

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2021

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 1-8944



CLEVELAND-CLIFFS INC.

(Exact name of registrant as specified in its charter)

Ohio <i>(State or Other Jurisdiction of Incorporation or Organization)</i>	34-1464672 <i>(I.R.S. Employer Identification No.)</i>
200 Public Square, Cleveland, Ohio <i>(Address of Principal Executive Offices)</i>	44114-2315 <i>(Zip Code)</i>

Registrant's telephone number, including area code: (216) 694-5700
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Shares, par value \$0.125 per share	CLF	New York Stock Exchange

Securities registered pursuant to section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes NO

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

As of June 30, 2021, the aggregate market value of the voting and non-voting common shares held by non-affiliates of the registrant, based on the closing price of \$21.56 per share as reported on the New York Stock Exchange — Composite Index, was \$10,636,421,962 (excluded from this figure are the voting shares beneficially owned by the registrant's officers and directors).

The number of shares outstanding of the registrant's common shares, par value \$0.125 per share, was 525,409,705 as of February 10, 2022.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for its 2022 annual meeting of shareholders are incorporated by reference into Part III.

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DEFINITIONS

The following abbreviations or acronyms are used in the text. References in this report to the "Company," "we," "us," "our" and "Cliffs" are to Cleveland-Cliffs Inc. and subsidiaries, collectively. References to "\$" is to United States currency.

Abbreviation or acronym	Term
4.625% 2029 Senior Notes	4.625% Senior Guaranteed Notes due 2029 issued by Cleveland-Cliffs Inc. on February 17, 2021 in an aggregate principal amount of \$500 million
4.875% 2031 Senior Notes	4.875% Senior Guaranteed Notes due 2031 issued by Cleveland-Cliffs Inc. on February 17, 2021 in an aggregate principal amount of \$500 million
2012 Amended Equity Plan	Cliffs Natural Resources Inc. 2012 Incentive Equity Plan, as amended or amended and restated from time to time
2020 Acquisitions	The AK Steel Merger and AM USA Transaction, collectively
2021 Equity Plan	Cleveland-Cliffs Inc. 2021 Equity and Incentive Compensation Plan
A&R 2015 Equity Plan	Cliffs Natural Resources Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan
ABL Facility	Asset-Based Revolving Credit Agreement, dated as of March 13, 2020, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent, as amended as of March 27, 2020, December 9, 2020 and December 17, 2021, and as may be further amended from time to time
Adjusted EBITDA	EBITDA, excluding certain items such as EBITDA of noncontrolling interests, extinguishment of debt, severance, acquisition-related costs, acquisition-related loss on equity method investment, amortization of inventory step-up, impacts of discontinued operations and intersegment corporate allocations of selling, general and administrative costs
AG	Autogenous grinding
AHSS	Advanced high-strength steel
AK Steel	AK Steel Holding Corporation (n/k/a Cleveland-Cliffs Steel Holding Corporation) and its consolidated subsidiaries, including AK Steel Corporation (n/k/a Cleveland-Cliffs Steel Corporation), its direct, wholly owned subsidiary, collectively, unless stated otherwise or the context indicates otherwise
AK Steel Merger	The merger of Merger Sub with and into AK Steel, with AK Steel surviving the merger as a wholly owned subsidiary of Cleveland-Cliffs Inc., subject to the terms and conditions set forth in the Merger Agreement, consummated on March 13, 2020
AK Steel Merger Agreement	Agreement and Plan of Merger, dated as of December 2, 2019, among Cleveland-Cliffs Inc., AK Steel and Merger Sub
AM USA Transaction	The acquisition of ArcelorMittal USA, consummated on December 9, 2020
AM USA Transaction Agreement	Transaction Agreement, dated as of September 28, 2020, by and between Cleveland-Cliffs Inc. and ArcelorMittal
ANSI	American National Standards Institute
AOCI	Accumulated other comprehensive income (loss)
APBO	Accumulated postretirement benefit obligation
ArcelorMittal	ArcelorMittal S.A., a company organized under the laws of Luxembourg and the former ultimate parent company of ArcelorMittal USA
ArcelorMittal USA	Substantially all of the operations of the former ArcelorMittal USA LLC, its subsidiaries and certain affiliates, and Kote and Tek, collectively
ASC	Accounting Standards Codification
ASTM	American Society for Testing and Materials
ASU	Accounting Standards Update
BART	Best available retrofit technology
BNSF	Burlington Northern Santa Fe, LLC
Board	The Board of Directors of Cleveland-Cliffs Inc.
BOF	Basic Oxygen Furnace
CAFE	Corporate Average Fuel Economy
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CECL	Current expected credit losses
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR	Cost and freight
Clean Water Act	Federal Water Pollution Control Act
CN	Canadian National Railway Company
Compensation Committee	Compensation and Organization Committee of the Board
COVID-19	A novel strain of coronavirus that the World Health Organization declared a global pandemic in March 2020
Directors' Plan	Cleveland-Cliffs Inc. 2021 Nonemployee Directors' Compensation Plan
Dodd-Frank Act	Dodd-Frank Wall Street Reform and Consumer Protection Act
DOE	U.S. Department of Energy
DR-grade	Direct reduction-grade
EAF	Electric arc furnace
EBITDA	Earnings before interest, taxes, depreciation and amortization

Abbreviation or acronym	Term
EDC	Export Development Canada
EGLLE	Michigan Department of Environment, Great Lakes and Energy
Empire	Iron ore mining property owned by Empire Iron Mining Partnership, an indirect, wholly owned subsidiary of Cliffs
EPA	U.S. Environmental Protection Agency
EPS	Earnings per share
ERISA	Employee Retirement Income Security Act of 1974, as amended
EV	Electric vehicle
Exchange Act	Securities Exchange Act of 1934, as amended
FASB	Financial Accounting Standards Board
FCA	Financial Conduct Authority (the authority that regulates LIBOR)
Fe	Iron
FeT	Total iron
FILO	First-in, last-out
FIP	Federal implementation plan
Former ABL Facility	Amended and Restated Syndicated Facility Agreement, dated as of March 30, 2015, among Cleveland-Cliffs Inc., the subsidiary borrowers party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent, as amended and restated as of February 28, 2018, and as further amended, which was terminated on March 13, 2020 in connection with entering into the ABL Facility
FPT	Ferrous Processing and Trading Company, including certain related entities
FPT Acquisition	The purchase of FPT, subject to the terms and conditions set forth in the FPT Acquisition Agreement
FPT Acquisition Agreement	Securities Purchase Agreement, dated as of October 8, 2021, by and between Cleveland-Cliffs Inc. and Anthony Soave Revocable Trust u/a/d January 14, 1987, as amended and restated
GAAP	Accounting principles generally accepted in the United States
GHG	Greenhouse gas
GOES	Grain oriented electrical steel
HBI	Hot briquetted iron
Hibbing	Iron ore mining property owned by Hibbing Taconite Company, an unincorporated joint venture between subsidiaries of Cliffs and U.S. Steel
HRC	Hot-rolled coil steel
HVAC	Heating, ventilation and air conditioning equipment
IAM	International Association of Machinists and Aerospace Workers
IBA	ICE Benchmark Administration Limited (the entity that calculates and publishes LIBOR)
IRB	Industrial Revenue Bond
IRC	U.S. Internal Revenue Code of 1986, as amended
ISO	International Organization for Standardization
IT	Information technology
JSW Steel	JSW Steel (USA) Inc. and JSW Steel USA Ohio, Inc., collectively
Kote and Tek	Cleveland-Cliffs Kote L.P. and Cleveland-Cliffs Tek L.P., collectively
LIBOR	London Interbank Offered Rate
LIFO	Last-in, first-out
LoM	Life-of-mine
Long ton	2,240 pounds
LS&I	Lake Superior & Ishpeming Railroad Company
Merger Sub	Pepper Merger Sub Inc., a direct, wholly owned subsidiary of Cliffs prior to the AK Steel Merger
Metric ton	2,205 pounds
Minorca	Iron ore mining property owned by Cleveland-Cliffs Minorca Mine Inc. (f/k/a ArcelorMittal Minorca Mine Inc.), an indirect, wholly owned subsidiary of Cliffs acquired in connection with the AM USA Transaction
MMBtu	Million British Thermal Units
MPCA	Minnesota Pollution Control Agency
MSHA	Mine Safety and Health Administration of the U.S. Department of Labor
NAV	Net asset value
Net ton	2,000 pounds
NOL	Net operating loss
NOVs	Notices of violations
NO _x	Nitrogen oxide
NOES	Non-oriented electrical steel

