operations		0

*(footnote)The 2020 numbers were revaluated and are believed to be the most correct and will serve as a baseline for future years.

Received

AUG 29 2022

WDEQ-LQD
Cheyenne

Roads and Facilities		Item	Thickness (ft)	CY/acre	Area	PI	PI Total Cost/Acre
		Main Access Road Running Surface (Asphalt)	0.5	806.7	2420.0		
		Roads with Seams	1.5				

Section Updated 8/14/2018

Reclamation Retainer for Seeded Areas		Item	Thickness (ft)	CY/acre	Area	PI	PI Total Cost/Acre
PH 1	10.0	1344.4	0.5	806.7	2420.0		
PH 2	15.0	2016.7	1.5				
PH 3	11.0	1478.9					
PH 4	18.0	2420.0					
PH 5	8.0	1075.6					
PH 6	12.0	1935.9					
PH 7	10.0	1344.4					
PH 8	14.0	1882.2					
PH 9	18.0	2420.0					
PH 10	21.0	2420.0					
PH 11	14.0	1882.2					

Facilities Demolition Costs		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Miscellaneous Items		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
		Truck (logistics at PH 10) Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 8 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source
		Shop/Office/Warehouse	\$ 1,453,078.62	Guideline 12 Appendix K
		Sale	\$ 15,955.55	
		Water Treatment	\$ 44,371.15	Guideline 12 Appendix K
		Equipment Wash	\$ 27,533.64	Guideline 12 Appendix K
		Explosive Storage	\$ 12,868.53	Guideline 12 Appendix K
		Cold Processing Plant	\$ 1,115,795.11	Guideline 12 Appendix K
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		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
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		TOTAL	\$ 2,540,000.68	

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		Sale	\$ 15,955.55	
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		Truck (logistics at PH 3 Stockpile (remove top 4' only)	\$ 9,665.20	Guideline 12 Appendix K
		Selling Shed	\$ 26,209.23	Guideline 12 Appendix K
		Remove Tanks	\$ 10,841.40	Guideline 12 Appendix K
		PH 3, 6, and 10/11 Stockpile Cold Uses Cleanup	\$ 220,494.45	Added in 2012 Annual Report
		Trucking Cost Disposal	\$ 2,540,000.68	Added in 2012 Annual Report
		TOTAL	\$ 2,540,000.68	

Reclamation Monitor Wells		Item	Total Cost	Source

TABLE 1
Black Thunder Mine - Reclamation Bond Summary
December 2, 2018 to December 3, 2019 Bond Period

	<i>Estimated Costs for Current Report Period (1)</i>
I. AREA BOND	
Backfill	\$ 251,664,978
Rough Grade Backfill	\$ -
Final Grade Backfill	\$ 946,000
<i>Area Bond Subtotal</i>	<i>\$ 252,611,000</i>
II. INCREMENTAL BOND	
Native Topsoil Removal	\$ -
Native Overburden Removal	\$ -
Overburden Redistribution	\$ 5,106,019
Demolition	\$ 10,447,393
Removal of Monitoring Structures	\$ 162,535
Scarification of All Compacted Surfaces	\$ 985,979
Topsoil Redistribution on All Disturbed Areas	\$ 29,656,508
Revegetation of All Disturbed Areas	\$ 11,199,200
Reclamation Status of All Disturbed Lands	\$ 9,034,186
Reclamation of Exploratory Drill Holes	\$ -
<i>Incremental Subtotal</i>	<i>\$ 66,591,800</i>
<i>Area and Incremental Total</i>	<i>\$ 319,202,800</i>
Contingency costs not applicable	
Reclamation Status of all Disturbed Lands	
<i>Area and Incremental Total (Contingency Applicable)</i>	<i>\$ 319,202,800</i>
Contingencies:	
Miscellaneous Items (Table II-L-1)	\$ 59,479,783
Unknown Costs (5% - Guideline 12)	\$ 15,960,100
Rounding Amount	\$ 317
<i>Contingencies Subtotal</i>	<i>\$ 75,440,200</i>
O. Purchase price of 80 CY shovel	\$ 26,726,000
 RECLAMATION BOND TOTAL	 \$ 421,369,000

Note: Explanatory text for this bond calculation follows the presentation of the individual tables.

Table II-E-1
Summary of Demolition Costs

Item	Units	Unit Costs	Costs
Fences			
Removal of existing fence	13.0 miles	\$ 1,690 \$/mile	\$21,965
Removal of existing electric fence	4.0 miles	\$ 845 \$/mile *	\$3,379
Removal of chain link fence	12,976.0 feet	\$ 2.63 \$/ft	\$34,127
Installation of new fence	0.0 miles	\$ 8,606 \$/mile	\$0
Powerlines			
Removal of powerlines (See text)			\$0
Hard-surfaced roads			
Asphalt ripping, roads and parking lots	10.0 acres	\$ 633.15 \$/ac.	\$6,332
Asphalt disposal on site	5,377.8 cu yd	\$ 8.87 \$/cy yd	\$47,701
Bridges			
Cost to remove all bridges (See text)			\$0
Culverts			
Culvert removal (See Table II-E-2)	1,074 sections	\$ 106.32 \$/sec.	\$114,220
Railroads			
Track removal	221,900 feet	\$ 9.36 \$/ft	\$2,076,984
Track salvage	221,900 feet	\$ -	\$0
Ballast and subballast removal	249,230 cu yd	\$ 4.78 \$/cu yd	\$1,191,319
Building and Facilities Removal			
Facility Buildings (Table II-E-3)			\$3,172,330
Material Handling Facilities (Table II-E-4)			\$3,177,151
Support Facilities (Table II-E-5)			\$601,885
Total Cost for Demolition			\$10,447,393

* Unit cost for electric fence removal based on one half of the normal fence removal cost based on September 1, 1994 telephone conversation with Doug Emme.
Chain link fence removal cost from 2010 Means Building Construction Cost Data Guide (Doug Emme).

Table II-E-3
Facility Buildings To Be Removed

Original Black Thunder Mine	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Administration Building	E.C.	218,400		\$0.300	\$65,520
Batch Loadout Building	L.S.	120,000		\$0.290	\$34,800
Change House	L.S.	140,000		\$0.290	\$40,600
Mechanical & Electrical (M&E) Building	L.S.	672,000		\$0.290	\$194,880
Maintenance Shop	L.S.	4,704,000		\$0.290	\$1,364,160
Warehouse	L.S.	444,000		\$0.290	\$128,760
Warehouse Expansion	L.S.	250,800		\$0.290	\$72,732
Warehouse Expansion Floor	E.C.	66,300		\$0.300	\$19,890
Guardshack	L.S.	60,000		\$0.290	\$17,400
Cat Truck Shop	L.S.	975,000		\$0.290	\$282,750
Cat Truck Shop Floor	E.C.	32,967		\$0.300	\$9,890
Bucket Shop	L.S.	320,000		\$0.290	\$92,800
Bucket Shop Floor	E.C.	134,400		\$0.300	\$40,320
Parking Lots, Foundations plus disposal	E.C. Disposal	169,350	15,000	\$0.300 \$8.87	\$50,805 \$133,050
Black Thunder Mine East					
Main Service Facility	L.S.	1,786,600		\$0.290	\$518,114
Truck Wash Shop	L.S.	159,000		\$0.290	\$46,110
Tire Shop/Small Veh. Repair shop	L.S.	39,600		\$0.290	\$11,484
Well Houses (6) 3,17,16,6,2,19	S.S.	6,720		\$0.290	\$1,949
Guard House	S.S.	3,120		\$0.290	\$905
Fuel Loading Shed	S.S.	1,200		\$0.290	\$348
Storage Sheds	S.S.	4,800		\$0.290	\$1,392
New Sample Building	L.S.	25,500		\$0.290	\$7,395
Lab & Prep Plant Offices	L.S.	47,500		\$0.290	\$13,775
Warehouse Storage Building	L.S.	65,000		\$0.290	\$18,850
Electrical Storage Building	S.S.	10,192		\$0.290	\$2,956
Tire Shop (2)	L.S.	2,400		\$0.290	\$696
Total					\$3,172,330
					(Summarized in Table II-E-1)
Net Building Demolition & Disposal Costs		\$3,172,330			

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
E.D. = Explosive Demolition Disposal
L.C. = Large Concrete Building
L.S. = Large Steel Building
S.C. = Small Concrete Building
S.S. = Small Steel Building

Table II-E-4
Material Handling Facilities To Be Removed

Original Black Thunder Mine	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Coal Preparation Building	L.S.	27,000		\$0.290	\$7,830
Conveyors	L.S.	2,025,472		\$0.290	\$587,387
Near Pit Crushers	L.S.	13,500		\$0.290	\$3,915
5 West Crusher	L.S.	6,750		\$0.290	\$1,958
Primary Crusher	L.S.	30,000		\$0.290	\$8,700
Secondary Crusher	L.S.	283,500		\$0.290	\$82,215
Silo Headhouse and Support Building	L.S.	384,000		\$0.290	\$111,360
Silos (2)	E.C.	218,100		\$0.300	\$65,430
plus disposal	Disposal		8,078	\$8.87	\$71,652
Slot Storage	L.S.	2,205,000		\$0.290	\$639,450
Slot Storage Concrete	E.C.	70,550		\$0.300	\$21,165
plus disposal	Disposal		2,613	\$8.87	\$23,177
Train Loadout (TLO) Building	L.S.	322,000		\$0.290	\$93,380
Thundercloud Crusher 6 North	L.S.	6,750		\$0.290	\$1,958
Thundercloud Crusher Support Building	L.S.	32,000		\$0.290	\$9,280
BT West silo headhouse and support building	L.S.	384,000		\$0.290	\$111,360
BT West silos (2)	E.C.	176,600		\$0.300	\$52,980
plus disposal	Disposal		17,429	\$8.87	\$154,595
Black Thunder Mine East					
Conveyor Gallery	L.S.	338,400		\$0.290	\$98,136
Conv. Belt Counterweight Bld	L.S.	16,000		\$0.290	\$4,640
Silo Head House	L.S.	223,000		\$0.290	\$64,670
Silos (9)	E.C.	511,000		\$0.300	\$153,300
Crusher Station - 3rd Circuit	L.S.	132,000		\$0.290	\$38,280
Drive/Sample Building - 3rd Circuit	L.S.	116,160		\$0.290	\$33,686
Topoff	L.S.	180,000		\$0.290	\$52,200
Secondary Crusher Building	L.S.	94,000		\$0.290	\$27,260
Sample Building	L.S.	12,000		\$0.290	\$3,480
New Sample Building	L.S.	25,500		\$0.290	\$7,395
Sample Crushing Building	L.S.	1,152		\$0.290	\$334
Prep Plant Elect. Substation Bld	L.S.	2,560		\$0.290	\$742
Dust Collectors	S.S.	1,500		\$0.290	\$435
Electrical Substations (3)	S.S.	1,000		\$0.290	\$290
Stilling Shed	L.S.	267,300		\$0.290	\$77,517
Overland Conveyor Crusher - Circuit 4	L.S.	54,720		\$0.290	\$15,869
Overland Conveyor Gallery	L.S.	910,000		\$0.290	\$263,900
Overland Conveyor Trusses and Crossings	L.S.	141,000		\$0.290	\$40,890
Surge Bin	L.S.	8,280		\$0.290	\$2,401
Belt Feeder & Transfer Conveyors	L.S.	136,500		\$0.290	\$39,585

Table II-E-4
Material Handling Facilities To Be Removed

	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Black Thunder Mine East, Foundation Removal					
Main Service Facility (52,960 sq ft by 8 inch)	F.R.08	52,960	1,308	\$1.080	\$57,197
Truck Wash Shop (7,800 sq ft by 12 inch)	F.R.12	7,800	289	\$1.620	\$12,636
Tire Shop (1,670 sq ft by 12 inch)	F.R.12	1,670	62	\$1.620	\$2,705
Well Houses (1,008 sq ft by 6 inch)	F.R.06	1,008	19	\$0.810	\$816
Well No. 3, 2, 16, 17, 6 , 9 - Truck Pads (6,800 sq ft by 12 inch)	F.R.12	10,200	378	\$1.620	\$16,524
Guard, Fuel Shed, Storage Sheds (880 sq ft by 6 inch)	F.R.06	880	16	\$0.810	\$713
Secondary Crusher (1,880 sq ft by 12 inch)	F.R.12		0	\$1.620	\$0
Sample Building (original) (1,200 sq ft by 6 inch)	F.R.06	1,200	22	\$0.810	\$972
Sample Bld (replacement) (730 sq ft by 6 inch)	F.R.06	730	14	\$0.810	\$591
Sample/Drive Bld (3rd Circ) (2,112 sq ft by 6 inch)	F.R.06	2,112	39	\$0.810	\$1,711
Sample Crusher Building (144 sq ft by 12 inch)	F.R.12	144	5	\$1.620	\$233
Lab & Prep Plant Offices (4,894 sq ft by 6 inch)	F.R.06	4,894	91	\$0.810	\$3,964
Silo Drainage Ditches (3,775 sq ft by 6 inch)	F.R.06	3,775	70	\$0.810	\$3,058
Electrical Substation Pads (1,284 sq ft by 8 inch)	F.R.08	1,284	32	\$1.080	\$1,387
Dust Collector Pad (3,264 sq ft by 8 inch)	F.R.08	3,264	81	\$1.080	\$3,525
Truck Dump Pad (3rd Circ) (2,500 sq ft by 24 inch)	F.R.24	2,500	185	\$3.240	\$8,100
Feeder Slab (3rd Circ) (1,840 sq ft by 24 inch)	F.R.24	1,840	136	\$3.240	\$5,962
Crusher Slab (3rd Circ) (1,200 sq ft by 24 inch)	F.R.24	1,200	89	\$3.240	\$3,888
Top Off (1,800 sq ft by 12 inch)	F.R.12	1,800	67	\$1.620	\$2,916
Warehouse Storage Bld (5,000 sq ft by 6 inch)	F.R.06	5,000	93	\$0.810	\$4,050
Electrical Storage Bld (784 sq ft by 6 inch)	F.R.06	784	15	\$0.810	\$635
Truck Dump App. Aprons (2) (2,000 sq ft by 3 inch) -	F.R.03	2,000	19	\$0.405	\$810
Feeder/Breaker (2,000 sq ft by 3 inch)	F.R.03	2,000	19	\$0.405	\$810
Overland Conveyor Crusher (1,600 sq ft by 30 inch)	F.R.30	4,000	370	\$4.050	\$16,200
Warehouse Storage Bld (10,900 sq ft by 6 inch)	F.R.06	10,900	202	\$0.810	\$8,829
Tire Shop (2) (4,800 sq ft by 18 inch)	F.R.18	4,800	267	\$2.430	\$11,664
plus disposal of all foundations	Disposal		3,884	\$8.870	\$34,453
				\$3,177,151	
				(Summarized in	
				Table II-E-1)	
Net Building Demolition & Disposal Costs	\$3,177,151				

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
E.D. = Explosive Demolition Disposal
L.C. = Large Concrete Building
L.S. = Large Steel Building
S.C. = Small Concrete Building
S.S. = Small Steel Building
F.R.## = foundation removal (number indicates slab thickness (inches))

Table II-E-5
Support Facilities To Be Removed

	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Original Black Thunder Mine					
Nelson Brothers Emulsion Manufacturing site	S.S.	14,400		\$0.290	\$4,176
5 - 10,600 gallon tanks	S.S.	7,250		\$0.290	\$2,103
1 - 35,000 gallon tank	S.S.	4,500		\$0.290	\$1,305
Concrete pad disposal	Disposal		300	\$8.87	\$2,661
Revegetation Shed	L.S.	129,600		\$0.290	\$37,584
Plant Control / Utility Building	L.S.	215,800		\$0.290	\$62,582
Component Rebuild Shop	S.S.	36,000		\$0.290	\$10,440
Emergency Building	S.S.	28,530		\$0.290	\$8,274
Plant Operations / Lab	S.S.	63,000		\$0.290	\$18,270
5 West Pole Barn	S.S.	129,600		\$0.290	\$37,584
Rail Underpass Tunnel	E.C.	7,020		\$0.290	\$2,036
plus disposal	Disposal		260	\$8.87	\$2,306
Potable water storage tanks	S.S.	62,834		\$0.290	\$18,222
Deicer facility	S.S.	4,050		\$0.290	\$1,175
Diesel fuel storage tanks	L.S.	145,722		\$0.290	\$42,259
Gasoline tanks and pumps	S.S.	1,337		\$0.290	\$388
Tank Farm Building	S.S.	40,000		\$0.290	\$11,600
Electrical maint. / cnt lube storage. bld	S.S.	56,000		\$0.290	\$16,240
Guard shack	A.W.	2,250		\$0.290	\$653
Washbay bld and clarifier	L.S.	252,660		\$0.290	\$73,271
Substations (10)	S.S.	375,000		\$0.290	\$108,750
Future substation	S.S.	37,500		\$0.290	\$10,875
Septic System / Leach Field	lump		1	\$5,000	\$5,000
Overland Conveyor Overpass	S.S.	38,000		\$0.290	\$11,020
TC Conveyor Sample Building	S.S.	56,000		\$0.290	\$16,240
BT West hydraulic building	L.S.	45,000		\$0.290	\$13,050
BT West Auxiliary building	L.S.	11,250		\$0.290	\$3,263
Light and Power Poles	poles		400	\$100.00	\$40,000
Septic System (BT West loadout)	lump		1	\$5,000	\$5,000
Black Thunder Mine East, Support Facilities					
Light and Power Poles	poles		308	\$100.00	\$30,800
Hot Start Line	S.S.	16,412		\$0.290	\$4,760

				Total	\$601,885
					(Summarized in
					Table II-E-1)

Net Building Demolition & Disposal Costs **\$601,885**

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
E.D. = Explosive Demolition Disposal
L.C. = Large Concrete Building
L.S. = Large Steel Building
S.C. = Small Concrete Building
S.S. = Small Steel Building

Table 1. Reclamation Bond Summary through the end of Year 2021-2022.

Item	Cost
Area Bond	
Backfill	\$ 455,711
Rough Grading Backfill	\$ 1,079
Finish Grading	\$ 1,124
Area Bond Subtotal	\$ 457,913
Incremental Bond	
Overburden Redistribution	\$ 29,655
Demolition	\$ 249,436
Environmental Monitoring	\$ 29,964
Scarification	\$ 4,401
Topsoil	\$ 179,850
Revegetation	\$ 31,470
Incremental Bond Subtotal	\$ 524,776
Reclamation Bond Subtotal	\$ 982,689
Miscellaneous Contingency	\$ 265,326
Total Estimated Bond	\$ 1,248,016

Note: Summary values shown are rounded to the nearest whole number.

Table 3. Overburden Redistribution Estimate

Description	Unit	Base Quantity	Swell Factor	Final Quantity	Unit Cost	Subtotal	Comments
Sediment Ponds							
Sediment Pond SP-10	yd ³	39,226	100%	39,226	\$ 0.756	\$ 29,654.86	WDEQ/LQD Guideline 12 (Nov 20), Appendix E, D9R Dozer, 400 ft. distance, level grade.

Total Overburden Redistribution Estimate \$ 29,654.86

2020 Reclamation Bond
SUMMARY OF BOND COST CALCULATIONS

TASK NO.	TASK	NOTES / UNITS	AMOUNT	SUBTOTAL	TOTAL
A.	AREA BOND COSTS			Total OB BCY 109,969,196	\$ 65,770,692
B.	INCREMENTAL BOND COSTS				\$ 14,448,445
I	INC BOND - NO BOND RELEASE A			\$ 7,474,180	
II	INC BOND - NO BOND RELEASE B			\$ 169,798	
III	INC BOND - BOND RELEASED			\$ 992,633	
IV	DEMOLITION			\$ 5,811,834	
AREA + INCREMENTAL SUB-TOTAL					\$ 80,219,136
C.	CONTINGENCIES				\$ 19,925,949
1	Independent Firm to Design Project	Fixed Price		\$ 250,000	Guideline 12, page 9
2	Contractor Profit, Overhead, Mob/Demob Costs	Percentage	13.5%	\$ 10,829,583	Guideline 12, page 9
3	Preconstruction Investigation and Stabilization	Percentage	1.5 %	\$ 1,203,287	Guideline 12, page 9
4	Independent Firm to Manage Project	OSM Sliding Scale	2.25%	\$ 1,804,931	Guideline 12, Apx R, pg 41
5	Site Monitoring for 10 Years after Completion	Percentage	1. %	\$ 802,191	Guideline 12, page 9
6	Site Security and Liability Insurance	Fixed Annual Price	\$250,000 / yr	\$ 625,000	Guideline 12, page 9
7	Long-term Administration and Accounting Costs	Fixed Price		\$ 400,000	Guideline 12, page 10
8	Unknown Cost Contingency	Percentage	5. %	\$ 4,010,957	Guideline 12, page 10
D.	CAPITAL - PURCHASE A NEW 80 YD SHOVEL				\$ 28,401,000
TOTAL RECLAMATION BOND COSTS					\$ 128,546,086

* All calculations used WDEQ Guideline No. 12 Version Nov. 2020

2020 Reclamation Bond
DEMOLITION & DISPOSAL COST ESTIMATES

TASK NO.	TASK	NOTES/UNITS	QUANTITY	DEBRIS VOLUME FACTOR	UNIT COST	COST PER TASK	TASK SUBTOTAL
IV . BUCKSKIN FACILITIES							
App. H.	POWER / UTILITY LINES						\$ 36,741
1	Power lines - 69 kV	No charge (mi)	16	\$	-	\$	<i>p30, Powerline</i>
2	Telephone lines	No charge (mi)	6	\$	-	\$	<i>p30, Powerline</i>
3	Mine Fence Removal	Fence removal (lf)	99,659	\$	0.360	\$	35,877 <i>p30, Rem of Fence</i>
4	Encoal PPSR fence	Fence removal (lf)	2,400	\$	0.360	\$	864 <i>p30, Rem of Fence</i>
App. I.	ASPHALT REMOVAL						\$ 1,178
1	Parking Lots	D9T Dozer (ac)	1.9	\$	619.90	\$	1,178 <i>p31, Op Cost /Ac</i>
App. J.	CULVERTS						\$ 15,642
1	Buckskin Culverts (<i>1/2 of culverts are assumed smashed and left in place</i>)	20' CMP sections	137	\$	110.15	\$	15,091 <i>p33, Cost to Rem</i>
2	Encoal Culverts	20' CMP sections	5	\$	110.15	\$	551 <i>p33, Cost to Rem</i>

APPENDIX B-RECLAMATION BOND TABLE B1-SUMMARY			
		Tables	
<u>Area Bond (Including Backfilling, Rough and Final Grading)</u>		B2	\$ 85,110,216
<u>Incremental Bond</u>			
Topsoil Removal to Stockpile	B3		\$0
Miscellaneous Overburden Removal	B4, B5		\$1,484,594
Demolition	B6, B7, B8, B10, B11		\$2,496,729
Monitoring Structures Removal	B9		\$255,440
Scarification, Topsoil Replacement, and Revegetation	B15		\$11,317,167
Incremental Bond Subtotal =			\$15,553,931
Area and Incremental Bond Subtotal =			\$100,664,147
<u>Miscellaneous Costs</u>			
		Percentage	
Project design			\$250,000
Contractor profit, overhead, equipment owner costs, labor, mobilization and demobilization	13.5%		\$13,589,660
Preconstruction investigation	1.5%		\$1,509,962
Project management	1.8%		\$1,843,719
Environmental and utility monitoring for ten years	1.0%		\$1,006,641
Site security and liability insurance (\$250,000/yr*4.5 yrs)			\$1,125,000
Long term administration			\$375,000
Unknown Costs	5.0%		\$5,033,207
Miscellaneous Costs Subtotal =			\$24,733,190
<u>Cost of Used Large (80 yard) Stripping Shovel</u>			\$17,956,000
Annual Report Bond Total =			\$143,353,337
Annual Report Bond Total (Rounded Up) =			\$143,354,000

APPENDIX B-RECLAMATION BOND TABLE B6-DEMOLITION SUMMARY				
Item	Appendix	Quantity Unit	\$/Unit	Subtotal
Remove fence (ft)	H	21,120 ft	\$0.36	\$ 7,603
Build fence (ft)	H	30,096 ft	\$1.71	\$ 51,464
Remove cattle guard	H	2 each	\$1,620	\$ 3,240
Install cattle guard	H	2 each	\$14,750	\$ 29,500
Remove asphalt surfaces (acres)	I	24.30 ft	\$619.90	\$ 15,064
Remove bridges		ft	\$	-
Remove culverts (see Table B7)	J	ft	\$	212,810
Remove railroad track (ft)	K	46,998 ft	\$8.79	\$ 413,112
Remove railroad ballast (ft)	K	17,407 cy	\$4.30	\$ 74,849
Remove structures (see Table B8)	K		\$	1,689,088
			\$	2,496,729

Notes:

1. The Appendix Column refers to the appendix in WDEQ-LQD Guideline 12.
2. The unit linear cost to remove ballast includes the WDEQ-LQD Guideline 12 Appendix K cost to remove ballast
3. Fence to be removed is assumed to be existing fence outside of the bond affected area. Fence to be built is

APPENDIX B-RECLAMATION BOND												
TABLE B8-INCREMENTAL BOND-STRUCTURES DEMOLITION												
		Material	Units	Length (ft)	Width (ft)	Perimeter (ft)	Area (sf)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)
Description									Demolition Volume Subtotal (cy)	Disposal Volume Subtotal (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)
												Subtotal
Administration Building	Roof	Steel	1	120	100	440	12000	1	444	444	974	\$ 4,329
	Walls	Steel	1	120	100	440	12000	14	6222	228	974	\$ 2,222
	Floor	Concrete	1	205	100	610	20500	1	759	759	916	\$ 6,955
	Foundation	Concrete	1	120	100	440	12000	4	65	65	916	\$ 597
Maintenance Shop (first three bays)	Roof	Steel	1	100	144	488	14400	1	533	533	974	\$ 5,195
	Walls	Steel	1	100	144	488	14400	62	33067	1,121	974	\$ 10,915
	Floor	Concrete	1	100	144	488	14400	1	533	533	916	\$ 4,885
	Foundation	Concrete	1	100	144	488	14400	4	72	72	916	\$ 662
Maintenance Shop (fourth bay)	Roof	Steel	1	120	150	540	18000	1	667	667	974	\$ 6,493
	Walls	Steel	1	120	150	540	18000	62	41333	1,240	974	\$ 12,078
	Floor	Concrete	1	120	150	540	18000	1	667	667	916	\$ 6,107
	Foundation	Concrete	1	120	150	540	18000	4	80	80	916	\$ 733
Warehouse	Roof	Steel	1	96	100	392	9600	1	356	356	974	\$ 3,463
	Walls	Steel	1	96	100	392	9600	27	9600	392	974	\$ 3,818
	Floor	Concrete	1	138	100	476	13800	1	511	511	916	\$ 4,682
	Foundation	Concrete	1	96	100	392	9600	4	58	58	916	\$ 532
Guard Shack	Roof	Steel	1	42	15	114	630	1	23	23	974	\$ 227
	Walls	Steel	1	42	15	114	630	10	233	42	974	\$ 411
	Floor	Concrete	1	42	15	114	630	1	23	23	916	\$ 214
	Foundation	Concrete	1	42	15							\$ 2,906
Primary Crusher	Roof	Steel	1	98	48	292	4704	1	174	174	974	\$ 1,697
	Walls at Elevation 4527 (building)	Steel	1	98	48	292	4704	15	2613	162	974	\$ 1,580
	Walls at Elevation 4512	Concrete	1	98	48	292	4704	26	281	281	916	\$ 2,576
	Walls at Elevation 4486	Concrete	1	98	39	274	3822	21	213	213	916	\$ 1,952
Foundation at Elevation 4465	Walls at Elevation 4465	Concrete	1	98	24	244	2352	22	199	199	916	\$ 1,821
	Floor	Concrete	1	98	24	244	2352	1	87	87	916	\$ 798
	Foundation footing at Elevation 4443	Concrete	1	98	24	244	2352	4	36	36	916	\$ 331
		Concrete	1	98	24	244	2352					\$ 37,468
Crusher Dust Collectors	Roof	Steel	1	65	35	200	2275	1	84	84	974	\$ 821
	Walls	Steel	1	65	35	200	2275	20	1685	148	974	\$ 1,435
	Floor	Concrete	1	135	65	400	8775	1	325	325	916	\$ 2,977
												\$ 20,685
Drive House	Roof	Steel	1	84	54	276	4536	1	168	168	974	\$ 1,636
	Walls	Steel	1	84	54	276	4536	35.6	5981	364	974	\$ 3,544
	Floor	Concrete	1	84	54	276	4536	0.7	112	112	916	\$ 1,026
	Foundation	Concrete	1	84	54	276	4536	4	41	41	916	\$ 375
Conveyor Galleries	Walls	Steel	1	14	14	56	196	520	3775	1,079	974	\$ 10,505
												\$ 38,023
Silos	Roof	Concrete	4	35	220	3848	1	143	570	570	916	\$ 5,222
	Floor elevated	Concrete	4	35	220	3848	2.5	356	1425	1,425	916	\$ 13,056
	Wall	Concrete	4	35	220	3848	200	1629	6516	6,516	916	\$ 59,686
	Floor	Concrete	4	35	220	3848	1.0	143	570	570	916	\$ 5,222
Footing	Footing	Concrete	4	40	251	5027	2.5	465	1862	1,862	916	\$ 17,053
												\$ 31,630
												\$ 185,925
												\$ 52,603
Silo Headhouse	Roof	Concrete	2	58	52	220	8495	1	315	315	916	\$ 5,764
	Walls	Steel	2	58	52	220	3016	55	6144	896	974	\$ 8,730
												\$ 98,305
	Topoff Bin and Conveyors											\$ 108,996

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APPENDIX B-RECLAMATION BOND												
TABLE B8-INCREMENTAL BOND-STRUCTURES DEMOLITION												
		Material	Units	Length (ft)	Width (ft)	Perimeter (ft)	Area (sf)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)
Description									Demolition Volume Subtotal (cy)	Disposal Volume Subtotal (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)
												Subtotal
Roof	Roof	Steel	1	25	12.5	79	491	1	18	18	974	\$ 177
	Walls	Steel	1	25	12.5	79	491	80	1454	233	974	\$ 2,267
	Pillars	Concrete	24		1.5	9	7	5	1	31	916	\$ 288
												\$ 13,713
Scales	Foundation	Steel	2	165	2	334	330	1	12	25	974	\$ 241
												\$ 421
Scale Houses	Roof	Steel	2	22	10	64	220	1	8	16	974	\$ 159
	Walls	Steel	2	22	10	64	220	10	81	24	974	\$ 462
	Foundation	Concrete	2	22	10	64	220	4	9	19	916	\$ 174
	Floor	Concrete	2	22	10	64	220	1.0	8	16	916	\$ 149
Stilling Shed	Roof	Steel	1	85	37	244	3145	1.0	116	116	974	\$ 1,135
	Walls	Steel	1	85	37	244	3145	59.8	6969	541	974	\$ 5,267
	Foundation	Concrete	1	85	37	244	3145	4	36	36	916	\$ 331
												\$ 58,672
Oil Storage Building	Roof	Steel	1	50	35	170	1750	1	65	65	974	\$ 631
	Walls	Steel	1	50	35	170	1750	50	3241	315	974	\$ 3,066
	Foundation	Concrete	1	170	1	342	170	4	51	51	916	\$ 464
	Floor	Concrete	1	50	35	170	1750	1	65	65	916	\$ 594
Utilities Building Add On	Roof	Steel	1	45	60	210	2700	1	100	100	974	\$ 974
	Walls	Steel	1	45	60	210	2700	18	1800	140	974	\$ 1,364
	Foundation	Concrete	1	210	1	422	210	4	63	63	916	\$ 573
	Floor	Concrete	1	48	63	222	3024	0.7	75	75	916	\$ 684
Utilities Building	Roof	Steel	1	50	48	196	2400	1	89	89	974	\$ 866
	Walls	Steel	1	50	48	196	2400	14	1244	102	974	\$ 990
	Foundation	Concrete	1	186	1	374	186	4	55	55	916	\$ 508
	Floor	Concrete	1	48	45	186	2160	0.7	53	53	916	\$ 489
MK Warehouse	Roof	Steel	1	67	81	296	5427	1	201	201	974	\$ 1,958
	Walls	Steel	1	67	81	296	5427	25	5025	274	974	\$ 2,669
	Foundation	Concrete	1	316	1	634	316	4	94	94	916	\$ 860
	Floor	Concrete	1	77	81	316	6237	0.7	154	154	916	\$ 1,411
Loop Warehouse	Roof	Steel	1	160	80	480	12800	1	474	474	974	\$ 4,617
	Walls	Steel	1	160	80	480	12800	30	14222	533	974	\$ 5,195
	Foundation	Concrete	1	480	1	962	480	4	143	143	916	\$ 1,305
	Floor	Concrete	1	160	80	480	12800	1	474	474	916	\$ 4,343
MCC Building	Roof	Steel	1	48	24	144	1152	1	43	43	974	\$ 416
	Walls	Steel	1	48	24	144	1152	15	640	80	974	\$ 779
	Foundation	Concrete	1	144	1	290	144	4	43	43	916	\$ 394
	Floor	Concrete	1	48	24	144	1152	0.7	28	28	916	\$ 261
Well House	Roof	Steel	1	17.3	11.3	57	196.4	1	7	7	974	\$ 71
	Walls	Steel	1	17.3	11.3	57	196.4	10	73	21	974	\$ 207
	Foundation	Concrete	1	58.7	1	119	58.7	4	18	18	916	\$ 162
	Floor	Concrete	1	17.3	11.3	57	196.4	1	7	7	916	\$ 67
Paint Shed	Roof	Concrete	1	12	12	48	144	1	5	5	916	\$ 49
	Walls	Concrete	1	12	12	48	144	10	18	18	916	\$ 163
	Foundation	Concrete	1	48	1	98	48	4	15	15	916	\$ 133
												\$ 247

