

WWR / NYSE-Amer

**SPECULATIVE
BUY**

Unchanged

\$20.00

Unchanged

CAPITALIZATION

Shares Outstanding (2/10/22)	35.4 M
Recent Price (4/27/22)	\$1.33

Market Capitalization	\$ 47.1 M
+ Debt	1.4 M
- Cash	115.3 M
Enterprise Value	\$ (66.8) M

Book Value	\$126.2 M
Working Capital	\$110.3 M
Dividend	Nil

Balance sheet figures as of 12/31/21

MARKET DATA

Bid-Ask Spread, % Price	0.5%
52 Week High/Low	\$5.70 - \$1.23

Shares Outstanding	35.4 M
Inside Ownership	<1%
Institutional Ownership	12%
Estimated Flotation	32.0 M

Average Daily Volume	3.1 M
Short Interest, % of Float	5.1%
Beta	1.40

Source: Bloomberg LP

INVESTMENT RETURNS

	WWR	Sector*
Return on Equity	Neg	31.61%
Return on Assets	Neg	12.71%
Return on Capital	Neg	16.25%

Source: Crystal Equity Research, CSI Markets

FINANCIAL PROFILE

	FY20	FY21
Sales	\$ 0.0 M	\$ 0.0 M
EBITDA	(\$11.2) M	(\$18.1) M
(L)EPS	(\$1.58)	(\$0.49)

Source: Company Reports

HIGHLIGHTS

- **Processing plant construction on schedule.** A recent site visit verified progress in building a battery-grade graphite processing facility near its Coosa County, Alabama graphite resource. The project appears on schedule for completion in early 2023. (Site visit images begin on page 8)
- **Management team.** Capitalizing on skills acquired in other minerals sectors, the team has put Westwater in the lead in the race to become a fully integrated mining resource owner and battery graphite materials supplier.
- **Talent recruitment.** Westwater leadership has already started a recruiting effort to staff its graphite processing facility, focusing on individuals with problem solving skills and a willingness to learn.
- **First quarter report.** By mid-May 2022 investors can expect the Company to report financial results for the first quarter ending March 2022.
- **Capital resources.** Leadership advanced a \$202 million budget for the graphite materials processing plant. The first quarter report should provide insight into how much of the budget is left to fund and the Company's remaining cash resources.

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INDUSTRY: INDUSTRIAL, ENERGY MATERIALS

WWR: NYSE-Amer

RECENT DEVELOPMENTS

A recent site visit to Westwater Resources' graphite project in Alabama confirmed of progress in construction of a facility to produce battery-grade graphite materials. Our day-long visit verified management's claims of progress in its efforts in Alabama and more importantly confirmed the project is on-schedule for completion in early 2023. Additionally, we came away from the meeting with the Alabama team having gained new confidence in their capabilities to deal with the challenges of establishing Westwater as a fully integrated miner of graphite resource and supplier of battery-grade graphite materials. We gained insight into the next few months for the team, which must assemble and train staff for operating a processing plant as well as establish processes and procedures for shipping finished products and billing customers.

RECOMMENDATION

We continue to rate WWR at Speculative Buy with a \$20.00 price target. The recent downward pressure on the stock renders our price target more aspirational than realistic in the near-term. However, there is no fundamental rationale for changing our valuation. Indeed, the site visit reinforced our long-standing view of WWR as undervalued against its market opportunity and capacities to derive earnings from its assets.

With the upcoming first quarter 2022 financial report we expect to gain insight into capital requirements for completing the graphite processing plant. The Company had previously provided \$202 million as a project cost. Experience in the first five months of the construction project should have given management a more informed view on its initial budget, which can be disclosed with the first quarter report. The first quarter update could be an important inflection point for WWR.