Abbreviation or acronym	Term
Northshore	Iron ore mining property owned by Northshore Mining Company, a direct, wholly owned subsidiary of Cliffs
NPDES	National Pollutant Discharge Elimination System, authorized by the Clean Water Act
NWPR	Navigable Waters Protection Rule
NYSE	New York Stock Exchange
OPEB	Other postretirement benefits
OSHA	Occupational Safety and Health Administration of the U.S. Department of Labor
PBO	Projected benefit obligation
PHS	Press-hardened steel
Platts 62% price	Platts IODEX 62% Fe Fines CFR North China
PPI	Producer Price Indices
QA/QC	Quality assurance/quality control
QP	Qualified person, within the meaning set forth in Item 1300 of Regulation S-K
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
S&P	Standard & Poor's
SEC	U.S. Securities and Exchange Commission
Second ABL Amendment	Second Amendment to Asset-Based Revolving Credit Agreement, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent
Section 232	Section 232 of the Trade Expansion Act of 1962 (as amended by the Trade Act of 1974)
Securities Act	Securities Act of 1933, as amended
SIP	State Implementation Plan
SLR	SLR International Corporation
SOFR	Secured Overnight Financing Rate
STRIPS	Separate Trading of Registered Interest and Principal of Securities
SunCoke Middletown	Middletown Coke Company, LLC, a subsidiary of SunCoke Energy, Inc.
Third ABL Amendment	Third Amendment to Asset-Based Revolving Credit Agreement, dated as of December 17, 2021, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent
Tilden	Iron ore mining property owned by Tilden Mining Company L.C., an indirect, wholly owned subsidiary of Cliffs
TMDL	Total maximum daily load
Tooling and Stamping	Cleveland-Cliffs Tooling and Stamping Holdings LLC (f/k/a PPHC Holdings, LLC), an indirect, wholly owned subsidiary of Cliffs, together with its subsidiaries
Topic 805	ASC Topic 805, Business Combinations
Topic 815	ASC Topic 815, Derivatives and Hedging
TSR	Total shareholder return
Tubular Components	Cleveland-Cliffs Tubular Components LLC (f/k/a AK Tube LLC), an indirect, wholly owned subsidiary of Cliffs
United Taconite	Iron ore mining property owned by United Taconite LLC, an indirect, wholly owned subsidiary of Cliffs
U.S.	United States of America
U.S. Steel	United States Steel Corporation and its subsidiaries, collectively, unless stated otherwise or the context indicates otherwise
UAW	United Auto Workers
USMCA	United States-Mexico-Canada Agreement
USW	United Steelworkers
VEBA	Voluntary employee benefit association trusts
VIE	Variable interest entity
WLT	Wet long ton

PART I

Item 1. *Business*

Introduction

Cliffs is the largest flat-rolled steel producer in North America. Founded in 1847 as a mine operator, we are also the largest manufacturer of iron ore pellets in North America. We are vertically integrated from mined raw materials, direct reduced iron and ferrous scrap to primary steelmaking and downstream finishing, stamping, tooling and tubing. We are the largest supplier of steel to the automotive industry in North America and serve a diverse range of other markets due to our comprehensive offering of flat-rolled steel products. Headquartered in Cleveland, Ohio, we employ approximately 26,000 people across our operations in the United States and Canada.

On November 18, 2021, we completed the acquisition of FPT, a leading prime ferrous scrap processor in the U.S. These operations consist of 22 scrap processing facilities, primarily in the Midwest region of the United States. The FPT Acquisition bolsters our raw materials position by securing access to prime scrap, which will allow us to optimize productivity at our existing EAFs and BOFs.

Competitive Strengths

As the largest flat-rolled steel producer in North America, we benefit from having the size and scale necessary in a competitive, capital intensive business. Our sizeable operating footprint provides us with the operational leverage, flexibility and cost performance to achieve competitive margins throughout the business cycle. We also have a unique vertically integrated profile from mined raw materials, direct reduced iron, and ferrous scrap to primary steelmaking and downstream finishing, stamping, tooling and tubing. This positioning gives us both lower and more predictable costs throughout the supply chain and more control over both our manufacturing inputs and our end product destination.

Our legacy business of producing iron ore pellets, which is our primary steelmaking raw material input, is another competitive advantage. By controlling our iron ore pellet supply, our primary steelmaking raw material feedstock can be secured at a stable and predictable cost and not be subject to as many factors outside of our control.

The FPT Acquisition gives us a competitive advantage in sourcing prime scrap, as we expect to leverage our long-standing flat-rolled automotive and other customer relationships into recycling partnerships to further grow our prime scrap presence. Additionally, FPT has 22 facilities located primarily in the Midwest near our steel facilities, which gives us an increased advantage in logistics.

We are also the largest supplier of automotive-grade steel in the U.S. Compared to other steel end markets, automotive steel is generally higher quality and more operationally and technologically intensive to produce. As such, it often generates higher through-the-cycle margins, making it a desirable end market for the steel industry. Given the strong demand and market environment in 2021, we were able to significantly improve our fixed price contracts, which should benefit us throughout 2022. Demand for our automotive-grade steel is expected to increase with pent-up automotive demand as a result of the semiconductor shortage. Automotive customers have requested higher volumes in contract negotiations compared to the prior year, which we believe is a sign of the semiconductor shortage easing. With our continued technological innovation, as well as leading delivery performance, we expect to remain the leader in supplying this industry.

We are the only producers of both GOES and NOES in the U.S. The recently passed Infrastructure and Jobs Act of 2021 in the U.S. provides funding to be used for the modernization of the electrical grid and the infrastructure needed to allow for increased EV adoption, both of which require our electrical steels. As a result, with increased demand for both transformers and motors for EVs, we expect to benefit from this position in what is currently a rapidly growing market.