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Table 4. Demolition and Facilities Removal Incremental Bond

Item	Dimmensions	Volume/Length (cy)/(sq.ft)/cu.ft.(ft)	Unit	Volume (cy)	Source	Unit Cost (\$/yd:/Ac/lin.ft)	Total Cost	Released Costs	Total Cost Remaining
Demolition									
Fences		0			Appendix H	\$ 0.36	\$ -	\$ -	\$ -
Powerlines, Transformers		3,570	ft.		Appendix H	\$ -	\$ -	\$ -	\$ -
Culverts ***		140	ft.		Appendix J	\$ 5.51	\$ 771.05	\$ 771.05	\$ -
Railroads	none	0							
Facilities	none	0							
Office Building	none	0			Appendix K	\$ 0.27	\$ -	\$ -	\$ -
Water Supply Wells (Abandonment) ***		595	ft.		Appendix L	\$ 4.40	\$ 2,618.00	\$ 2,618.00	\$ -
Water Supply Wells (Capping/Disposal/Location) ***		1	ea		Appendix L	\$ 50.00	\$ 50.00	\$ 50.00	\$ -
Water Supply Wells (Pedestal Disposal) ***		1	ea		Appendix L	\$ 100.00	\$ 100.00	\$ 100.00	\$ -
Water Supply Wells (Seeding)*		0	ea		Appendix L	\$ 50.00	\$ -	\$ -	\$ -
Water Supply Wells *** (Mobilization)**		0.5	proj.		Appendix L	\$ 1,000.00	\$ 500.00	\$ 500.00	\$ -
Scales	none	0							
Wheel Wash	none	0							
Explosive Magazines	none	0							
Water Tank ***	18'X24'	6,107	cu. ft.		Appendix K	\$ 0.27	\$ 1,648.96	\$ 1,648.96	\$ -
Fuel Tank ***	8'X27'	1,357	cu. ft.		Appendix K	\$ 0.27	\$ 366.44	\$ 366.44	\$ -
Lubricant Storage ***	8'X16	804	cu. ft.		Appendix K	\$ 0.27	\$ 217.15	\$ 217.15	\$ -
Anti-Freeze Storage ***	8'X16	804	cu. ft.		Appendix K	\$ 0.27	\$ 217.15	\$ 217.15	\$ -
Maintenance Building (Demolition) ***	40'X100'X30'	120,000	cu. ft.		Appendix K	\$ 0.27	\$ 32,400.00	\$ 32,400.00	\$ -
Maintenance Building (Disposal) ***		667	cy		Appendix K	\$ 9.74	\$ 6,493.33	\$ 6,493.33	\$ -
Maintenance Building (Concrete Slab) ***	40'X100'X1/2'	4,000	sq. ft.	74	Appendix K	\$ 0.78	\$ 3,120.00	\$ 3,120.00	\$ -
Maintenance Building (Concrete Aprons) ***	24X10X1/2'1	480	sq. ft.	9	Appendix K	\$ 0.78	\$ 374.40	\$ 374.40	\$ -
Maintenance Building (Concrete Footings) ***		280	ln. ft.	28	Appendix K	\$ 15.96	\$ 4,468.80	\$ 4,468.80	\$ -
Maintenance Building (Concrete Disposal/On Site) ***				111	Appendix K	\$ 9.16	\$ 1,013.25	\$ 1,013.25	\$ -
Mineral Handling Facilities	none	0			Appendix K				
Support Facilities	none	0			Appendix K				
Subtotal Demolition						\$54,359	\$54,359	\$0	
Removal of Monitoring Structures									
			Units		Source	(\$/ft.) / (\$/ea)			
Groundwater Monitoring Wells (Abandonment)	20,646	Linear Feet			Appendix L	\$ 3.00	\$ 61,938.00	\$ 61,938.00	\$ -
Groundwater Monitoring Wells (Capping/Disposal/Location)	59	Linear Feet			Appendix L	\$ 50.00	\$ 2,950.00	\$ 2,950.00	\$ -
Groundwater Monitoring Wells (Pedestal Disposal)	59	Number of Wells			Appendix L	\$ 100.00	\$ 5,900.00	\$ 5,900.00	\$ -
Groundwater Monitoring Wells (Seeding)	59	Number of Wells			Appendix L	\$ 50.00	\$ 2,950.00	\$ 2,950.00	\$ -
Groundwater Monitoring Wells (Mobilization)**	0.5	Projects			Appendix L	\$ 1,000.00	\$ 500.00	\$ 500.00	\$ -
Surface Water Monitoring Stations	0	Number of Stations			Appendix N	\$ 2,112.00	\$ -	\$ -	\$ -
Meteorological/air Quality Monitoring Sites ***	1	Number of Stations			Appendix O	\$ 799.20	\$ 799.20	\$ 799.20	\$ -
Subtotal Removal of Monitoring Structures						\$ 75,037.20	\$ 75,037.20	\$ -	
Exploration									
Exploration Drill Hole Reclamation		0	Number of Drill Holes		Appendix L		0		
Total Demolition Facilities Removal and Drill Hole Incremental Bond						\$0			

* Costs of ReGrading and Seeding of the one existing water supply well are included within the Site Liability Bond
** Mobilization costs of \$1,000 dollars per project were split in half between Water Supply Wells and Groundwater Monitoring Well Reclamation as both of these would be completed in one trip by a contractor.
*** Approval of TFN 7 6/013 facilitated the permanent status of the remaining general support facilities.

THUNDER BASIN COAL COMPANY
COAL CREEK MINE - PERMIT #483

RECLAMATION BOND
January, 2021

TABLE 1
Coal Creek Mine - Reclamation Bond Summary
August 2021 to January 2022 Bond Period

		<i>Estimated Costs for Current Report Period (1)</i>
I. AREA BOND	Backfill	\$ 7,820,729
	Rough Grade Backfill	\$ -
	Final Grade Backfill	\$ 131,700
	<i>Area Bond Subtotal</i>	<i>\$ 7,952,400</i>
II. INCREMENTAL BOND	Native Topsoil Removal	\$ -
	Native Overburden Removal	\$ -
	Overburden Redistribution	\$ 435,317
	Demolition	\$ 3,086,320
	Removal of Monitoring Structures	\$ 50,872
	Diesel Recovery Clean-Up*	\$ 50,000
	Scarification of All Compacted Surfaces	\$ 140,910
	Topsoil Redistribution on All Disturbed Areas	\$ 2,793,716
	Revegetation of All Disturbed Areas	\$ 1,933,600
	Reclamation Status of All Disturbed Lands	\$ 386,320
	Reclamation of Exploratory Drill Holes	\$ -
	<i>Incremental Subtotal</i>	<i>\$ 8,877,100</i>
<i>Area and Incremental Total</i>		<i>\$ 16,829,500</i>
Contingency costs not applicable Reclamation Status of all Disturbed Lands		
<i>Area and Incremental Total (Contingency Applicable)</i>		<i>\$ 16,829,500</i>
Contingencies:		
Miscellaneous Items (Table II-L-1)		\$ 3,876,512
Unknown Costs (5% - Guideline 12)		\$ 841,500
Rounding Amount		\$ 488
<i>Contingencies Subtotal</i>		<i>\$ 4,718,500</i>
O. Cost to Relocate Shovel from Black Thunder Mine		\$ 1,143,631
RECLAMATION BOND TOTAL		\$ 22,691,600
Note: <i>Explanatory text for this bond calculation follows the presentation of the individual tables.</i>		

Table II-E-1
Summary of Demolition Costs

Item	Units	Unit Costs		Costs
Fences				
Removal of existing fence	6.0 miles	\$ 1,900.80	\$/mile	\$11,405
Removal of existing electric fence	- miles	\$ 950.40	\$/mile *	\$0
Removal of chain link fence	- feet	\$ 28.85	\$/ft	\$0
Installation of new fence	4.0 miles	\$ 9,029	\$/mile	\$36,115
Powerlines				
Removal of powerlines (See text)				\$0
Hard-surfaced roads				
Asphalt ripping, roads and parking lots	5.9 acres	\$ 619.90	\$/ac.	\$3,670
Asphalt disposal on site	3,184.0 cu yd	\$ 9.16	\$/cy yd	\$29,165
Bridges				
Cost to remove all bridges (See text)				\$14,129
Culverts				
Culvert removal (See Table II-E-2)	200 sections	\$ 110.15	\$/sec.	\$22,036
Railroads				
Track removal	46,900 feet	\$ 8.79	\$/ft	\$412,251
Track salvage	46,900 feet	\$ -		\$0
Ballast and subballast removal	46,321 cu yd	\$ 4.30	\$/cu yd	\$199,180
Building and Facilities Removal				
Facility Buildings (Table II-E-3)				\$1,488,996
Material Handling Facilities (Table II-E-4)				\$655,172
Support Facilities (Table II-E-5)				\$214,201
Total Cost for Demolition				\$3,086,320

* Unit cost for electric fence removal based on one half of the normal fence removal cost based on September 1, 1994 telephone conversation with Doug Emme.

Table II-E-3
Facility Buildings To Be Removed

	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Administration Building	L.S.	153,600	5,689	\$0.27	\$43,008
Change House	L.S.	222,480	8,240	\$0.27	\$62,294
Mechanical / Electrical Shop	L.S.	318,240	11,787	\$0.27	\$89,107
Maintenance Shop and Warehouse	L.S.	1,991,944	73,776	\$0.27	\$557,744
Foundation Removal	E.C.	520,506	19,278	\$0.29	\$156,537
Building Disposal	Disposal		32,832	\$9.74	\$319,785
Concrete Disposal (9,163 c.y.)	C.D.		28,441	\$9.16	\$260,520
Total					\$1,488,996
Net Building Demolition & Disposal Costs					\$1,488,996

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12

- A.W. = All Wood
- C.D. = Concrete Disposal
- E.A. = Explosive Demolition, All Buildings
- E.C. = Explosive Demolition, Concrete
- L.C. = Large Concrete Building
- L.S. = Large Steel Building
- S.C. = Small Concrete Building
- S.S. = Small Steel Building

(Summarized in Table II-E-1)

Table II-E-4
Material Handling Facilities To Be Removed

	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Conveyors	L.S.	392,542		\$0.27	\$105,986
Conveyor Drive House	L.S.	123,800		\$0.27	\$33,426
Dust Collectors	S.S.	60,100		\$0.27	\$16,227
Primary Crusher	L.S.	240,000		\$0.27	\$64,800
Secondary Crusher	L.S.	360,000		\$0.27	\$97,200
Silo Headhouse and Support Bld	L.S.	125,000		\$0.27	\$33,750
Silos (2)	E.C.	175,840		\$0.29	\$50,994
Batch Loadout	L.S.	55,000		\$0.27	\$14,850
Take-Up Tower	S.S.	25,200		\$0.27	\$6,804
Transport Airlock Building	S.S.	18,000		\$0.27	\$4,860
Building Disposal	Disposal	1,399,642	17,107	\$9.74	\$166,620
Concrete Disposal	C.D.	175,840	6,513	\$9.16	\$59,655
					\$655,172
Net Building Demolition & Disposal Costs					\$655,172 (Summarized in Table II-E-1)

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
C.D. = Concrete Disposal
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
L.C. = Large Concrete Building
L.S. = Large Steel Building
S.C. = Small Concrete Building
S.S. = Small Steel Building
F.R. = Foundation Removal

Table II-E-5
Support Facilities To Be Removed

	Building Type	Building Volume (C.F.)	Disposal Volume (cu yd)	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Building No. 4 (Emer. generators)	S.S.	18,000		\$0.27	\$4,860
Building No. 6 (Electric room)	S.S.	18,000		\$0.27	\$4,860
Diesel fuel storage tanks	L.S.	33,400		\$0.27	\$9,018
Electric Room 2	S.S.	14,250		\$0.27	\$3,848
Gasoline tanks and pumps	S.S.	1,300		\$0.27	\$351
Guard shack	S.S.	3,000		\$0.27	\$810
Pump houses 1 through 5	S.S.	8,000		\$0.27	\$2,160
Solar panel area	S.S.	30,000		\$0.27	\$8,100
Substations (3)	S.S.	90,000		\$0.27	\$24,300
Track scales / house	S.C.	3,200		\$0.27	\$864
Utility Building w Prep Plant / Lab	L.S.	231,700		\$0.27	\$62,559
Sewage Treatment Lagoons	lump	1		\$5,000	\$5,000
Remove underground water line at SP-7					\$3,000
Light and Power Poles	poles		308	\$100	\$30,800
Disposal costs	Disposal	450,850	5,510	\$9.740	\$53,671
					Total \$214,201 (Summarized in Table II-E-1)
Net Building Demolition & Disposal Costs		\$214,201			

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
C.D. = Concrete Disposal
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
L.C. = Large Concrete Building
L.S. = Large Steel Building
S.C. = Small Concrete Building
S.S. = Small Steel Building

The overall bond estimate is shown in Table V-1 below.

Table V-1 Bond Summary				
	BCY'S (1000)		\$/Task (1000's)	Total \$ (1000's)
Truck/Shovel Polygons	77,201.0		\$ 46,373	
657G Scraper Areas	1,022.0		\$ 721	
D11R Carry Dozer Polygons	61,679.0		\$ 30,424	
Subtotal - Area Bond	139,902.0		\$ 77,518	\$ 77,518
Surface Preparation & Revegetation			\$ 12,901	
Total Topsoil Placed	16,772.2		\$ 9,731	
Facilities & Structures Demolition			\$ 10,206	
Subtotal - Incremental Bond			\$ 32,838	\$ 110,356
Contingency Items				
	Rate	Years		
Project Design	\$ 250,000	1	\$ 250	
Profit, Mob./Demob.	13.50%		\$ 14,898	
Preconstruction Work	1.50%		\$ 1,655	
Project Management	2.00%		\$ 2,207	
Post Mine Monitoring	1.00%		\$ 1,104	
Site Security and Liability Insurance	\$ 250,000	7	\$ 1,750	
Administration & Accounting	\$ 505,000	1	\$ 505	
Unknowns / Miscellaneous	5.00%		\$ 5,518	
Subtotal - Administration, Profit, Overhead and Contingencies			\$ 27,887	\$ 138,243
Shovel Capital (25 year asset used 5 years) In Antelope's Bond				
	\$ -			
Disassemble, Transport and Reassemble (Antelope to Cordero Rojo)				
	\$ 1,884			
Nelson Brothers Mining Services, LLC Operations Site Bond				
	\$ 1,127			
Total Bond Estimate (including Nelson Brothers Site)				\$ 141,254
Total Bond Estimate (without Nelson Brothers Site)				\$ 140,127
Notes				
1. Shovel Cost (Guideline 12 Costs for 80CY Shovel) In Antelope's Bond	\$27,935,000			
2. Reclamation cost estimate is based on projected 2019-20 disturbance				

Table V-4 Facilities Demolition									
Loc.	Structures & Const. Types	Quantity	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	On-site Disposal \$/Unit	\$ (1000's)	Notes/Source
Underground Reinforced Concrete Structures: 12" Thick w/ rebar									
CRM	1.0 Truck Dump and Crusher	84,090 CF							2019 RS Means Hwy Const Cost Data and App K
CRM	1.1 Concrete Structure	6,397 CF							2019 RS Means Hwy Const Cost Data and App K
CRM	1.2 Concrete Foundation	322,976 CF							Appendix K
CRM	1.3 Steel Structures								
CRM	2.0 Truck Dump and Crusher	64,236 CF							2019 RS Means Hwy Const Cost Data and App K
CRM	2.1 Concrete Structure	5,237 CF							2019 RS Means Hwy Const Cost Data and App K
CRM	2.2 Concrete Foundation	241,105 CF							Appendix K
CRM	2.3 Steel Structures								
CRM	3.0 Slot Storage								
CRM	3.1 Concrete Roof/Floor Slabs	61,000 CF							2019 RS Means Hwy Const Cost Data and App K
CRM	3.2 Concrete Reinforced Walls	82,400 CF							2019 RS Means Hwy Const Cost Data and App K
Other Facility Structures: Floor Slabs - 6" thick w/ rebar									
CRM	4.0 Reinforced Earth Walls	10,020 CF							Appendix K (3/4 COST FOR CONCRETE)
CRM	5.0 Transfer Station								
CRM	5.1 Concrete Foundation	4,622 LF							Appendix K
CRM	5.2 Steel Buildings	295,877 CF							Appendix K
CRM	6.0 Conveyors								
CRM	6.1 Concrete Bents	4,464 CF							Appendix K
CRM	6.2 Steel (3350' long X 8' H X 4' wide)	107,200 CF							Appendix K
CRM	6.3 Conveyor Gallery (3350' long X 5' high X 5' wide)	83,750 CF							Appendix K
CRM	7.0 Conveyors								
CRM	7.1 Concrete Bents	68,940 CF							Appendix K
CRM	7.2 Steel Bents	3,614 CF							Appendix K
CRM	7.3 Steel Beams	735 CF							Appendix K
CRM	7.4 Conveyor Gallery	166,320 CF							Appendix K
CRM	8.0 Baghouse								
CRM	8.1 Removed 2004								
CRM	9.0 Headhouse and Elev.								
CRM	9.1 Steel Building	262,602 CF							Appendix K
CRM	10.0 Silos and Loadout								
CRM	10.1 Structural Steel	184,000 CF							Appendix K
CRM	10.2 Concrete Foundation	12,000 LF							Appendix K
CRM	10.3 Concrete Structure	180,681 CF							Appendix K
CRM	11.0 Silos and Loadout								
CRM	11.1 Concrete Structure	130,516 CF							Appendix K
CRM	11.2 Concrete Foundation	10,508 LF							Appendix K
CRM	11.3 Structural Steel	178,192 CF							Appendix K

Table V-4 Facilities Demolition (continued pg 2)

Loc.	Structures & Const. Types	Quantity	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	On-site Disposal \$/Unit	\$ (1000's)	Equip or Reference Section	Notes/Source
CRM	12.0 Reclamation Shed/Barrel Storage	120,000 CF				\$	0.280 \$	0.309 \$	71	Appendix K
CRM	12.1 Mixed Structure	8,300 SF				\$	0.760 \$	0.309 \$	9	Appendix K
CRM	12.2 Concrete Floor Slab (6 inches thick)									
CRM	13.0 Refueling Pad	2,500 SF				\$	1.520 \$	0.309 \$	5	Appendix K
CRM	13.1 Concrete Pad (12 inches thick)									
CRM	14.0 Track Scales	5,200 LF				\$	15.630 \$	1.854 \$	91	Appendix K
CRM	14.1 Concrete Foundation									
CRM	15.0 Truck Shop	1,841 LF				\$	15.630 \$	1.854 \$	32	Appendix K
CRM	15.1 Concrete Foundation	57,348 SF				\$	1.520 \$	0.309 \$	105	Appendix K
CRM	15.2 Concrete Slabs (12 inches thick)	830,000 CF				\$	0.280 \$	0.309 \$	489	Appendix K
CRM	15.3 Building - Mix. Of Types									
CRM	16.0 Warehouse Main	2,781 LF				\$	15.630 \$	1.854 \$	49	Appendix K
CRM	16.1 Concrete Found.	34,615 SF				\$	1.520 \$	0.309 \$	63	Appendix K
CRM	16.2 Concrete Slabs (12 inches thick)	50,000 CF				\$	0.280 \$	0.309 \$	29	Appendix K
CRM	16.3 Building - Mix. Of Types									
CRM	17.0 Warehouse/Shop (Includes Washwater Bldg/Floor)	1,750 SF				\$	15.630 \$	0.309 \$	28	Appendix K
CRM	17.1 Concrete Foundation	106,900 SF				\$	1.520 \$	0.309 \$	196	Appendix K
CRM	17.2 Concrete Floor Slab (12 inches thick)	3,497,700 CF				\$	0.280 \$	0.309 \$	2,060	Appendix K
CRM	17.3 Building - Mix. Of Types									
CRM	18.0 Warehouse Annex	1,500 LF				\$	15.630 \$	1.854 \$	26	Appendix K
CRM	18.1 Concrete Found.	8,690 SF				\$	1.520 \$	0.309 \$	16	Appendix K
CRM	18.2 Concrete Slabs (12 inches thick)	105,000 CF				\$	0.280 \$	0.367 \$	68	Appendix K
CRM	18.3 Steel Building									
CRM	19.0 Changehouse	713 LF				\$	15.630 \$	1.854 \$	12	Appendix K
CRM	19.1 Concrete Found.	19,656 SF				\$	0.760 \$	0.309 \$	21	Appendix K
CRM	19.2 Concrete Slab (6 inches thick)	14,700 SF				\$	0.280 \$	0.309 \$	9	Appendix K
CRM	19.3 Block Walls	215,190 CF				\$	0.280 \$	0.367 \$	139	Appendix K
CRM	19.4 Structural Steel									
CRM	20.0 Primary Building	380 LF				\$	15.630 \$	1.854 \$	7	Appendix K
CRM	20.1 Concrete Found.	9,000 SF				\$	1.520 \$	0.309 \$	16	Appendix K
CRM	20.2 Concrete Slab (12 inches thick)	200,000 CF				\$	0.280 \$	0.309 \$	118	Appendix K
CRM	20.3 Mixed of Types									
CRM	21.0 Office Buildings	1,287 LF				\$	15.630 \$	1.854 \$	23	Appendix K
CRM	21.1 Concrete Found.	9,500 SF				\$	0.760 \$	0.309 \$	10	Appendix K
CRM	21.2 Concrete Slab (6 inches thick)	150,000 CF				\$	0.280 \$	0.367 \$	97	Appendix K
CRM	21.3 Structural Steel									
CRM	22.0 Lube/Wash Building	1,231 LF				\$	15.630 \$	1.854 \$	22	Appendix K
CRM	22.1 Concrete Found.	47,250 SF				\$	1.520 \$	0.309 \$	86	Appendix K
CRM	22.2 Concrete Slab (12 inches thick)	268,380 CF				\$	0.280 \$	0.367 \$	174	Appendix K
CRM	22.3 Structural Steel									

Table V-4 Facilities Demolition (continued pg 3)

Loc.	Structures & Const. Types	Quantity	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	On-site Disposal \$/Unit	\$ (1000's)	Equip or Reference Section	Notes/Source
CRM	23.0 Pump and Compressor/Buildings	956 LF				\$	15.630 \$	1.854 \$	17	Appendix K
CRM	23.1 Concrete Found.	3,510 SF				\$	0.760 \$	0.309 \$	4	Appendix K
CRM	23.2 Concrete Slab (6 inches thick)	79,800 CF				\$	0.280 \$	0.367 \$	52	Appendix K
CRM	23.3 Structural Steel									
CRM	24.0 Pump House	175 LF				\$	15.630 \$	1.854 \$	3	Appendix K
CRM	24.1 Concrete Found.	1,860 SF				\$	0.760 \$	0.309 \$	2	Appendix K
CRM	24.2 Concrete Slab (6 inches thick)	15,000 CF				\$	0.280 \$	0.309 \$	9	Appendix K
CRM	24.3 Mixed of Types									
CRM	25.0 Sewage Treatment Plant	200 LF				\$	15.630 \$	1.854 \$	3	Appendix K
CRM	25.1 Concrete Found.	2,260 SF				\$	0.760 \$	0.309 \$	2	Appendix K
CRM	25.2 Concrete Slab (6 inches thick)	18,900 CF				\$	0.280 \$	0.309 \$	11	Appendix K
CRM	25.3 Mixed of Types									
CRM	26.0 Lube Storage (50x50) + Building 12x12	0 LF				\$	15.630 \$	1.854 \$	-	Appendix K
CRM	26.1 Concrete Found.	2,500 SF				\$	0.760 \$	0.309 \$	3	Appendix K
CRM	26.2 Concrete Slab (6 inches thick)	1,152 CF				\$	0.280 \$	0.309 \$	1	Appendix K
CRM	26.3 Mixed of Types									
CRM	27.0 Shop Changehouse Addition 2003 (60x40)	200 LF				\$	15.630 \$	1.854 \$	3	Appendix K
CRM	27.1 Concrete Found.	2,400 SF				\$	0.760 \$	0.309 \$	3	Appendix K
CRM	27.2 Concrete Slab (6 inches thick)	19,200 CF				\$	0.280 \$	0.309 \$	11	Appendix K
CRM	27.3 Mixed of Types									
CRM	28.0 Pole Barn (Water Crew)	0 LF				\$	15.630 \$	1.854 \$	-	Appendix K
CRM	28.1 Concrete Found.	8,000 SF				\$	0.760 \$	0.309 \$	9	Appendix K
CRM	28.2 Concrete Slab (6 inches thick)	96,000 CF				\$	0.280 \$	0.309 \$	57	Appendix K
CRM	28.3 Mixed of Types									
CRM	29.0 Administration Building	550 LF				\$	15.630 \$	1.854 \$	10	Appendix K
CRM	29.1 Concrete Found.	11,600 SF				\$	0.760 \$	0.309 \$	12	Appendix K
CRM	29.2 Concrete Slab (6 inches thick)	67,210 CF				\$	0.280 \$	0.309 \$	40	Appendix K
CRM	29.3 Mixed of Types									
CRM	30.0 Stilling Shed (No concrete)	126,000 CF				\$	0.280 \$	0.309 \$	74	Appendix K
CRM	30.1 Mixed of Types									
CRM	31.0 Secondary Building	600 LF				\$	15.630 \$	1.854 \$	10	Appendix K
CRM	31.1 Concrete Found.	16,780 SF				\$	1.520 \$	0.309 \$	31	Appendix K
CRM	31.2 Concrete Slab (12 inches thick)	500,000 CF				\$	0.280 \$	0.309 \$	295	Appendix K
CRM	31.3 Mixed of Types									
CRM	32.0 Bridges	1,600 CF				\$	0.280 \$	0.309 \$	1	Appendix K
CRM	32.1 Mixed of Types									
CRM	32.2 South Pt BFR Crossing	200 LF				\$	206.133	-	41	Section 02 41 13.40 0340 (factored up to 50ft)
CRM	32.2a Culvert Material (25ft high x 50ft wide x 200ft long)	0 CY				\$	0	-	-	2019 R5 Means Heavy Construction Cost Data
CRM	32.2b Fill around the culvert (part of the area bond volumes)					\$	0	-	-	

Table V-4 Facilities Demolition (continued pg 4)

Loc.	Structures & Const. Types	Quantity	Units	Dist (ft)	Grade (%)	Demolition \$/Unit	On-site Disposal \$/Unit	\$ (1000's)	Equip or Reference Section	Notes/Source
CRM	33.0 Guard Shack	130	LF			\$	15,630 \$	1,854 \$	2	Appendix K
CRM	33.1 Concrete Found.	15,957	SF			\$	0,760 \$	0,309 \$	1	Appendix K
CRM	33.2 Concrete Slab (6 inches thick)	9,000	CF			\$	0,280 \$	0,309 \$	5	Appendix K
CRM	33.3 Mixed of Types									
CRM	34.0 Misc. Buildings	1,881	LF			\$	15,630 \$	1,854 \$	33	Appendix K
CRM	34.1 Concrete Found.	15,957	SF			\$	0,760 \$	0,309 \$	17	Appendix K
CRM	34.2 Concrete Slab (6 inches thick)	124,502	CF			\$	0,280 \$	0,367 \$	81	Appendix K
CRM	34.3 Structural Steel									
CRM	35.0 Electrical	1,000	SF			\$	0,760 \$	0,309 \$	1	Appendix K
CRM	35.1 Substation Concrete	33,180	CF			\$	0,280 \$	0,309 \$	20	Appendix K
CRM	35.2 Substation Structure									
CRM	35.3 Elec. Dist. Lines - Salvaged by Owner									
CRM	35.4 69 KV Line Salvaged by Owner									
CRM	35.5 Manholes	31	EA			\$	347,000 \$	- \$	11	2019 RS Means Heavy Construction Cost Data
CRM	36.0 Water Distribution									
CRM	36.1 Hydrants	15	EA			\$	484,500 \$	- \$	7	2019 RS Means Heavy Construction Cost Data
CRM	36.2 Water Piping 4"	26,689	LF			\$	11,310 \$	0,119 \$	305	2019 RS Means Hwy Const Cost Data/Appendix K
CRM	37.0 Tanks	6,000	CF			\$	0,280 \$	- \$	2	Appendix K
CRM	37.1 Raw Water - Salvage	4,500	CF			\$	0,280 \$	- \$	1	Appendix K
CRM	37.2 Diesel - Salvage	1,000	CF			\$	0,280 \$	- \$	-	Appendix K
CRM	37.3 Used Oil - Salvage	200	CF			\$	0,280 \$	- \$	-	Appendix K
CRM	37.4 Septic - Salvage									
CRM	38.0 Fencing	2,040	LF			\$	1,740 \$	- \$	4	Appendix H
CRM	38.1 Security Fence	18,130	LF			\$	0,300 \$	- \$	5	Appendix H
CRM	38.2 Barbed Wire (removal)	3	EA			\$	926,100 \$	- \$	3	Estimate
CRM	38.3 Cattle Crossings									
CRM	39.0 Roads	6	AC			\$	663,140 \$	- \$	4	Appendix I
CRM	39.1 Rip asphalt with D9R Dozer	0	CF			\$	- \$	- \$	-	Appendix K
CRM	39.2 Asphalt Disposal 3"	420				\$	112,000 \$	0,309 \$	47	Appendix J
CRM	39.3 Culvert Removal (105 X 4, 20' sections)									
CRM	40.0 Railroad	72,637	LF			\$	8,790 \$	- \$	638	Appendix K
CRM	40.1 Ties and Track - Single	36,000	LF			\$	17,580 \$	- \$	633	Appendix K
CRM	40.2 Ties and Track - Double	202,200	CY			\$	4,490 \$	- \$	908	Appendix K
CRM	40.3 Ballast									

Dry Fork Mine, Permit 599

BOND TABLE 1
DRY FORK RECLAMATION BOND COST SUMMARY
PROJECTED THROUGH DECEMBER 31, 2020

Item	Reference	Cost (\$)
Part 1. Dry Fork Mine Area Bond (ie Pit Area Earthwork):		
Overburden Replacement in Mine Pit Areas	Table 2	18,069,257
Subtotal \$	Area	18,069,257
Part 2. Dry Fork Mine Incremental Bond:		
Borrow Areas	Table 3	468,629
Miscellaneous OB Distribution in Non-Pit Areas	Table 4	581,520
Rough & Final Grading, Topsoil Replacement, & Revegetation	Table 5	4,537,360
Retained Re-Revegetation on Reclaimed Areas	Table 6	191,867
Topsoil Re-Replacement From Reclaimed Areas	Table 7	620,754
Culvert Removal	Table 8	44,936
Building, Facility, Structure Removal & Disposal	Table 9	1,587,862
Concrete & Pavement Removal & Disposal	Table 10	104,074
Railroad Track & Ballast Removal	Table 11	226,718
GW Wells & Out of Pit Dewatering Wells	Table 12	27,040
Monitoring Stations & Powerline Removal	Table 13	8,789
Development Drill Holes	Table 14	10,900
Subtotal \$	Incremental	8,410,449
Total, Area + Incremental:		26,479,706
LQD Contingencies:		
a Engineering	\$250,000	\$250,000
b Contractor Profit, Overhead, Mob & Demob	13.5%	3,574,760
c Preconstruction Costs	1.5%	397,196
d Project Management (see sliding scale, App R)	2.6%	688,472
e Post-Reclamation Monitoring	1.0%	264,797
f Post-Reclamation Security & Liability (2.875 years)	\$250,000	718,750
g Long-Term Administration & Accounting	\$315,000	315,000
h Unknown Costs	5.0%	1,323,985
Total, Overhead and Contingencies:	22.1%	7,532,961
Grand Total, Dry Fork Mine:		34,012,666
Rounded Grand Total, Dry Fork Mine:		34,100,000