VALUATION

Price/Sales	Neg
Price/Cash Flow	Neg
Price/EPS	Neg
Price/Book Value	0.37 X
Consensus EPS 2022	na
Forward PE	na

OPERATING PROJECTIONS

	<u>2020A</u>	<u>2021A</u>	<u>2022E</u>	<u>2023E</u>	<u>2024E</u>
Sales	\$ 0.0	\$ 0.0	\$ 0.0	\$21.1	\$28.1
Operating (Loss)	(\$11.2)	(\$18.2)	(\$21.0)	(\$ 9.8)	(\$ 6.0)
Net Inc (Loss)	(\$23.6)	(\$16.1)	(\$21.0)	(\$ 9.8)	(\$ 6.0)
CFO (U)	(\$15.2)	(\$16.9)	(\$20.6)	(\$13.9)	(\$ 2.7)
EPS (LPS)	(\$1.58)	(\$0.49)	(\$0.48)	(\$0.19)	(\$0.11)

Dollars in millions except per share earnings

Per share figures estimated 12/31/21

Company Reports and Crystal Equity Research Estimates

FIELD TRIP: an unconventional graphite mining company

The third week in April 2022, this analyst visited Westwater's Coosa Graphite Project in south central Alabama. The Company has set up shop in the Lake Martin Regional Industrial Park near Kellyton, Alabama. A series of images beginning of page 8 of this report shows the site preparation work that has commenced on the graphite materials processing plant. The graphite resource located nearby in Coosa County. All the images were taken on April 21, 2022.

As the visit unfolded, two points quickly surfaced as salient. First, management is satisfied with progress on building a battery-grade graphite materials production facility. The fact that the project is on-schedule for completion in early 2023, has put smiles on all faces. The team in Alabama is overseeing the conversion of two existing buildings on the site, one to house administrative offices and a laboratory to evaluate graphite processing on the fly and a second existing building to serve as a warehouse. Additional buildings will be constructed to house the graphite materials refinement process as well as workspace for packaging and shipping of finished products. In-house wastewater treatment is also planned.

Second, the team led by Westwater's new chief executive officer, Chad Potter, is concerned about possible misunderstanding of its business model that may be reflected in the Company's stock value in the U.S. equity market. Potter admits the Company is not the conventional mining operation that explores for good rocks, extracts the minerals and hauls concentrated materials to the market. The team is convinced there is profit potential in the Company's proprietary graphite materials based on production at demonstration and pilot plants. Getting to market quickly with commercial materials elevates Westwater's position in the modern graphite market that rewards suppliers bringing finished products to market with high-value added.

Economics of a Hybrid Business Model for Graphite Mining Company

Westwater has opted to respond quickly to demand for graphite to be used in lithium-ion batteries destined for electric vehicles. Something like casting hooks while the fish are biting, Westwater has begun courting battery manufacturers and electric automakers hungry for graphite for lithium-ion battery anodes. Westwater has crafted a patent-pending method to produce its proprietary battery-grade graphite products. Instead of waiting until graphite can be extracted from the Company's own graphite resource in Alabama, Westwater is outsourcing graphite concentrate from third parties. With the outsourced materials Westwater will be able to produce high valued-added graphite materials to customers as early as 2023.

Indeed, the Company has received a letter of intent to purchase its *CSPG* or *Coated Spherical Purified Graphite* for lithium-ion battery anodes. Although unnamed, the customer is likely a battery or electric car manufacturer given the indication of interest in 125 metric tons to 150 metric tons.

We note that waiting to process graphite concentrate from Westwater's own mineral resource, could result in as many as five additional years of negative operating cash flows. It would