We believe we offer the most comprehensive flat-rolled steel product selection in the industry, along with several complementary products and services. A sampling of our offering includes AHSS, hot-dipped galvanized, aluminized, galvalume, electrogalvanized, galvaneal, HRC, cold-rolled coil, plate, tinplate, GOES, NOES, stainless steels, tool and die, stamped components, rail, slab and cast ingot. Across the quality spectrum and the supply chain, our customers can frequently find the solutions they need from our product selection.

We are the first and the only producer of HBI in the Great Lakes region. Construction of our Toledo direct reduction plant was completed in the fourth quarter of 2020 and reached full run-rate nameplate annual capacity of 1.9 million metric tons during the middle of 2021. From this modern plant, we produce a high-quality, low-cost and low-carbon intensive HBI product that can be used in our blast furnaces and as a productivity enhancer in our BOFs and EAFs as a scrap alternative. We can use HBI to stretch our hot metal production, lowering carbon intensity and reliance on coke. As a result of our internal usage of HBI, coupled with our ongoing evaluation of coke use strategies, we idled our coke facility at Middletown Works during the third quarter of 2021 and we intend to permanently idle our Mountain State Carbon coke plant in the second quarter of 2022. With increasing tightness in the scrap market and our own internal needs for scrap and metallics, we expect our Toledo direct reduction plant to support healthy margins for us going forward.

Strategy

Maximize Our Commercial Strengths

We offer a full suite of flat steel products encompassing all steps of the steel manufacturing process. We have an industry-leading market share in the automotive sector, where our portfolio of high-end products delivers a broad range of differentiated solutions for this highly sought after customer base.

As a result of our exposure to these high-end markets, we have the highest fixed price contractual volumes in our industry. Approximately 45% of our volumes are sold under these contracts. These contracts reduce volatility and allow for more predictable through-cycle margins. Our fixed contract values are expected to dramatically improve in 2022 compared to 2021.

We are also proponents of the “value over volume” approach in terms of steel supply. We take our leadership role in the industry very seriously and intend to manage our steel output in a responsible manner. In the fourth quarter of 2021, we elected to pull forward repairs and maintenance to match automotive demand that was negatively impacted by the semiconductor shortage. Going forward, we will continue to use our operational flexibility to align with our “value over volume” approach in terms of steel supply.

Optimize Our Fully Integrated Steelmaking Footprint

We are a fully-integrated steel enterprise with the size and scale to achieve margins above industry averages for flat-rolled steel. Our focus remains on both maintaining and enhancing our cost advantage while also lowering carbon emissions. The combination of our ferrous raw materials, including iron ore, scrap, and HBI, allows us to do so relative to peers who must rely on more unpredictable and unreliable raw material sourcing strategies.

In 2022, we intend to use more scrap and HBI in our melting processes to stretch our production of liquid pig iron from traditional inputs. The use of higher amounts of these raw materials in our blast furnaces ultimately boosts liquid steel output, which will reduce coke needs and lower carbon emissions from our operations. With our acquisition of FPT, we have ample access to scrap along with internally sourced HBI.

Expand our Ferrous Scrap Recycling Presence

Throughout our entire footprint, we consume a very significant amount of scrap in our EAFs and BOFs, more than half of which can now be obtained through internal sources. Prime scrap is a byproduct of industrial manufacturing. As manufacturing in the U.S. has moved offshore and yields have improved, prime scrap supply has been shrinking for the last 50 years. As the steel industry continues to increase its focus on decarbonization and brings new flat-rolled EAF capacity online over the next five years, securing additional access to prime scrap will continue to be an important strategic initiative.

Our expansion in this area began with the FPT Acquisition and will continue to grow by pairing FPT's processing capabilities with our long-standing customer relationships. As the largest supplier of flat-rolled steel in North America, we are the largest source of the steel that generates prime scrap in manufacturing facilities. Based on this, we seek to leverage our long-standing flat-rolled automotive and other customer relationships into recycling partnerships to grow our prime scrap presence. The FPT Acquisition allows us to optimize productivity at our existing EAFs and BOFs, as we have no current plans to add additional steelmaking capacity.

Advance our Participation in the Green Economy

We are seeking to expand our customer base with the rapidly growing and desirable electric vehicle market. At this time, we believe the North American automotive industry is approaching a structural inflection point, with the adoption of electrical motors in passenger vehicles. As this market grows, it will require more advanced steel

applications to meet the needs of electric vehicle producers and consumers. With our unique technical capabilities and leadership in the automotive industry, we believe we are positioned better than any other North American steelmaker to supply the steel and parts necessary to fill these needs.

We also have the right products to meet the growing demand for renewable energy as well as for the modernization of the U.S. electrical grid. We offer plate products that can be used in windmills, which we estimate contain 130 tons of steel per megawatt of electricity. In addition, panels for solar power are heavy consumers of galvanized steel, where we are a leading producer. We estimate solar panels consume 40 tons of steel per megawatt of electricity.

We are currently the sole producer of electrical steel in the U.S., which can facilitate the modernization of the U.S. electrical grid. Along with charging networks, electrical steels are also needed in the motors of electric vehicles.

Enhance our Environmental Sustainability

Our commitment to operating our business in a more environmentally responsible manner remains constant. One of the most important issues impacting our industry, our stakeholders and our planet is climate change. In early 2021, we announced our commitment to reduce GHG emissions 25% from 2017 levels by 2030. This goal represents combined Scope 1 (direct) and Scope 2 (indirect) GHG emission reductions across all of our operations.

Prior to setting this goal with our newly acquired steel assets, we exceeded our previous GHG reduction target at our legacy facilities six years ahead of our 2025 goal. In 2019, we reduced our combined Scope 1 and Scope 2 GHG emissions by 42% on a mass basis from 2005 baseline levels. Our goal is to further reduce those emissions in coming years.

Additionally, many of our steel assets have improved plant and energy efficiency through participation in programs like the U.S. Department of Energy's Better Plants program, including their Better Climate Challenge and the EPA's Energy Star program. With our longstanding focus on plant and energy efficiency, we aim to build on our previous successes across our newly integrated enterprise.

Our GHG reduction commitment is based on executing the following five strategic priorities:

- Developing domestically sourced, high quality iron ore feedstock and utilizing natural gas in the production of HBI;
- Implementing energy efficiency and clean energy projects;
- Investing in the development of carbon capture technology;
- Enhancing our GHG emissions transparency and sustainability focus; and
- Supporting public policies that facilitate GHG reduction in the domestic steel industry.

Improve Financial Flexibility

Given the cyclical nature of our business, it is important to us to be in the financial position to easily withstand any negative demand or pricing pressure we may encounter. During the early stages of the COVID-19 pandemic, we were able to issue secured debt to provide insurance capital through the uncertain industry conditions caused by the pandemic. Now that business conditions have improved, allowing us to generate a healthy free cash flow during 2021 that is expected to continue into 2022, we have the ability to reduce debt, return capital to shareholders through our share repurchase program and make investments to both improve and grow our business. We have also been able to reduce our diluted share count and effectively return capital to shareholders via the cash redemption of our Series B Participating Redeemable Preferred Stock during the third quarter of 2021.