BOND TABLE 9
LARGE STEEL BUILDINGS - DEMOLITION AND DISPOSAL

Bldg demolition cost, mixed type = \$0.3000 per cu ft (adjusted for this region)
Mixed Disposal cost (onsite) = \$10.8500 per cu yd (adjusted for this region)
Mixed Disposal cost (onsite) = \$0.40 per cu ft (adjusted for this region)
Total Mixed Demolition + Disposal: \$0.702 per cu ft (adjusted for this region)
Building Debris ratio to original Cu. Ft. \$0.330

Building	Cu Ft	Demolition Cost	Disposal Cost
Office/Shop/Warehouse	667,215	\$200,164.500	\$88,480.123
Transfer Building	94,500	\$28,350.000	\$12,531.750
Loadout Building	379,080	\$113,724.000	\$50,270.220
Water Pumphouse	10,976	\$3,292.800	\$1,455.540
Dust Control Pumphouses	6,016	\$1,804.800	\$797.788
Truck Wash Pumphouse	1,920	\$576.000	\$254.613
Water Tanks (1500+27000+72000)	100,500	\$30,150.000	\$13,327.417
Silo Feed Conveyor Gallery	84,008	\$25,202.400	\$11,140.394
Reclaim Conveyor Gallery	13,560	\$4,068.000	\$1,798.207
Loadout Conveyor Gallery	137,100	\$41,130.000	\$18,180.983
Transfer Building 1	4,800	\$1,440.000	\$636.533
Security Building	2,304	\$691.200	\$305.536
Coal Topper Structure	5,400	\$1,620.000	\$716.100
Truck Dump Dust Cover	39,556	\$11,866.800	\$5,245.565
Subtotal:	1,546,935	464,081	205,141

EXPLOSIVES DEMOLITION & DISPOSAL

Explosives cost per unit = \$0.320 per cu ft (adjusted)
Concrete Onsite Disposal= \$0.375 per cu ft (adjusted)
Total: \$0.695

Building	Cu Ft	Explosives Cost	Disposal Cpst
Truck Dump/Crusher	83,300	\$26,656.000	\$10,303.284
Coal Storage Silos (5)	1,987,162	\$635,891.953	\$245,789.903
Subtotal			
TOTAL BUILDING DEMOLITION AND DISPOSAL COST =			

Reference: DEQ-LQD Bond Calculation Package, Appendix K
All costs include regional adjustment factor

BOND TABLE 10
CONCRETE SLAB, FOUNDATION & PAVEMENT DEMOLITION & REMOVAL

Adjusted App K Cost demo per 6" thick w/ rebar = \$0.85 /S.F.
Adjusted App K Cost concrete onsite disposal = \$10.12 /CY
Adjusted App K Cost offsite disposal = \$10.85 /CY

Structure	Quantity ft2	Demolition Adj. \$/Unit	Demolition Cost (\$)	Remarks	Cu Yds	Disposal Adj. \$/Unit	Disposal Cost (\$)
Office/shop/whse	22683	\$1.70	\$38,561	S.F. of 1’ slab, mesh	840.11	\$10.12	\$8,502
Office/shop/whse	887	\$1.70	\$1,508	L.F. 1.5 x 2 footing	65.70	\$10.12	\$665
Main substation	900	\$1.70	\$1,530	S.F. of 1’ slab, mesh	33.33	\$10.12	\$337
Truck wash	1,200	\$1.70	\$2,040	S.F. of 1’ slab, rod	44.44	\$10.12	\$450
Truckbed sump	1,000	\$1.70	\$1,700	buried truck bed	37.04	\$10.12	\$375
Truck dump	1,190	\$1.70	\$2,023	S.F. of 1’ slab, rod	44.07	\$10.12	\$446
Five silos	7,953	\$1.70	\$13,520	S.F. of 1’ slab, rod	294.56	\$10.12	\$2,981
Loadout	2,916	\$1.70	\$4,957	S.F. of 1’ slab, rod	108.00	\$10.12	\$1,093
Transfer Bldg 1 & 2	3,200	\$1.70	\$5,440	S.F. of 1’ slab, rod	118.52	\$10.12	\$1,199
Water tanks & pumphouses	2,427	\$1.70	\$4,126	S.F. of 1’ slab, rod	89.89	\$10.12	\$910
Parking lots	6,000	\$0.85	\$5,100	S.F. of 3” pavement	222.22	\$10.12	\$2,249
Security Bldg	192	\$0.85	\$163	S.F. of 6” slab, rod	7.11	\$10.12	\$72
Car Topper	90	\$1.70	\$153	L.F. 1.5 x 2 footing	6.67	\$10.12	\$67
Fuel & solvent storage	3,121	\$0.85	\$2,653	S.F. of 1’ slab, rod	115.59	\$10.85	\$1,254
Subtotal Costs:			\$83,474				\$20,600
GRAND TOTAL:							\$104,074

Reference: DEQ-LQD Bond Calculation Package - Appendix K

BOND TABLE 11
REMOVE RAILROAD TRACK, TIES & BALLAST
IN LOADOUT LOOP

Item	Quantity	Units	Regionally Adj. \$/Unit	Reference GL 12	Cost (\$)
Track Removal	13,572	linear ft	\$9.98	App K	135,449
Ballast Removal	5,510	CY	\$4.90	App K	26,999
Concrete Disposal On-Site, 5510 cy ballast	5,510	CY	\$10.12	App K	55,761
Asphalt Access Road & Parking Lot ripping/disposal	13.73	Acres	\$619.90	App I	8,509
GRAND TOTAL:					\$226,718

Reference: DEQ-LQD Bond Calculation Package - Appendix K, Appendix I

TABLE 1
Eagle Butte Mine - Reclamation Bond Summary
May 5, 2021 to May 4, 2022 Bond Period

		<i>Estimated Costs for Current Report Period</i>
I.	AREA BOND	
	Backfill	\$40,577,000
	Rough Grade Backfill	\$0
	Final Grade Backfill	\$159,000
	Native Overburden Removal	\$21,201,316
	<i>Area Bond Subtotal</i>	<u>\$61,937,300</u>
II.	INCREMENTAL BOND	
	Native Topsoil Removal	\$249,382
	Topsoil Redistribution on All Disturbed Areas	\$4,901,712
	Overburden Redistribution	\$59,083
	Demolition	\$3,861,307
	Removal of Monitoring Structures	\$85,025
	Scarification of All Compacted Surfaces	\$166,290
	Revegetation of All Disturbed Areas	\$2,576,600
	Reclamation Status of All Disturbed Lands	\$1,999,580
	Reclamation of Exploratory Drill Holes	\$0
	<i>Incremental Subtotal</i>	<u>\$13,899,000</u>
	<i>Area and Incremental Total</i>	\$75,836,300
Contingencies:		
	Miscellaneous Items (Table 22)	\$15,200,355
	Unknown Costs (5% - Guideline 12)	\$3,791,800
	Rounding Amount	\$545
	<i>Contingencies Subtotal</i>	<u>\$18,992,700</u>
O.	Purchase price of 80 CY shovel	\$28,401,000
RECLAMATION BOND TOTAL		\$123,230,000

Table 6
Summary of Demolition Costs

Item	Units	Unit Costs		Costs
Fences				
Removal of existing fence	3.0 miles	\$ 1,901	\$/mile	\$5,789
Removal of existing electric fence	- miles	\$ 950	\$/mile *	\$0
Removal of chain link fence	7,587.0 feet	\$ 2.63	\$/ft	\$19,954
Installation of new fence	0.0 miles	\$ 9,029	\$/mile	\$0
Powerlines				
Removal of powerlines (See text)				\$0
Hard-surfaced roads				
Asphalt ripping, roads and parking lots	6.0 acres	\$ 619.90	\$/ac.	\$3,707
Asphalt disposal on site	3,215.9 cu yd	\$ 9.16	\$/cy yd	\$29,458
Bridges				
Cost to remove all bridges				\$0
Culverts				
Culvert removal (See Table 7)	540 sections	\$ 110.15	\$/sec.	\$59,525
Railroads				
Track removal	48,100 feet	\$ 8.79	\$/ft	\$422,799
Ballast and subballast removal	24,050 cu yd	\$ 4.30	\$/cu yd	\$103,415
Building and Facilities Removal				
Facility Buildings (Table 8)				\$1,360,969
Material Handling Facilities (Table 9)				\$1,463,472
Support Facilities (Table 10)				\$392,219
Total Cost for Demolition				\$3,861,307

* Unit cost for electric fence removal based on one half of the normal fence removal cost based on telephone conversation with Doug Emme.
Chain link fence removal cost from 2010 Means Building Construction Cost Data Guide (Doug Emme).

Table 8
Facility Buildings To Be Removed

Building Description		Building/ Disposal Type	Quantity	Unit	Unit Cost (\$/C.F.)	Demolition & Disposal Costs
Laboratory	bldg demolition	M.T.	43,700	cu ft	\$0.270	\$11,799
	disposal	D.A.	490	cu yd	\$9.740	\$4,773
	slab, 4" thick w rebar	S.L.04	3,600	sq ft	\$3.900	\$14,040
	Footings- 2' Thick, 3' Wide	F.R.	275	lin ft	\$15.960	\$4,389
	concrete disposal on-site	D.C.	110	cy yd	\$9.160	\$1,008
Old CBS Building	bldg demolition	M.T.	48,000	cu ft	\$0.270	\$12,960
	disposal	D.A.	360	cu yd	\$9.740	\$3,506
	slab, 8" thick w rebar	S.L.08	2,400	sq ft	\$5.460	\$13,104
	Footings- 2' Thick, 3' Wide	F.R.	200	lin ft	\$15.960	\$3,192
	concrete disposal on-site	D.C.	100	cy yd	\$9.160	\$916
Service Building Complex	bldg demolition	M.T.	1,863,900	cu ft	\$0.270	\$503,253
	disposal	D.A.	20,710	cu yd	\$9.740	\$201,715
	slab, 4" thick w rebar	S.L.04	30,260	sq ft	\$3.900	\$118,014
	slab, 12" thick w rebar	F.R.	27,200	sq ft	\$15.960	\$434,112
	Footings- 2' Thick, 3' Wide	D.A.	1,070	lin ft	\$9.740	\$10,422
	concrete disposal on-site	D.C.	1,600	cy yd	\$9.160	\$14,656
Plant Welding Shop	bldg demolition	M.T.	11,691	cu ft	\$0.270	\$3,157
	disposal	D.A.	400	cu yd	\$9.740	\$3,896
	Footings- 2' Thick, 3' Wide	F.R.	110	lin ft	\$15.960	\$1,756
	concrete disposal on-site	D.C.	33	cy yd	\$9.160	\$302
					Total	\$1,360,969 (Summarized in Table 6)

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12
A.W. = All Wood
D.A. =Disposal, average
E.A. = Explosive Demolition, All Buildings
E.C. = Explosive Demolition, Concrete
F.R. = Footing Removal
L.C. = Large Concrete Building
L.S. = Large Steel Building
M.T. = Mixed type building
S.C. = Small Concrete Building
S.L.04 = Slab Removal, 4" thick w rebar
S.L.06 = Slab Removal, 6" thick w rebar
S.L.08 = Slab Removal, 8" thick w rebar
S.L.12 = Slab Removal, 12" thick w rebar
S.S. = Small Steel Building

Table 10
Support Facilities To Be Removed

Facility/Building and Action Description	Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition & Disposal Costs
Bulk Diesel Storage (Fuel Island) Tanks and Facilities					
6 tks @ 35,000 gal demolition	S.S.	28,071	cu ft	\$0.270	\$7,579
disposal	D.A.	30	cu yd	\$9.740	\$292
Containment Structure (concrete)					
demolition	E.C.	9,300	cu ft	\$0.290	\$2,697
12" reinf concrete slab	S.L.12	3,500	sq ft	\$7.020	\$24,570
8" reinf concrete slab	S.L.08	1,700	sq ft	\$5.460	\$9,282
9" reinf concrete slab	S.L.09	2,300	sq ft	\$5.850	\$13,455
Footings- 2' Thick, 3' Wide	F.R.	240	lin ft	\$15.960	\$3,830
concrete disposal on-site	D.C.	300	cu yd	\$9.160	\$2,748
Bulk Oil Tanks (Lube Room) Tanks and Facilities					
3 tks @ 6,000 gal demolition	S.S.	2,406	cu ft	\$0.270	\$650
2 tks @ 2,000 gal demolition	S.S.	535	cu ft	\$0.270	\$144
1 tk @ 580 gal demolition	S.S.	78	cu ft	\$0.270	\$21
1 tk @ 320 gal demolition	S.S.	43	cu ft	\$0.270	\$12
disposal	D.A.	30	cu yd	\$9.740	\$292
Containment Structure (concrete)					
demolition	E.C.	20,819	cu ft	\$0.290	\$6,038
disposal misc.	D.A.	15	cu yd	\$9.740	\$146
8" reinf concrete slab	S.L.08	1,230	sq ft	\$5.460	\$6,716
9" reinf concrete slab	S.L.09	711	sq ft	\$5.850	\$4,159
Footings- 2' Thick, 3' Wide	F.R.	140	lin ft	\$15.960	\$2,234
concrete disposal on-site	D.C.	81	cu yd	\$9.160	\$742
Gasoline Island Tanks and Facilities					
1 tk @ 15,000 gal demolition	S.S.	2,005	cu ft	\$0.270	\$541
disposal	D.A.	2	cu yd	\$9.740	\$19
Containment Structure (concrete)					
demolition	E.C.	4,275	cu ft	\$0.290	\$1,240
8" reinf concrete pvt slab	S.L.08	570	sq ft	\$5.460	\$3,112
9" reinf concrete slab	S.L.09	570	sq ft	\$5.850	\$3,335
Footings- 2' Thick, 3' Wide	F.R.	110	lin ft	\$15.960	\$1,756
concrete disposal on-site	D.C.	79	cu yd	\$9.160	\$724
Fuel Oil Storage Tanks					
2 tks @ 300,000 gal demolition	S.S.	80,203	cu ft	\$0.270	\$21,655
disposal	D.A.	70	cu yd	\$9.740	\$682
Plant Tanks					
1 tk @ 550 gal demolition	S.S.	74	cu ft	\$0.270	\$20
1 tk @ 150 gal demolition	S.S.	20	cu ft	\$0.270	\$5
1 tk @ 12,600 gal demolition	S.S.	1,684	cu ft	\$0.270	\$455
1 tk @ 8000 gal demolition	S.S.	1,069	cu ft	\$0.270	\$289
1 tk @ 8000 gal demolition	S.S.	1,069	cu ft	\$0.270	\$289
disposal	D.A.	4	cu yd	\$9.740	\$39

Table 10
Support Facilities To Be Removed

Facility/Building and Action Description	Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition & Disposal Costs
Shop Tanks					
1 tk @ 8,000 gal demolition	S.S.	1,069	cu ft	\$0.270	\$289
2 tks @ 350 gal demolition	S.S.	94	cu ft	\$0.270	\$25
2 tk @ 8,000 gal demolition	S.S.	2,139	cu ft	\$0.270	\$578
disposal	D.A.	3	cu yd	\$9.740	\$29
Tire Pad Tanks					
1 tk @ 10,000 gal demolition	S.S.	1,337	cu ft	\$0.270	\$361
disposal	D.A.	1	cu yd	\$9.740	\$10
Misc. Tanks					
1 tk @ 2,000 gal demolition	S.S.	267	cu ft	\$0.270	\$72
1 tk @ 100,000 gal demolition	S.S.	13,367	cu ft	\$0.270	\$3,609
2 tk @ 15,000 gal demolition	S.S.	4,010	cu ft	\$0.270	\$1,083
disposal	D.A.	20	cu yd	\$9.740	\$195
Fuel Island					
12" reinf concrete slab	S.L.12	1,230	sq ft	\$7.020	\$8,635
concrete disposal on-site	D.C.	81	cu yd	\$9.160	\$742
Sec 21 Diversion Drop Structures					
facility demolition	M.T.	16,200	cu ft	\$0.270	\$4,374
concrete disposal on-site	D.C.	600	cu yd	\$9.160	\$5,496
Tire Change Pad					
12" reinf concrete slab	S.L.12	5,400	sq ft	\$7.020	\$37,908
concrete disposal on-site	D.C.	200	cu yd	\$9.160	\$1,832
Truck Ready Line					
demolition	M.T.	4,050	cu ft	\$0.270	\$1,094
disposal	D.C.	1	cu yd	\$9.160	\$9
Wash Bay					
facility demolition	M.T.	129,600	cu ft	\$0.270	\$34,992
disposal	D.A.	960	cu yd	\$9.740	\$9,350
slab, 8" thick w rebar	S.L.08	2,880	sq ft	\$5.460	\$15,725
slab, 12" thick w rebar	S.L.12	1,260	sq ft	\$7.020	\$8,845
Footings- 2' Thick, 3' Wide	F.R.	220	lin ft	\$15.960	\$3,511
concrete disposal on-site	D.C.	170	cy yd	\$9.160	\$1,557
Hwy 14/16 Overpass End Spans					
facility demolition	M.T.	5,000	cu ft	\$0.270	\$1,350
disposal	D.A.	185	cu yd	\$9.740	\$1,802
slab, 8" thick w rebar	S.L.08	8,120	sq ft	\$5.460	\$44,335
slab, 12" thick w rebar	S.L.12	2,000	sq ft	\$7.020	\$14,040
Footings- 2' Thick, 3' Wide	F.R.	537	lin ft	\$15.960	\$8,571
concrete disposal on-site	D.C.	350	cy yd	\$9.160	\$3,206
Water Truck Shed					
facility demolition	M.T.	72,000	cu ft	\$0.270	\$19,440
disposal	D.A.	275	cu yd	\$9.740	\$2,679
slab, 12" thick w rebar	S.L.12	3,300	sq ft	\$7.020	\$23,166
concrete disposal on-site	D.C.	125	cy yd	\$9.160	\$1,145

Table 10
Support Facilities To Be Removed

Facility/Building and Action Description	Facility/ Disposal Type	Quantity	Unit	Unit Cost	Demolition & Disposal Costs
South LRC Diversion Drop Structure					
facility demolition	M.T.	19,675	cu ft	\$0.270	\$5,312
disposal	D.A.	704	cu yd	\$9.740	\$6,857
concrete disposal on-site	D.C.	25	cy yd	\$9.160	\$229
Total					\$392,219 (Summarized in Table 6)

Note: For Building Type and Demolition Method, See App. K of Guideline No. 12

- A.W. = All Wood
- D.A. =Disposal, average
- E.A. = Explosive Demolition, All Buildings
- E.C. = Explosive Demolition, Concrete
- F.R. = Footing Removal
- L.C. = Large Concrete Building
- L.S. = Large Steel Building
- M.T. = Mixed type building
- S.C. = Small Concrete Building
- S.L.04 = Slab Removal, 4" thick w rebar
- S.L.06 = Slab Removal, 6" thick w rebar
- S.L.08 = Slab Removal, 8" thick w rebar
- S.L.09 = Slab Removal, 9" thick w rebar
- S.L.12 = Slab Removal, 12" thick w rebar
- S.S. = Small Steel Building

STANDARDIZED RECLAMATION BOND FORMAT (GUIDELINE NO 12 (6/29/20))					
AREA BOND					
Backfill	Volumes	Highwall Material			
			BCY	Unit Costs	Total
		Highwall volume =	0		
		Spoil Material Volume	0		
	Drill and Blast highwall material		0	0.000	\$0
	Dozer Backfill/regrade				
	Highwall material (300' at -20% w/D-9)		0	0.000	\$0
	Spoil material				
	West Pit (300' at -20% w/D9T, app E)		102,000	0.391	\$39,882
	East Pit (1500' at -10% w/637 scraper, app C)		50,000	0.960	\$48,000
	Total Backfill				\$87,882
INCREMENTAL BOND					
Grass Creek Mine	Total Removal Highwall Reduction Area		Already Done		
	Building Removal (2,500 sf)		Building Stay		
	Final grading (w/16M grader App G)		36 ac	56.820	\$2,046
	Scarify (w16M grader App P)		36 ac	52.170	\$1,878
	Spoil Analysis (2 hole/acre at \$180 each)		72 samples	180.000	\$12,960
	Topsoil replacement (637: 1500' at +10%)		27921		
	Stockpile #1 (637: 1400' at +10 app C		9,878	1.140	\$11,261
	Stockpile #2 (637: 1500' at +10 app C		5641	1.140	\$6,431
	Stockpile #3 (637: 1250' at +10 app C		10102	1.140	\$11,516
	Stockpile #5 (637: 4600' at +10 app C		1000	2.692	\$2,692
	Stockpile #11 (637: 175' at +10 app C		1300	0.697	\$906
	Recountour Diversion Ditches (CAT 430D 4wd backhoe 40 hrs at \$36.24)		40	36.240	\$1,450
	Maintain pond spillways, dikes, etc. (CAT 430D 4wd backhoe 40 hrs at \$36.24)		40	36.240	\$1,450
	Revegetation (disk, gertilize, mulch, and seed)		36	628.000	\$22,608
	Fencing (5000 1 f at 75% removal rate)		5000	0.300	\$1,500
Kirby Loadout					
	Bury Coal fines (3 ac at 6" =2420 cy) in old RR RW with material from loading ramp		2420	1.000	\$2,420
	Final grading (w/16M grader App G)		15.7 ac	56.820	\$892
	Scarify (w16M grader App P)		15.7 ac	52.170	\$819
	Topsoil replacement (637:500' at 0% App C)		33960 cy	0.621	\$21,089
	Revegetation (disk, gertilize, mulch, and seed)		15.7 ac	431.000	\$6,767
	Fencing (5000 1 f at 75% removal rate)		5000	0.300	\$1,500
			Incremental Bond		\$110,185
			Area Bond		\$87,882

BOND RELEASE				
Grass Creek Mine				
	Phase 1 and Phase 2 Bond Release Lands	31.8 ac	532.617	\$16,937

Miscellaneous Costs	Cost Factor		
Engineering and design	Flat Fee		\$20,000
Profit, ovrhead, Mob and Demob	0.100		\$21,500
Preconstruction Investigation and Stabilization	0.010		\$2,150
Independent Firm to Project Management	0.020		\$4,300
Site Monitoring	0.010		\$2,150
Site Security and Insurance	0.100		\$21,500
Admin and Accounting	0.020		\$4,300
Unknowns	0.040		\$8,600
	Subtotal		\$84,501
Grand Total RECLAMATION BOND			\$299,505

VI. Abandoned Drill Hole Report

A. Purpose Statement: The purpose of this Annual Report section is to house the Abandoned Drill Hole Report for all holes drilled in development of the owned or leased coal within the current permit area. The reclamation for abandoned drill holes and proposed drill holes shall be listed as line items in the bond calculations. Applicable provisions include WS § 35-11-404, and the Coal LQD RR Chapter 14, Section 5.

No drilling occurred during the report period.

VII. Annual Impoundment Inspection and Construction Reports and Certifications

A. Purpose Statement: The purpose of this Annual Report section is to house the annual impoundment inspection reports and their associated certifications by a qualified registered Wyoming professional engineer. Applicable provisions include the LQD RR, Chapter 4, Section 2(g)(iv)(G). This section also houses the impoundment construction inspection reports, as required by LQD RR Chapter 4, Section 2(g)(iv)(F).

Various retention ponds were inspected on a monthly basis and quarterly inspections were also completed and reported as required. The professional engineer’s certification and inspection on ponds is attached. No new impoundments were constructed during the report period.

VIII. Monitoring Data Presentation and Evaluation

A. Purpose Statement: The purpose of this Annual Report section is to present and evaluate various types of monitoring data and performance standard information for any of the following reasons:

- Information required by the ACT.

2020 Reclamation Bond
Table 1
SUMMARY OF BOND COST CALCULATIONS

TASK NO.	TASK	NOTES / UNITS	AMOUNT	SUBTOTAL	TOTAL
A.	AREA BOND COSTS		Total OB LCY	2,239,020	\$ 2,168,270
B.	INCREMENTAL BOND COSTS				\$ 637,131
I	INC BOND - NO BOND RELEASE A			\$ 578,184	
II	INC BOND - NO BOND RELEASE B			\$ 8,160	
III	INC BOND - BOND RELEASED			\$ -	
IV	DEMOLITION			\$ 50,787	
AREA + INCREMENTAL SUB-TOTAL					\$ 2,805,401
C.	CONTINGENCIES				\$ 1,578,850
1	Independent Firm to Design Project	Fixed Price		\$ 250,000	Guideline 12, page 12
2	Contractor Profit, Overhead, Mob/Demob Costs	Percentage	13.5 %	\$ 378,729	Guideline 12, page 12
3	Preconstruction Investigation and Stabilization	Percentage	1.5 %	\$ 42,081	Guideline 12, page 12
4	Independent Firm to Manage Project	OSM Sliding Scale	4.0 %	\$ 112,216	Guideline 12, page 13
5	Site Monitoring for 10 Years after Completion	Percentage	1.0 %	\$ 28,054	Guideline 12, page 13
6	Site Security and Liability Insurance	Fixed Annual Price	\$250,000 / yr	\$ 312,500	Guideline 12, page 13
7	Long-term Administration and Accounting Costs	Fixed Price		\$ 315,000	Guideline 12, page 13
8	Unknown Cost Contingency	Percentage	5.0 %	\$ 140,270	Guideline 12, page 14
D.	CAPITAL - NO CAPITAL COST				\$ -
TOTAL RECLAMATION BOND COSTS					\$ 4,384,251
				Rounding Say	\$ 4,384,000

2020 Reclamation Bond						
Table 6						
DEMOLITION & DISPOSAL COST ESTIMATES						
TASK NO.	TASK	NOTES/UNITS	QUANTITY	UNIT COST	COST PER TASK	TASK SUBTOTAL
IV .	Haystack FACILITIES					
App. H.	POWER / UTILITY LINES					
1	Power lines 34.5KV	No charge		\$ -	\$ -	\$ - <i>apx H</i>
2				\$ -	\$ -	<i>apx H</i>
App. I.	ASPHALT REMOVAL					
1				\$ -	\$ -	<i>apx I</i>
2				\$ -	\$ -	<i>apx I</i>
App. J.	CULVERTS					
1	Haystack Culverts (1/2 of culverts are assumed smashed and left in place)	20' CMP sections	4	\$ 106.32	\$ 425	<i>apx J</i>
2			0	\$ -	\$ -	
App. K.	FACILITIES DEMOLITION					
A.	Substation Foundations					
1	Concrete pad removal, 6 inch thick with rebar	sqft	1,981	\$ 0.81	\$ 1,605	<i>apx K</i>
2	Concrete disposal on site	cy	78	\$ 8.87	\$ 693	<i>apx K</i>
B.	ADMIN BUILDING REMOVAL					
1	ModSpace Rental Office (double wide)		1	\$ 6,000.00	\$ 6,000	<i>apx K</i> <i>apx K</i> <i>apx K</i> <i>apx K</i> <i>apx K</i>
2	ModSpace Rental Office (single wide)			\$ 1,000.00	\$ -	
3	Well Shed	cuft	768	\$ 0.290	\$ 223	
4	City Landfill Dump Charges	ton	1	\$ 74.00	\$ 74	
5				\$ -	\$ -	
6				\$ -	\$ -	
7				\$ -	\$ -	

2020 Reclamation Bond						
Table 6						
DEMOLITION & DISPOSAL COST ESTIMATES						
TASK NO.	TASK	NOTES/UNITS	QUANTITY	UNIT COST	COST PER TASK	TASK SUBTOTAL
C.	PLANT BUILDING REMOVAL					
1				\$ -	\$ -	<i>apx K</i>
2				\$ -	\$ -	<i>apx K</i>
3				\$ -	\$ -	<i>apx K</i>
4				\$ -	\$ -	<i>apx K</i>
5				\$ -	\$ -	<i>apx K</i>
6				\$ -	\$ -	<i>apx K</i>
7				\$ -	\$ -	<i>apx K</i>
8				\$ -	\$ -	<i>apx K</i>
9				\$ -	\$ -	<i>apx K</i>
10				\$ -	\$ -	<i>apx K</i>
11				\$ -	\$ -	<i>apx K</i>
12				\$ -	\$ -	<i>apx K</i>
13				\$ -	\$ -	<i>apx K</i>
14				\$ -	\$ -	<i>apx K</i>
15				\$ -	\$ -	<i>apx K</i>
16				\$ -	\$ -	<i>apx K</i>
17				\$ -	\$ -	<i>apx K</i>
	DISTANCE	GRADE	QUANTITY	UNIT COST		
	0	0%	0 LCY	\$0.00	\$ -	
App. L.	GW MONITORING STRUCTURES					
1	Groundwater monitoring wells	ea	9		Average \$2,709/well	\$ 24,378
	Site Locating	ea	9	\$ 10.00	\$ 90	<i>apx L</i>
	Abandonment Cost - Scattered wells (≤ 25 Wells)	ft	5,544	\$ 4.00	\$ 22,176	<i>apx L</i>
	Abandonment Cost - Scattered wells (> 25 Wells)	ft	0	\$ 3.00	\$ -	<i>apx L</i>
	Remove Pump, Wiring, and Drop Pipe	ft	980	\$ 0.40	\$ 392	<i>apx L</i>
	Capping Using a Pre-cast Concrete Cap (If needed)	ea	0	\$ 10.00	\$ -	<i>apx L</i>
	Removal and Disposal of Top Few Feet of Casing	ea	9	\$ 30.00	\$ 270	<i>apx L</i>
	Small Site Grading and Seeding (≤1,000 ft2)	ea	9	\$ 50.00	\$ 450	<i>apx L</i>
	Large Site/Access Road Grading and Seeding	ac	0	\$ 3,000.00	\$ -	<i>apx L</i>
	Mobilization	prj	1	\$ 1,000.00	\$ 1,000	<i>apx L</i>

2020 Reclamation Bond						
Table 6						
DEMOLITION & DISPOSAL COST ESTIMATES						
TASK NO.	TASK	NOTES/UNITS	QUANTITY	UNIT COST	COST PER TASK	TASK SUBTOTAL
App. L.	EXPLORATION DRILLING				--	\$ -
2	Exploration Drill Holes	ea	0			
	Site Locating	ea	0	\$ 10.00	\$ -	<i>apx L</i>
	Abandonment Cost - Wet Exploration Holes (≤ 25 Holes)	ft	0	\$ 4.00	\$ -	<i>apx L</i>
	Abandonment Cost - Wet Exploration Holes (> 25 Holes)	ft	0	\$ 3.00	\$ -	<i>apx L</i>
	Capping Using a Pre-cast Concrete Cap (If needed)	ea	0	\$ 10.00	\$ -	<i>apx L</i>
	Small Site Grading and Seeding (≤1,000 ft2)	ea	0	\$ 50.00	\$ -	<i>apx L</i>
	Large Site/Access Road Grading and Seeding	ac	0	\$ 3,000.00	\$ -	<i>apx L</i>
App. N.	SW MONITORING STRUCTURES					\$ 4,078
1	Surface water monitoring stations*	ea	2	\$ 2,038.88	\$ 4,078	<i>apx N</i>
App. O.	AIR STATION REMOVAL					\$ 1,546
1	Meteorological/air quality monitoring sites	ea	2	\$ 772.76	\$ 1,546	<i>apx O</i>
App. H.	Fence Removal					\$ 11,765
1	Fencing Removal	ft	36,765	\$ 0.32	\$ 11,765	<i>apx H</i>
TOTAL DEMOLITION COSTS						\$ 50,787

NOTE:

* Appendix N costs - Surface Water crest guage stations at Haystack Mine consist of four steel posts and 2" PVC pipe. A cost of \$150 per site for removal is proposed rather than the amount shown in Appendix N of the WDEQ LQD Guideline 12.