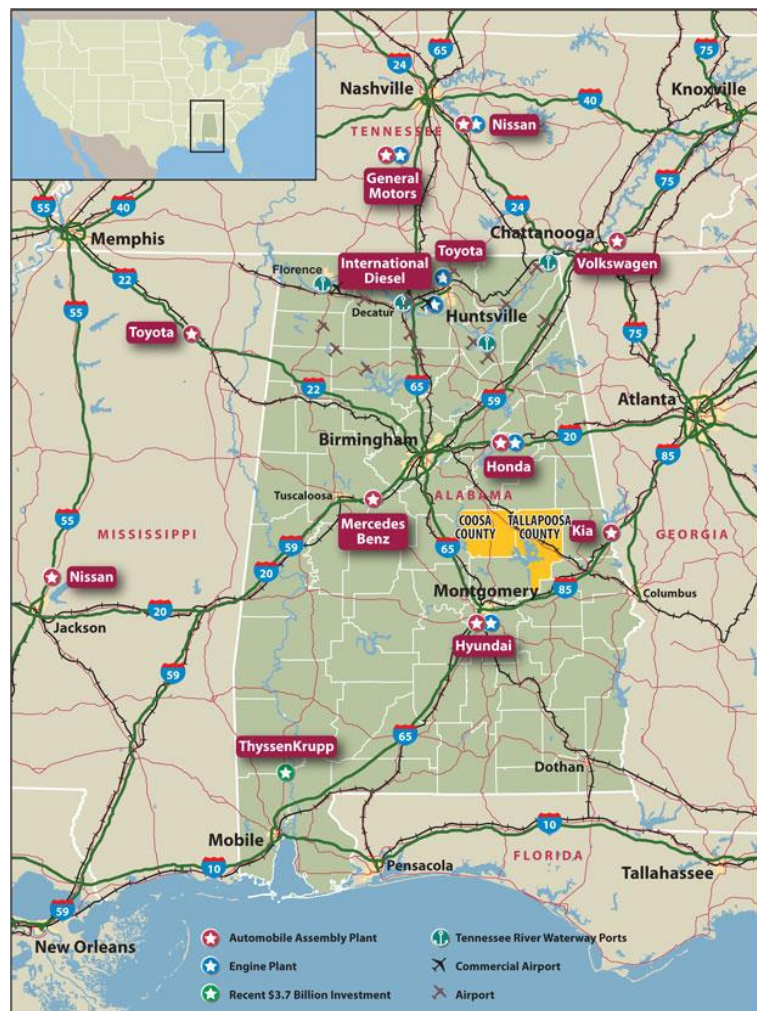
involve a balloon in capital expenditures for both mine infrastructure and processing facility near the end of that five-year period. By relying first on outsourced graphite concentrate, the capital expenditures are spread out over a period of years. It also accelerates the time to initial revenue and positive cash flow by reaching commercial production at an earlier date.

PRODUCTION FACILITY PROJECT: site preparation on schedule

Westwater leadership has set second quarter 2023, to begin commercial production of battery graphite materials. To meet the deadline, the Company needed to have shovels in the ground in early 2022. This has been accomplished and the site is well along in the first step of site preparation. Although Chad Potter has been promoted to chief executive officer, a chief operating officer has not been appointed to that now vacant position. Potter remains well focused on the project. He along with Dain McCoig have frequent meetings with contractors at the site to work through any issue or obstacles that may arise.

The team reports success in securing commitments for long lead-time equipment that will eventually be housed in a new building for the purification, spheronization and categorizing steps. Schedules have already been commenced for other equipment and supplies that are not necessarily long-lead time items. The team is cognizant of the supply chain issues that have delayed some projects and hope to use advanced planning to minimize if not eliminate back orders. The team gives an overall impression of detailed attention.

The neighborhood is quickly shaping up as an automotive hub. The Lake Martin Area Economic Development Alliance in Alabama provides the map at the right, marking locations of nearby automotive manufacturing sites. At the center is Coosa County, where Westwater's graphite deposit is located and Tallapoosa County where its graphite materials production facility is under construction at the Lake Martin Regional Industrial Park.