We anticipate that a strong market environment and significantly improved fixed price contracts will provide us ample opportunities to reduce our debt with our own free cash flow generation in the coming years. We will also continue to review the composition of our debt, as we are interested in both extending our average maturity profile and increasing our ratio of unsecured debt to secured debt, which we demonstrated by executing a series of favorable debt and equity capital markets transactions during February 2021. In addition, in June 2021, we redeemed all \$396 million aggregate principal amount outstanding of our 5.750% 2025 Senior Notes. In December 2021, we increased our liquidity by amending our ABL Facility to increase the aggregate revolver commitments from \$3.5 billion to \$4.5 billion. These actions give us additional financial flexibility and will better prepare us to navigate more easily through

potentially volatile industry conditions in the future. In January 2022, we redeemed all \$294 million aggregate principal amount outstanding of our 1.500% 2025 Convertible Senior Notes.

Business Operations

We have a vertically integrated portfolio, which begins at the mining stage and goes all the way through the manufacturing of steel products, including stamping, tooling and tubing. We have the unique advantage as a steel producer of being fully or partially self-sufficient with our production of raw materials for steel manufacturing, which includes iron ore pellets, HBI, scrap and coking coal. We operate iron ore mines in Michigan and Minnesota, which produce iron ore pellets, and a direct reduction plant in Ohio that produces HBI. Additionally, with our recently completed FPT Acquisition, we now operate scrap facilities in Michigan, Ohio, Tennessee, Florida and Ontario. We also operate a coal mining complex in West Virginia and produce coke from our facilities in Ohio, Pennsylvania, Indiana and West Virginia.

We believe such vertical integration represents a sustainable business model that is in the best interest of all stakeholders and the surest way to secure a long-term competitive advantage. We are focused on securing additional access to prime scrap as the steel industry continues to increase its focus on decarbonization and with demand coming from new flat-rolled EAF capacity set to come online over the next five years. We continue to strive to operate responsibly and produce cleaner steel, which is the most recycled material on the planet. Additionally, our investment in the Toledo direct reduction plant, which was completed in the fourth quarter of 2020, also helps to support environmental stewardship, as the increased use of HBI in our blast furnaces stretches liquid steel output, which reduces coke needs and emissions. From a focus on key environmental processes, such as steel recycling and reduction of carbon emissions, to corporate and social responsibility, sustainability is central to our values and operations.

The following table lists our steel producing and finishing properties, their location and their products and services:

Property	Segment	State/ Province	Products and Services
Burns Harbor	Steelmaking	Indiana	Hot-rolled, cold-rolled, and hot-dipped galvanized sheet and coke
Burns Harbor Plate and Gary Plate	Steelmaking	Indiana	Carbon steel plate, high-strength low alloy steel plate, ASTM grades steel plate
Butler Works	Steelmaking	Pennsylvania	Flat-rolled electrical and stainless steel, stainless and carbon semi-finished slabs
Cleveland	Steelmaking	Ohio	Hot-rolled and hot-dipped galvanized sheet
Coatesville	Steelmaking	Pennsylvania	Steel plate - carbon, high-strength low-alloy, commercial alloy, military alloy, flame-cut
Columbus	Steelmaking	Ohio	Hot-dipped galvanized steel
Conshohocken	Steelmaking	Pennsylvania	Coiled and discrete plate, military alloy, commercial alloy, heat-treated carbon
Coshocton Works	Steelmaking	Ohio	Flat-rolled stainless steel
Dearborn Works	Steelmaking	Michigan	Carbon semi-finished slabs, hot-dipped galvanized, AHSS
Indiana Harbor	Steelmaking	Indiana	Carbon semi-finished slabs, hot-rolled, cold-rolled and hot-dipped galvanized sheet
Kote and Tek	Steelmaking	Indiana	Cold-rolled, hot-dipped galvanized and galvanized, electrogalvanized coil
Mansfield Works	Steelmaking	Ohio	Semi-finished hot bands, high chrome ferritic and martensitic stainless steels
Middletown Works	Steelmaking	Ohio	Hot-rolled, cold-rolled, hot-dipped galvanized, aluminized sheet and coke
Piedmont	Steelmaking	North Carolina	Plasma - cuts plate steel products into blanks
Riverdale	Steelmaking	Illinois	Hot-rolled sheet
Rockport Works	Steelmaking	Indiana	Cold-rolled carbon, coated and stainless steels
Steeltown	Steelmaking	Pennsylvania	Railroad rails, specialty blooms, flat bars and cast ingots
Weirton	Steelmaking	West Virginia	Tinplate, cold-rolled sheet
Zanesville Works	Steelmaking	Ohio	Electrical steels

Our Other Businesses primarily includes the Tubular Components and Tooling and Stamping properties that provide customer solutions with carbon and stainless steel tubing products, advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components, and complex assemblies.

Refer to *Part I - Item 2. Properties* for additional information.

Customers and Markets

We primarily sell our products to customers in four broad market categories: automotive; infrastructure and manufacturing, which includes electrical power; distributors and converters; and steel producers, which consume iron ore and metallics and further process semi-finished materials. The following table presents the percentage of our net revenues to each of these markets during the year:

Market	2021	2020
Automotive	25 %	45 %
Infrastructure and manufacturing	27 %	15 %
Distributors and converters	38 %	13 %
Steel producers	10 %	27 %

The change in percentages of net revenues to each market in 2021 compared to 2020 was driven primarily by the AM USA Transaction, which increased overall sales to automotive customers, but reduced the total percentage exposure, increased exposure to infrastructure and manufacturing and distributors and converters customers, and drove more in-house iron ore sales, which reduced the percentage of sales to steel producers.

Approximately 45% of our flat-rolled steel shipments are sold under fixed base price contracts. These contracts are typically one year in duration and expire at various times throughout the year. Some of these contracts have a surcharge mechanism that passes through certain changes in input costs. A certain portion of our flat-rolled steel shipments are sold based on the spot market at prevailing market prices or under contracts that involve variable pricing that is tied to an independently published steel index.

We sell our steel products principally to customers in North America. For the vast majority of international sales, we are not the importer of record and do not bear the responsibility for paying any applicable tariffs.

Automotive Market

We specialize in manufacturing difficult-to-produce, high-quality steel products, combined with demanding delivery performance, customer technical support and collaborative relationships, to develop breakthrough steel solutions that help our customers meet their product requirements. In addition, many of our competitors do not have the capability to supply the full portfolio of products that we make for our automotive customers, such as steel for exposed automotive applications, the most sophisticated grades of AHSS and value-added stainless steel products. The exacting requirements for servicing the automotive market generally allows for higher selling prices for products sold to that market than for the commodity types of carbon and stainless steels sold to other markets.