Table V-A Performance Bond Summary

Table V-A							
Performance Bond Summary							
I. AREA BOND		2020		Cost per			Itemized
		Cubic Yds		Cubic Yd			Costs
	80 CY Electric Shovel	133,775,957		0.43 Ave.			\$57,343,435
	Purchase Cost-See Below**						
	Blasting	16,617,128		\$0.19			\$3,153,835
Total Area Bond (Calculated in 2020)		133,775,957		*\$0.45 ave. per cu yd.			\$60,497,270
Total Area Bond (2019)		136,605,493					\$64,569,171
		* 2020 Area Bond Total Cost/2020 Total Cubic Yards					
II. INCREMENTAL BOND							
	2019 Actual Acres	2019-2020 Change**	2020 Actual Acres	2021 Project. Acres	Total 2021 + Projected	Cost/Acre	Itemized Costs
I. Disturbed Lands							
Active Pit & Raw Spoils and	3705.4	-78.4	3627.0	47.6	3674.6	\$3,983	\$14,635,812
Spoil Grading in Progress	122.6	-54.6	68.0	0.0	68.0	\$3,983	\$270,844
Recontoured Spoil	267.9	134.5	402.4	-66.0	336.4	\$3,983	\$1,339,881
Areas Reclaimed-No Bond Release	114.4	78.4	192.8	66.0	258.8	\$3,983	\$1,030,800
2. Partially Dist Land (facilities)	1883.7	11.3	1895.0		1895.0	\$3,983	\$7,547,626
3. 60% Release Lands	2212.4		2204.7		2204.7	\$1,593	\$3,512,528
4. 75% Release Lands	1162.6		1168.3		1168.3	\$996	\$1,163,335
5. Total Release Areas	1451.0		1451.0		1451.0	\$0	\$0
TOTAL ACRES	10920.0	91.2	11009.2	47.6	11056.7		
Regrade Analysis (One sample per 3.6731 acres)							
a. Active pit and raw spoils acres ==		3675		1000 Samples @		\$150	\$150,000
b. Unsuitable Sites (1 in 20)				50 sites@		\$150	\$7,500
c. Cover unsuitable sites (3.67 Acres/site*4 ft material)				\$17,916 per site @ \$0.76/Cu. Yd.			\$895,900
d. Stream channel samples	8 feet (4 samples)@400 ft intervals			356 Samples @		\$150	\$53,400
Total Incremental Bond							\$30,607,626
Performance Bond Summary							
III. MISCELLANEOUS ITEMS		2020 Actual	2021 Projected	Total 2019+2020	Unit Cost		Itemized Costs
Drill Holes		3	0	3	\$1,444		\$4,332
Surface Mine Facilities Removal (2021 Projected)							\$4,741,110
Underground Mine Facilities Removal							\$2,133,414
Diesel Remediation		Included in Appendix V-3					
Total Miscellaneous Items							\$6,878,856
IV. Subtotal Costs (I, II, & III)							
COST TO RECLAIM MINE							\$97,983,752
V. Contingency Items	DEQ Contingencies based on percentage of BCC cost to reclaim mine.						
DEQ Contingency							
Engineering and Design							\$250,000
Profit, overhead, mobilization			Percent used	13.5%			\$13,227,807
Investigation and Stabilization			Percent used	1.5%			\$1,469,756
Project management			Percent used	2%			\$1,959,675
Monitoring - 10 years			Percent used	1%			\$979,838
Security and Insurance			\$250,000 per yr	(\$ yr reclaim and 10 yr bond)			\$3,750,000
Admin. and Accounting							\$505,000
Unknowns			Percent used	5.0%			\$4,899,188
Total DEQ /BCC Contingency							\$27,041,263
**80 Cu. Yd. Shovel purchase cost							\$27,935,000
TOTAL BOND AMOUNT 2020			Using estimated Contingencies and DEQ/LQD acreages and formulas				\$152,960,015
Total Bond Amount 2019							\$155,173,109
** Includes purchase of 80 CY electric shovel							

Bridger Coal Company

Annual Report

BRIDGER COAL COMPANY
TABLE V-2A
Estimated Cost to Decommission Surface Mine Facilities - 2020 Bond

Item #	Item Description	Total Units	Unit	Estimating Reference	Total Cost
Fences					
29	Yard Fence & Gates	4,597	feet	1	\$ 1,379
	Haulroad Fence / Stock Fence	195,360	feet	1	\$ 58,608
	Electric Fence	37,863	feet	1	\$ 11,359
	Total Cost of Fences				\$ 71,346
Powerlines					
30	Powerlines	371,049	feet	1	\$0
	Total Cost of Powerlines				\$0
Hard-surfaced Roads					
29	Asphalt	6,674	cu. yd.	2	\$ 36,723
	Total Cost of Asphalt				\$ 36,723
Bridges					
	No Bridges on Property				\$0
Abandoned Equipment					
31	Major Equipment Demolition	2	units	3	\$ -
	Total Cost of Abandoned Equipment				\$0
Culverts					
36	Culverts	686	sections	1	\$ 119,332
	Total Cost of Culverts				\$ 119,332
Railroads					
	No Railroads on Property				\$0
Facility Buildings					
1	Mechanical Shop/Electrical Shop	288,000	cu. ft.	1	\$ 110,907
2	Tire / Cable Repair Shop	48,000	cu. ft.	1	\$ 18,713
3	Storage Shed (MSO)	8,640	cu. ft.	1	\$ 3,526
4	Motor Barn (Utility Shop)	19,200	cu. ft.	1	\$ 7,654
5	Lube Shop	1,440	cu. ft.	1	\$ 666
6	D & B Office	4,000	cu. ft.	1	\$ 1,304
20	Gas Shop/Ambulance Barn	111,889	cu. ft.	1	\$ 41,158
21	Administration Building	450,000	cu. ft.	1	\$ 160,865
22	Pump House/Water Tank	2,434	cu. ft.	1	\$ 2,240
23	Building/Warehouse Shed	59,040	cu. ft.	1	\$ 20,714
24	Maintenance Shop/Warehouse	1,337,120	cu. ft.	1	\$ 540,376
25	New Maintenance Shop	1,460,250	cu. ft.	1	\$ 527,232
	Total Cost of Facility Buildings				\$ 1,435,355
Mineral Handling Facilities					
15	Final Transfer Point	-	various	2	\$ 234,873
16	Main Conveyor/TDS 1	-	various	2	\$ 373,790
17	North Conveyor/TDS 2	-	various	2	\$ 298,611
18	South Conveyor/TDS 3	-	various	2	\$ 426,748
	Total Cost of Mineral Handling Facilities				\$ 1,334,022

BRIDGER COAL COMPANY
TABLE V-2A
Estimated Cost to Decommission Surface Mine Facilities - 2020 Bond

Item #	Item Description	Total Units	Unit	Estimating Reference	Total Cost
Support Facilities					
7	Erection Lot Tanks	691	cu. ft.	1	\$ 612
8	Emulsion Pump Shed	0	cu. ft.	1	\$ -
9	Powder Magazines	0	cu. ft.	1	\$ -
10	Prill Silos & Diesel Tanks	9,627	cu. ft.	1	\$ 46,666
11	Reclamation Field Office & Seed Trailer	4,000	cu. ft.	1	\$ 2,764
12	Misc Ready Line	400	lin. ft.	4	\$ 3,098
14	Fire Suppression Shed	1,920	cu. ft.	1	\$ 1,646
19	Wash Down Station	0	sq. ft.	1	\$ -
26	Miscellaneous Concrete	10,073	sq. ft.	1	\$ 21,843
27	Tanks (Above Ground)	2,584	cu. ft.	1	\$ 4,236
28	Underground Utility	-	various	5	\$ 143,926
32	Shop Ready Line	-	various	2	\$ 17,349
33	Radio Repeater Station	1,000	cu. ft.	2	\$ 3,426
	Total Cost of Support Facilities				\$ 245,569
Environmental Contingency and Removal of Monitoring Structures					
35	Environmental Contingency	-	various	6	\$ 978,747
34	Monitoring Wells	99	wells	1	\$ 102,454
13	Surface Water & Air Quality Monitoring Stations	10	stations	1	\$ 17,476
	Total Cost of Monitor Structures and Environmental Contingency				\$ 1,098,676
Total Estimated Cost to Decommission Surface Mine Facilities					\$ 4,341,022

- Estimating Reference Key:
- 1 Guideline 12 (Update 11/2019)
 - 2 Guideline 12 and Building Construction Costs with RS Means Data 2019 Ed for Demolition
+ Guideline 12 Basis for In-Pit Disposal Haulage
 - 3 Scrapping cost = scrap metal value
 - 4 Building Construction Costs with RS Means Data 2019 Ed for Demolition
+ Guideline 12 Basis for In-Pit Disposal Haulage
 - 5 Building Construction Costs with RS Means Data 2019 Ed for Hydrant, Manhole, Metal Pipe, Rigid Gal/PVC Conduit,
Steel/Fiberglass UST Removal escalated to current year From ECHOS 2006 Ed
 - 6 Consultant Report and Building Construction Costs with RS Means Data 2019 Ed for Removal
+ Guideline 12 Basis for Haulage

Bridger Coal Company
INDEX-SURFACE MINE
Estimated Cost to Decommission Surface Mine Facilities - 2020 Bond

<u>Item No.</u>	<u>General Location</u>	<u>Item Description</u>	<u>Estimated Cost</u>
1	Erection Lot	Mechanical Shop/Electrical Shop	\$110,907
2	Erection Lot	Tire / Cable Repair Shop	\$18,713
3	Erection Lot	Storage Shed (MSO)	\$3,526
4	Erection Lot	Motor Barn (Utility Shop)	\$7,654
5	Erection Lot	Lube Shop	\$666
6	Erection Lot	D & B Office	\$1,304
7	Erection Lot	Erection Lot Tanks	\$612
8		Emulsion Pump Shed	\$0
9		Powder Magazines	\$0
10		Prill Silos & Diesel Tanks	\$46,666
11		Reclamation Field Office & Seed Trailer	\$2,764
12		Misc Ready Line	\$3,098
13		Surface Water & Air Quality Monitoring Stations	\$17,476
14		Fire Suppression Shed	\$1,646
15		Final Transfer Point	\$234,873
16		Main Conveyor/TDS 1	\$373,790
17		North Conveyor/TDS 2	\$298,611
18		South Conveyor/TDS 3	\$426,748
19	Main Shop Facility Area	Wash Down Station	\$0
20	Main Shop Facility Area	Gas Shop/Ambulance Barn	\$41,158
21	Main Shop Facility Area	Administration Building	\$160,865
22	Main Shop Facility Area	Pump House/Water Tank	\$2,240
23	Main Shop Facility Area	Building/Warehouse Shed	\$20,714
24	Main Shop Facility Area	Maintenance Shop/Warehouse	\$540,376
25	Main Shop Facility Area	New Maintenance Shop	\$527,232
26		Miscellaneous Concrete	\$21,843
27	Main Shop Facility Area	Tanks (Above Ground)	\$4,236
28		Underground Utility	\$143,926
29		Asphalt and Fence	\$108,069
30		Powerlines	\$0
31		Major Equipment Demolition	\$0
32	Main Shop Facility Area	Shop Ready Line	\$17,349
33		Radio Repeater Station	\$3,426
34		Monitoring Wells	\$102,454
35		Environmental Contingency	\$978,747
36		Culverts	\$119,332
Total Estimated Surface Mine Decommission Cost			\$4,341,022

BRIDGER COAL COMPANY TABLE V-2B Estimated Cost to Decommission Underground Mine Facilities - 2020 Bond					
Item	Item Description	Total Units	Unit	Estimating Reference	Total Cost
Fences					
H	<i>Yard Fence & Gates</i>	780	feet	1	\$1,357
Total Cost of Fences					\$1,357
Powerlines					
I	<i>Powerlines</i>	42,360	feet	1	\$0
Total Cost of Powerlines					\$0
Hard-surfaced Roads					
H	<i>Asphalt</i>			2	\$5,114
Total Cost of Asphalt					\$5,114
Bridges					
No Bridges on Property					\$0
Abandoned Equipment					
J	<i>Major Equipment Demolition</i>	6	systems		\$0
Total Cost of Abandoned Equipment					\$0
Culverts					
M	<i>Culverts</i>	225	sections	1	\$32,197
Total Cost of Culverts					\$32,197
Railroads					
No Railroads on Property					\$0
Facility Buildings					
C	<i>Highwall Facility</i>	169,616	cu. ft.	1	\$123,214
D	<i>Tanks</i>	5,253	cu. ft.	1	\$20,861
E	<i>Substation Sites</i>	13,500	cu. ft.	1	\$15,535
A	<i>Facility Buildings</i>	781,406	cu. ft.	1	\$366,352
R	<i>E-Lot Motor Barn</i>	19,200	cu. ft.	1	\$10,067
Total Cost of Facility Buildings					\$536,028
Mineral Handling Facilities					
P	<i>Overland Conveyor</i>	-	various	2	\$655,273
Q	<i>Fire Suppression Shed</i>	-	various	2	\$79,136
S	<i>Final Transfer Point</i>	-	various		\$257,174
Total Cost of Mineral Handling Facilities					\$991,583
Support Facilities					
F	<i>Miscellaneous Concrete</i>	20,899	sq. ft.	1	\$90,509
N	<i>Shafts and Boreholes</i>	2,862	cu. yd.	1	\$22,775
K	<i>Highwall Mesh</i>	3,625	feet	2	\$32,018
O	<i>Portals</i>	3	various	1	\$11,674
U	<i>Underground Facility</i>	16	various	1	\$164,664
V	<i>Roads</i>	20,439	cu. yd.	1	\$157,600
W	<i>Fire Supression Shed</i>	1,920	cu. ft.	1	\$1,120
Total Cost of Support Facilities					\$480,359
Removal of Wells and Monitoring Structures					
L	<i>Wells</i>	45	various	1	\$132,244
B	<i>Surface Water & Air Quality Monitoring Stations</i>	5	stations	1	\$10,744
Total Cost of Wells and Structures					\$142,988
Total Estimated Cost to Decommission Underground Mine Facilities					\$2,189,627

Estimating Reference Key:
1 Guideline 12 (Update 11 / 2019)
2 Guideline 12 and Building Construction Costs with RS Means Data 2019 Ed for Demolition + Guideline 12 Basis for In-Pit Disposal Haulage
3 Building Construction Costs with RS Means Data 2019 Ed for Hydrant, Manhole, Metal Pipe, Rigid Gal/PVC Conduit, Steel/Fiberglass UST removal escalated to current year

Bridger Coal Company
INDEX-UNDERGROUND MINE
Estimated Cost to Decommission Underground Mine Facilities - 2020 Bond

Item	General Location	Item Description	Estimated Cost
A	Underground Mine	Facility Buildings	\$ 366,352
B	Underground Mine	Surface Water & Air Quality Monitoring Stations	\$ 10,744
C	Underground Mine	Highwall Facility	\$ 123,214
D	Underground Mine	Tanks	\$ 20,861
E	Underground Mine	Substation Sites	\$ 15,535
F	Underground Mine	Miscellaneous Concrete	\$ 90,509
H	Underground Mine	Asphalt and Fence	\$ 6,471
I	Underground Mine	Powerlines	\$ -
J	Underground Mine	Major Equipment Demolition	\$ -
K	Underground Mine	Highwall Mesh	\$ 32,018
L	Underground Mine	Wells	\$ 132,244
M	Underground Mine	Culverts	\$ 32,197
N	Underground Mine	Shafts and Boreholes	\$ 22,775
O	Underground Mine	Portals	\$ 11,674
P	Underground Mine	Overland Conveyor	\$ 655,273
Q	Underground Mine	Coal Storage	\$ 79,136
R	Underground Mine	E-Lot Motor Barn	\$ 10,067
S	Underground Mine	Final Transfer Point	\$ 257,174
U	Underground Mine	Underground Utility	\$ 164,664
V	Underground Mine	Roads -Included in Culverts and Asphalt?	\$ 157,600
W	Underground Mine	Fire Suppression Shed	\$ 1,120
Total Estimated Underground Mine Decommission Cost			\$ 2,189,627

KEMMERER OPERATIONS, LLC, PERMIT 379-T9: 2020-21 BOND EVALUATION									
I. LANDS AFFECTED UNDER THE 1973 WYOMING ENVIRONMENTAL QUALITY ACT (CATEGORY 3)									
A. Unreclaimed Lands	Acres	Finish Grade/ac	Topsoil/ac	Reveg/ac	Total/Ac	Subtotals	Totals		
1 1-UD Pit (1973 Law Total = 953 ac.) (less floor and highwall)	316 284	\$3,441	\$9,344	\$600	\$ 3,441.00 9,944.00	\$1,087,358 \$2,824,096			
B. Reclaimed Lands Requiring LQD \$750 Reveg. Retainer									
1. 1-UD Pit	163			\$	750.00	\$122,250			
2. 12-UB Pit	6			\$	750.00	\$4,500			
3. Subtotal for Reveg. Retainer	169					\$126,750			
C. 1973 Lands - Released	Date	Acres							
1. 10-UC	9/6/88	23							
2. 12-UA	9/6/88	33							
3. 12-UB	9/6/88	87							
4. 11-UC-S	9/6/88	41							
5. 1-UD "A" Dump	1/21/93	53							
6. 9-UE	1/21/93	9							
7. 1-UD "A" Dump - BR#8	4/23/12	421							
8. 12-UC	3/8/16	112							
Acres 100% Released		779							
D. TOTAL LIABILITY UNDER 1973 ACT							\$4,038,202		
II. LANDS AFFECTED UNDER P.L. 95-87 (CATEGORY 5)									
A. Area Bond Releases to Date	Date	Reference							
1. Skull Point Dump below 7000		2000-01 Annual Report							
2. I-Area Pits 1 & 2		2000-01 Annual Report							
3. Portions of 1-UD Dump		2000-01 Annual Report							
4. 2-UD Area, 4-UH pit		2000-01 Annual Report							
5. 8-UD, 1-J pit	9/30/04	LQD Monthly Inspection Report							
6. Skull Point	10/11/12	6/22/12 Submittal							
B. Current Area Bond Calculation (Based on Achieving Interim Topography)									
	Acres	Cu. Yds.	Average \$/yd.	Subtotals					
1. 1-UD PIT AND SPOILS									
a. Pit Floor Grading		\$0	\$	-		\$0			
b. 1-UD Pit - light grading (5 ft.)	110	887,333	\$	0.33	\$289,315				
c. Highwall - no reclamation	9	0	\$	-	\$0				
	119	887,333			\$289,315				
2. 1-UD COMPLEX PITS									
a. 1-UD Floor Grading - See Incremental Bond	116	561,500	\$	0.48	\$271,225				
b. Light grading (5 ft.) in the pit	164	1,322,933	\$	0.33	\$431,342				
c. Highwall - no reclamation	75	0	\$	-	\$0				
d. 1-UD Complex Pit Floor - 3.3:1 slope	33	5,233,000	\$	0.48	\$2,527,733				
	388	7,117,433			\$3,230,301				
3. I - AREA (Pits 3-9)									
a. I-Area Floor Grading - See Incremental Bond	61	*2021 values 688,893	*2020 values 417,853	\$	0.48	\$201,839			
b. I-Area Spoil Rough Grading	372	6,242,000	7,565,000	\$	0.48	\$3,654,175			
c. I-Area Pit Grading 5 ft.	271	2,188,067	3,904,267	\$	0.33	\$1,272,986			
d. Highwall - no reclamation	170	0	\$	-	\$0				
e. I-Area West Dump - Included Above	0	0	\$	-	\$0				
	874	11,887,120			\$5,129,000				
4. 2-UD AREA									
a. 2-UD Backfill	207	3,803,500	\$	0.74	\$2,818,571				
b. 2-UD Light Grade	93	450,120	\$	1.03	\$463,298				
c. 2-UD Rough Grade	343	13,500,000	\$	0.40	\$5,429,575				
d. 2-UD - Floor	42	271,040	\$	0.33	\$88,373				
	685	18,024,660			\$8,799,817				
5. SKULL POINT									
a. Skull Point 3.3:1 Grading	28	*2020 values 423,400	\$	0.33	\$138,050				
b. Skull Point Light Regrading	29	233,933	\$	0.33	\$76,274				
c. Skull Point Highwall	5	0	\$	-	\$0				
	62	657,333			\$214,324				
6. TWIN CREEK									
a. Pit 10A & 10 B Backfill	59	7,682,403	\$	0.62	\$4,790,382				
b. Pit 10A & 10 B Light Grading	38	306,533	\$	0.33	\$99,945				
	97	7,988,936			\$4,890,327				
7. Subtotal P.L. 95-87 Area Bond						\$22,563,082			
8. Calculated Mine-wide Backfill Volumes for Area Bond									
a. 2017-18 Mine-wide Area Bond volume (cu yds)		45,256,134							
b. 2018-19 Mine-wide Area Bond volume (cu yds)		44,787,956							
c. 2019-20 Mine-wide Area Bond volume (cu yds)		43,345,362							
d. 2020-21 Mine-wide Area Bond volume (cu yds)		46,582,815							
9. Touch Up Grading	Acres								
1. 1-UD PIT AND SPOILS	0		\$	41.95	\$0				
2. 1-UD COMPLEX PITS	0		\$	41.95	\$0				
3. I - AREA (Pits 3-9)	270		\$	41.95	\$11,327				
4. 2-UD AREA	145		\$	41.95	\$6,083				
5. SKULL POINT	217		\$	41.95	\$9,103				
6. TWIN CREEK	12		\$	41.95	\$503				
Subtotal Touch Up Grading					\$27,016				

Received

APR 11 2022

WDEQ-LQD
Cheyenne

Received

APR 11 2022

WDEQ-LQD
Cheyenne

D67

North Antelope Rochelle 569

Appendix B - Reclamation Bond
Table B1-Reclamation Bond Summary

Area Bond (Including Backfilling, Rough and Final Grading)

Tables

B2

\$ 168,813,669

Incremental Bond

Topsoil Removal - Borrow Areas

B3

\$2,343,002

Miscellaneous Overburden Including Reservoir Regrading

B4, B5

\$6,228,112

Demolition

B6, B7, B8, B10, B11

\$11,941,905

Removal of Monitoring Structures

B9

\$528,281

Topsoil Redistribution From Stockpiles

B12

\$19,513,435

Topsoil Redistribution From Currently Topsoiled Areas

B13

\$19,207,718

Scarification and Revegetation of All Disturbed Lands

B14

\$18,489,540

Incremental Bond Subtotal =

\$78,251,993

Incremental Bond Reduction

Phase 1 Bond Release

B15

Acres

Percentage

\$/Acre

\$1,794

\$

(12,451,124)

Phase 2 Bond Release

B15

8,695.8

15%

\$1,794

\$

(2,339,615)

Highwall Diversity Adjustment

Area and Incremental Bond Subtotal =

\$

(14,790,739)

\$

600,000

\$232,874,923

Miscellaneous Costs

Project design

Percentage

\$250,000

Contractor profit, overhead, equipment owner costs, labor, mobilization and demobilization

13.5%

\$31,438,115

Preconstruction investigation

1.5%

\$3,493,124

Project management

1.5%

\$3,386,165

Environmental and utility monitoring for ten years

1.0%

\$2,328,749

Site security and liability insurance (12.6 yrs. @ \$250,000/yr.)

\$3,150,000

Long term administration

\$505,000

Unknown Costs (5%)

5.0%

\$11,643,746

\$56,194,899

Large Stripping Shovel (cost to move the shovel)

\$

2,248,465

Annual Report Bond Total =

\$291,318,287

Annual Report Bond Total (Rounded) =

\$291,319,000

B-13

Appendix B - Reclamation Bond
Table B6 - Incremental Bond - Demolition Cost Summary

Item	Guideline 12 App.	Quantity	Unit Price	Units	Subtotal
Remove fence	H	60,817	\$ 0.36	feet	\$21,894
Build fence	H	29,000	\$ 1.71	feet	\$49,590
Remove cattle guard	H	2	\$ 1,620.00	feet	\$3,240
Install cattle guard	H	2	\$ 14,750.00	feet	\$29,500
Remove asphalt and scoria base from Access Road	I	18.38	\$ 619.90	acres	\$11,392
Remove asphalt from Antelope Road (2014 report period)	I	12.19	\$ 619.90	acres	\$7,554
Remove asphalt from Mackey Road (2014 report period)	I	5.91	\$ 619.90	acres	\$3,661
Remove asphalt from facility area roads	I	1.02	\$ 619.90	acres	\$630
Remove asphalt from facility area parking lots	I	2.77	\$ 619.90	acres	\$1,715
Remove asphalt from office parking lots	I	0.85	\$ 619.90	acres	\$527
Remove asphalt from North NARM parking lots	I	1.93	\$ 619.90	acres	\$1,196
Remove bridges (included in structure demolition section)					\$0
Remove culverts (see Table B7)	J				\$304,234
Remove railroad track	K	184,892	\$ 8.79	feet	\$1,625,201
Remove railroad ballast	K	68,479	\$ 4.30	cy	\$294,458
Remove structures (see Table B8)	K				\$ 9,587,113
					\$ 11,941,905

Notes:
1. The Appendix Column refers to the appendix in WDEQ-LQD Guideline 12.
2. The unit linear cost to remove ballast includes the WDEQ-LQD Guideline 12 Appendix K cost to remove ballast per bank cubic yard. Bank cubic yards per linear foot assumes a ten feet (10') wide section one foot deep, which calculates out to 10/27 (37%) of a cubic yard per linear foot.
3. Fence to be removed is assumed to be existing fence outside of the bond affected area. Fence to be built is the approximate replacement fence needed to protect areas determined from the bond.

APPENDIX B-RECLAMATION BOND
TABLE B8-INCREMENTAL BOND-STRUCTURES DEMOLITION

Description	Material	Units	Length (ft)	Width or Radius (ft)	Perimeter (ft)	Area (sq ft)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)	Demolition Cost (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)	Subtotal	
COAL SILOS																		
Silo																		
Roof	Concrete	5	NA	37	231	4254	1	158	788	Explosive	\$7,830	\$ 6,169	158	788	\$ 9.16	\$ 7,217	\$ 13,386	
Floor	Concrete	5	NA	37	231	4254	2.5	394	1970	Explosive	\$7,830	\$ 15,422	394	1,970	\$ 9.16	\$ 18,042	\$ 33,495	
Wall	Concrete	5	NA	37	231	4254	242	2072	10362	Explosive	\$7,830	\$ 81,136	2,072	10,362	\$ 9.16	\$ 94,917	\$ 178,053	
Floor	Concrete	5	NA	37	231	4254	1	158	788	Explosive	\$7,830	\$ 6,169	158	788	\$ 9.16	\$ 7,217	\$ 13,386	
Footing	Concrete	5	NA	37	231	4254	3.5	562	2759	Explosive	\$7,830	\$ 21,591	562	2,759	\$ 9.16	\$ 25,259	\$ 48,950	
Note: The floor slabs are 4.5' thick with 40 caissons under each slab. All material if below final reclamation grade will be demolished with explosives and hauled to final pit area for disposal.																		
Silo 1 building																		
Roof	Steel	1	44	37	182	1628	1	60	60	Mixture	\$7,290	\$ 440	60	60	\$ 9.74	\$ 587	\$ 1,027	
Wall	Steel	1	44	37	182	1628	47.5	2864	2864	Mixture	\$7,290	\$ 20,879	286	286	\$ 9.74	\$ 2,778	\$ 23,655	
Silo 2 building																		
Roof	Steel	1	78	37	290	2898	1	107	107	Mixture	\$7,290	\$ 779	107	107	\$ 9.74	\$ 1,041	\$ 1,820	
Wall	Steel	1	78	37	290	2898	31.5	3367	3367	Mixture	\$7,290	\$ 24,545	268	268	\$ 9.74	\$ 2,614	\$ 27,159	
Silo 3 building																		
Roof	Steel	1	55	34	178	1870	1	69	69	Mixture	\$7,290	\$ 505	69	69	\$ 9.74	\$ 675	\$ 1,179	
Wall	Steel	1	55	34	178	1870	15.8	1094	1094	Mixture	\$7,290	\$ 7,977	104	104	\$ 9.74	\$ 1,015	\$ 8,992	
Silo 4 building																		
Roof	Steel	1	80	25	210	2000	1	74	74	Mixture	\$7,290	\$ 540	74	74	\$ 9.74	\$ 721	\$ 1,261	
Wall	Steel	1	80	25	210	2000	47.5	3619	3619	Mixture	\$7,290	\$ 26,550	369	369	\$ 9.74	\$ 3,588	\$ 29,248	
Silo 5 building																		
Roof	Steel	1	54	25	158	1550	1	50	50	Mixture	\$7,290	\$ 365	50	50	\$ 9.74	\$ 487	\$ 852	
Wall	Steel	1	54	25	158	1380	47.5	2375	2375	Mixture	\$7,290	\$ 17,314	278	278	\$ 9.74	\$ 2,707	\$ 20,021	
WEST CONVEYOR GALLERY																		
Gallery (110' diameter)																		
Walls	Steel	4	NA	7.5	47	178,715	214.85	1405	5620	Mixture	\$7,290	\$ 40,986	375	1,499	\$ 9.74	\$ 14,556	\$ 55,542	
Footing	Steel	1	15.0	41	112	615	208.5	4772	4772	Mixture	\$7,290	\$ 34,787	899	899	\$ 9.74	\$ 8,644	\$ 43,262	
WEST TAKE-UP TOWER																		
Upper level																		
Roof	Steel	1	50.0	50	200	2500	1	93	93	Mixture	\$7,290	\$ 675	93	93	\$ 9.74	\$ 902	\$ 1,577	
Floor	Steel	1	50.0	50	200	2500	26	2407	2407	Mixture	\$7,290	\$ 17,550	193	193	\$ 9.74	\$ 1,878	\$ 19,428	
Lower level	Steel	1	50.0	50	200	2500	1.5	139	139	Mixture	\$7,290	\$ 1,013	139	139	\$ 9.74	\$ 1,363	\$ 2,365	
Roof	Steel	1	50.0	50	200	2500	1	93	93	Mixture	\$7,290	\$ 675	93	93	\$ 9.74	\$ 902	\$ 1,577	
Wall	Steel	1	50.0	50	200	2500	26	2407	2407	Mixture	\$7,290	\$ 17,550	193	193	\$ 9.74	\$ 1,878	\$ 19,428	
Floor	Concrete	1	50.0	50	200	2500	1	93	93	Explosive	\$7,830	\$ 725	93	93	\$ 9.16	\$ 848	\$ 1,573	
Foundation	Concrete	1	4.0	1	10	4	200	74	74	Explosive	\$7,830	\$ 580	74	74	\$ 9.16	\$ 679	\$ 1,259	
WEST PORTAL HOUSE																		
Roof	Steel	1	21.0	22	86	482	1	17	17	Mixture	\$7,290	\$ 125	17	17	\$ 9.74	\$ 167	\$ 291	
Wall	Steel	1	21.0	22	86	482	21	359	359	Mixture	\$7,290	\$ 2,620	67	67	\$ 9.74	\$ 651	\$ 3,271	
Floor	Concrete	1	21.0	22	86	482	1	17	17	Explosive	\$7,830	\$ 134	17	17	\$ 9.16	\$ 157	\$ 291	
Foundation	Concrete	1	3.5	1	9	3.5	98	29	29	Explosive	\$7,830	\$ 224	29	29	\$ 9.16	\$ 263	\$ 487	
WEST TRUCK DUMP HOPPER																		
Future runway																		
Floor	Steel	1	88.0	23.5	183	1598	4.5	289	289	Mixture	\$7,290	\$ 1,942	289	289	\$ 9.74	\$ 2,804	\$ 4,530	
Overhead bridge crane	Structure	1	88.0	16	204	1378	19.5	894	894	Mixture	\$7,290	\$ 7,245	994	994	\$ 9.74	\$ 9,679	\$ 16,924	
Elevator House	Roof	1	16.4	9.5	52	155.8	1	8	8	Mixture	\$7,290	\$ 42	8	8	\$ 9.74	\$ 56	\$ 98	
Wall	Steel	1	16.4	9.5	52	155.8	79	456	456	Mixture	\$7,290	\$ 3,323	152	152	\$ 9.74	\$ 1,478	\$ 4,799	
Stilling Shed	Roof	1	36.0	72	216	2592	1	96	96	Mixture	\$7,290	\$ 700	96	96	\$ 9.74	\$ 935	\$ 1,635	
Wall	Steel	1	36.0	72	216	2592	49	4704	4704	Mixture	\$7,290	\$ 34,282	362	362	\$ 9.74	\$ 3,518	\$ 38,110	
Foundation	Concrete	1	36.0	72	216	2592	4	32	32	Explosive	\$7,830	\$ 251	32	32	\$ 9.16	\$ 293	\$ 544	
Bumper	Foundation	Concrete	3	27.5	6	87	185	9	9	Explosive	\$7,830	\$ 204	9	9	\$ 9.16	\$ 238	\$ 443	
Hopper walls	Foundation	Concrete	1	NA	35	220	3849.45	80	652	652	Explosive	\$7,830	\$ 5,102	652	652	\$ 9.16	\$ 5,989	\$ 11,071
Note: The ground elevation of the hopper is approximately at reclaimed surface, therefore the hopper walls will be removed to a depth 4' below the ground (reclaimed) surface.																		
WEST TRUCK DUMP HOPPER BAGHOUSE																		
Roof	Steel	1	63.0	28	182	1764	1	65	65	Mixture	\$7,290	\$ 478	65	65	\$ 9.74	\$ 636	\$ 1,113	
Wall	Steel	1	63.0	28	182	1764	53	3483	3483	Mixture	\$7,290	\$ 25,243	357	357	\$ 9.74	\$ 3,490	\$ 28,723	
Foundation motor pads	Concrete	4	2.0	2	8	4	4	1	1	Explosive	\$7,830	\$ 37	1	5	\$ 9.16	\$ 43	\$ 81	
Foundation bag pads	Foundation	Concrete	2	6.0	4	20	24	1	3	Explosive	\$7,830	\$ 23	1	3	\$ 9.16	\$ 27	\$ 50	
WEST NEAR PIT CRUSHER																		
Truck dump structure																		
Roof	Steel	1	30.0	55	170	1650	1.0	61	61	Mixture	\$7,290	\$ 446	61	61	\$ 9.74	\$ 595	\$ 1,041	
Wall	Steel	1	30.0	55	170	1650	66.0	4033	4033	Mixture	\$7,290	\$ 29,403	418	418	\$ 9.74	\$ 4,048	\$ 33,451	
Foundation	Concrete	1	3.5	1	9	3.5	170	57	57	Explosive	\$7,830	\$ 444	57	57	\$ 9.16	\$ 519	\$ 963	
Footing	Concrete	1	3.5	1	9	3.5	170	22	22	Explosive	\$7,830	\$ 173	22	22	\$ 9.16	\$ 202	\$ 374	
Drive house structure																		
Roof	Steel	1	60.0	60	240	3600	1	133	133	Mixture	\$7,290	\$ 972	133	133	\$ 9.74	\$ 1,292	\$ 2,271	
Wall	Steel	1	60.0	60	240	3600	49	8533	8533	Mixture	\$7,290	\$ 47,829	436	436	\$ 9.74	\$ 4,243	\$ 51,870	
Foundation	Concrete	1	3.5	1	9	3.5	240	80	80	Explosive	\$7,830	\$ 628	80	80	\$ 9.16	\$ 733	\$ 1,359	
Footing	Concrete	1	3.5	1	9	3.5	240	31	31	Explosive	\$7,830	\$ 244	31	31	\$ 9.16	\$ 286	\$ 529	
Conveyor gallery	Wall	1	NA	3.5	22	38,484	5100	7289	7289	Mixture	\$7,290	\$ 52,893	4,154	4,154	\$ 9.74	\$ 40,459	\$ 93,452	
Stilling shed	Roof	1	32.0	56	136	1152	1	43	43	Mixture	\$7,290	\$ 311	43	43	\$ 9.74	\$ 418	\$ 727	
Wall	Steel	1	32.0	56	136	1152	47	2086	2086	Mixture	\$7,290	\$ 14,619	237	237	\$ 9.74	\$ 2,306	\$ 16,925	
Foundation	Concrete	1	32.0	56	136	1152	4	39	39	Explosive	\$7,830	\$ 198	39	39	\$ 9.16	\$ 355	\$ 543	
EAST DUMP HOPPER																		
Roof	Steel	1	30.0	80	240	2700	1	100	100	Mixture	\$7,290	\$ 729	100	100	\$ 9.74	\$ 974	\$ 1,703	
Wall	Steel	1	30.0	80	240	2700	61	6100	6100	Mixture	\$7,290	\$ 44,469	547	547	\$ 9.74	\$ 5,281	\$ 49,750	
Foundation	Concrete	1	3.0	1	8	3	240	71	71	Explosive	\$7,830	\$ 557	71	71	\$ 9.16	\$ 651	\$ 1,208	
Stilling shed	Roof	1	43.0	84	254	3612	1	134	134	Mixture	\$7,290	\$ 975	134	134	\$ 9.74	\$ 1,303	\$ 2,278	
Wall	Steel	1	43.0	84	254	3612	49	8555	8555	Mixture	\$7,290	\$ 47,787	461	461	\$ 9.74	\$ 4,490	\$ 52,277	
Foundation	Concrete	1	43.0	84	254	3612	4	38	38	Explosive	\$7,830	\$ 296	38	38	\$ 9.16	\$ 345	\$ 639	
EAST CONVEYOR TO TRANSFER POINT																		
Wall	Steel	1	7.0	6	28	42	2125	3306	3306	Mixture	\$7,290	\$ 24,098	2,046	2,046	\$ 9.74	\$ 19,931	\$ 44,029	