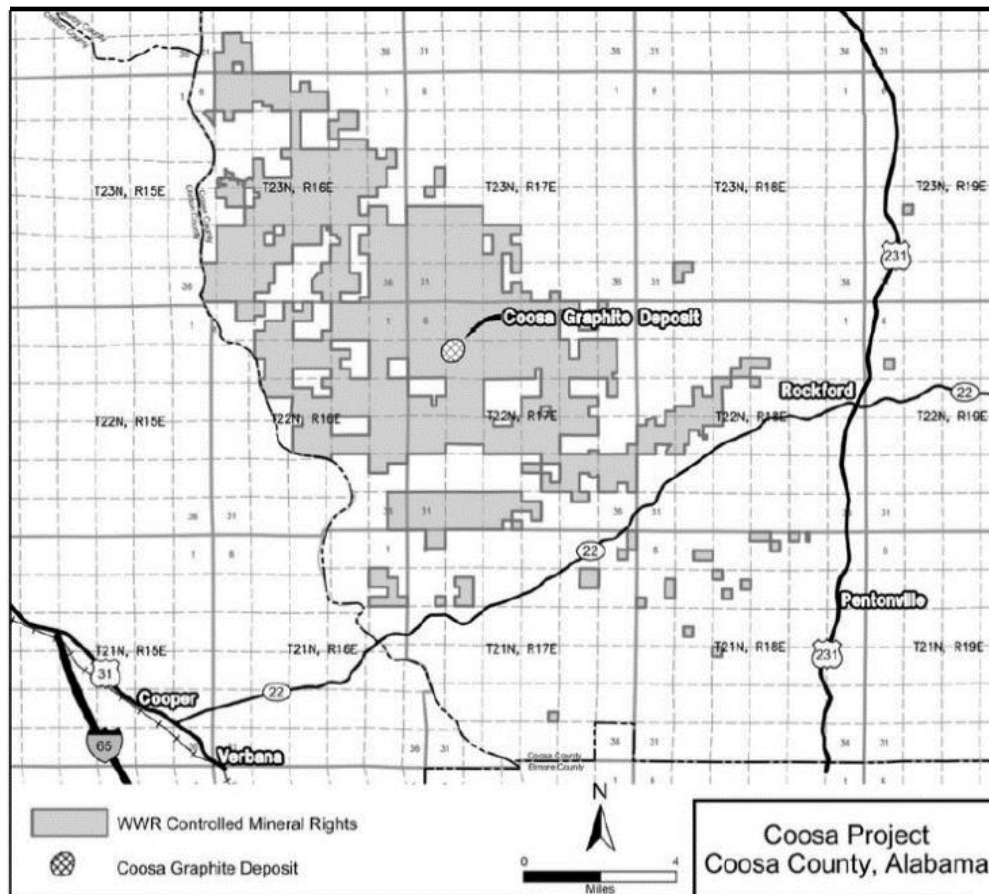


MINE SITE: maintained and ready for environmental permitting

The Company has leased long-term mineral extraction rights to 41,965 acres owned by a private party in Coosa County, Alabama. South of Birmingham and near the smaller community of Rockford, the Coosa Deposit is well positioned in the Alabama Graphite Belt. The graphite is found in two types of rocks prevalent in the area, quartz-graphite schist and quartz-biotite-graphite schist.

The leased area has previously been mined for graphite minerals, providing the Company's engineers with lengthy geological information. Westwater has continued an exploration program initiated by a previous owner of the mineral lease, drilling a total of 54 holes and extracting over 4,000 feet of materials. The final core samples are being prepared in the first half 2022 and will be used in determining the size and extent of graphite and vanadium mineral concentrations. A final technical report is anticipated later in 2022, and is expected to be a critical information source for environmental and mining permits for the graphite mine.

Once ready to commence mining activities probably in 2028, Westwater will use conventional open-pit mining methods. The Coosa graphite deposit is found in well-weathered rocks very near the surface, simplifying both extraction and reclamation work. Graphite bearing rocks were easily picked up during the site visit and are shown in images beginning on page 7.



MANAGEMENT TEAM: transferrable skill sets

During the site visit the Westwater team wanted to convey the message that they are delivering on promises in the Coosa Graphite Project. The team is unapologetic in hoping to get credit for those accomplishments reflected in the Company's stock price. Unexpectedly, the day-long event also helped dispel business risk concerns about the team's preparedness to compete in the evolving graphite materials markets.

The supply chain for battery-grade graphite is changing, with several of graphite mining companies announcing intentions to integrate forward into production of finished graphite materials, Westwater included. Company appears to be well ahead of other graphite resource owners in bringing commercial finished graphite products to market. To this end, we note resource exploration work is near completion, patent applications have been submitted for a proprietary graphite refinement process and construction has begun on a commercial stage processing facility. The Company has done so with a team that had no prior direct experience in the graphite materials field.

Since engineering is a key element in mining and minerals businesses, we note the contributions of two of the primary engineers. Dain McCoig has lengthy experience with *in situ* uranium mining. His accomplishments include the successful management of Westwater's Texas uranium operations as well as site reclamation work. So far it appears he has been able to tat across to the graphite project, the process knowledge and asset management skills well-honed in his experience in the uranium fields of Texas. Likewise, Cevat Er is trained as a geological engineer and has been able to apply his three decades of mining and environmental experience to the graphite project. He has prior successes in starting new mining operations and taking them to commercial stage that appear to be well applied in Alabama.