The largest end user for our steel products is the automotive industry in North America, which makes light vehicle production a key driver of demand. During 2021, North American light vehicle production was 13 million units, the same as the prior year. Production each of the past two years was down 3 million units compared to the prior ten-year average primarily due to the global semiconductor shortage, as well as other material shortages and supply chain disruptions resulting from the COVID-19 pandemic. This has caused several outages amongst light vehicle manufacturers despite strong consumer demand. In light of these production outages, we have been able to redirect certain volumes originally intended for this end market to the spot market, where demand has been strong and pricing has reached all-time highs.

Furthermore, during 2021, consumer demand for sport utility vehicles, trucks and crossovers continued to increase while demand for smaller sedans and compact cars declined. We benefit from intentionally targeting larger vehicle platforms to take advantage of consumer preferences, and we have focused on and have been successful in getting sourced on numerous sport utility vehicle, truck, crossover and larger vehicle platforms. As a result, a significant portion of the carbon automotive steel that we sell is used to produce these popular larger vehicles. In addition to benefiting from our exposure to consumers' strong demand for larger vehicles, these vehicles also typically contain a higher volume of steel than smaller sedans and compact cars, providing us the opportunity to sell a greater proportion of our steel products to our automotive customers.

Automotive manufacturers are under pressure to achieve heightened federally mandated CAFE standards. The CAFE standards generally require automobile manufacturers to meet an average fuel economy goal across the fleet of vehicles they produce with certain milestone dates. As a result, our automotive customers continue to explore various avenues for achieving the standards, including light weighting components and developing more fuel-efficient engines. Light weighting efforts include the use of alternatives to traditional carbon steels, such as AHSS and other materials. While this could reduce the aggregate volume of steel consumed by the automotive industry, we expect

that demand will increase for current and next-generation AHSS and that our AHSS and other innovative steels will command higher margins. We are collaborating with our automotive customers and their suppliers to develop innovative solutions using our developments in light weighting, efficiency, and material strength and formability across our extensive product portfolio, in combination with our automotive stamping and tube-making capabilities. We are also working with our customers to develop steels with greater heat resistance for exhaust systems that support new, fuel-efficient engines that run at higher temperatures.

Automotive manufacturers have also been increasing their development of EVs and battery electric vehicles in order to meet the CAFE standards and growing customer adoption of EVs. Many motors used in EVs being sold in the U.S. today are imported from foreign suppliers, but more local sourcing and manufacturing of motors is expected to occur in the future. As the only North American producer of high-efficiency NOES, which is a critical component of EV motors, we are positioned to potentially benefit from the growth of EVs going forward. We believe our strong foundation in electrical steels and long-standing relationships with automotive manufacturers and their suppliers will provide us with an advantage in this market as it continues to grow and mature. Likewise, the growing customer adoption of EVs may also increase demand for improvements in the electric grid to support higher demand for more extensive battery charging, which our GOES could support.

The majority of our sales to the automotive market are under annual fixed price contracts. In 2022, our selling prices to this end market will be substantially higher as a result of favorable renewals. The improved prices in our fixed price contracts were driven by stronger market conditions and our unique product offering of automotive grade steel.

Infrastructure and Manufacturing Market

We sell a variety of our steel products, including plate, carbon, stainless, electrical, tinplate and rail, to the infrastructure and manufacturing market. This market includes sales to manufacturers of HVAC, appliances, power transmission and distribution transformers, storage tanks, ships and railcars, wind towers, machinery parts, heavy equipment, military armor, food preservation, and railway lines. Domestic construction activity and the replacement of aging infrastructure directly affects sales of steel to this market. Residential construction spending surged in 2021 due to overwhelming demand for new houses. Nonresidential construction spending was slightly down in 2021; however, the sector saw a surge in spending in the second half of the year and will likely continue into 2022 with the passing of the Infrastructure and Jobs Act of 2021. The Infrastructure and Jobs Act of 2021 will likely also increase demand for steel products related to renewable energy, as well as the modernization of the U.S. electrical grid. Our plate products can be used in windmills, which we estimate contain 130 metric tons of steel per megawatt of electrical generating capacity. Additionally, we estimate solar panels consume 40 metric tons of steel per megawatt of electrical generating capacity. We also expect to see an increase in charging stations for EVs which we will benefit from as we are the sole producer of electrical steel in the U.S.

Sales to this end market are made under a combination of annual fixed price contracts and index-linked pricing arrangements. Our selling prices under our annual fixed price contracts will be substantially higher in 2022 as a result of favorable renewals.

Distributors and Converters Market

Virtually all of the grades of steel we produce are sold to the steel distributors and converters market. This market generally represents downstream steel service centers, which source various types of steel from us and fabricate it according to their customers' needs. Our steel is typically sold to this market on a spot basis or under short-term contracts linked to steel pricing indices. Demand and pricing for this market can be highly dependent on a variety of factors outside our control, including global and domestic commodity steel production capacity, the relative health of countries' economies and whether they are consuming or exporting excess steel production, the provisions of international trade agreements and fluctuations in international currencies and, therefore, are subject to market changes in steel prices.

The price for domestic HRC, the most significant index in driving our revenues and profitability of our Steelmaking segment, averaged \$1,573 per net ton for 2021, a record year that was also 174% higher than 2020. The record prices for steel products in 2021 was a result of both supply and demand factors, each driven by a rapid recovery since the onset of the COVID-19 pandemic in 2020.

Steel Producers Market

The steel producers market represents third-party sales to other steel producers, including those who operate blast furnaces and EAFs. It includes sales of raw materials and semi-finished and finished goods, including iron ore pellets, coal, coke, HBI, scrap and steel products.

The largest component of sales to this market during the year ended December 31, 2021 was third-party slab sales, which are primarily made under a long-term supply agreement that was initiated in connection with the closing of the AM USA Transaction.

Following the 2020 Acquisitions, production from our iron ore mines is predominantly consumed by our steelmaking operations. On a full-year basis, we would expect between 22 million and 24 million long tons of our iron ore pellets to be consumed by our steelmaking operations. During 2021, 2020 and 2019, we sold 4 million, 12 million and 19 million long tons of iron ore product, respectively, to third parties from our share of production from our iron ore mines. The merchant portion of our iron ore pellet production is sold pursuant to long-term supply agreements and through spot contracts.

We also entered into the scrap business with the FPT Acquisition in 2021. FPT is one of the largest processors of prime scrap in the country, representing approximately 15% of the entire U.S. merchant market. We believe this acquisition is a complementary addition to our footprint as prime scrap demand is expected to grow as new flat-rolled EAF capacity is set to come online over the next five years, and the worldwide focus on decarbonization continues. We expect to be able to leverage our long-standing flat-rolled automotive and other customer relationships into recycling partnerships to further grow our prime scrap presence.

The price of busheling scrap, a necessary input for flat-rolled steel production in EAFs in the U.S., averaged \$602 per long ton during 2021, a 97% increase from the prior year. We expect the price of busheling scrap to remain elevated throughout 2022 due to decreasing prime scrap generation from original equipment manufacturers and the growth of EAF capacity in the U.S., along with a push for expanded scrap use globally. The expected rising price of busheling scrap was a key strategic rationale for the FPT Acquisition.

Applied Technology, Research and Development

We have an extensive history of being an innovator dating back more than a century. From upstream research and development, to downstream applications, we have dedicated technical and engineering resources that begin with improving customers' production and manufacturing performance to applications for their end product use.