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APPENDIX B-RECLAMATION BOND TABLE B8-INCREMENTAL BOND-STRUCTURES DEMOLITION																				
Description	Material	Units	Length (ft)	Width or Radius (ft)	Perimeter (ft)	Area (sq ft)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)	Demolition Cost (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)	Subtotal			
EAST 4th CONVEYOR TO TRANSFER POINT TO 12 TUBE																				
Wall	Steel	2	5.0	4	18	20	1900	1407	2815 Mixture		\$7,290	\$ 20,520	1,267	2,533	\$ 9.74	\$ 24,675	\$ 45,195			
EAST 12 TUBES																				
Wall	Steel	2	12.0	12	48	144	325	1733	3467 Mixture		\$7,290	\$ 25,272	578	1,156	\$ 9.74	\$ 11,256	\$ 36,527			
EAST CONCRETE TOWERS FOR CONVEYORS TUBES																				
Pillar	Concrete	2	11.0	11	44	121	96	439	878 Explosive		\$7,830	\$ 6,878	439	878	\$ 9.16	\$ 8,046	\$ 14,924			
Pillar	Concrete	2	11.0	11	44	121	96	291	583 Explosive		\$7,830	\$ 4,562	291	583	\$ 9.16	\$ 5,337	\$ 9,986			
EAST TRANSFER HOUSE																				
House 1 Structure																				
Roof	Steel	1	41.0	41	164	1681	1	62	62 Mixture		\$7,290	\$ 454	62	62	\$ 9.74	\$ 605	\$ 1,060			
Wall	Steel	1	41.0	41	164	1681	58	3673	3673 Mixture		\$7,290	\$ 26,778	358	358	\$ 9.74	\$ 3,491	\$ 30,269			
Floor	Concrete	1	41.0	41	164	1681	0.5	31	31 Explosive		\$7,830	\$ 244	31	31	\$ 9.16	\$ 286	\$ 529			
House 2 Structure																				
Roof	Steel	1	22.0	35	114	770	1.0	29	29 Mixture		\$7,290	\$ 208	29	29	\$ 9.74	\$ 278	\$ 486			
Wall	Steel	1	22.0	35	114	770	30.0	868	866 Mixture		\$7,290	\$ 6,237	127	127	\$ 9.74	\$ 1,234	\$ 7,471			
Floor	Concrete	1	22.0	35	114	770	0.5	14	14 Explosive		\$7,830	\$ 112	14	14	\$ 9.16	\$ 131	\$ 242			
House 3 Structure																				
Roof	Steel	1	50.0	70	240	3500	1.0	130	130 Mixture		\$7,290	\$ 945	130	130	\$ 9.74	\$ 1,283	\$ 2,208			
Wall	Steel	1	50.0	70	240	3500	30.0	3889	3889 Mixture		\$7,290	\$ 28,350	267	267	\$ 9.74	\$ 2,597	\$ 30,947			
Floor	Concrete	1	50.0	70	240	3500	0.5	65	65 Explosive		\$7,830	\$ 508	65	65	\$ 9.16	\$ 594	\$ 1,101			
EAST DRIVE TOWERS																				
Roof	Steel	1	24.0	44	156	1056	1	39	39 Mixture		\$7,290	\$ 285	39	39	\$ 9.74	\$ 381	\$ 606			
Wall	Steel	1	24.0	44	156	1056	20	782	782 Mixture		\$7,290	\$ 5,702	101	101	\$ 9.74	\$ 991	\$ 8,694			
Floor	Concrete	1	24.0	44	156	1056	0.5	20	20 Explosive		\$7,830	\$ 153	20	20	\$ 9.16	\$ 179	\$ 332			
Foundation	Concrete	1	24.0	44	156	1056	4	20	20 Explosive		\$7,830	\$ 158	20	20	\$ 9.16	\$ 186	\$ 342			
EAST COAL SLOT STORAGE																				
Wall	Concrete	1	1.0	82	166	82	375	2306	2306 Explosive		\$7,830	\$ 18,053	2,306	2,306	\$ 9.16	\$ 21,119	\$ 39,171			
Wall	Concrete	1	1.0	87	136	87	110	554	554 Explosive		\$7,830	\$ 4,338	554	554	\$ 9.16	\$ 5,075	\$ 9,414			
Reclaim Room Building																				
Roof	Steel	1	462.0	14	962	6498	1	240	240 Mixture		\$7,290	\$ 1,746	240	240	\$ 9.74	\$ 2,333	\$ 4,080			
Wall	Steel	1	462.0	14	962	6498	17	4072	4072 Mixture		\$7,290	\$ 29,688	598	598	\$ 9.74	\$ 5,838	\$ 35,526			
Floor	Concrete	1	462.0	21	966	8702	2	719	719 Explosive		\$7,830	\$ 5,627	719	719	\$ 9.16	\$ 6,583	\$ 12,210			
Machine Wall																				
Wall	Steel	1	70.0	17	174	1190	25.0	1102	1102 Mixture		\$7,290	\$ 8,033	161	161	\$ 9.74	\$ 1,569	\$ 8,602			
Conveyor Housing	Concrete	1	9.0	2	22	18	495	385	385 Explosive		\$7,830	\$ 3,094	385	385	\$ 9.16	\$ 3,620	\$ 6,714			
Wall	Steel	1	25.0	25	100	625	415	9609	9609 Mixture		\$7,290	\$ 70,031	1,537	1,537	\$ 9.74	\$ 14,971	\$ 85,002			
Steel-Roofed Section																				
Roof	Steel	1	110.0	38	296	4190	375	58056	58056 Mixture		\$7,290	\$ 423,225	58,056	58,056	\$ 9.74	\$ 566,461	\$ 988,686			
Reclaim Conveyor Tunnel																				
Wall	Steel	1	150.0	14	328	2100	14	1089	1089 Mixture		\$7,290	\$ 7,938	170	170	\$ 9.74	\$ 1,667	\$ 9,605			
Slot Feed & Reclaim Conveyors																				
Wall	Steel	1	7.0	6	26	42	1000	1558	1558 Mixture		\$7,290	\$ 11,340	963	963	\$ 9.74	\$ 9,379	\$ 20,719			
CIRCUIT 4 NORTH NEAR-PIT TRUCK DUMP																				
Site (70' diameter)																				
Roof	Concrete	1	NA	35	220	3648.45	1	143	143 Explosive		\$7,830	\$ 1,116	143	143	\$ 9.16	\$ 1,306	\$ 2,422			
Floor	Concrete	1	NA	35	220	3648.45	2.5	356	356 Explosive		\$7,830	\$ 2,790	356	356	\$ 9.16	\$ 3,254	\$ 6,064			
Wall	Concrete	1	NA	35	220	3648.45	196	1596	1596 Explosive		\$7,830	\$ 12,500	1,596	1,596	\$ 9.16	\$ 14,623	\$ 27,123			
Footing	Concrete	1	NA	35	220	3648.45	1	143	143 Explosive		\$7,830	\$ 1,116	143	143	\$ 9.16	\$ 1,306	\$ 2,422			
Site building																				
Roof	Steel	1	81.0	31	224	2511	1	93	93 Mixture		\$7,290	\$ 678	93	93	\$ 9.74	\$ 906	\$ 1,584			
Wall	Steel	1	81.0	31	224	2511	19	1767	1767 Mixture		\$7,290	\$ 12,881	158	158	\$ 9.74	\$ 1,535	\$ 14,417			
Drive house building																				
Roof	Steel	1	127.0	67	368	8508	1.0	315	315 Mixture		\$7,290	\$ 2,297	315	315	\$ 9.74	\$ 3,070	\$ 5,367			
Wall	Steel	1	127.0	67	368	8508	40.0	15442	15442 Mixture		\$7,290	\$ 112,574	704	704	\$ 9.74	\$ 6,858	\$ 119,432			
Foundation	Concrete	1	127.0	67	368	8508	2	29	29 Explosive		\$7,830	\$ 225	29	29	\$ 9.16	\$ 333	\$ 488			
Footing	Concrete	1	3.5	1	9	3.5	388	50	50 Explosive		\$7,830	\$ 394	50	50	\$ 9.16	\$ 461	\$ 855			
Conveyor gallery																				
Wall	Steel	1	8.0	7	30	56	10700	22183	22183 Mixture		\$7,290	\$ 161,784	11,889	11,889	\$ 9.74	\$ 115,769	\$ 277,592			
Cross-over conveyors																				
Wall	Steel	1	8.0	7	30	56	640	1120	1120 Mixture		\$7,290	\$ 8,165	600	600	\$ 9.74	\$ 5,844	\$ 14,009			
Stilling shed																				
Roof	Steel	1	43.0	84	254	3612	1	134	134 Mixture		\$7,290	\$ 975	134	134	\$ 9.74	\$ 1,303	\$ 2,278			
Wall	Steel	1	43.0	84	254	3612	40	8556	8556 Mixture		\$7,290	\$ 47,787	481	481	\$ 9.74	\$ 4,490	\$ 52,277			
Foundation	Concrete	1	43.0	84	254	3612	4	38	38 Explosive		\$7,830	\$ 295	38	38	\$ 9.16	\$ 345	\$ 639			
ELECTRICAL CONTROL & SAMPLE PREPARATION BUILDINGS																				
MEC1 building																				
Roof	Steel	1	15.0	30	90	450	1	17	17 Mixture		\$7,290	\$ 122	17	17	\$ 9.74	\$ 162	\$ 284			
Wall	Steel	1	15.0	30	90	450	9	150	150 Mixture		\$7,290	\$ 1,084	30	30	\$ 9.74	\$ 292	\$ 1,386			
Foundation	Concrete	1	15.0	30	90	450	0.99997	2	2 Explosive		\$7,830	\$ 17	2	2	\$ 9.16	\$ 20	\$ 38			
MEC2 building																				
Roof	Steel	1	20.0	40	120	800	1	30	30 Mixture		\$7,290	\$ 216	30	30	\$ 9.74	\$ 298	\$ 505			
Wall	Steel	1	20.0	40	120	800	9	267	267 Mixture		\$7,290	\$ 1,944	40	40	\$ 9.74	\$ 380	\$ 2,324			
Foundation	Concrete	1	20.0	40	120	800	0.99997	3	3 Explosive		\$7,830	\$ 23	3	3	\$ 9.16	\$ 27	\$ 50			
MEC3 building																				
Roof	Steel	1	20.0	30	100	800	1	22	22 Mixture		\$7,290	\$ 162	22	22	\$ 9.74	\$ 216	\$ 378			
Wall	Steel	1	20.0	30	100	800	9	200	200 Mixture		\$7,290	\$ 1,458	33	33	\$ 9.74	\$ 325	\$ 1,783			
Foundation	Concrete	1	20.0	30.0	100	800	0.99997	2	2 Explosive		\$7,830	\$ 19	2	2	\$ 9.16	\$ 23	\$ 42			
Sample preparation building																				
Roof	Steel	1	30.0	30	120	900	1.0	33	33 Mixture		\$7,290	\$ 243	33	33	\$ 9.74	\$ 325	\$ 568			
Wall	Steel	1	30.0	30	120	900	14.0	467	467 Mixture		\$7,290	\$ 3,402	62	62	\$ 9.74	\$ 606	\$ 4,008			
Foundation	Concrete	1	30.0	30.0	120	900	0.99997	3	3 Explosive		\$7,830	\$ 23	3	3	\$ 9.16	\$ 27	\$ 50			
CIRCUIT 3 HOPPER																				
Apron	Concrete	1	190.0	15	410	2950	2	211	211 Explosive		\$7,830	\$ 1,653	211	211	\$ 9.16	\$ 1,934	\$ 3,587			
Wall	Concrete	4	83.0	50	228	3150	2	17	87 Explosive		\$7,830	\$ 534	17	87	\$ 9.16	\$ 613	\$ 1,638			

APPENDIX B-RECLAMATION BOND TABLE B9-INCREMENTAL BOND-STRUCTURES DEMOLITION																	
Description	Material	Units	Length (ft)	Width or Radius (ft)	Perimeter (ft)	Area (sq ft)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)	Demolition Cost (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)	Subtotal
EAST SHOPWAREHOUSE COMPLEX																	
Shop building																	
Roof	Steel	1	120.0	130	500	15600	1	578	578 Mixture		\$7,290	\$4,212	578	578	\$ 9.74	\$5,628	\$ 6,840
Wall	Steel	1	120.0	130	500	15600	54	31200	31200 Mixture		\$7,290	\$227,448	1,000	1,000	\$ 9.74	\$9,740	\$237,188
Floor	Concrete	1	120.0	130	500	15600	1	578	578 Explosive		\$7,830	\$4,524	578	578	\$ 9.16	\$5,282	\$ 8,811
Extension building																	
Roof	Steel	1	140.0	90	460	12800	1	467	467 Mixture		\$7,290	\$3,402	467	467	\$ 9.74	\$4,545	\$ 7,947
Wall	Steel	1	140.0	90	460	12800	54	25200	25200 Mixture		\$7,290	\$183,708	920	920	\$ 9.74	\$8,961	\$192,669
Floor	Concrete	1	140.0	90	460	12800	1	467	467 Explosive		\$7,830	\$3,564	467	467	\$ 9.16	\$4,275	\$ 7,821
Warehouse building																	
Roof	Steel	1	120.0	106	450	12000	1	467	467 Mixture		\$7,290	\$3,402	467	467	\$ 9.74	\$4,545	\$ 7,947
Wall	Steel	1	120.0	106	450	12000	39	18200	18200 Mixture		\$7,290	\$132,678	850	850	\$ 9.74	\$8,331	\$141,009
Floor	Concrete	1	120.0	106	450	12000	1	467	467 Explosive		\$7,830	\$3,564	467	467	\$ 9.16	\$4,275	\$ 7,821
Warehouse building																	
Roof	Steel	1	120.0	82	404	9840	1	364	364 Mixture		\$7,290	\$2,667	364	364	\$ 9.74	\$3,550	\$ 6,207
Wall	Steel	1	120.0	82	404	9840	36	14213	14213 Mixture		\$7,290	\$103,615	584	584	\$ 9.74	\$5,694	\$109,309
Floor	Concrete	1	120.0	82	404	9840	1	364	364 Explosive		\$7,830	\$2,664	364	364	\$ 9.16	\$3,336	\$ 6,003
Utility																	
Floor	Concrete	1	80.0	106	370	8400	0.66667	207	207 Explosive		\$7,830	\$1,624	207	207	\$ 9.16	\$1,900	\$ 3,524
Floor	Concrete	1	100.0	20	240	2000	0.66667	49	49 Explosive		\$7,830	\$387	49	49	\$ 9.16	\$452	\$ 835
NORTH SHOP																	
Roof	Steel	1	80.0	100	360	8000	1	296	296 Mixture		\$7,290	\$2,160	296	296	\$ 9.74	\$2,886	\$ 5,046
Wall	Steel	1	80.0	100	360	8000	19	5630	5630 Mixture		\$7,290	\$41,040	253	253	\$ 9.74	\$2,467	\$43,507
Floor	Concrete	1	80.0	100	360	8000	0.66667	198	198 Explosive		\$7,830	\$1,547	198	198	\$ 9.16	\$1,809	\$ 3,356
SAMPLE BUILDINGS (2006)																	
Building																	
Roof	Steel	2	15.0	15	60	225	1	8	17 Mixture		\$7,290	\$122	8	17	\$ 9.74	\$162	\$ 284
Wall	Steel	2	15.0	15	60	225	158	158	317 Mixture		\$7,290	\$2,309	42	84	\$ 9.74	\$822	\$3,131
Foundation	Concrete	2	4.0	0.5	9	2	60	20	40 Explosive		\$7,830	\$313	20	40	\$ 9.16	\$368	\$ 680
Pumps																	
Foundation	Concrete	2	4.0	0.5	9	2	84	28	56 Explosive		\$7,830	\$438	28	56	\$ 9.16	\$513	\$ 951
QUIEST TELEPHONE TOWERS (2006)																	
Foundation																	
Tower	Concrete	2	4.0	1	10	4	46	18	36 Explosive		\$7,830	\$278	18	36	\$ 9.16	\$326	\$ 604
Tower																	
Wall	Steel	1	10.0	10	40	100	180	667	667 Mixture		\$7,290	\$4,960	267	267	\$ 9.74	\$2,597	\$ 7,457
Wall	Steel	1	10.0	10	40	100	100	370	370 Mixture		\$7,290	\$2,700	148	148	\$ 9.74	\$1,443	\$ 4,143
GUARD SHACK & TRUCK SCALE (2006)																	
Scale																	
Floor	Concrete	1	120.0	12	264	1440	5	267	267 Explosive		\$7,830	\$2,068	267	267	\$ 9.16	\$2,443	\$ 4,511
Foundation	Concrete	1	4.0	0.5	9	2	264	88	88 Explosive		\$7,830	\$688	88	88	\$ 9.16	\$806	\$ 1,495
Building																	
Roof	Wood	1	40.0	12	104	480	1	19	18 Mixture		\$7,290	\$130	18	18	\$ 9.74	\$175	\$ 303
Wall	Wood	1	40.0	12	104	480	7	124	124 Mixture		\$7,290	\$907	27	27	\$ 9.74	\$263	\$1,170
Foundation	Concrete	1	4.0	0.5	9	2	104	35	35 Explosive		\$7,830	\$271	35	35	\$ 9.16	\$318	\$ 586
WAREHOUSE ADDITION (2006)																	
Roof	Steel	1	100.0	100	400	10000	1	370	370 Mixture		\$7,290	\$2,700	370	370	\$ 9.74	\$3,607	\$ 6,307
Wall	Steel	1	100.0	100	400	10000	14	5186	5186 Mixture		\$7,290	\$37,800	207	207	\$ 9.74	\$2,020	\$ 39,820
LIGHT DUTY VEHICLE WASH (2006)																	
Floor	Concrete	1	40.0	20	120	800	0.5	15	15 Explosive		\$7,830	\$116	15	15	\$ 9.16	\$136	\$ 252
SHOP ADDITION (2006)																	
Roof	Steel	1	120.0	80	400	9600	1	366	366 Mixture		\$7,290	\$2,662	366	366	\$ 9.74	\$3,493	\$ 6,055
Wall	Steel	1	120.0	80	400	9600	59	20978	20978 Mixture		\$7,290	\$152,028	874	874	\$ 9.74	\$8,513	\$161,441
Floor	Concrete	2	40.0	20	120	800	0.5	15	30 Explosive		\$7,830	\$232	15	30	\$ 9.16	\$271	\$ 501
Floor	Concrete	1	120.0	80	400	9600	1.5	533	533 Explosive		\$7,830	\$4,176	533	533	\$ 9.16	\$4,865	\$ 9,041
NORTH PIT CONVEYOR (2006)																	
Building																	
Roof	Steel	3	70.0	66	272	4620	1	171	513 Mixture		\$7,290	\$3,742	171	513	\$ 9.74	\$5,000	\$ 8,742
Wall	Steel	3	70.0	66	272	4620	91	13860	41590 Mixture		\$7,290	\$303,118	816	2,448	\$ 9.74	\$23,844	\$326,962
Foundation	Concrete	3	4.0	1	10	4	272	101	302 Explosive		\$7,830	\$2,366	101	302	\$ 9.16	\$2,756	\$ 5,135
Building																	
Roof	Steel	2	64.0	56	240	3064	1	133	265 Mixture		\$7,290	\$1,035	133	286	\$ 9.74	\$2,586	\$ 4,521
Wall	Steel	2	64.0	56	240	3064	81	10752	21504 Mixture		\$7,290	\$156,784	720	1,440	\$ 9.74	\$14,026	\$170,700
Foundation	Concrete	2	4.0	1	10	4	240	89	178 Explosive		\$7,830	\$1,362	89	178	\$ 9.16	\$1,628	\$ 3,020
Tube																	
Wall	Steel	1	5.0	5	20	25	10000	9259	9259 Mixture		\$7,290	\$67,500	7,407	7,407	\$ 9.74	\$72,148	\$ 139,648
COAL BLENDING BUILDING																	
Roof	Steel	2	100.0	40	280	4000	1	148	296 Mixture		\$7,290	\$2,160	148	296	\$ 9.74	\$2,886	\$ 5,046
Wall	Steel	2	100.0	40	280	4000	96	14867	20333 Mixture		\$7,290	\$139,940	1,027	2,053	\$ 9.74	\$19,896	\$220,836
Foundation	Concrete	2	4.0	1	10	4	280	104	207 Explosive		\$7,830	\$1,624	104	207	\$ 9.16	\$1,900	\$ 3,524
TRUSS BRIDGE (2007)																	
Bridge																	
Wall	Steel	1	212.0	14	452	2968	16	1649	1649 Mixture		\$7,290	\$12,020	251	251	\$ 9.74	\$2,446	\$ 14,466
Approach slab																	
Floor	Concrete	2	25.0	14	78	350	1	13	26 Explosive		\$7,830	\$203	13	26	\$ 9.16	\$237	\$ 440
Abutment Joint																	
Floor	Concrete	2	3.0	20	48	80	2.5	6	11 Explosive		\$7,830	\$87	6	11	\$ 9.16	\$102	\$ 189
</																	

APPENDIX B-RECLAMATION BOND																	
TABLE B6-INCREMENTAL BOND-STRUCTURES DEMOLITION																	
Description	Material	Units	Length (ft)	Width or Radius (ft)	Perimeter (ft)	Area (sq ft)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)	Demolition Cost (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Cost (\$)	Subtotal
NORTH SHOP/OFFICE/WAREHOUSE																	
Office and Lockers																	
Roof	Steel	1	125.0	68	386	8600	1	315	315 Mixture	\$7,290	\$2,295	315	315	\$	9.74	\$3,068	\$,361
Wall	Steel	68	125.0	68	386	8600	11	3463	3463 Mixture	\$7,290	\$25,246	107	107	\$	9.74	\$1,032	\$8,777
Floor	Concrete	1	125.0	68	386	8600	1	315	315 Explosive	\$7,830	\$2,445	315	315	\$	9.18	\$2,884	\$,249
Foundation	Concrete	1	4.0	1	10	4	386	143	143 Explosive	\$7,830	\$1,119	143	143	\$	9.18	\$1,310	\$,249
Office and warehouse																	
Roof	Steel	1	125.0	70	390	8750	1	324	324 Mixture	\$7,290	\$2,363	324	324	\$	9.74	\$3,156	\$,519
Wall	Steel	1	125.0	70	390	8750	23	7454	7454 Mixture	\$7,290	\$64,338	332	332	\$	9.74	\$3,236	\$7,673
Floor	Concrete	1	125.0	70	390	8750	1	324	324 Explosive	\$7,830	\$2,538	324	324	\$	9.18	\$2,969	\$,508
Foundation	Concrete	1	4.0	1	10	4	390	144	144 Explosive	\$7,830	\$1,131	144	144	\$	9.18	\$1,323	\$,264
Shop																	
Roof	Steel	1	126.0	117	494	14825	1	542	542 Mixture	\$7,290	\$3,949	542	542	\$	9.74	\$5,278	\$,225
Floor	Steel	1	126.0	117	494	14825	59	3195	3195 Mixture	\$7,290	\$232,976	1,068	1,068	\$	9.74	\$10,301	\$43,278
Foundation	Concrete	1	126.0	117	494	14825	1	542	542 Explosive	\$7,830	\$4,244	542	542	\$	9.18	\$4,863	\$,203
Foundation	Concrete	1	4.0	1	10	4	484	179	179 Explosive	\$7,830	\$1,404	179	179	\$	9.18	\$1,642	\$,340
Shop pump and gas bottle dock																	
Roof	Steel	1	75.0	16	182	1200	1	44	44 Mixture	\$7,290	\$324	44	44	\$	9.74	\$433	\$73
Wall	Steel	1	75.0	16	182	1200	13	578	578 Mixture	\$7,290	\$4,212	88	88	\$	9.74	\$854	\$,585
Floor	Concrete	1	75.0	16	182	1200	14	44	44 Explosive	\$7,830	\$348	44	44	\$	9.18	\$407	\$76
Foundation	Concrete	1	4.0	1	10	4	182	67	67 Explosive	\$7,830	\$528	67	67	\$	9.18	\$717	\$,145
Outside wash area																	
Floor	Concrete	1	63.0	58	242	3654	1	136	136 Explosive	\$7,830	\$1,080	136	136	\$	9.18	\$1,240	\$,209
Outside storage																	
Roof	Steel	1	45.0	5	100	225	1	8	8 Mixture	\$7,290	\$5	8	8	\$	9.74	\$8	\$1
Wall	Steel	1	45.0	5	100	225	7	58	58 Mixture	\$7,290	\$25	26	26	\$	9.74	\$253	\$78
Floor	Concrete	1	45.0	5	100	225	1	8	8 Explosive	\$7,830	\$25	8	8	\$	9.18	\$78	\$12
Equipment wash																	
Floor	Concrete	1	75.0	60	270	4500	1	167	167 Explosive	\$7,830	\$1,305	167	167	\$	9.18	\$1,527	\$,282
																	\$ 386,534
NORTH COAL HANDLING FACILITIES																	
Stilling shed																	
Roof	Steel	1	48.0	22	140	1056	1	39	39 Mixture	\$7,290	\$286	39	39	\$	9.74	\$381	\$66
Wall	Steel	22	48.0	22	140	1056	34	1173	1173 Mixture	\$7,290	\$8,564	156	156	\$	9.74	\$1,516	\$10,999
Floor	Concrete	1	48.0	22	140	1056	1	39	39 Explosive	\$7,830	\$306	39	39	\$	9.18	\$369	\$64
Foundation	Concrete	1	4.0	1	10	4	140	52	52 Explosive	\$7,830	\$406	52	52	\$	9.18	\$475	\$81
Truck dump hopper																	
Roof	Concrete	1	48.0	22	140	1056	1	39	39 Explosive	\$7,830	\$306	39	39	\$	9.18	\$368	\$64
Wall	Concrete	1	48.0	22	140	1056	81	316	316 Explosive	\$7,830	\$2,477	316	316	\$	9.18	\$2,807	\$,574
Floor	Concrete	1	48.0	22	140	1056	1	39	39 Explosive	\$7,830	\$306	39	39	\$	9.18	\$368	\$64
Foundation	Concrete	1	4.0	1	10	4	140	52	52 Explosive	\$7,830	\$406	52	52	\$	9.18	\$475	\$81
Secondary crusher																	
Roof	Concrete	1	44.0	26	140	1144	1	42	42 Explosive	\$7,830	\$332	42	42	\$	9.18	\$386	\$70
Wall	Concrete	1	44.0	26	140	1144	26	146	146 Explosive	\$7,830	\$1,137	146	146	\$	9.18	\$1,330	\$2,467
Floor	Concrete	1	44.0	26	140	1144	1	42	42 Explosive	\$7,830	\$332	42	42	\$	9.18	\$386	\$70
Foundation	Concrete	1	4.0	1	10	4	140	52	52 Explosive	\$7,830	\$406	52	52	\$	9.18	\$475	\$81
Secondary Crusher MCC																	
Roof	Steel	3	12.0	24	72	288	1	11	11 Mixture	\$7,290	\$203	11	11	\$	9.74	\$212	\$45
Wall	Steel	3	12.0	24	72	288	9	96	96 Mixture	\$7,290	\$2,100	24	24	\$	9.74	\$234	\$2,801
Floor	Concrete	3	12.0	24	72	288	1	11	11 Explosive	\$7,830	\$251	11	11	\$	9.18	\$230	\$44
Foundation	Concrete	3	4.0	1	10	4	72	27	27 Explosive	\$7,830	\$208	27	27	\$	9.18	\$244	\$359
Conveyer																	
Wall	Steel	1	NA	7.5	47	178,715	8957	56960	56960 Mixture	\$7,290	\$413,051	15,108	15,108	\$	9.74	\$147,165	\$602,216
Roof	Steel	1	355.0	108	948	39420	1	1490	1490 Mixture	\$7,290	\$10,843	1,460	1,460	\$	9.74	\$14,220	\$24,864
Floor	Steel	1	355.0	108	948	39420	154	22490	22490 Mixture	\$7,290	\$1,636,084	6,396	6,396	\$	9.74	\$62,554	\$1,691,038
Foundation	Concrete	1	355.0	108	948	39420	3	4360	4360 Explosive	\$7,830	\$34,298	4,360	4,360	\$	9.18	\$40,121	\$74,418
Foundation	Concrete	1	4.0	1	10	4	946	350	350 Explosive	\$7,830	\$2,743	350	350	\$	9.18	\$3,029	\$,563
Slit Storage East MCC																	
Roof	Steel	1	12.0	24	72	288	1	11	11 Mixture	\$7,290	\$78	11	11	\$	9.74	\$104	\$182
Wall	Steel	1	12.0	24	72	288	1	11	11 Mixture	\$7,290	\$78	24	24	\$	9.74	\$234	\$24
Floor	Concrete	1	12.0	24	72	288	1	11	11 Explosive	\$7,830	\$84	11	11	\$	9.18	\$96	\$181
Foundation	Concrete	1	4.0	1	10	4	72	27	27 Explosive	\$7,830	\$208	27	27	\$	9.18	\$244	\$453
Slit Storage West MCC																	
Roof	Steel	1	12.0	24	72	288	1	11	11 Mixture	\$7,290	\$78	11	11	\$	9.74	\$104	\$182
Wall	Steel	1	12.0	24	72	288	9	96	96 Mixture	\$7,290	\$700	24	24	\$	9.74	\$234	\$24
Floor	Concrete	1	12.0	24	72	288	1	11	11 Explosive	\$7,830	\$84	11	11	\$	9.18	\$96	\$181
Foundation	Concrete	1	4.0	1	10	4	72	27	27 Explosive	\$7,830	\$208	27	27	\$	9.18	\$244	\$453
Coal handling M and E																	
Roof	Steel	1	60.0	50	220	3000	1	111	111 Mixture	\$7,290	\$810	111	111	\$	9.74	\$1,082	\$1,862
Wall	Steel	1	60.0	50	220	3000	29	2556	2556 Mixture	\$7,290	\$18,630	167	167	\$	9.74	\$1,629	\$20,456
Floor	Concrete	1	60.0	50	220	3000	1	111	111 Explosive	\$7,830	\$870	111	111	\$	9.18	\$1,018	\$1,966
Foundation	Concrete	1	4.0	1	10	4	220	81	81 Explosive	\$7,830	\$636	81	81	\$	9.18	\$746	\$1,394
Two scale building																	
Roof	Steel	1	10.0	10	40	100	1	4	4 Mixture	\$7,290	\$27	4	4	\$	9.74	\$36	\$3
Wall	Steel	1	10.0	10	40	100	7	26	26 Mixture	\$7,290	\$189	10	10	\$	9.74	\$101	\$20
Floor	Concrete	1	10.0	10	40	100	1	4	4 Explosive	\$7,830	\$29	4	4	\$	9.18	\$34	\$3
Foundation	Concrete	1	20.0	10	60	200	24	178	178 Explosive	\$7,830	\$1,362	178	178	\$	9.18	\$1,629	\$3,020
																	\$ 2,419,829