Acquiring the Right Skill Sets

Chad Potter's leadership could be a key to the Company maintaining its lead in the graphite industry. His is an organized man, but also an influencer with a keen eye for employees with gumption. Potter's team has already started recruiting personnel for the graphite processing plant. It does not appear they will be screening resumes for the word 'graphite'. Instead, they are looking for individuals with problem solving skills and demonstrated learning agility. Given the change underway in the graphite industry there are few individuals available with direct graphite industry experience anyway. Thus, demonstration of strong work habits and a creative and curious mind could be all Potter needs.

Sales and Customer Relationship Management

Importantly, we note Westwater has been successful in recruiting sales personnel with direct battery industry experience. Hired two years ago as the pandemic had everyone sequestered in their homes, Jay Wago brought to Westwater over two decades experience sales and marketing of lithium-ion battery components. Multilingual and well-traveled Wago has critical capabilities

that help Westwater make that important step into the sale of products directly to end-users in battery manufacturing and electric car production. Our observation that a lack of understanding of the end user has held back some of Westwater's competitors. Teamed up with the nimble-footed engineers in Alabama, we believe Wago's marketing and sales capabilities set Westwater apart from its competitors.

COMMUNITY RELATIONS

Potter's team had already noted that they are routinely recognized in the nearby communities as employees of the new graphite project. A visit by the governor of Alabama has put the Company's project and the employees' pictures in the local and statewide newspapers. In 2021, the Company also held several 'townhall' meetings in the Coosa County communities. Members of the Westwater team have also joined Coosa Riverkeepers and the Lake Martin Water Community Group. 'Social license' is a handy buzz word in the mining and minerals industry, but Westwater appears to be following through with real action. Lunch during the site visit was a quick repast at a local sushi ship, where surprisingly the team was recognized and well greeted.

FIRST QUARTER 2022 REPORT

Investors can expect the Company to report financial results for the first quarter ending March 2022, by mid-May. We expect Potter and the Company's CFO, Jeff Vigil, to provide an update on the Alabama construction project budget. Leadership had provided a \$202 million budget figure for the graphite materials project. The most pressing questions are how much of the budget is left to fund and what are the Company's remaining cash resources.

Notably Steven Cates, who is the Company's chief accounting officer and controller, has been working closely with the team in Alabama to make certain the construction project is successful executed. He was present during the site visit and proved well versed in Westwater's graphite products and the construction project. He outlined plans to put in place procedures and systems for a larger employee base as well as for supplying and billing of finished products.

OUTLOOK

The WWR price has come under considerable pressure in recent weeks. We note short interest has increase in just two months from 4.6% to 5.1% of the float. The building negative view comes despite only favorable fundamental developments in the Company's operations. It is acknowledged that in those two months the world's commodity markets have been jarred by the invasion of Ukraine by Russia. However, the onset of war has had no direct impact on graphite resources for supplies. Thus, we observe no logical reason for an increase in the short interest other than speculation.

Our site visit confirmed management's claims of progress in its Alabama operations. The conversation provided assurance that leadership is finding ways to get past workforce and expertise risks. The visit reinforced our view of WWR as undervalued against its market opportunity and capacities to derive earnings from its assets.



Coosa Graphite Project - Gateway

Chad Potter and Steve Cates await Dain McCoig, who closed and locked a gate to one section of the Coosa County graphite resource property.

The Coosa Project is located at the southern end of the Appalachian mountain range, about 50 south of Birmingham, AL.

The site is approximately 3.4 miles from Coosa County Road 29, where trucks can carry the flake concentrate from the mine site to the processing facility at the Lake Martin Regional Industrial Park.



Coosa Graphite Project - roadway

Access roads are well maintained for joint use by Westwater Graphite geologists as well as timber management activities. The roads are all well-bladed and graveled.

Exploration, road access and drilling at the Coosa Project are subject to environmental permits from the Alabama Department of Environmental Management (ADEM). This includes construction storm water permit under the National Pollutant Discharge Elimination Systems (NPDES). The previous owner of the Alabama Graphite had completed a Construction Best Management Practices Plan for storm water management, erosion and sediment control.

A majority of Coosa County is forested with loblolly and longleaf pines on smooth slopes and a variety of hardwoods on steep slopes and along creeks.