We have a world-class research and development team expanding our capabilities to bring new steel products to the marketplace. Rapidly evolving and highly competitive markets for our steel products require our customers to seek new, comprehensive steel solutions, and we believe we are well positioned to deliver the most robust solutions through our broad portfolio of offerings. Collaboration across our research groups and operations generates innovative and comprehensive solutions for our customers, which we believe enhances our competitive advantage.

Our ongoing efforts to enhance technical collaboration at our state-of-the-art Research and Innovation Center in Middletown, Ohio, have increased the introduction of new steel solutions to the marketplace. Creating innovative products and breakthrough solutions is a strategic priority, as we believe differentiation through producing higher value steels to meet challenging requirements enables us to maintain and enhance our margins. We conduct a broad range of research and development activities aimed at improving existing products and processes and developing new ones. Our innovation of steel has produced a highly diversified steel product portfolio. As part of our underlying strategy to focus on higher-value materials and minimize exposure to commodity products, we have invested in research and innovation totaling \$17 million and \$15 million in 2021 and 2020, respectively.

We have also been a leader in iron ore mining and processing technology through the application of new technology to the centuries-old business of mineral extraction. We have also been a pioneer in iron ore pelletizing with over 60 years of experience. We are able to produce customized, environmentally-friendly pellets to meet blast furnace specifications and produce standard, fluxed and DR-grade pellets.

HBI

We are a pioneer in the development of emerging reduction technologies, a leader in the extraction of value from challenging resources and a front-runner in the implementation of safe and sustainable technology. We are also devoted to promoting environmental sustainability, evidenced with the development of our direct reduction plant in Toledo, Ohio. Construction of our Toledo direct reduction plant was completed in the fourth quarter of 2020, and the

plant reached full run-rate nameplate annual capacity of 1.9 million metric tons of HBI per year in 2021. From this modern plant, we produce a high-quality, low-cost and low-carbon intensive HBI product that can be used throughout our footprint. We intend to use more HBI in our melting process to stretch our production of liquid pig iron from traditional inputs. The use of higher amounts of HBI in our blast furnaces ultimately stretches liquid steel output, which reduces coke needs and lowers carbon intensity.

Carbon Steel

We focus much of our research and innovation efforts on carbon steel applications for automotive manufacturers and their suppliers. We are particularly focused on AHSS for the automotive market, and we produce virtually every AHSS grade currently used by our customers. Our AHSS grades, such as Dual Phase 590, 780, 980 and 1180, have been adopted by our customers for both stamped and roll-formed parts, and our TRIP and NEXMET® products have demonstrated enhanced strength, formability and opportunities for automotive light weighting in cold-stamped applications. We are also pursuing application of NEXMET 490EX in surface-critical, exposed auto body panels as an alternative to aluminum.

Third Generation Advanced High-Strength Steel

Our third generation NEXMET AHSS products enable our customers to achieve significant light weighting in the unexposed structural components of their vehicles. NEXMET 1200, for example, offers superior formability similar to conventional Dual Phase 600 steel, but at twice the strength level. We have expanded the application of the NEXMET technology to our tubular products and stamped components businesses. These AHSS products allow automotive engineers to design lightweight parts that meet rigorous service and safety requirements. The NEXMET family of steels helps our customers achieve vehicle weight savings for ambitious fuel efficiency standards while avoiding significant capital costs required to re-design production facilities to use alternative materials.

Both galvanized and cold-rolled NEXMET AHSS are progressing through product qualification with several original equipment manufacturer customers. A number of stamping and component assembly trials have been completed successfully, with more planned and underway. Because the timing of automotive design and production cycles spans several years, widespread automotive customer adoption of revolutionary new material such as NEXMET AHSS may also extend over several years. We expect that other automotive vehicle platforms will incorporate NEXMET AHSS in their designs and that NEXMET AHSS will become a strong differentiator for us going forward.

Downstream Steel Applications

Our portfolio of steel solutions includes the operations of Tooling and Stamping, which provides advanced-engineered solutions, tool design and build, hot and cold-stamped components and complex assemblies for the automotive market. In addition to Tooling and Stamping, our downstream operations include Tubular Components, which manufactures advanced tubular products for automotive and other applications using carbon and stainless steels. We believe that collaboration among our steelmaking operations and our downstream businesses can accelerate the adoption of our innovative steel products by automotive manufacturers and their first tier suppliers.

Our research and technical experts have undertaken numerous collaborative projects that are generating robust solutions for our customers. Our expertise in tool design and stamping capabilities has allowed us to create prototype components using our innovative new sheet materials and present customers with new potential steel solutions. This approach has and, we expect, will continue to demonstrate to customers that they can significantly light weight automotive parts on an accelerated timeline and in a cost-effective manner by using our highly formable grades of AHSS in place of traditional material types.

In addition, our collaborative projects are enhancing our collective knowledge and experience in the stamping of new, advanced grades of steel, advanced engineered solutions, and tool design and build. For example, our Tooling and Stamping segment specializes in hot-stamping PHS for automotive applications. Our experience as a leader in PHS and expertise in hot-stamping has enabled us to have greater insight into these high-growth areas and has accelerated product development and customer adoption of these automotive light weighting solutions. Likewise, collaboration with the Tubular segment strategically advances our mission to innovate in AHSS for the automotive industry, as we have been at the forefront of producing tubular products from PHS and third-generation AHSS. We believe the combination of our stamping and advanced die-making capabilities, leading tube making capabilities and breakthrough material introductions will enhance our ability to deliver innovative, steel solutions to our customers.

We have recently been awarded contracts with several customers to supply complex assemblies and stamped automotive parts. In winning these contracts, we have been able to leverage our hot-stamping tooling

leadership, in addition to our innovative hot-stamping process, to capture new strategic opportunities and demonstrate that we are one of the few businesses in North America that has the technical capabilities to produce a major complex assembly and stamping work of this nature.

Competition

Our Steelmaking segment principally competes with domestic and foreign producers of flat-rolled carbon, plate, tinplate, stainless, rail and electrical steel, carbon and stainless tubular products, aluminum, carbon fiber, concrete and other materials that may be used as a substitute for flat-rolled steels in manufactured products. Our Tooling and Stamping and Tubular Components businesses both compete against other niche companies in highly fragmented markets.

Price, quality, on-time delivery, customer service and product innovation are the primary competitive factors in the steel industry and vary in importance according to the product category and customer requirements. Steel producers that sell to the automotive market face competition from aluminum manufacturers (and, to a lesser extent, other materials) as automotive manufacturers attempt to develop vehicles that will enable them to satisfy more stringent, government-imposed fuel efficiency standards. To address automotive manufacturers' light weighting needs that the aluminum industry is targeting, we and others in the steel industry have developed AHSS grades that we believe provide weight savings similar to aluminum, while being stronger, less costly, easier to repair, more sustainable and more environmentally friendly. Aluminum penetration has been primarily limited to specific automotive applications, such as outer panels and closures, rather than entire body designs. In addition, our automotive customers who continue to use steel, as opposed to aluminum and other alternative materials, are able to avoid the significant capital expenditures required to re-tool their manufacturing processes to accommodate the use of non-steel materials.