North Antelope Rochelle 569

2020 Annual Report
Revised January 2021

Rawhide Mine 240

APPENDIX B-RECLAMATION BOND TABLE B6-INCREMENTAL BOND-STRUCTURES DEMOLITION													
Description	Material	Units	Length (ft)	Width or Radius (ft)	Perimeter (ft)	Area (sq ft)	Height (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Unit Demolition Cost (\$/cy)	Demolition Cost (\$)	Subtotal (\$)
NORTH OTHER BUILDINGS AND STRUCTURES													
Lab													
Roof	Steel	1	30	80	190	1800	1	67	67 Mixture		\$7,290	\$	486
Wall	Steel	1	30	80	190	1800	8	600	600 Mixture		\$7,290	\$	4,374
Floor	Concrete	1	30	80	190	1800	1	67	67 Explosive		\$7,830	\$	522
Foundation	Concrete	1	4	1	10	4	4	1	1 Explosive		\$7,830	\$	12
Bulk pile storage													
Roof	Steel	1	22	36	116	792	1	29	29 Mixture		\$7,290	\$	214
Wall	Steel	1	22	36	116	792	14	411	411 Mixture		\$7,290	\$	2,984
Floor	Concrete	1	22	36	116	792	1	29	29 Explosive		\$7,830	\$	230
Foundation	Concrete	1	4	1	10	4	4	1	1 Explosive		\$7,830	\$	12
Water treatment and emergency equipment													
Roof	Steel	1	40	60	200	2400	1	86	86 Mixture		\$7,290	\$	648
Wall	Steel	1	40	60	200	2400	13	1158	1158 Mixture		\$7,290	\$	8,424
Floor	Concrete	1	40	60	200	2400	1	86	86 Explosive		\$7,830	\$	666
Foundation	Concrete	1	4	1	10	4	4	1	1 Explosive		\$7,830	\$	12
Warehouse storage tent													
Roof	Steel	1	67	100	334	6700	1	248	248 Mixture		\$7,290	\$	1,809
Wall	Steel	1	67	100	334	6700	36	9430	9430 Mixture		\$7,290	\$	68,742
Floor	Concrete	1	67	100	334	6700	1	248	248 Explosive		\$7,830	\$	1,943
Security													
Roof	Steel	1	15	10	50	150	1	6	6 Mixture		\$7,290	\$	41
Wall	Steel	1	15	10	50	150	7	36	36 Mixture		\$7,290	\$	264
Floor	Concrete	1	15	10	50	150	1	6	6 Explosive		\$7,830	\$	44
Foundation	Concrete	1	4	1	10	4	4	1	1 Explosive		\$7,830	\$	12
Gasoline storage (horizontal)													
Roof	Steel	1	NA	7	44	153,938	40	228	228 Mixture		\$7,290	\$	1,663
Wall	Concrete	1	NA	7	44	153,938	1	6	6 Explosive		\$7,830	\$	45
Water storage													
Roof	Steel	1	NA	10	63	314,159	1	12	12 Mixture		\$7,290	\$	85
Wall	Steel	1	NA	10	63	314,159	28	337	337 Mixture		\$7,290	\$	2,460
Floor	Concrete	1	NA	10	63	314,159	1	12	12 Explosive		\$7,830	\$	91
Solid waste storage													
Roof	Concrete	1	50	30	190	1500	1	6	6 Explosive		\$7,830	\$	48
Communications													
Roof	Steel	1	10	10	40	100	1	4	4 Mixture		\$7,290	\$	27
Wall	Steel	1	10	10	40	100	7	26	26 Mixture		\$7,290	\$	189
Floor	Concrete	1	10	10	40	100	1	4	4 Explosive		\$7,830	\$	29
Conveyor culvert crossing													
Roof	Concrete	1	NA	7.5	47	178,715	150	262	262 Explosive		\$7,830	\$	2,060
Drillhole Erection Pad (2011)													
Roof	Concrete	1	66	66	272	4624	2	343	343 Explosive		\$7,830	\$	2,682
Facilities Subtotal =													\$ 6,987,113

Appendix B- Reclamation Bond
Table B1-Reclamation Bond Summary

Area Bond (Including Backfilling, Rough and Final Grading)

Incremental Bond

Topsoil Removal
Miscellaneous Overburden Handling
Demolition
Removal of Monitoring Structures
Scarification, Topsoil Replacement, and Revegetation

Table
Reference
B2
\$ 16,179,356

B3
B4
B5, B6, B7
B8, B9
B13
\$0
\$11,673
\$2,358,345
\$130,703
\$4,716,151

Subtotal = **\$7,216,872**

Area and Incremental Bond Subtotal = **\$23,396,228**

Miscellaneous Costs

Project design
Contractor profit, overhead, equipment owner costs, labor, mobilization and demobilization
Preconstruction investigation
Project management
Environmental and utility monitoring for ten years
Site security and liability insurance (4.9 years @ \$250,000 per year)
Long term administration
Unknown Costs

Percentage
\$250,000
13.5% **\$3,158,491**
1.5% **\$350,943**
2.6% **\$614,854**
1.0% **\$233,962**
\$1,225,000
\$320,000
5.0% **\$1,169,811**

\$7,323,062

Move Mining Shovel (80 Cubic Yards)

\$2,158,491

Annual Report Bond Total = **\$32,877,781**

Annual Report Bond Total (Rounded) = **\$32,878,000**

Note:

1. The unit cost of topsoil replacement, scarifying, and seeding and bond retainage details are derived in Table B13.
2. Site security duration is discussed in the Introduction and Assumptions section of the bond text.
3. For this year's reclamation bond there was no topsoil removed and stockpiled during the reclamation process. Topsoil removed and direct hauled to the replacement area is shown on the lower half of Table B10.

Appendix B- Reclamation Bond
Table B5-Incremental Bond-Demolition Summary

Item	Appendix	Quantity	Unit Price (\$/ft)	Subtotal
Remove fence (ft)	H	20,924	\$0.36 feet	\$ 7,533
Build fence (ft)	H	18,075	\$1.71 feet	\$ 30,908
Remove cattle guard	H	2	\$ 1,620 each	\$3,240
Install cattle guard	H	2	\$ 14,750 each	\$29,500
Remove asphalt surfaces (acres)	I	6.40	\$619.90 acre	\$ 3,967
Remove bridges			each	\$ -
Remove culverts (see B-15)	J			\$ 113,895
Remove railroad track (ft)	K	34,685	\$8.79 feet	\$ 304,881
Remove railroad ballast (cy)	K	12,846	\$4.30 cubic yard	\$ 55,239
Remove structures (see B-14)	K			\$ 1,809,182
				\$ 2,358,345

Notes:

1. The Appendix Column refers to the appendix in WDEQ-LQD Guideline 12.
2. The unit linear cost to remove ballast includes the WDEQ-LQD Guideline 12 Appendix K cost to remove ballast per bank cubic yard. Bank cubic yards per linear foot assumes a ten feet (10') wide section one foot deep, which is equal to 10/27 cubic yards per foot.
3. Fence to be removed is assumed to be existing fence outside of the bond affected area. Fence to be built is the approximate replacement fence needed to protect areas determined from the bond.

Appendix B- Reclamation Bond Table B7-Incremental Bond-Structure Demolition																		
Description	Structure Type	Material	Units	Length (ft)	Width or Dia (ft)	Perimeter (ft)	Area (sf)	Height or Thickness (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Demolition Unit Cost (\$/cy)	Demolition Subtotal (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Subtotal (\$)	Subtotal
Operations Offices	Roof	Steel	1	100	98	396	9800	1	363	363 Mixture	\$ 7.29	\$ 2,646	363	363	\$ 9.74	\$ 3,535	\$ 6,181	
	Walls	Steel	1	100	98	396	9800	15	5444	5444 Mixture	\$ 7.29	\$ 39,690	220	220	\$ 9.74	\$ 2,143	\$ 41,833	
	Floor	Concrete	1	100	98	396	9800	1	363	363 Explosive	\$ 7.83	\$ 2,842	363	363	\$ 9.16	\$ 3,325	\$ 6,167	
	Foundation	Concrete	1	100	98	396	9800	4	59	59 Explosive	\$ 7.83	\$ 459	59	59	\$ 9.16	\$ 537	\$ 997	
Warehouse	Roof	Steel	1	100	100	400	10000	1	370	370 Mixture	\$ 7.29	\$ 2,700	370	370	\$ 9.74	\$ 3,607	\$ 6,307	
	Walls	Steel	1	100	100	400	10000	27	10000	10000 Mixture	\$ 7.29	\$ 72,900	400	400	\$ 9.74	\$ 3,896	\$ 76,796	
	Floor	Concrete	1	100	100	400	10000	1	370	370 Explosive	\$ 7.83	\$ 2,900	370	370	\$ 9.16	\$ 3,393	\$ 6,293	
	Foundation	Concrete	1	100	100	400	10000	4	59	59 Explosive	\$ 7.83	\$ 464	59	59	\$ 9.16	\$ 543	\$ 1,007	
Warehouse Overhang	Roof	Steel	1	50	18	136	900	1	33	33 Mixture	\$ 7.29	\$ 243	33	33	\$ 9.74	\$ 325	\$ 568	
	Walls	Steel	1	50	18	136	900	15	500	500 Mixture	\$ 7.29	\$ 3,645	76	76	\$ 9.74	\$ 736	\$ 4,381	
	Floor	Concrete	1	50	18	136	900	1	33	33 Explosive	\$ 7.83	\$ 261	33	33	\$ 9.16	\$ 305	\$ 566	
Warehouse Offices	Roof	Steel	1	60	30	180	1800	1	67	67 Mixture	\$ 7.29	\$ 486	67	67	\$ 9.74	\$ 649	\$ 1,135	
	Walls	Steel	1	60	30	180	1800	15	1000	1000 Mixture	\$ 7.29	\$ 7,290	100	100	\$ 9.74	\$ 974	\$ 8,264	
	Floor	Concrete	1	60	30	180	1800	1	67	67 Explosive	\$ 7.83	\$ 522	67	67	\$ 9.16	\$ 611	\$ 1,133	
	Foundation	Concrete	1	60	30	180	1800	4	27	27 Explosive	\$ 7.83	\$ 209	27	27	\$ 9.16	\$ 244	\$ 453	
Maintenance Planning Offices	Roof	Steel	1	65	30	190	1950	1	72	72 Mixture	\$ 7.29	\$ 527	72	72	\$ 9.74	\$ 703	\$ 1,230	
	Walls	Steel	1	65	30	190	1950	10	722	722 Mixture	\$ 7.29	\$ 5,265	70	70	\$ 9.74	\$ 685	\$ 5,950	
	Floor	Concrete	1	65	30	190	1950	1	72	72 Explosive	\$ 7.83	\$ 566	72	72	\$ 9.16	\$ 662	\$ 1,227	
	Foundation	Concrete	1	65	30	190	1950	4	28	28 Explosive	\$ 7.83	\$ 220	28	28	\$ 9.16	\$ 258	\$ 478	
Outside Wash Area	Floor	Concrete	1	63	58	242	3654	1	135	135 Explosive	\$ 7.83	\$ 1,060	135	135	\$ 9.16	\$ 1,240	\$ 8,886	
Warehouse Tent	Roof	Steel	1	100	65	330	6500	1	241	241 Mixture	\$ 7.29	\$ 1,755	241	241	\$ 9.74	\$ 2,345	\$ 2,299	
	Walls	Steel	1	100	65	330	6500	20	4815	4815 Mixture	\$ 7.29	\$ 35,100	244	244	\$ 9.74	\$ 2,381	\$ 4,100	
	Floor	Concrete	1	100	65	330	6500	1	241	241 Explosive	\$ 7.83	\$ 1,885	241	241	\$ 9.16	\$ 2,205	\$ 37,481	
Shop	Roof	Steel	1	243	100	686	24300	1	900	900 Mixture	\$ 7.29	\$ 6,561	900	900	\$ 9.74	\$ 8,766	\$ 4,090	
	Walls	Steel	1	243	100	686	24300	60	54000	54000 Mixture	\$ 7.29	\$ 393,660	1,524	1,524	\$ 9.74	\$ 14,848	\$ 45,671	
	Floor	Concrete	1	243	100	686	24300	1	900	900 Explosive	\$ 7.83	\$ 7,047	900	900	\$ 9.16	\$ 8,244	\$ 15,327	
	Foundation	Concrete	1	243	100	686	24300	4	102	102 Explosive	\$ 7.83	\$ 796	102	102	\$ 9.16	\$ 931	\$ 408,508	
Shop Lean-to	Roof	Steel	1	45	5	100	225	1	8	8 Mixture	\$ 7.29	\$ 61	8	8	\$ 9.74	\$ 81	\$ 15,291	
	Walls	Steel	1	45	5	100	225	8	67	67 Mixture	\$ 7.29	\$ 486	30	30	\$ 9.74	\$ 289	\$ 1,727	
	Floor	Concrete	1	45	5	100	225	1	8	8 Explosive	\$ 7.83	\$ 65	8	8	\$ 9.16	\$ 76	\$ 440,853	
Lubrication Storage	Roof	Steel	1	50	40	180	2000	1	74	74 Mixture	\$ 7.29	\$ 540	74	74	\$ 9.74	\$ 721	\$ 142	
	Walls	Steel	1	50	40	180	2000	20	1481	1481 Mixture	\$ 7.29	\$ 10,800	133	133	\$ 9.74	\$ 1,299	\$ 775	
	Floor	Concrete	1	50	40	180	2000	1	74	74 Explosive	\$ 7.83	\$ 580	74	74	\$ 9.16	\$ 679	\$ 1,058	
	Foundation	Concrete	1	50	40	180	2000	4	27	27 Explosive	\$ 7.83	\$ 209	27	27	\$ 9.16	\$ 244	\$ 15,072	
Modular Trailer	Roof	Steel	1	65	30	190	1950	1	72	72 Mixture	\$ 7.29	\$ 527	72	72	\$ 9.74	\$ 703	\$ 1,230	
	Walls	Steel	1	65	30	190	1950	8	578	578 Mixture	\$ 7.29	\$ 4,212	56	56	\$ 9.74	\$ 546	\$ 4,760	
	Floor	Concrete	1	65	30	190	1950	1	72	72 Explosive	\$ 7.83	\$ 566	72	72	\$ 9.16	\$ 662	\$ 1,227	
First Aid	Roof	Steel	1	75	40	230	3000	1	111	111 Mixture	\$ 7.29	\$ 810	111	111	\$ 9.74	\$ 1,082	\$ 7,217	
	Walls	Steel	1	75	40	230	3000	10	1111	1111 Mixture	\$ 7.29	\$ 8,100	85	85	\$ 9.74	\$ 830	\$ 1,892	

Appendix B- Reclamation Bond																		
Table B7-Incremental Bond-Structure Demolition																		
Description	Structure Type	Material	Units	Length (ft)	Width or Dia. (ft)	Perimeter (ft)	Area (sf)	Height or Thickness (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Demolition Unit Cost (\$/cy)	Demolition Subtotal (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Subtotal (\$)	Subtotal
Guard Shack	Floor	Concrete	1	75	40	230	3000	1	111	111	111 Explosive	\$ 7.83	\$ 870	111	111	\$ 9.16	\$ 1,018	\$ 1,888
	Foundation	Concrete	1	75	40	230	3000	4	34	34	34 Explosive	\$ 7.83	\$ 267	34	34	\$ 9.16	\$ 312	\$ 579
																		\$ 13,289
	Roof	Steel	1	27	15	84	405	1	15	15	15 Mixture	\$ 7.29	\$ 109	15	15	\$ 9.74	\$ 146	\$ 255
	Walls	Steel	1	27	15	84	405	8	120	120	Mixture	\$ 7.29	\$ 875	25	25	\$ 9.74	\$ 242	\$ 1,117
Administration Offices	Floor	Concrete	1	27	15	84	405	1	15	15	15 Explosive	\$ 7.83	\$ 117	15	15	\$ 9.16	\$ 137	\$ 255
	Foundation	Concrete	1	27	15	84	405	4	12	12	12 Explosive	\$ 7.83	\$ 97	12	12	\$ 9.16	\$ 114	\$ 211
																		\$ 1,839
	Roof	Steel	1	103	50	306	5150	1	191	191	Mixture	\$ 7.29	\$ 1,391	191	191	\$ 9.74	\$ 1,858	\$ 3,248
	Walls	Steel	1	103	50	306	5150	14	2670	2670	Mixture	\$ 7.29	\$ 19,467	159	159	\$ 9.74	\$ 1,545	\$ 21,012
Western Training Center	Floor	Concrete	50	103	50	306	5150	1	191	191	191 Explosive	\$ 7.83	\$ 1,494	191	191	\$ 9.16	\$ 1,747	\$ 3,241
	Foundation	Concrete	1	103	50	306	5150	4	45	45	45 Explosive	\$ 7.83	\$ 355	45	45	\$ 9.16	\$ 415	\$ 770
																		\$ 28,272
	Roof	Steel	1	100	95	390	9500	1	352	352	Mixture	\$ 7.29	\$ 2,565	352	352	\$ 9.74	\$ 3,427	\$ 5,992
	Walls	Steel	1	100	95	390	9500	14	4926	4926	Mixture	\$ 7.29	\$ 35,910	202	202	\$ 9.74	\$ 1,970	\$ 37,880
Laboratory	Floor	Concrete	96	100	95	390	9500	1	352	352	352 Explosive	\$ 7.83	\$ 2,755	352	352	\$ 9.16	\$ 3,223	\$ 5,978
	Foundation	Concrete	1	100	95	390	9500	4	58	58	58 Explosive	\$ 7.83	\$ 452	58	58	\$ 9.16	\$ 529	\$ 982
																		\$ 50,831
	Roof	Steel	1	112	50	324	5600	1	207	207	Mixture	\$ 7.29	\$ 1,512	207	207	\$ 9.74	\$ 2,020	\$ 3,532
	Walls	Steel	50	112	50	324	5600	14	2904	2904	Mixture	\$ 7.29	\$ 21,168	168	168	\$ 9.74	\$ 1,636	\$ 22,804
Pump House	Floor	Concrete	1	112	50	324	5600	1	207	207	207 Explosive	\$ 7.83	\$ 1,624	207	207	\$ 9.16	\$ 1,900	\$ 3,524
	Foundation	Concrete	1	112	50	324	5600	4	48	48	48 Explosive	\$ 7.83	\$ 376	48	48	\$ 9.16	\$ 440	\$ 816
																		\$ 30,676
	Roof	Steel	1	35	30	130	1050	1	39	39	Mixture	\$ 7.29	\$ 284	39	39	\$ 9.74	\$ 379	\$ 662
	Walls	Steel	1	35	30	130	1050	20	778	778	Mixture	\$ 7.29	\$ 5,670	96	96	\$ 9.74	\$ 938	\$ 6,608
IPCC Stilling Shed	Floor	Concrete	1	35	30	130	1050	1	39	39	39 Explosive	\$ 7.83	\$ 305	39	39	\$ 9.16	\$ 356	\$ 661
	Foundation	Concrete	1	35	30	130	1050	4	19	19	19 Explosive	\$ 7.83	\$ 151	19	19	\$ 9.16	\$ 176	\$ 327
																		\$ 8,258
	Roof	Steel	1	72	43	230	3096	1	115	115	Mixture	\$ 7.29	\$ 836	115	115	\$ 9.74	\$ 1,117	\$ 1,953
	Walls	Steel	1	72	43	230	3096	36	4128	4128	Mixture	\$ 7.29	\$ 30,093	307	307	\$ 9.74	\$ 2,987	\$ 33,080
IPCC hot starts	Floor	Concrete	43	72	43	230	3096	1	115	115	115 Explosive	\$ 7.83	\$ 898	115	115	\$ 9.16	\$ 1,050	\$ 1,948
	Foundation	Concrete	1	72	43	230	3096	4	34	34	34 Explosive	\$ 7.83	\$ 267	34	34	\$ 9.16	\$ 312	\$ 579
																		\$ 37,560
	Roof	Steel	1	755	3	1516	2265	1	84	84	Mixture	\$ 7.29	\$ 612	84	84	\$ 9.74	\$ 817	\$ 1,429
	Walls	Steel	1	755	3	1516	2265	1	1537	1537	Mixture	\$ 7.29	\$ 11,205	1,537	1,537	\$ 9.74	\$ 14,971	\$ 26,176
In-pit crusher conveyor (IPCC)	Floor	Steel	1	8300	5	16610	41500	4	6148	6148	Mixture	\$ 7.29	\$ 44,820	2,461	2,461	\$ 9.74	\$ 23,968	\$ 68,788
	Foundation	Steel	1	8300	10	16620	83000	1	3074	3074	Mixture	\$ 7.29	\$ 22,410	3,074	3,074	\$ 9.74	\$ 29,941	\$ 52,351
																		\$ 147,315
	Roof	Steel	1	50	30	160	1500	1	56	56	Mixture	\$ 7.29	\$ 405	56	56	\$ 9.74	\$ 541	\$ 946
	Walls	Steel	1	50	30	160	1500	10	556	556	Mixture	\$ 7.29	\$ 4,050	59	59	\$ 9.74	\$ 577	\$ 4,627
IPCC truck dump MCC	Floor	Concrete	1	50	30	160	1500	1	56	56	56 Explosive	\$ 7.83	\$ 435	56	56	\$ 9.16	\$ 509	\$ 944
	Foundation	Concrete	1	50	30	160	1500	4	24	24	24 Explosive	\$ 7.83	\$ 186	24	24	\$ 9.16	\$ 217	\$ 403
																		\$ 6,920
	Roof	Steel	1	20	10	60	200	1	7	7	Mixture	\$ 7.29	\$ 54	7	7	\$ 9.74	\$ 72	\$ 126
	Walls	Steel	1	20	10	60	200	10	74	74	Mixture	\$ 7.29	\$ 540	22	22	\$ 9.74	\$ 216	\$ 756
IPCC Drive Station MCC	Floor	Concrete	1	20	10	60	200	1	7	7	7 Explosive	\$ 7.83	\$ 58	7	7	\$ 9.16	\$ 68	\$ 126
	Foundation	Concrete	1	20	10	60	200	4	9	9	9 Explosive	\$ 7.83	\$ 70	9	9	\$ 9.16	\$ 81	\$ 151
	Roof	Steel	1	20	10	60	200	1	7	7	Mixture	\$ 7.29	\$ 54	7	7	\$ 9.74	\$ 72	\$ 126
	Walls	Steel	1	20	10	60	200	10	74	74	Mixture	\$ 7.29	\$ 540	22	22	\$ 9.74	\$ 216	\$ 756

Appendix B- Reclamation Bond Table B7-Incremental Bond-Structure Demolition																		
Description	Structure Type	Material	Units	Length (ft)	Width or Dia. (ft)	Perimeter (ft)	Area (sf)	Height or Thickness (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Demolition Unit Cost (\$/cy)	Demolition Subtotal (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Subtotal (\$)	Subtotal
IPCC surge silo					Radius													\$ 1,159
	Roof	Concrete	1	NA	36	226	4072	1	151	151	Explosive	\$ 7.83	\$ 1,181	151	151	\$ 9.16	\$ 1,381	\$ 2,562
	Walls	Concrete	1	NA	36	226	4072	188	1575	1575	Explosive	\$ 7.83	\$ 12,332	1,575	1,575	\$ 9.16	\$ 14,427	\$ 26,759
	Floor	Concrete	1	NA	36	226	4072	1	151	151	Explosive	\$ 7.83	\$ 1,181	151	151	\$ 9.16	\$ 1,381	\$ 2,562
	Footing	Concrete	1	NA	41	258	5281	4	782	782	Explosive	\$ 7.83	\$ 6,126	782	782	\$ 9.16	\$ 7,167	\$ 13,293
																		\$ 45,176
IPCC surge silo MCC	Roof	Steel	1	20	20	80	400	1	15	15	Mixture	\$ 7.29	\$ 108	15	15	\$ 9.74	\$ 144	\$ 252
	Walls	Steel	1	20	20	80	400	10	148	148	Mixture	\$ 7.29	\$ 1,080	30	30	\$ 9.74	\$ 289	\$ 1,369
	Floor	Concrete	1	20	20	80	400	1	15	15	Explosive	\$ 7.83	\$ 116	15	15	\$ 9.16	\$ 136	\$ 252
	Foundation	Concrete	1	20	20	80	400	4	12	12	Explosive	\$ 7.83	\$ 93	12	12	\$ 9.16	\$ 109	\$ 201
																		\$ 2,074
IPCC well house	Roof	Steel	1	18	12	60	216	1	8	8	Mixture	\$ 7.29	\$ 58	8	8	\$ 9.74	\$ 78	\$ 136
	Walls	Steel	1	18	12	60	216	10	80	80	Mixture	\$ 7.29	\$ 583	22	22	\$ 9.74	\$ 216	\$ 800
	Floor	Concrete	1	18	12	60	216	1	8	8	Explosive	\$ 7.83	\$ 63	8	8	\$ 9.16	\$ 73	\$ 136
	Foundation	Concrete	1	18	12	60	216	4	9	9	Explosive	\$ 7.83	\$ 70	9	9	\$ 9.16	\$ 81	\$ 151
																		\$ 1,223
Crusher	Roof	Steel	1	78	22	200	1716	1	64	64	Mixture	\$ 7.29	\$ 463	64	64	\$ 9.74	\$ 619	\$ 1,082
	Walls	Concrete	1	78	22	200	1716	54	400	400	Explosive	\$ 7.83	\$ 3,132	400	400	\$ 9.16	\$ 3,684	\$ 6,796
	Floor	Concrete	1	78	22	200	1716	1	64	64	Explosive	\$ 7.83	\$ 498	64	64	\$ 9.16	\$ 582	\$ 1,080
	Foundation	Concrete	1	78	22	200	1716	4	30	30	Explosive	\$ 7.83	\$ 232	30	30	\$ 9.16	\$ 271	\$ 503
																		\$ 9,462
Crusher to sampling building conveyor gallery	Roof	Concrete	1	1477	22	2968	32494	1	1203	1203	Explosive	\$ 7.83	\$ 9,423	1,203	1,203	\$ 9.16	\$ 11,024	\$ 20,447
	Walls	Concrete	1	1477	22	2968	32494	12	1332	1332	Explosive	\$ 7.83	\$ 10,433	1,332	1,332	\$ 9.16	\$ 12,205	\$ 22,638
	Floor	Concrete	1	1477	22	2968	32494	1	1203	1203	Explosive	\$ 7.83	\$ 9,423	1,203	1,203	\$ 9.16	\$ 11,024	\$ 20,447
																		\$ 63,533
Sampling building to top-of-silos conveyor gallery	Roof	Steel	1	706	12	1436	8472	1	314	314	Mixture	\$ 7.29	\$ 2,287	314	314	\$ 9.74	\$ 3,056	\$ 5,344
	Walls	Steel	1	706	12	1436	8472	12	3765	3765	Mixture	\$ 7.29	\$ 27,449	638	638	\$ 9.74	\$ 6,216	\$ 33,666
	Floor	Steel	1	706	12	1436	8472	1	314	314	Mixture	\$ 7.29	\$ 2,287	314	314	\$ 9.74	\$ 3,056	\$ 5,344
																		\$ 44,353
Crusher MCC	Roof	Steel	1	55	40	190	2200	1	81	81	Mixture	\$ 7.29	\$ 594	81	81	\$ 9.74	\$ 794	\$ 1,388
	Walls	Concrete	1	55	40	190	2200	15	106	106	Explosive	\$ 7.83	\$ 827	106	106	\$ 9.16	\$ 967	\$ 1,793
	Floor	Concrete	1	55	40	190	2200	1	81	81	Explosive	\$ 7.83	\$ 638	81	81	\$ 9.16	\$ 746	\$ 1,384
	Foundation	Concrete	1	55	40	190	2200	4	28	28	Explosive	\$ 7.83	\$ 220	28	28	\$ 9.16	\$ 258	\$ 478
																		\$ 5,044
Belt Scale House	Roof	Steel	1	10	22	64	220	1	8	8	Mixture	\$ 7.29	\$ 59	8	8	\$ 9.74	\$ 79	\$ 139
	Walls	Steel	1	10	22	64	220	30	244	244	Mixture	\$ 7.29	\$ 1,782	71	71	\$ 9.74	\$ 693	\$ 2,475
	Floor	Concrete	1	10	22	64	220	1	8	8	Explosive	\$ 7.83	\$ 64	8	8	\$ 9.16	\$ 75	\$ 138
	Foundation	Concrete	1	10	22	64	220	4	9	9	Explosive	\$ 7.83	\$ 74	9	9	\$ 9.16	\$ 87	\$ 161
																		\$ 2,913
Transfer station	Roof	Steel	1	62	46	216	2852	1	106	106	Mixture	\$ 7.29	\$ 770	106	106	\$ 9.74	\$ 1,029	\$ 1,799
	Walls	Steel	1	62	46	216	2852	66	6972	6972	Mixture	\$ 7.29	\$ 50,823	528	528	\$ 9.74	\$ 5,143	\$ 56,965
	Floor	Concrete	1	62	46	216	2852	1	106	106	Explosive	\$ 7.83	\$ 827	106	106	\$ 9.16	\$ 968	\$ 1,795
	Foundation	Concrete	1	62	46	216	2852	4	32	32	Explosive	\$ 7.83	\$ 251	32	32	\$ 9.16	\$ 293	\$ 544
																		\$ 60,103
Sampling plant	Roof	Steel	1	62	46	216	2852	1	106	106	Mixture	\$ 7.29	\$ 770	106	106	\$ 9.74	\$ 1,029	\$ 1,799
	Walls	Steel	1	62	46	216	2852	62	6549	6549	Mixture	\$ 7.29	\$ 47,742	496	496	\$ 9.74	\$ 4,831	\$ 52,574
	Floor	Concrete	1	62	46	216	2852	1	106	106	Explosive	\$ 7.83	\$ 827	106	106	\$ 9.16	\$ 968	\$ 1,795
	Foundation	Concrete	1	62	46	216	2852	4	32	32	Explosive	\$ 7.83	\$ 251	32	32	\$ 9.16	\$ 293	\$ 544
																		\$ 56,711