Coosa Graphite Project - capped off core hole

Steve Cates shows off core hold cap and marker. Identification details and geopositioning tags allow geologists to revisit the exact location of each core sample after geological testing of core sample.

The center of the drill grid on the property is at 32°54'30" N, 86°24'00" W. Investors can use these coordinates in Google Earth or another satellite imagery resource to view the property from above.



Coosa Graphite Project - drill rig

Equipment at mine resource site is limited to a drill rig used for core sampling.

Once mining begins the operation can be supported by a conventional loading and hauling fleet, including graders, excavators and loaders. Smaller dozers can be used for road construction and maintenance and movement of the waste or overburden.



Coosa Graphite Project - Fixico section

Dain McCoig surveys access road to Fixico section of Westwater's Coosa Graphite Project.

Slopes in the Southern Piedmont where Coosa County is located are typically 6% to 15%.



Coosa Graphite Project - cut-away

Chad Potter looks on as Dain McCoig holds graphite-bearing rock that appears in a cut-away section near an access road. The cut-away demonstrates that graphite-bearing rocks are near the surface in the Coosa resource, providing a view on extraction requirements.

Drill programs undertaken over several years have identified graphite on the Company's lease in a higher-grade quartz-graphite-schist bound by a lower grade quartz-musovite-biotite-graphite-schist.



Coosa Graphite Project - graphite-bearing rock

Graphite material 'peppers' highly porous rocks found in a cut away section along an access road.

Vanadium mineralization in the Coosa Project can also be seen visually in bright green mica-like mineral roscoelite in rocks taken from cut-aways and core samples.





Coosa Graphite Project - cutting and preparing core samples

Final core samples prepared in the warehouse facility for transmission to an independent laboratory for analysis of the graphite and vanadium content.

The Company will operate its own laboratory in the Administrative Building across from the warehouse. Laboratory work will make it possible for the Company to execute correctly on its proprietary purification, spherization and categorization process. The purification step involves both chemical and thermal treatment of the graphite materials that may require adjustment for the chemical character of the graphite concentrate. The exact elements of the process remain well guarded by the team in Alabama as the Company awaits the disposition of an application for patent protection.



Coosa Graphite Project - core samples

Display of core samples provides a view on variances in deposits from one location to another. In total core sample evaluation provides guidance for extraction, initial processing and refinement steps.

The core samples are valuable sources of information for management. First, analysis of the drill cores provides a view on the economics of the mineral resources. They can answer the question of whether a mining operation can be profitable by quantifying the size of the resource.

The core samples can also information operational decisions related to the graphite refinement steps. Engineers can use information about the resource as it comes out of the ground relative to the initial flotation step to produce graphite concentrate and eventually the purification steps to remove impurities and elevate the graphitic content.



Graphite Processing Complex - Warehouse

Core sample preparation is carried out at a warehouse facility purchased in 2021, at the Lake Martin Regional Industrial Park near Kellyton, AL.

The warehouse sits on one side of the 70-acre site leased from the Lake Martin Area Industrial Development Authority.

Dirt excavation and moving equipment is lined up in proximity to the warehouse and contractors prepare the rest of the site for new construction.



Graphite Processing Complex - View from Warehouse

Site preparation work is well underway in April 2022, beginning with terracing for proper drainage. Coosa County, Alabama gets about 56 inches of rain each year, making proper drainage a critical element in every construction project. Contractors are currently trimming some elevations and filling in others.



Graphite Processing Complex - View from Main Office

Site preparation includes both leveling and in-fill work aimed at proper drainage.

Access points, road base and finalizing location details are also key elements of site preparation. Contractors will also complete underground utility mapping and additional soil testing required before the foundations are begun and the buildings are constructed.



Graphite Processing Complex - View Across Site

A variety of heavy equipment for dirt moving is required for site preparation. The equipment is provided by contractors.

Alabama has several major soil areas. Most of the soils in Alabama are derived from sandstone or shale.



Graphite Processing Complex - View Across Site

Survey flags provide guidance from engineers and architects on future building designs.

Eventually buildings to house the purification and other refinement steps will be located here. Purification of the graphite is carried out in a series of chemical and thermal upgrade, including caustic roasting or acid leaching to remove impurities. The main impurities are thought to be silicon dioxide, calcium oxide and aluminum oxide.