Mini-mills (producers using EAFs) comprise about 70% of steel production and 42% of flat-rolled steel production in the U.S. Their primary raw material is scrap metal, which has unpredictable and often volatile pricing. Due to the announced flat-rolled mini-mill capacity additions in the U.S. and increasing focus on industry decarbonization, we expect the price of scrap to remain elevated over historical averages, providing our integrated footprint a competitive advantage. Mini-mills also generally offer a narrower range of products than integrated steel mills, but the increasing use of pig iron and direct reduced iron have enabled them to modestly expand their product capabilities in recent years. However, we believe mini-mills often do not have the equipment capabilities to produce the product range that integrated facilities offer, nor do we believe they possess our depth of customer service, technical support, and research and innovation.

Domestic steel producers, including us, face significant competition from foreign producers. For many reasons, these foreign producers often are able to sell products in the U.S. at prices substantially lower than domestic producers. Depending on the country of origin, these reasons may include government subsidies; lower labor, raw material, energy and regulatory costs; less stringent environmental regulations; less stringent safety requirements; the maintenance of artificially low exchange rates against the U.S. dollar; and preferential trade practices in their home countries. In 2021, finished steel imports increased 48% compared to the prior year, as a result of a larger disparity between foreign and domestic prices, but still remain below levels seen between 2013 and 2018. We believe this is at least partially attributable to the implementation of certain trade restrictions on imported steel over the past five years, including both targeted trade cases and the more broad Section 232 tariffs. Modifications to these trade restrictions by government authorities could directly or indirectly impact import levels in the future. Import levels are also affected to varying degrees by the relative level of steel production in China and other countries, the strength of demand for steel outside the U.S., and the relative strength or weakness of the U.S. dollar against various foreign currencies. Imports of finished steel into the U.S. accounted for approximately 22% of domestic steel market consumption in 2021.

We continue to provide significant pension and healthcare benefits to a greater number of our retirees compared to certain other domestic and foreign steel producers that do not provide such benefits to any or most of their retirees, which increases our overall cost of production relative to certain other steelmakers. However, we have taken a number of actions to reduce pension and healthcare benefits costs, including negotiating progressive labor agreements that have significantly reduced total employment costs at our union-represented facilities, transferring all responsibility for healthcare benefits for various groups of retirees to VEBAs, offering voluntary lump-sum settlements to pension plan participants, lowering retiree benefit costs for salaried employees, and transferring pension obligations to highly rated insurance companies. These actions have not only reduced some of the risks associated with our pension funding obligations, but more importantly have reduced our risk exposure to performance of the financial markets, which are a principal driver of pension funding requirements. We continue to actively seek opportunities to reduce pension and healthcare benefits costs.

Environmental Matters

Our operations are subject to various laws and regulations governing the protection of the environment. We monitor these laws and regulations, which change over time, to assess whether the changes affect our operations. We conduct our operations in a manner that is protective of public health and the environment.

Environmental matters and their management continue to be an important focus at each of our operations. From 2017 to 2021, we invested approximately \$1 billion into our Toledo direct reduction plant, which provides a low carbon intensity raw material to our steelmaking operations. The HBI produced from the plant requires less energy to produce compared to traditional feedstock and can be used in blast furnaces to reduce emissions by improving energy efficiency and reducing the amount of coke required for steel production.

In the construction and operation of our facilities, substantial costs have been and will continue to be incurred to comply with regulatory requirements and avoid undue effect on the environment. In 2021, 2020, and 2019, our capital expenditures relating to environmental matters totaled \$62 million, \$34 million and \$9 million, respectively. Our current estimate for capital expenditures for environmental improvements in 2022 is approximately \$120 million for various water treatment, air quality, dust control, tailings management and other miscellaneous environmental projects. Additionally, we expect capital expenditures for environmental improvements for each of 2023 and 2024 to be generally in line with 2022's estimated spending.

Regulatory Developments

Various governmental bodies continually promulgate new or amended laws and regulations that affect us, our customers, and our suppliers in many areas, including air and water discharges, waste management and disposal, the classification of materials and products and other environmental, health, and safety matters. Although we believe that our environmental policies and practices are sound and do not expect that the application of any current laws, regulations or permits would reasonably be expected to result in a material adverse effect on our business or financial condition, we cannot predict the collective potential adverse impact of the expanding body of laws and regulations. Moreover, because all domestic steel, scrap and mining producers operate under the same federal environmental regulations, we do not believe that we are more disadvantaged than our domestic competitors by our need to comply with these regulations. Some foreign competitors may benefit from less stringent environmental requirements in the countries where they produce, resulting in lower compliance costs for them and providing those foreign competitors with a cost advantage on their products.

Specifically, there are several notable proposed or potential rulemakings or activities that could have a material adverse impact on our facilities in the future depending on their ultimate outcome: climate change and GHG regulation; selenium discharge regulation; Minnesota's sulfate wild rice water quality standard; Minnesota's mercury TMDL and mercury reduction rules; and the regulation of discharges to groundwater.

Climate Change and GHG Regulation

With the complexities and uncertainties associated with the U.S. and global navigation of the climate change issue as a whole, one of our potentially significant risks for the future is mandatory carbon pricing obligations, whether it be in the form of additional costs for emission allowances or restriction of production, as examples. Policymakers are in the design process of carbon regulation at the state, regional, national and international levels. The current regulatory variety of carbon compliance schemes presents a challenge for multi-facility entities to identify their near-term risks. Amplifying the uncertainty, the dynamic forward outlook for carbon pricing obligations presents a challenge to large industrial companies to assess the long-term net impacts of carbon compliance costs on their operations. Our exposure on this issue includes both the direct and indirect financial risks associated with the regulation of GHG emissions, as well as potential physical risks associated with climate change adaptation. We are continuing to review the physical risks related to climate change. As an energy-intensive business, we have a broad range of GHG emissions sources, such as iron ore furnaces and kilns, diesel mining equipment and integrated steelmaking facilities, among others. As such, among our most significant regulatory risks are: (1) the costs associated with on-site emissions levels (direct impacts); and (2) indirect costs passed through to us from power and fuel suppliers (indirect impacts).

Internationally, mechanisms to reduce emissions are being implemented in various countries, with differing designs and stringency, according to resources, economic structure and politics. The Paris Agreement to reduce global GHG emissions and limit global temperature increases to 2 degrees Celsius compared to pre-industrial temperatures became effective in November 2016 with 196 signatory countries. The U.S. became a signatory to the Paris Agreement with a pledge to reduce its GHG emissions by 26% to 28% from 2005 levels by 2025. The U.S. withdrew from the treaty in November 2020 and then subsequently rejoined the Paris Agreement in February 2021.

Continued attention to issues concerning climate change, the role of human activity in it and potential mitigation through regulation may have a material impact on our customer base, operations and financial results in the future.