Appendix B- Reclamation Bond Table B7-Incremental Bond-Structure Demolition																		
Description	Structure Type	Material	Units	Length (ft)	Width or Dia (ft)	Perimeter (ft)	Area (sf)	Height or Thickness (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Demolition Unit Cost (\$/cy)	Demolition Subtotal (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Subtotal (\$)	Subtotal
Loadout Silos					Radius													
	Roof	Concrete	6	NA	36	226	4072	1	151	905	Explosive	\$ 7.83	\$ 7,084	151	905	\$ 9.16	\$ 8,288	\$ 15,372
	Walls	Concrete	6	NA	36	226	4072	204	1709	10254	Explosive	\$ 7.83	\$ 80,290	1,709	10,254	\$ 9.16	\$ 93,928	\$ 174,218
	Floor Elevated	Concrete	6	NA	36	226	4072	1	151	905	Explosive	\$ 7.83	\$ 7,084	151	905	\$ 9.16	\$ 8,288	\$ 15,372
	Floor	Concrete	6	NA	36	226	4072	1	151	905	Explosive	\$ 7.83	\$ 7,084	151	905	\$ 9.16	\$ 8,288	\$ 15,372
Footings	Concrete	6	NA	41	258	5281		4	782	4694	Explosive	\$ 7.83	\$ 36,756	782	4,694	\$ 9.16	\$ 42,999	\$ 79,755
																		\$ 300,090
TOPS transfer	Roof	Steel	1	24	18	84	432	1	16	16	Mixture	\$ 7.29	\$ 117	16	16	\$ 9.74	\$ 156	\$ 272
	Walls	Steel	1	24	18	84	432	30	480	480	Mixture	\$ 7.29	\$ 3,499	93	93	\$ 9.74	\$ 909	\$ 4,408
	Floor	Steel	1	24	18	84	432	1	16	16	Mixture	\$ 7.29	\$ 117	16	16	\$ 9.74	\$ 156	\$ 272
																		\$ 4,953
TOPS loadout	Roof	Concrete	1	NA	15	94	707	1	26	26	Explosive	\$ 7.83	\$ 205	26	26	\$ 9.16	\$ 240	\$ 445
	Walls	Concrete	1	NA	15	94	707	50	175	175	Explosive	\$ 7.83	\$ 1,367	175	175	\$ 9.16	\$ 1,599	\$ 2,965
	Floor	Concrete	1	NA	15	94	707	1	26	26	Explosive	\$ 7.83	\$ 205	26	26	\$ 9.16	\$ 240	\$ 445
																		\$ 3,855
Sampling building to top-of-silos conveyor gallery	Roof	Steel	1	1047	12	2118	12564	1	465	465	Mixture	\$ 7.29	\$ 3,392	465	465	\$ 9.74	\$ 4,532	\$ 7,925
	Walls	Steel	1	1047	12	2118	12564	5	2327	2327	Mixture	\$ 7.29	\$ 16,961	392	392	\$ 9.74	\$ 3,820	\$ 20,782
	Floor	Steel	1	1047	12	2118	12564	1	465	465	Mixture	\$ 7.29	\$ 3,392	465	465	\$ 9.74	\$ 4,532	\$ 7,925
																		\$ 36,631
Belt Magnet house	Roof	Steel	1	50	20	140	1000	1	37	37	Mixture	\$ 7.29	\$ 270	37	37	\$ 9.74	\$ 361	\$ 631
	Walls	Steel	1	50	20	140	1000	15	556	556	Mixture	\$ 7.29	\$ 4,050	78	78	\$ 9.74	\$ 758	\$ 4,808
	Floor	Concrete	1	50	20	140	1000	1	37	37	Explosive	\$ 7.83	\$ 290	37	37	\$ 9.16	\$ 339	\$ 629
	Foundation	Concrete	1	50	20	140	1000	4	21	21	Explosive	\$ 7.83	\$ 162	21	21	\$ 9.16	\$ 190	\$ 352
																		\$ 6,420
West silos headhouse	Roof	Steel	1	300	30	660	9000	1	333	333	Mixture	\$ 7.29	\$ 2,430	333	333	\$ 9.74	\$ 3,247	\$ 5,677
	Walls	Steel	1	300	30	660	9000	20	6667	6667	Mixture	\$ 7.29	\$ 48,600	489	489	\$ 9.74	\$ 4,762	\$ 53,362
																		\$ 59,038
East silos headhouse	Roof	Steel	1	92	40	264	3680	1	136	136	Mixture	\$ 7.29	\$ 994	136	136	\$ 9.74	\$ 1,328	\$ 2,321
	Walls	Steel	1	92	40	264	3680	40	5452	5452	Mixture	\$ 7.29	\$ 39,744	391	391	\$ 9.74	\$ 3,809	\$ 43,553
																		\$ 45,875
Sewage lagoons	Floor	Concrete	1	200	100	600	20000	1	741	741	Explosive	\$ 7.83	\$ 5,800	741	741	\$ 9.16	\$ 6,785	\$ 12,585
Environmental warehouse	Roof	Steel	1	80	30	220	2400	1	89	89	Mixture	\$ 7.29	\$ 648	89	89	\$ 9.74	\$ 866	\$ 1,514
	Walls	Steel	1	80	30	220	2400	12	1067	1067	Mixture	\$ 7.29	\$ 7,776	98	98	\$ 9.74	\$ 952	\$ 8,728
	Floor	Concrete	1	80	30	220	2400	1	89	89	Explosive	\$ 7.83	\$ 696	89	89	\$ 9.16	\$ 814	\$ 1,510
	Foundation	Concrete	1	80	30	220	2400	4	33	33	Explosive	\$ 7.83	\$ 255	33	33	\$ 9.16	\$ 299	\$ 554
																		\$ 12,306
Water storage tank	Roof	Steel	1	NA	15	94	707	1	26	26	Mixture	\$ 7.29	\$ 191	26	26	\$ 9.74	\$ 255	\$ 446
	Walls	Concrete	1	NA	15	94	707	30	105	105	Explosive	\$ 7.83	\$ 820	105	105	\$ 9.16	\$ 959	\$ 1,779
	Floor	Concrete	1	NA	15	94	707	1	26	26	Explosive	\$ 7.83	\$ 205	26	26	\$ 9.16	\$ 240	\$ 445
																		\$ 2,670
Utility	Roof	Steel	1	30	30	120	900	1	33	33	Mixture	\$ 7.29	\$ 243	33	33	\$ 9.74	\$ 325	\$ 568
	Walls	Steel	1	30	30	120	900	15	500	500	Mixture	\$ 7.29	\$ 3,645	67	67	\$ 9.74	\$ 649	\$ 4,294
	Floor	Concrete	1	30	30	120	900	1	33	33	Explosive	\$ 7.83	\$ 261	33	33	\$ 9.16	\$ 305	\$ 566
	Foundation	Concrete	1	30	30	120	900	4	18	18	Explosive	\$ 7.83	\$ 139	18	18	\$ 9.16	\$ 163	\$ 302
																		\$ 5,730
Main substation	Walls	Steel	1	36	20	112	720	12	320	320	Mixture	\$ 7.29	\$ 2,333	50	50	\$ 9.74	\$ 485	\$ 2,818
	Floor	Concrete	1	36	20	112	720	1	27	27	Explosive	\$ 7.83	\$ 209	27	27	\$ 9.16	\$ 244	\$ 453
																		\$ 3,271

Appendix B- Reclamation Bond Table B7-Incremental Bond-Structure Demolition																		
Description	Structure Type	Material	Units	Length (ft)	Width or Dia. (ft)	Perimeter (ft)	Area (sf)	Height or Thickness (ft)	Demolition Volume Subtotal (cy)	Demolition Volume Total (cy)	Demolition Type	Demolition Unit Cost (\$/cy)	Demolition Subtotal (\$)	Disposal Volume Subtotal (cy)	Disposal Volume Total (cy)	Disposal Unit Cost (\$/cy)	Disposal Subtotal (\$)	Subtotal
ANFO storage	Roof	Concrete	3	NA	6	38	113	1	4	13	Explosive	\$ 7.83	\$ 98	4	13	\$ 9.16	\$ 115	\$ 214
	Walls	Concrete	3	NA	6	38	113	20	28	84	Explosive	\$ 7.83	\$ 656	28	84	\$ 9.16	\$ 767	\$ 1,423
	Floor	Concrete	3	NA	6	38	113	1	4	13	Explosive	\$ 7.83	\$ 98	4	13	\$ 9.16	\$ 115	\$ 214
Fuel storage																		\$ 1,850
	Roof	Steel	1	36	20	112	720	1	27	27	Mixture	\$ 7.29	\$ 194	27	27	\$ 9.74	\$ 260	\$ 454
	Walls	Steel	1	36	20	112	720	15	400	400	Mixture	\$ 7.29	\$ 2,916	62	62	\$ 9.74	\$ 606	\$ 3,522
	Floor	Concrete	1	36	20	112	720	1	27	27	Explosive	\$ 7.83	\$ 209	27	27	\$ 9.16	\$ 244	\$ 453
	Foundation	Concrete	1	36	20	112	720	4	17	17	Explosive	\$ 7.83	\$ 130	17	17	\$ 9.16	\$ 152	\$ 282
Hotstarts																		\$ 4,711
	Floor	Steel	1	480	3	966	1440	1	53	53	Mixture	\$ 7.29	\$ 389	53	53	\$ 9.74	\$ 519	\$ 908
Cottonwood Reservoir pump and well					Radius													
	Roof	Concrete	1	NA	3	19	28	1	1	1	Explosive	\$ 7.83	\$ 8	1	1	\$ 9.16	\$ 10	\$ 18
	Walls	Concrete	1	NA	3	19	28	30	21	21	Explosive	\$ 7.83	\$ 164	21	21	\$ 9.16	\$ 192	\$ 356
Cottonwood substation	Floor	Concrete	1	NA	3	19	28	1	1	1	Explosive	\$ 7.83	\$ 8	1	1	\$ 9.16	\$ 10	\$ 18
																		\$ 391
	Walls	Steel	1	20	20	80	400	16	237	237	Mixture	\$ 7.29	\$ 1,728	47	47	\$ 9.74	\$ 462	\$ 2,190
Radio repeater building	Floor	Concrete	1	20	20	80	400	1	15	15	Explosive	\$ 7.83	\$ 116	15	15	\$ 9.16	\$ 136	\$ 252
																		\$ 2,441
	Roof	Steel	1	10	10	40	100	1	4	4	Mixture	\$ 7.29	\$ 27	4	4	\$ 9.74	\$ 36	\$ 63
	Walls	Steel	1	10	10	40	100	8	30	30	Mixture	\$ 7.29	\$ 216	12	12	\$ 9.74	\$ 115	\$ 331
Entrance scale	Floor	Concrete	1	10	10	40	100	1	4	4	Explosive	\$ 7.83	\$ 29	4	4	\$ 9.16	\$ 34	\$ 63
	Foundation	Concrete	1	10	10	40	100	4	6	6	Explosive	\$ 7.83	\$ 46	6	6	\$ 9.16	\$ 54	\$ 101
																		\$ 558
	Roof	Steel	1	120	12	264	1440	1	53	53	Mixture	\$ 7.29	\$ 389			\$ 9.74	\$ 519	\$ 908
	Walls	Steel	1	120	12	264	1440	6	320	320	Mixture	\$ 7.29	\$ 2,333			\$ 9.74	\$ 3,117	\$ 5,450
	Floor	Concrete	1	120	12	264	1440	1	53	53	Explosive	\$ 7.83	\$ 418			\$ 9.16	\$ 489	\$ 906
	Foundation	Concrete	1	120	12	264	1440	4	213	213	Explosive	\$ 7.83	\$ 1,670			\$ 9.16	\$ 1,954	\$ 3,625
																		\$ 10,889
Structures Demolition Total =																		\$ 1,809,182

ARCH OF WYOMING, LLC - SEMINOE II MINE				
Reclamation Bond Estimate - Table 1				
20-21 Annual Report Guideline 12 (11/2020)				
1. AREA BOND				
<u>Unreclaimed Cost</u>			<u>Reclaimed Cost</u>	
A Backfill	\$	- Table 2	A Backfill	\$ - Table 2
B Final Grading	\$	- Table 2a	B Final Grading	\$ - Table 2a
Unreclaimed Area Bond Subtotal		\$ -	Reclaimed Area Bond Subtotal \$ -	
2. INCREMENTAL BOND				
<u>Pits-Unreclaimed Cost</u>			<u>Pits- Retained Cost of Reclaim</u>	
(i) Topsoil replacement	\$	- Table 3	(i) Topsoil replacement	\$ 3,318 Table 3
(ii) Revegetation	\$	- Table 4	(ii) Revegetation	\$ 5,877 Table 4
(iii) Finish Grading	\$	- Table 2b	(iii) Finish Grading	\$ (1,579) Table 2b
Pit Unreclaimed Subtotal		\$ -	Pit Retained Cost Subtotal \$ 7,616	
<u>B General Support-Unreclaimed Cost</u>			<u>General Support-Retained Cost of Reclaim</u>	
(i) Dismantle, Demolition, Disp.-Unrecl.		\$0 Table 5 (Un Rec.)	(i) Dismantle, Demolition, Disp.-Unrecl.	\$0 Table 5 (Rec.)
(ii) Shop & Tipple area		\$0 Table 5 (Un Rec.)	(ii) Shop & Tipple area	\$128,816 Table 5 (Rec.)
(iii) New Crusher		\$0 Table 5 (Un Rec.)	(iii) New Crusher	\$24,964 Table 5 (Rec.)
(iv) Railroad		\$0 Table 5 (Un Rec.)	(iv) Railroad	\$0 Table 5 (Rec.)
(v) Old Haul Roads		\$0 Table 5 (Un Rec.)	(v) Old Haul Roads	\$0 Table 5 (Rec.)
(vi) New Haul Roads	\$8,710	Table 5 (Un Rec.)	(vi) New Haul Roads	\$2,885 Table 5 (Rec.)
(vii) Solid Waste Dump Site	\$0	Table 5 (Un Rec.)	(vii) Solid Waste Dump Site	\$0 Table 5 (Rec.)
(viii) Powerlines	\$0	Table 5 (Un Rec.)	(viii)Powerlines	\$623 Table 5 (Rec.)
(ix) Ponds	\$2,584	Tables 5 (Un Rec.) and 5A	(ix) Ponds	\$950 Tables 5 (Rec.) and 5A
(x) Miscellaneous	\$1,146	Tables 5 (Un Rec.)	(x) Miscellaneous	\$15,280 Tables 5 (Rec.)
Gen. Support Unreclaimed Subtotal		\$12,440	Gen. Support Retained Cost Subtotal \$173,518	
Unreclaimed Incremental Bond Subtotal		\$ 12,440	Retained Incremental Bond Subtotal \$ 181,134	
3. MINIMUM BOND (Permanently Reclaimed Prior to December 31, 1982)				
		Acres	Rate/Acre	
A	457	\$	785.71	\$15,715 Table 4
		Minimum Bond Subtotal		\$ 15,715
BOND ELLIGIBLE FOR CONTINGENCY		\$ 12,440	BOND INELLIGIBLE FOR CONTINGENCY \$ 196,849	
4. CONTINGENCY				
A Project Design	\$	250,000		
B Contractor Profit, OH, Mob., Demob.	8.0%	\$ 995		
C Pre-construction Invest. & Stab.	1.0%	\$ 124		
D Project Management	3.8%	\$ 473		
E On-Site Monitoring	0.5%	\$ 62		
F Security		\$ 250,000		
G Administration & Acctg.		\$ 315,000		
H Unknown	2.0%	\$ 249		
		15.3%		
Contingency Subtotal		\$ 816,903		
		RECLAMATION BOND TOTAL	\$ 1,026,192	
		Bond Held	\$ 1,042,086	
		Adjustment	\$ (15,894)	

Section V - 4

Building Demolition Table 5C

No updates past complete facility building phase 2 release.

	length (ft.)	width (ft.)	Area (sq.ft.)	Height (ft.)	(cu. ft.)	Building Demolition		Demolition (per cu. ft.)	Disposal (per cu. yd.)	Dem/Disp Costs	Foot/Found (ln. ft.)	Concrete Removal and Disposal			
						Volume (cu. yds.)						(ln. ft.)	Rates (sq.ft.)	(cu. yds.)	Costs
Building Demolition- Completed 2018															
Electrical Shop (2017)	145	60	8,700	25		217,500	1,208	\$0,290	\$10.13	\$0	410	\$16.07	\$0.78	\$8.56	\$14,754
Main Shop	150	95	14,250	40		570,000	3,167	\$0,290	\$10.13	\$197,382	490	\$16.07	\$0.78	\$8.56	\$21,248
	185	90	16,650	40		666,000	3,700	\$0,290	\$10.13	\$230,621	550	\$16.07	\$0.78	\$8.56	\$24,465
	180	40	7,200	12		86,400	480	\$0,290	\$10.13	\$29,918	440	\$16.07	\$0.78	\$8.56	\$13,828
Office	180	40	7,200	12		86,400	480	\$0,290	\$10.13	\$29,918	440	\$16.07	\$0.78	\$8.56	\$13,828
Lube Bay	243	40	9,720	50		486,000	2,700	\$0,290	\$10.13	\$168,291	566	\$16.07	\$0.78	\$8.56	\$18,218
Welding Shop	105	105	11,025	35		385,875	2,144	\$0,290	\$10.13	\$133,622	420	\$16.07	\$0.78	\$8.56	\$17,097
Loadout Bldg.	25	25	625	84		52,500	292	\$0,290	\$10.13	\$18,183	100	\$16.07	\$0.78	\$8.56	\$2,194
Conveyor Structure	1,770	10	17,700	12		212,400	1,180	\$0,290	\$10.13	\$73,549	All Included in Demo. of Bldg.				
Secondary Crusher	35	25	875	36		31,500	175	\$0,290	\$10.13	\$10,908	120	\$16.07	\$0.78	\$8.56	\$2,750
Primary Crusher	60	40	2,400	24		57,600	320	\$0,290	\$10.13	\$19,946	200	\$16.07	\$0.78	\$8.56	\$5,466
Stacker Tubes				77		4,954	28	\$0,290	\$10.13	\$1,720	All Included in Demo. of Bldg.				
Scale	140	13	1,820							\$0	78	\$16.07	\$0.78	\$8.56	\$2,962
Subtotal			90,965			2,770,729	15,394			\$884,140	3374				\$122,982
Released May 2004 to Q Creek Responsibility															
North Shop	110	95	10,450	40		418,000	2,322	\$0,262	\$8.87	\$130,112	410	\$19.25	\$5.27	\$7.92	\$64,497
	60	30	1,800	15		27,000	150	\$0,262	\$8.87	\$8,405	180	\$19.25	\$5.05	\$7.92	\$12,819
	35	20	700	15		10,500	58	\$0,262	\$8.87	\$3,265	110	\$19.25	\$5.05	\$7.92	\$5,755
North Offices	125	25	3,125	15		46,875	260	\$0,262	\$8.87	\$14,587	300	\$19.25	\$5.05	\$7.92	\$22,015
Subtotal			16,075			502,375	2,790			\$156,369	1000				\$105,086
										(\$156,369)					(\$105,086)
										\$0					\$0
Electric Shop Released in 2015															
Electrical Shop (2015 Release)	145	60	8,700	25		217,500	1,208	\$0,295	\$9.71	\$75.892	0	\$15.67	\$0.76	\$8.63	\$0
Total			107,040			3,273,104	18,184			\$960,032	4,374				\$122,982

GRAND TOTAL Demolition and Disposal \$1,083,014

Demolition and Disposal after release 1,007,122

Section V - 35

SIS Work Description	1a Fuel Oil		1b	1c	1d	1e	1f	1g	1h	1i	1j	1k	1l	1m	1n	1o	1p	1q	1r	1s	1t	1u	1v	1w	1x	1y	1z	1aa	1ab	1ac	1ad	1ae	1af	1ag	1ah	1ai	1aj	1ak	1al	1am	1an	1ao	1ap	1aq	1ar	1as	1at	1au	1av	1aw	1ax	1ay	1az	1ba	1bb	1bc	1bd	1be	1bf	1bg	1bh	1bi	1bj	1bk	1bl	1bm	1bn	1bo	1bp	1bq	1br	1bs	1bt	1bu	1bv	1bw	1bx	1by	1bz	1ca	1cb	1cc	1cd	1ce	1cf	1cg	1ch	1ci	1cj	1ck	1cl	1cm	1cn	1co	1cp	1cq	1cr	1cs	1ct	1cu	1cv	1cw	1cx	1cy	1cz	1da	1db	1dc	1dd	1de	1df	1dg	1dh	1di	1dj	1dk	1dl	1dm	1dn	1do	1dp	1dq	1dr	1ds	1dt	1du	1dv	1dw	1dx	1dy	1dz	1ea	1eb	1ec	1ed	1ee	1ef	1eg	1eh	1ei	1ej	1ek	1el	1em	1en	1eo	1ep	1eq	1er	1es	1et	1eu	1ev	1ew	1ex	1ey	1ez	1fa	1fb	1fc	1fd	1fe	1ff	1fg	1fh	1fi	1fj	1fk	1fl	1fm	1fn	1fo	1fp	1fq	1fr	1fs	1ft	1fu	1fv	1fw	1fx	1fy	1fz	1ga	1gb	1gc	1gd	1ge	1gf	1gg	1gh	1gi	1gj	1gk	1gl	1gm	1gn	1go	1gp	1gq	1gr	1gs	1gt	1gu	1gv	1gw	1gx	1gy	1gz	1ha	1hb	1hc	1hd	1he	1hf	1hg	1hh	1hi	1hj	1hk	1hl	1hm	1hn	1ho	1hp	1hq	1hr	1hs	1ht	1hu	1hv	1hw	1hx	1hy	1hz	1ia	1ib	1ic	1id	1ie	1if	1ig	1ih	1ii	1ij	1ik	1il	1im	1in	1io	1ip	1iq	1ir	1is	1it	1iu	1iv	1iw	1ix	1iy	1iz	1ja	1jb	1jc	1jd	1je	1jf	1jg	1jh	1ji	1jj	1jk	1jl	1jm	1jn	1jo	1jp	1jq	1jr	1js	1jt	1ju	1jv	1jw	1jx	1jy	1jz	1ka	1kb	1kc	1kd	1ke	1kf	1kg	1kh	1ki	1kj	1kk	1kl	1km	1kn	1ko	1kp	1kq	1kr	1ks	1kt	1ku	1kv	1kw	1kx	1ky	1kz	1la	1lb	1lc	1ld	1le	1lf	1lg	1lh	1li	1lj	1lk	1ll	1lm	1ln	1lo	1lp	1lq	1lr	1ls	1lt	1lu	1lv	1lw	1lx	1ly	1lz	1ma	1mb	1mc	1md	1me	1mf	1mg	1mh	1mi	1mj	1mk	1ml	1mm	1mn	1mo	1mp	1mq	1mr	1ms	1mt	1mu	1mv	1mw	1mx	1my	1mz	1na	1nb	1nc	1nd	1ne	1nf	1ng	1nh	1ni	1nj	1nk	1nl	1nm	1nn	1no	1np	1nq	1nr	1ns	1nt	1nu	1nv	1nw	1nx	1ny	1nz	1oa	1ob	1oc	1od	1oe	1of	1og	1oh	1oi	1oj	1ok	1ol	1om	1on	1oo	1op	1oq	1or	1os	1ot	1ou	1ov	1ow	1ox	1oy	1oz	1pa	1pb	1pc	1pd	1pe	1pf	1pg	1ph	1pi	1pj	1pk	1pl	1pm	1pn	1po	1pp	1pq	1pr	1ps	1pt	1pu	1pv	1pw	1px	1py	1pz	1qa	1qb	1qc	1qd	1qe	1qf	1qg	1qh	1qi	1qj	1qk	1ql	1qm	1qn	1qo	1qp	1qq	1qr	1qs	1qt	1qu	1qv	1qw	1qx	1qy	1qz	1ra	1rb	1rc	1rd	1re	1rf	1rg	1rh	1ri	1rj	1rk	1rl	1rm	1rn	1ro	1rp	1rq	1rr	1rs	1rt	1ru	1rv	1rw	1rx	1ry	1rz	1sa	1sb	1sc	1sd	1se	1sf	1sg	1sh	1si	1sj	1sk	1sl	1sm	1sn	1so	1sp	1sq	1sr	1ss	1st	1su	1sv	1sw	1sx	1sy	1sz	1ta	1tb	1tc	1td	1te	1tf	1tg	1th	1ti	1tj	1tk	1tl	1tm	1tn	1to	1tp	1tq	1tr	1ts	1tt	1tu	1tv	1tw	1tx	1ty	1tz	1ua	1ub	1uc	1ud	1ue	1uf	1ug	1uh	1ui	1uj	1uk	1ul	1um	1un	1uo	1up	1uq	1ur	1us	1ut	1uu	1uv	1uw	1ux	1uy	1uz	1va	1vb	1vc	1vd	1ve	1vf	1vg	1vh	1vi	1vj	1vk	1vl	1vm	1vn	1vo	1vp	1vq	1vr	1vs	1vt	1vu	1vv	1vw	1vx	1vy	1vz	1wa	1wb	1wc	1wd	1we	1wf	1wg	1wh	1wi	1wj	1wk	1wl	1wm	1wn	1wo	1wp	1wq	1wr	1ws	1wt	1wu	1wv	1ww	1wx	1wy	1wz	1xa	1xb	1xc	1xd	1xe	1xf	1xg	1xh	1xi	1xj	1xk	1xl	1xm	1xn	1xo	1xp	1xq	1xr	1xs	1xt	1xu	1xv	1xw	1xx	1xy	1xz	1ya	1yb	1yc	1yd	1ye	1yf	1yg	1yh	1yi	1yj	1yk	1yl	1ym	1yn	1yo	1yp	1yq	1yr	1ys	1yt	1yu	1yv	1yw	1yx	1yy	1yz	1za	1zb	1zc	1zd	1ze	1zf	1zg	1zh	1zi	1zj	1zk	1zl	1zm	1zn	1zo	1zp	1zq	1zr	1zs	1zt	1zu	1zv	1zw	1zx	1zy	1zz	1aa	1ab	1ac	1ad	1ae	1af	1ag	1ah	1ai	1aj	1ak	1al	1am	1an	1ao	1ap	1aq	1ar	1as	1at	1au	1av	1aw	1ax	1ay	1az	1ba	1bb	1bc	1bd	1be	1bf	1bg	1bh	1bi	1bj	1bk	1bl	1bm	1bn	1bo	1bp	1bq	1br	1bs	1bt	1bu	1bv	1bw	1bx	1by	1bz	1ca	1cb	1cc	1cd	1ce	1cf	1cg	1ch	1ci	1cj	1ck	1cl	1cm	1cn	1co	1cp	1cq	1cr	1cs	1ct	1cu	1cv	1cw	1cx	1cy	1cz	1da	1db	1dc	1dd	1de	1df	1dg	1dh	1di	1dj	1dk	1dl	1dm	1dn	1do	1dp	1dq	1dr	1ds	1dt	1du	1dv	1dw	1dx	1dy	1dz	1ea	1eb	1ec	1ed	1ee	1ef	1eg	1eh	1ei	1ej	1ek	1el	1em	1en	1eo	1ep	1eq	1er	1es	1et	1eu	1ev	1ew	1ex	1ey	1ez	1fa	1fb	1fc	1fd	1fe	1ff	1fg	1fh	1fi	1fj	1fk	1fl	1fm	1fn	1fo	1fp	1fq	1fr	1fs	1ft	1fu	1fv	1fw	1fx	1fy	1fz	1ga	1gb	1gc	1gd	1ge	1gf	1gg	1gh	1gi	1gj	1gk	1gl	1gm	1gn	1go	1gp	1gq	1gr	1gs	1gt	1gu	1gv	1gw	1gx	1gy	1gz	1ha	1hb	1hc	1hd	1he	1hf	1hg	1hh	1hi	1hj	1hk	1hl	1hm	1hn	1ho	1hp	1hq	1hr	1hs	1ht	1hu	1hv	1hw	1hx	1hy	1hz	1ia	1ib	1ic	1id	1ie	1if	1ig	1ih	1ii	1ij	1ik	1il	1im	1in	1io	1ip	1iq	1ir	1is	1it	1iu	1iv	1iw	1ix	1iy	1iz	1ja	1jb	1jc	1jd	1je	1jf	1jg	1jh	1ji	1jj	1jk	1jl	1jm	1jn	1jo	1jp	1jq	1jr	1js	1jt	1ju	1jv	1jw	1jx	1jy	1jz	1ka	1kb	1kc	1kd	1ke	1kf	1kg	1kh	1ki	1kj	1kk	1kl	1km	1kn	1ko	1kp	1kq	1kr	1ks	1kt	1ku	1kv	1kw	1kx	1ky	1kz	1la	1lb	1lc	1ld	1le	1lf	1lg	1lh	1li	1lj	1lk	1ll	1lm	1ln	1lo	1lp	1lq	1lr	1ls	1lt	1lu	1lv	1lw	1lx	1ly	1lz	1ma	1mb	1mc	1md	1me	1mf	1mg	1mh	1mi	1mj	1mk	1ml	1mm	1mn	1mo	1mp	1mq	1mr	1ms	1mt	1mu	1mv	1mw	1mx	1my	1mz	1na	1nb	1nc	1nd	1ne	1nf	1ng	1nh	1ni	1nj	1nk	1nl	1nm	1nn	1no	1np	1nq	1nr	1ns	1nt	1nu	1nv	1nw	1nx	1ny	1nz	1oa	1ob	1oc	1od	1oe	1of	1og	1oh	1oi	1oj	1ok	1ol	1om	1on	1oo	1op	1oq	1or	1os	1ot	1ou	1ov	1ow	1ox	1oy	1oz	1pa	1pb	1pc	1pd	1pe	1pf	1pg	1ph	1pi	1pj	1pk	1pl	1pm	1pn	1po	1pp	1pq	1pr	1ps	1pt	1pu	1pv	1pw	1px	1py	1pz	1qa	1qb	1qc	1qd	1qe	1qf	1qg	1qh	1qi	1qj	1qk	1ql	1qm	1qn	1qo	1qp	1qq	1qr	1qs	1qt	1qu	1qv	1qw	1qx	1qy	1qz	1ra	1rb	1rc	1rd	1re	1rf	1rg	1rh	1ri	1rj	1rk	1rl	1rm	1rn	1ro	1rp	1rq	1rr	1rs	1rt	1ru	1rv	1rw	1rx	1ry	1rz	1sa	1sb	1sc	1sd	1se	1sf	1sg	1sh	1si	1sj	1sk	1sl	1sm	1sn	1so	1sp	1sq	1sr	1ss	1st	1su	1sv	1sw	1sx	1sy	1sz	1ta	1tb	1tc	1td	1te	1tf	1tg	1th	1ti	1tj	1tk	1tl	1tm	1tn	1to	1tp	1tq	1tr	1ts	1tt	1tu	1tv	1tw	1tx	1ty	1tz	1ua	1ub	1uc	1ud	1ue	1uf	1ug	1uh	1ui	1uj	1uk	1ul	1um	1un	1uo	1up	1uq	1ur	1us	1ut	1uu	1uv	1uw	1ux	1uy	1uz	1va	1vb	1vc	1vd	1ve	1vf	1vg	1vh	1vi	1vj	1vk	1vl	1vm	1vn	1vo	1vp	1vq	1vr	1vs	1vt	1vu	1vv	1vw	1vx	1vy	1vz	1wa	1wb	1wc	1wd	1we	1wf	1wg	1wh	1wi	1wj	1wk	1wl	1wm	1wn	1wo	1wp	1wq	1wr	1ws	1wt	1wu	1wv	1ww	1wx	1wy	1wz	1xa	1xb	1xc	1xd	1xe	1xf	1xg	1xh	1xi	1xj	1xk	1xl	1xm	1xn	1xo	1xp	1xq	1xr	1xs	1xt	1xu	1xv	1xw	1xx	1xy	1xz	1ya	1yb	1yc	1yd	1ye	1yf	1yg	1yh	1yi	1yj	1yk	1yl	1ym	1yn	1yo	1yp	1yq	1yr	1ys	1yt	1yu	1yv	1yw	1yx	1yy	1yz	1za	1zb	1zc	1zd	1ze	1zf	1zg	1zh	1zi	1zj	1zk	1zl	1zm	1zn	1zo	1zp	1zq	1zr	1zs	1zt	1zu	1zv	1zw	1zx	1zy	1zz
	1a Fuel Oil	1b	1c	1d	1e	1f	1g	1h	1i	1j	1k	1l	1m	1n	1o	1p	1q	1r	1s	1t	1u	1v	1w	1x	1y	1z	1aa	1ab	1ac	1ad	1ae	1af	1ag	1ah	1ai	1aj	1ak	1al	1am	1an	1ao	1ap	1aq	1ar	1as	1at	1au	1av	1aw	1ax	1ay	1az	1ba	1bb	1bc	1bd	1be	1bf	1bg	1bh	1bi	1bj	1bk	1bl	1bm	1bn	1bo	1bp	1bq	1br	1bs	1bt	1bu	1bv	1bw	1bx	1by	1bz	1ca	1cb	1cc	1cd	1ce	1cf	1cg	1ch	1ci	1cj	1ck	1cl	1cm	1cn	1co	1cp	1cq	1cr	1cs	1ct	1cu	1cv	1cw	1cx	1cy	1cz	1da	1db	1dc	1dd	1de	1df	1dg	1dh	1di	1dj	1dk	1dl	1dm	1dn	1do	1dp	1dq	1dr	1ds	1dt	1du	1dv	1dw	1dx	1dy	1dz	1ea	1eb	1ec	1ed	1ee	1ef	1eg	1eh	1ei	1ej	1ek	1el	1em	1en	1eo	1ep	1eq	1er	1es	1et	1eu	1ev	1ew	1ex	1ey	1ez	1fa	1fb	1fc	1fd	1fe	1ff	1fg	1fh	1fi	1fj	1fk	1fl	1fm	1fn	1fo	1fp	1fq	1fr	1fs	1ft	1fu	1fv	1fw	1fx	1fy	1fz	1ga	1gb	1gc	1gd	1ge	1gf	1gg	1gh	1gi	1gj	1gk	1gl	1gm	1gn	1go	1gp	1gq	1gr	1gs	1gt	1gu	1gv	1gw	1gx	1gy	1gz	1ha	1hb	1hc	1hd	1he	1hf	1hg	1hh	1hi	1hj	1hk	1hl	1hm	1hn	1ho	1hp	1hq	1hr	1hs	1ht	1hu	1hv	1hw	1hx	1hy	1hz	1ia	1ib	1ic	1id	1ie	1if	1ig	1ih	1ii	1ij	1ik	1il	1im	1in	1io	1ip	1iq	1ir	1is	1it	1iu	1iv	1iw	1ix	1iy	1iz	1ja	1jb	1jc	1jd	1je	1jf	1jg	1jh	1ji	1jj	1jk	1jl	1jm	1jn	1jo	1jp	1jq	1jr	1js	1jt	1ju	1jv	1jw	1jx	1jy	1jz	1ka	1kb	1kc	1kd	1ke	1kf	1kg	1kh	1ki	1kj	1kk	1kl	1km	1kn	1ko	1kp	1kq	1kr	1ks	1kt	1ku	1kv	1kw	1kx	1ky	1kz	1la	1lb	1lc	1ld	1le	1lf	1lg	1lh	1li	1lj	1lk	1ll	1lm	1ln	1lo	1lp	1lq	1lr	1ls	1lt	1lu	1lv	1lw	1lx	1ly	1lz	1ma	1mb	1mc	1md	1me	1mf	1mg	1mh	1mi	1mj	1mk	1ml	1mm	1mn	1mo	1mp	1mq	1mr	1ms	1mt	1mu	1mv	1mw	1mx	1my	1mz	1na	1nb	1nc	1nd	1ne	1nf	1ng	1nh																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