Graphite Processing Complex - Perimeter

Erosion prevented with perimeter guards seen as black 'fencing' around construction site.

The Clean Water Act and Federal regulations require construction site operators to obtain NPDES permits for land disturbances and discharges of stormwater runoff. The Alabama Department of Environmental Management (ADEM) oversees the permitting process.



Graphite Processing Complex - Water Resources

Water and power are critical elements for the construction project as well as the graphite processing operation once it is initiated. The water tower is one of the most visible landmarks of the Lake Martin Regional Industrial Park.



Graphite Processing Complex - Supervision

Dain McCoig and Steve Cates along with Chad Potter are in constant communication with contractors regarding progress on the initial site preparation stage of the project.



Graphite Processing Complex - Contractor Team

A number of different contractors are playing a part in the graphite processing complex design and construction. Each brings to the project critical engineering, architectural, design, materials handling, and construction skills and capacity.

Table III: Historic and Projected Annual Financial Performance

Dollars in Thousands	2020A Year	2021A Year	2022E Year	2023E Year	2024E Year
Total revenue	-	-	-	21,056	28,074
Gross profit	-	-	-	12,633	18,248
Operating expenses:					
General and administrative	5,678	12,120	12,500	13,200	14,500
Product development and other	5,378	5,975	7,500	5,500	5,000
Depreciation and amortization	(55)	20	260	3,000	4,000
Mineral property expenses	34	110	750	750	750
Accretion of asset retirement obligations	201	-	-	-	-
Total operating expenses	11,236	18,225	21,010	22,450	24,250
Operating income (loss)	(11,236)	(18,225)	(21,010)	(9,817)	(6,002)
Other income and expenses					
Gain (loss) on sale of assets	(2,665)	2,057			
Other	(11)	24			
Total other income (expense)	(2,676)	2,081	-	-	-
Income (loss) before income taxes	(13,912)	(16,144)	(20,410)	(9,817)	(6,002)
Discontinued operations, net of taxes	(9,662)	-	-	-	-
Net income (loss)	(23,574)	(16,144)	(21,010)	(9,817)	(6,002)
Net EPS (LPS), comprehensive	\$ (2.68)	\$ (0.49)	\$ (0.48)	\$ (0.19)	\$ (0.11)
Wtd shares outstanding, diluted in 000s	8,799	32,653	44,125	53,000	53,000

Source: Company Reports and Crystal Equity Research Estimates

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ANALYST

Debra Fiakas, CFA is a seasoned, credentialed investment professional with a diversified and successful track record as a research analyst and as an investment banker. Her decade-plus career includes solid experience in all aspects of the equity capital markets with particular emphasis on emerging growth companies operating in the technology sectors. Ms. Fiakas is also the principal member of Crystal Equity Research, LLC.

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RATING SYSTEM

Buy	Price appreciation expected 10% or more over a 12-month period.
Hold	Price appreciation/depreciation expected between 10% and –10% over 12 months.
Sell	Price depreciation expected 10% or more over a 12-month period.

CRYSTAL RESEARCH UNIVERSE

Buys	70%
Holds	15%
Sells	<u>15%</u>
Total	100%

HISTORICAL RECOMMENDATIONS AND TARGET PRICE: Westwater Resources / WWR

<u>Report</u>	<u>Date</u>	<u>Price</u>	<u>Rating</u>	<u>Target Price</u>
Previous reports by request				
Update	2/24/2022	\$1.94	Buy	\$20.00
Update	4/29/2022	\$1.33	Buy	\$20.00

DISCLOSURES

<u>Name</u>	<u>Symbol: Exchange</u>	<u>Disclosures</u>
Westwater Resources, Inc.	WWR: NYSE/Amer	D

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- B A controlling member of Crystal Equity Research, LLC has a beneficial interest in the common stock of the company.
- C A person or persons preparing this report or an immediate family member of the preparer has a beneficial interest in the common stock of the company.
- D Crystal Equity Research, LLC received compensation for research coverage from the company or one of its agents. The fees are paid in advance in cash.
- E The company has a convertible issue outstanding.
- F The securities covered in this report can be optioned.
- G The securities covered in this report can be margined.

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