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21	Building Demolition Description	Map #1 ref	Structure Removal & Disposal			Foundation Removal			Foundation Disposal			Total Cost
			Quantity	Unit	Cost	Quantity	Unit	Cost	Quantity	Unit	Cost	
2a	Office Building, Metal	3	29,350	cu ft	\$ 18,558	1,696	cu ft	\$ 1,323	1,696	cu ft	\$ 538	\$ 20,430
2b	Change House, Metal	4	121,020	cu ft	\$ 79,281	4,478	cu ft	\$ 3,493	4,478	cu ft	\$ 1,420	\$ 84,194
2c	Horst House, Metal	6, 24	27,270	cu ft	\$ 17,862	1,553	cu ft	\$ 1,211	1,553	cu ft	\$ 492	\$ 19,955
2d	Shop, Metal	7	174,232	cu ft	\$ 114,115	8,180	cu ft	\$ 6,380	8,180	cu ft	\$ 2,593	\$ 123,089
2e	Guard Shack, Wood		1,000	cu ft	\$ 855	40	ln ft	\$ 643	240	cu ft	\$ 76	\$ 1,374
2f	Cone Storage Building, Wood		33,600	cu ft	\$ 22,008	270	ln ft	\$ 4,339	1,620	cu ft	\$ 514	\$ 26,860
2g	Compressor Building, Masonry	11	7,200	cu ft	\$ 4,716	300	cu ft	\$ 234	300	cu ft	\$ 95	\$ 5,045
2h	MCC Building, Metal	12	4,800	cu ft	\$ 3,144	297	cu ft	\$ 232	297	cu ft	\$ 94	\$ 3,470
2i	Storage Building, Wood		80,400	cu ft	\$ 53,012	185	ln ft	\$ 2,973	1,110	cu ft	\$ 352	\$ 56,337
3a	Storage Cone, Metal	1	75,380	cu ft	\$ 49,374	1,482	cu ft	\$ 1,166	1,482	cu ft	\$ 470	\$ 51,000
3b	Loadout Building, Metal	7	80,000	cu ft	\$ 52,400	4,000	cu ft	\$ 3,120	4,000	cu ft	\$ 1,268	\$ 55,788
3c	Crusher Building, Metal	8	42,000	cu ft	\$ 27,510	2,800	cu ft	\$ 2,184	2,800	cu ft	\$ 888	\$ 30,582
3d	Rock Slope Conveyor	E of 8	200	ln ft	\$ 1,806	600	cu ft	\$ 468	800	cu ft	\$ 190	\$ 2,464
3e	Crusher to Cone Conveyor	A to 1	200	ln ft	\$ 1,806	600	cu ft	\$ 468	800	cu ft	\$ 190	\$ 2,464
3f	Loadout Conveyor	1 to 7	700	ln ft	\$ 5,321	600	cu ft	\$ 468	600	cu ft	\$ 190	\$ 6,979
3g	Slope Heater, Masonry	N of 4	3,000	cu ft	\$ 1,965	289	cu ft	\$ 225	289	cu ft	\$ 92	\$ 2,282
3h	Mine Fans, Masonry	1B, 2B	26,400	cu ft	\$ 17,252	2,575	cu ft	\$ 2,009	2,575	cu ft	\$ 816	\$ 20,117
4a	Power Substation		4,800	cu ft	\$ 3,144	300	cu ft	\$ 234	300	cu ft	\$ 95	\$ 3,473
4b	Water Tank, Fire Water, 150,000 gal, Metal	13	14,424	cu ft	\$ 9,448	970	cu ft	\$ 757	970	cu ft	\$ 307	\$ 10,517
4c	Water Tank, Potable, 20,000 gal, Metal	18	1,923	cu ft	\$ 1,260	130	cu ft	\$ 101	130	cu ft	\$ 41	\$ 1,402
4d	Power Lines and Poles	B to S & E	88	ea	\$ -							
4e	Sewage Lift Station	WSW of 3		lump sum	\$ 850						\$ 850	
4f	#1 Seam Host Foundation		900	cu ft	\$ 500	938	cu ft	\$ 732	938	cu ft	\$ 297	\$ 1,029
4g	Powder Magazines, Concrete	16				150	cu ft	\$ 117	150	cu ft	\$ 48	\$ 754
4h	Access Road (see Section 1j)	25										
4i	Rock Dust Tank	19		lump sum	\$ 250						\$ 250	
4j	Marcellaneous Cleanup			lump sum	\$ 55,874						\$ 55,874	
	Subtotal				\$ 628,251			\$ 32,865			\$ 11,065	\$ 666,169
	Total				\$ 568,184							

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Unit Costs			
Description	Unit	Cost	Unit Reference
Conveyor Removal	9.03	in ft	Guideline 12 (2/2018) Appendix K, see Track Removal
Structure Removal	0.28	cu ft	Guideline 12 (2/2018) Appendix K
Structure Disposal	0.375	cu ft	Guideline 12 (2/2018) Appendix K
Concrete Foundations	0.78	cu ft	Guideline 12 (2/2018) Appendix K
Concrete Footings	16.07	in ft	Guideline 12 (2/2018) Appendix K
Concrete Disposal	0.317	cu ft	Guideline 12 (2/2018) Appendix K
Power Lines & Poles	0	ea	Guideline 12 (2/2018) Appendix K
Sewage Lift Station, Rock Dust Tank, Miscellaneous Cleanup			Estimates

Permit #254-TS 2019 Annual Report

Exhibit 4-5

Western States Mining Consultants, P.C.

Rocky Mountain Coal Company
Reclamation Bond Estimate
As Calculated March 2019

3) RR Loop and Spur

Description	Total Quantity	Units	Total Cost
Map #1 ref	3a		
Area	35.3 ac		
Perimeter	37,511 in ft		
Track Removal	22,800 in ft		\$ 205,884
Ballast Removal	22,800 cu yd		\$ 103,284
Culvert Removal	65 20' sections		\$ 6,911
Grading	238,222 cu yd		\$ 45,977
loop volume	146,222 cu yd - loop		\$ 28,221
spur volume	92,000 cu yd - spur		\$ 17,756
Final Grading	35.3 ac		\$ 1,949
Topsoil Replacement	28,444 cu yd		\$ 73,954
Scarify	35.3 ac		\$ 1,789
Revegetation	35.3 ac		\$ 26,776
Fertilize	35.3 ac		\$ 2,332
Total			\$ 514,834
Unit Costs:			
Description	Unit Cost	Unit	Reference
Track Removal	9.03	in ft	Guideline 12 (2/2018), Appendix K
Ballast Removal	4.53	cu yd	Guideline 12 (2/2018), Appendix K
Culvert Removal	106.32	20' section	Guideline 12 (2/2018), Appendix J
Grading	0.193	cu yd	Guideline 12 (2/2017), Appendix E, 0% Resisting Grade
Final Grade	55.21	ac	Guideline 12 (2/2018), Appendix G
Topsoil Replacement	2.6	cu yd	Guideline 12 (2/2018), Appendix B, 5% Resisting Grade
Scarify	50.68	ac	Guideline 12 (2/2018), Appendix P
Revegetation	758.54	ac	2016 Bond Rate
Fertilize	66.07	ac	2016 Bond Rate
Grading in loop	1.02	cu yd	Guideline 12 (2/2018), Appendix E, 0% Resisting Grade

Note: This topsoil replacement cost was recommended by WDEC based on the assumption that topsoil would be placed 6 inches deep and hauled 7000 ft. It would reduce cost considerably to use borrow material located closer to the reclamation.

Rocky Mountain Coal Company
Reclamation Bond Estimate
As Calculated March 2019

Description	5a 7 Seam Air Shaft	5b 3&1 Seams Air Shaft	5c Rock Tunnel	5d Belt & Travel Slopes	5e 7 Seam Tunnel	5f Horseshoe Access	5g 1&7.5 Seam 3 Seam Access	Total Quantity	Total Cost
Map #1 ref	29	31	E of 21	E of 6 &	29	28	30		
Area	***	***	0.1 ac	***	***	***	***	0.1 ac	
Perimeter	***	***	264 ft	***	***	***	***	264 ft	
Demolition & Disposal				334		13		347 cu yd	\$ 5,687
Backfill	719	1,376		1,020		573		3,688 cu yd	\$ 1,958
Concrete Cap	30	22						52 cu yd	\$ 15,800
Concrete Wall				29		14		43 cu yd	\$ 17,024
Cover	40	37						83 cu yd	\$ 44
Final Grade	***	***			n/a			0 ac	\$ -
Topsoil Replacement	***	***			n/a			0 cu yd	\$ -
Scarify	***	***						0 ac	\$ -
Revegetation	***	***	0.1 ac	***	***	***	***	0.1 ac	\$ 76
Fertilize	***	***	0.1 ac	***	***	***	***	0.1 ac	\$ 7
Fence	***	***	264 ft	***	***	***	***	264 ft	\$ 430
Total									\$ 40,826

Unit Costs:			
Description	Unit Cost	Unit	Reference
Concrete Demolition	7.83	cu yd	Guideline 12 (2/2018), Appendix K
Concrete Disposal	8.56	cu yd	Guideline 12 (2/2018), Appendix K
Backfill	0.531	cu yd	Guideline 12 (2/2018), Appendix E, 0% Grade, 300'
Concrete Cap	300	cu yd	Estimate
Concrete Wall	395.90	cu yd	2016 Bond Rate
Cover	0.531	cu yd	Guideline 12 (2/2018), Appendix E, 0% Grade, 300'
Final Grade	55.21	ac	Guideline 12 (2/2018), Appendix G
Topsoil Replacement	1.23	cu yd	Guideline 12 (2/2018), Appendix C, 10% Resisting Grade, 1500'
Scarify	50.68	ac	Guideline 12 (2/2018), Appendix P
Revegetation	758.54	ac	2016 Bond Rate
Fertilize	66.07	ac	2016 Bond Rate
Fence	1.63	in ft	Guideline 12 (2/2018), Appendix H

* Included in Site Work "1a Facilities Area" ** Included in Site Work "No. 7.5 Seam Slope" *** Included in Site Work "7 Seam Portal"

Incremental Bond								
Sedimentation Pond #1								
	LCY	Acres	Topsoil Depth	Equipment	Distance	Grade	Unit Cost	
Embankment knockdown and grading			2.4	D9			67.84	\$163
Topsoil Redistribution from TSSP-1								
Sed Pond 1	24913	10.9	17	657E Scraper	500	-5%	0.67	\$16,691
TSSP-1 final grading		3.1					55.21	\$171
Scarification								
Sed Pond 1		10.9					50.68	\$552
Topsoil pile TSSP-1		3.1					50.68	\$157
Seeding								
Sed Pond 1		10.9					500.00	\$5,450
Topsoil pile TSSP-1		3.1					500.00	\$1,550
Subtotal:								24734.89922
Sedimentation Pond #4								
	LCY	Acres	Topsoil Depth	Equipment	Distance	Grade	Unit Cost	
Embankment knockdown and grading			1	D9			67.84	\$68
Haul Road build (windrow topsoil)								
Short segment		0.75		D9			67.84	\$51
Long segment		1		D9			67.84	\$68
Topsoil Redistribution from TSSP-5 (east pile)								
Sed Pond 4	14856	6.5	17	657E Scraper	1700	-10%	0.97	\$14,410
Sed Pond 4 Road	5257	2.3	17	657E Scraper	1900	-10%	1.07	\$5,625
TSSP-5								
Haul road		0.75		D9			67.84	\$51
		1		D9			67.84	\$68
Scarification								
Sed Pond 4		6.5	17				50.68	\$329
Sed Pond 4 Road		2.3	17				50.68	\$117
Haul Road		1.1					50.68	\$56
Seeding								
Sed Pond 4		6.5	17				500.00	\$3,250
Sed Pond 4 Road		2.3	17				500.00	\$1,150
Haul Road		1.1					500.00	\$550
Subtotal:								25792.192
Pit Area								
	LCY	Acres	Topsoil Depth	Equipment	Distance	Grade	Unit Cost	
Topsoil Redistribution								
Block A (from TSSP3)	39312	17.2	17	657E Scraper	1500	10%	1.09	\$42,850

	OB3 (from TSSP16)	28478	12.46	17 657E Scraper	800	5%	0.78	\$22,213
	Block B (from TSSP16)	65390	28.61	17 657E Scraper	1000	-5%	0.72	\$47,081
	Block C (from TSSP16)	32798	14.35	17 657E Scraper	2000	-5%	0.93	\$30,502
	Block D (from TSSP16)	65961	28.86	17 657E Scraper	3000	-5%	1.14	\$75,196
	Block E (from TSSP5)	71995	31.5	17 657E Scraper	1000	-5%	0.72	\$51,836
	TSSP16 final grading		9.5				55.21	\$524
	OB3 final grading		10.9				55.21	\$602
	TSSP5 final grading		7.6				55.21	\$420
	TSSP3 final grading		8.7				55.21	\$480
Scarification								
	Block A (from TSSP3)		17.2				50.68	\$872
	OB3 (from TSSP16)		12.46				50.68	\$631
	Block B (from TSSP16)		28.61				50.68	\$1,450
	Block C (from TSSP16)		14.35				50.68	\$727
	Block D (from TSSP16)		28.86				50.68	\$1,463
	Block E (from TSSP5)		31.5				50.68	\$1,596
	TSSP16 final grading		9.5				50.68	\$481
	OB3 final grading		10.9				50.68	\$552
	TSSP5 final grading		7.6				50.68	\$385
	TSSP3 final grading		8.7				50.68	\$441
Seeding								
	Block A (from TSSP3)		17.2				500.00	\$8,600
	OB3 (from TSSP16)		12.46				500.00	\$6,230
	Block B (from TSSP16)		28.61				500.00	\$14,305
	Block C (from TSSP16)		14.35				500.00	\$7,175
	Block D (from TSSP16)		28.86				500.00	\$14,430
	Block E (from TSSP5)		31.5				500.00	\$15,750
	TSSP16 final grading		9.5				500.00	\$4,750
	OB3 final grading		10.9				500.00	\$5,450
	TSSP5 final grading		7.6				500.00	\$3,800
	TSSP3 final grading		8.7				500.00	\$4,350

Subtotal:	365142.632
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Haul Roads

	LCY	Acres	Topsoil Depth	Equipment	Distance	Grade	Unit Cost	
Grading								
Pit haul road (east and west)			0	17 D9			67.84	\$0
Fort Union Access Road			0	17 D9			67.84	\$0
Warehouse haul road			0	17 D9			67.84	\$0
Sed Pond 101			0	17 D9			67.84	\$0
Sed Pond 102			0	17 D9			67.84	\$0
OB4 (acreage increased by 30% to spread material onto adjoir			0	17 D9			67.84	\$0
Scarification								
Pit haul road (east and west)			0	17 D9			50.68	\$0
Fort Union Access Road			0	17 D9			50.68	\$0
Warehouse haul road			0	17 D9			50.68	\$0
Sed Pond 101			0	17 D9			50.68	\$0
Sed Pond 102			0	17 D9			50.68	\$0
OB4 (acreage increased by 30% to spread material onto adjoir			0	17 D9			50.68	\$0
Topsoil Distribution								
Pit haul road (east and west) from TSSP12	0	0		17 657E Scraper	1500	0%	0.82	\$0
Fort Union Access Road from TSSP4	0	0		17 657E Scraper	1500	0%	0.82	\$0
Warehouse haul road from TSSP12	0	0		17 657E Scraper	1000	0%	0.72	\$0
Sed Pond 101	0	0		17 657E Scraper	500	0%	0.61	\$0
Sed Pond 102	0	0		17 657E Scraper	500	0%	0.61	\$0
OB4 (acreage increased by 30% to spread material onto adjoining roads) from TSSP101	0	0		17 657E Scraper	3000	0%	1.11	\$0
Seeding								
Pit haul road (east and west)		0					500.00	\$0
Fort Union Access Road		0					500.00	\$0
Warehouse haul road		0					500.00	\$0
Sed Pond 101		0					500.00	\$0
Sed Pond 102		0					500.00	\$0
OB4 (acreage increased by 30% to spread material onto adjoir		0					500.00	\$0
Subtotal:							\$0	
Acreages with Phase I bond release (need only reseeding costs)								
Pre-1990 reclamation		5.1					500.00	\$2,550
1990 Unit		64.8					500.00	\$32,400
1996 Unit		2.6					500.00	\$1,300
2004 Unit		1.5					500.00	\$750
Subtotal:							\$37,000	
Slatterly Parcel								
no reclamation bond needed								
Subtotal:							0	
Black Bison Parcel (tract is industrial land use)								
no reclamation bond needed								
Subtotal:							\$0	
Miscellaneous								
Coal Silo								\$0
Offsite Disposal								\$0
Groundwater Monitor Wells					1		60.00	\$60
subtotal:							\$60	
TOTAL:							452729.72	

Table V-1

Wyodak Mine Bond 2020-2021 (November 1, 2020)23-Nov-20

INCREMENTAL BOND RECLAMATION		FINE GRADE COST/AC	SEED PREP COST/AC	REVEGETATE COST/AC	FERTILIZER COST/AC	TOTAL COST
PEERLESS PIT AREA						
PEERLESS PIT 2)	437.37	56.82	40.00	550.00	0	282,900
2015 Reclamation (100%)	1.80	56.82	40.00	550.00	0	1,164
2004 Reclamation (60%) 4)	29.29	56.82	40.00	550.00	0	7,578
2002 RECLAMATION (60%) 1)	17.23	56.82	40.00	550.00	0	4,458
CLOVIS PIT AREA						
CLOVIS PIT 3)	1,588.74	56.82	40.00	550.00	0	1,027,629
2018 Reclamation (100%)	6.04	56.82	40.00	550.00	0	3,907
2016 Reclamation (100%)	29.29	56.82	40.00	550.00	0	18,945
1979-1981 Reclamation (60%) 4)	69.11	56.82	40.00	550.00	0	17,881
SUBTOTAL-RECLAMATION						1,364,462
DEMOLITION						
			QUANTITY	UNIT	ADDITIONS	UNIT COST
PEERLESS PIT	(SEE TABLE V-2)					734,665
CLOVIS PIT	(SEE TABLE V-2)					2,626,842
SUBTOTAL-DEMOLITION						
TOTAL INCREMENTAL COSTS						9,226,127
TOTAL AREA AND INCREMENTAL BOND COSTS						20,110,775
PROJECT CONTINGENCIES				% OF COST		COST (\$)
DESIGN ENGINEERING				Fixed		250,000
PROFIT / MOBILIZATION / OVERHEAD				13.50		2,714,955
PRECONSTRUCTION INVESTIGATION				1.50		301,662
CONSTRUCTION MANAGEMENT/CONTINGENCY				2.60		522,880
10 YEAR MONITORING				1.00		201,108
SITE SECURITY				Fixed		250,000
ADMINISTRATION / ACCOUNTING				Fixed		400,000
UNKNOWNNS				5.00		1,005,539
SUBTOTAL PROJECT CONTINGENCIES						5,646,143
GRAND TOTAL RECLAMATION LIABILITY						25,756,918

TOTAL RECLAMATION BOND SUMMARY			
AREA BOND			10,884,648
INCREMENTAL BOND			9,226,127
	Topsoil		
	Reclamation	4,500,159	
	Demolition	1,364,462	
		3,361,507	
CONTINGENCIES			5,646,143
TOTAL RECLAMATION LIABILITY			25,756,918

- 1) Wyodak received 60% bond release on April 10, 2002 for topsoil replacement, fine grading, seedbed preparation, revegetation and fertilizer on 98.81 acres permanently reclaimed in 2001 and 2002.
- 2) The acres to be reseeded does not include 2.23 acres which represents the Wyodak Power Plant parking lot or 4.32 acres of disturbed land which is within the Wyodak Power Plant boundary. It also includes 1.8 acres currently reseeded for the Donkey Creek discharge pipeline.
- 3) Total reclamation costs for topsoil replacement, fine grading, seedbed preparation, revegetation and fertilizer does not include 34.77 acres not yet affected by topsoil pile TS7CP.
- 4) Wyodak received 60% bond release on June 2, 2006 for topsoil replacement, fine grading, seedbed preparation, revegetation and fertilizer on 217.89 acres. This includes 24.19 acres reclaimed in 2004 in the Peerless Pit and 81.59 acres recalimed by Kerr McGee in the Clovis Pit between 1979 & 1981.

TABLE V-2 Incremental Bond Summary - Miscellaneous 2020 23-Nov-20

Operation	Applicable areas	Notes	Unit	Labor or Quantity	Cost or Equipment	Total Cost
PEERLESS PIT						
Demolition	Webb Warehouse		LS	\$46,464	\$17,600	\$64,064
Demolition	Hladky Warehouse		LS	\$35,904	\$13,600	\$49,504
Demolition	Scale House		LS	\$19,008	\$7,200	\$26,208
Demolition	MCC Building		LS	\$23,232	\$8,800	\$32,032
Demolition	TLO Silo - 2	Concrete coal silos - explosive demo.	LS	N/A	N/A	\$190,000
Disposal			LS	\$231,000	\$33,600	\$264,600
LQD Guideline 12	Air Monitors	Met., Site 5, & Site 6	EA	3	\$799.20	\$2,397.60
LQD Guideline 12	Monitor Wells	Assumed 150' avg. depth	EA	9	\$3.00	\$4,050
LQD Guideline 12	Monitor Wells	Site Grading and seeding	EA	9	\$50.00	\$450
LQD Guideline 12	Monitor Wells	Capping w/ pre-cast concrete cap	EA	9	\$10.00	\$90
LQD Guideline 12	Monitor Wells	Location fee	EA	9	\$10.00	\$90
LQD Guideline 12	Monitor Wells	Removal & disposal of top casing	EA	9	\$30.00	\$270
LQD Guideline 12	Rail siding balast		CY	2500	\$4.49	\$11,225
LQD Guideline 12	Culvert Removal	Removal/disposal of 20' section	EA	10	\$110.10	\$1,101
Demolition	Donkey Creek Outfall	Cap pipes, remove riprap/recontour	EA	1	\$1,200	\$1,200
Contractor profit, overhead, mobilization, and demobilization costs ¹						\$87,383
SUBTOTAL PEERLESS PIT						\$734,665
CLOVIS PIT						
Demolition	Office		LS	\$88,704	\$33,600	\$122,304
Demolition	Warehouse		LS	\$82,368	\$31,200	\$113,568
Demolition	Shop		LS	\$173,184	\$65,600	\$238,784
Demolition	Washbay		LS	\$88,704	\$33,600	\$122,304
Demolition	Lab		LS	\$31,680	\$12,000	\$43,680
Demolition	Primary Crusher		LS	\$48,576	\$18,400	\$66,976
Demolition	Secondary Crusher		LS	\$61,248	\$23,200	\$84,448
Demolition	Train Loadout		LS	\$135,168	\$51,200	\$186,368
Demolition	Coal Storage Barn		LS	\$528,000	\$200,000	\$728,000
Demolition	Assorted Tanks		LS	\$21,240	\$288	\$21,528
Demolition	MCC Building		LS	\$19,008	\$7,200	\$26,208
Disposal			LS	\$231,000	\$33,600	\$264,600
LQD Guideline 12	Monitor Wells	Assumed 150' avg. depth	EA	25	\$3.00	\$11,250
LQD Guideline 12	Monitor Wells	Site Grading and seeding	EA	25	\$50.00	\$1,250
LQD Guideline 12	Monitor Wells	Capping w/ pre-cast concrete cap	EA	25	\$10.00	\$250
LQD Guideline 12	Monitor Wells	Location fee	EA	25	\$10.00	\$250
LQD Guideline 12	Monitor Wells	Removal & disposal of top casing	EA	25	\$30.00	\$750
LQD Guideline 12	Fencing	Removal	LF	15000	\$0.30	\$ 4,500
LQD Guideline 12	Rail Loop	Track removal	LF	18748	\$8.79	\$ 164,795
LQD Guideline 12		Ballast removal	BCY	24805	\$4.49	\$ 111,374
LQD Guideline 12	Culvert Removal	Removal/disposal of 20' section	EA	11	\$110.10	\$1,211
Contractor profit, overhead, mobilization, and demobilization costs ¹						\$312,444
SUBTOTAL CLOVIS PIT						\$2,626,842
TOTAL DEMOLITION COSTS						\$3,361,507

¹ Per LQD Guideline 12 - June 29, 2020
Notes: * Demolition and disposal costs reflect budgetary estimates provided by Hladky Construction dated September 22, 2020.
* WDEQLQD Guideline 12 states that power distribution and transmission lines can be removed at no cost.
* Abbreviations: cy = cubic yards; ac = acres; lf = linear feet; ls = lump sum; ea = each.

C. Major Husbandry Practices

No major husbandry practices uncommon to normal agricultural practices were employed within the permit area during the report period. Grazing by 400 pairs for lands located West of the Youngs Creek Road within the Permit area occurred from May 3, 2021 through June 10, 2021. 400 cows were fed in this area from December 15 to Decemer 31, 2021.

Lands located East of the Youngs Creek Road within the permit area along the riparian corridor were grazed by approximately 100 bulls for 90 days beginning May 1 through July 15, 2020. Fields under the Eisle ditch through this area were attempted to be flood irrigated but were minimal due to low water flows due to drought conditions in Little Youngs Creek . Though grazing by bulls occurred on the pastures appropriated under the Oberrieich Ditch, no irrigation through the Oberrieich occurred. The Demmon Ditch was not functional and therefore no irrigation occurred on fields or pastures historically irrigated by the Demmon Ditch. Remaining lands East of the Youngs Creek Road were grazed with 400 cows from April 15 to May 3, 2021. 500 cows were grazed North of Youngs Creek from December 20, to December 31, 2021 and will be fed in this area for winter of 2021/22.

Irrigated lands under the Gladewater Ditch were fertilized, flood irrigated and cut for hay.

Irrigated lands under the People and Lords Ditch were attempted to be irrigated but were minimal due to low water flows due to drought conditions in Youngs Creek.

D. Reclamation Plans for the Coming Year and Expected Deviations

No reclamation activities or deviations from the approved Reclamation Plan were conducted during 2021 and none are anticipated for the coming year.

IV. Reclamation History

There are no revisions to reclamation history sheets for Areas 1 through 13 which were submitted with the 2013 Annual Report. A single reclamation history sheet was submitted with the 2018 Annual Report for the 3 disturbances associated with installation of the industrial water supply wells. These sites are identified as Area 14 on [Exhibit A.R.-1](#), and the reclamation history sheet is provided under Attachment No. 1 of this annual report. There are no revisions to the reclamation history details for the sites identified as Area 14.

[See Attachment No. 1.](#)

V. Reclamation Performance Bond

The dollar value of the currently approved bond covers all current disturbances and installations as documented in the 2018 Reclamation Performance Bond Calculations (then Attachment No. 15), inclusive of the 3 industrial water supply wells drilled in 2018. Those bond calculations were approved by DEQ, and the reclamation liability was reduced to \$229,000.00. Pursuant to acceptance of NTEC’s bond provided for the permit transfer, YCMC’s bond was released and returned 12/9/2021 under cover of letter signed by Todd Parfitt. The bond remains set at \$229,000.00 and per agreement with WDEQ/LQD, prior to commencement of topsoil salvage operations within the projected disturbance areas shown on [Exhibit A.R.-1](#), YCM will submit a new bond calculation and obtain a bond in the amount approved by LQD.

Bond Calculations when submitted with Annual Reports will be included under [Attachment No. 14.](#)

VI. Abandoned Drill Hole Report

No exploratory drilling was conducted at the YCM during this annual report period.

Attachment No. 14 - Reclamation Performance Bond Calculations

No new disturbances occurred during the current Annual Report period, and the bond amount as calculated and accepted by LQD in the amount of \$229,000.00 is posted and remains in place. This attachment is reserved to house calculations and associated maps when updated bond calculations are required.