In the U.S., future federal and/or state carbon regulation potentially presents a significantly greater impact to our operations. To date, the U.S. Congress has not legislated carbon constraints. In the absence of comprehensive federal carbon legislation, numerous state, regional and federal regulatory initiatives are under development or are becoming effective, thereby creating a disjointed approach to GHG emissions control and potential carbon pricing impacts. We intend to remain active in the discussions related to legislative and regulatory changes at the federal and state levels.

Due to the potential variety of federal, state or regional carbon restriction schemes, our business and customer base could suffer negative financial impacts over time as a result of increased energy, environmental and other costs to comply with the limitations that would be imposed on GHG emissions. We believe our exposure can be reduced substantially by numerous factors, including currently contemplated regulatory flexibility mechanisms, such as allowance allocations, fixed process emissions exemptions, offsets and international provisions; emissions reduction opportunities, including energy efficiency, biofuels and fuel flexibility; and business opportunities associated with pursuing combined heat and power partnerships and new products, including DR-grade pellets, HBI, fluxed pellets and other efficiency-improving technologies.

Selenium Discharge Regulation

In Michigan, the Empire and Tilden mines have implemented compliance plans to manage selenium according to applicable permit conditions. A water treatment system for both facilities is anticipated sometime before 2028. As of December 31, 2021, included within our Empire asset retirement obligation is a discounted liability of approximately \$100 million, which includes the estimated costs associated with the construction of Empire's portion of the required infrastructure and expected future operating costs of the treatment facilities. Additionally, included within our Tilden future capital plan is approximately \$20 million for the construction of Tilden's portion of the required infrastructure. We are continuing to assess and develop cost effective and sustainable selenium treatment technologies.

In July 2016, the EPA published new selenium fish tissue limits and lower lentic and lotic water column concentration criteria, which may someday increase the cost for treatment should EGLE adopt these new standards in lieu of the existing limits required by the Great Lakes Water Quality Initiative. Accordingly, we cannot reasonably estimate the timing or long-term impact of these water quality criteria on our business.

Minnesota's Sulfate Wild Rice Water Quality Standard

The Minnesota Governor established a Wild Rice Task Force by Executive Order in May 2018 that provided recommendations on wild rice restoration and regulation. The existing sulfate water quality standard for lakes and streams that contain wild rice has not been applied to any of our discharge permits or enforced historically by Minnesota. Further, the standard may be unenforceable because of legislation that prohibits the MPCA from enforcing it until the obsolete standard is updated based on modern science.

Minnesota submitted a list of impaired water revisions to the EPA in 2020. In 2021, the EPA disapproved of Minnesota's draft impaired waters list and subsequently announced its proposed list of wild rice water bodies that were impaired due to sulfate under the Clean Water Act's Section 303(d) process, which resulted in the addition of 32 waters in November 2021. At this time, it is unknown how the MPCA intends to implement requirements to address sulfate impaired waters.

For these reasons, the impact of potential obligations to address sulfate concentrations in certain water discharges from our Minnesota iron ore mining and pelletizing operations is not estimable at this time, but it could have a material adverse impact if we are required to significantly reduce sulfate in certain discharges.

Minnesota's Mercury TMDL and Mercury Reduction Rules

In September 2014, Minnesota promulgated the Mercury Air Emissions Reporting and Reduction Rules, mandating mercury air emissions reporting and reductions from certain sources, including taconite facilities. The rules apply to all of our Minnesota iron ore mining and pelletizing operations and required submittal of a Mercury Reduction Plan to the MPCA in 2018 with plan implementation requirements becoming effective on January 1, 2025. In the Mercury Reduction Plan, facilities evaluated if available control technologies can technically achieve a 72% mercury reduction rate. If available control technologies cannot technically achieve a 72% mercury reduction rate, the facilities must propose alternative mercury reduction measures. One of the main tenets agreed upon for evaluating potential

mercury reduction technologies during TMDL implementation and 2014 rule development proceedings was that the selected technology must meet the following “Adaptive Management Criteria”: the technology must be technically feasible; must be economically feasible; must not impact pellet quality; and must not cause excessive corrosion in the indurating furnaces or air pollution control equipment.

The Mercury Reduction Plans for our Minnesota facilities were submitted to the MPCA in December 2018. In 2020, the MPCA requested additional information on certain plans, and we responded in a timely manner. There is currently no proven technology to cost effectively reduce mercury emissions from taconite furnaces to achieve the targeted 72% reduction rate, while satisfying all four Adaptive Management Criteria. The Mercury Reduction Plans that were submitted to the MPCA include documentation that describes the results of detailed engineering analysis and research testing on potential technologies to support this determination. The results of this analysis will continue to guide dialogue with the MPCA. Potential impacts to us are not estimable at this time because the revised Mercury Reduction Plans and additional technical information are currently being reviewed by the MPCA.

Regulation of Discharges to Groundwater

In general, states traditionally have regulated discharges of pollutants to groundwater through various programs such as wellhead protection programs and regulations related to remediation. In April 2020, the U.S. Supreme Court held in *County of Maui v. Hawai'i Wildlife Fund* that the EPA (and delegated states) have jurisdiction under the NPDES program if a point source discharges to groundwater and is the “functional equivalent” of a discharge to Waters of the United States. Until now, the NPDES program in the states we operate in has regulated only direct discharges to surface waters that constitute Waters of the United States from point sources. Although we do not anticipate that broadening EPA jurisdiction over groundwater discharges will materially adversely affect our operations, the impact to our operations is not reasonably estimable at this time.

Other Government Laws and Regulations

In addition to environmental laws and regulations, we are subject to various laws and regulations around the world. For example, changes in trade regulations, including tariffs or other import or export restrictions, could lead to lower or more volatile global steel prices, impacting our profitability. In addition, health and safety regulations, including laws or regulations promulgated in response to the ongoing COVID-19 pandemic, and OSHA and MSHA regulations, have necessitated, and may continue to necessitate, increased operating costs or capital investments to promote a safe working environment. We are also required to comply with complex foreign and U.S. laws and regulations, which may include the Foreign Corrupt Practices Act and other anti-bribery laws, the European Union’s General Data Protection Regulation and other U.S. and foreign privacy regulations, and transportation and logistics regulations. The laws and regulations noted above, as well as other applicable laws and regulations, or the manner in which they are interpreted or enforced, may require us to make material investments in the form of additional processes, training and capital, among other things. For a discussion of the risks associated with certain applicable laws and regulations, see *Part I – Item 1A, Risk Factors*.

Raw Materials and Energy

Our steelmaking operations require iron ore, HBI, coke, coal, ferrous and carbon and stainless scrap, chrome, nickel and zinc as primary raw materials. We also consume natural gas, electricity, industrial gases and diesel fuel at our operations. As a vertically integrated steel company, we are able to internally supply a majority of our raw materials needed for our steelmaking operations. We also attempt to reduce the risk of future supply shortages and price volatility in other ways. If multi-year contracts are available in the marketplace for those raw materials that we cannot supply internally, we may use these contracts to secure sufficient supply to satisfy our key raw material needs. When multi-year contracts are not available, or are not available on acceptable terms, we purchase the remainder of our raw materials needs under annual contracts or conduct spot purchases. We also regularly evaluate alternative sources and substitute materials. Additionally, we may hedge portions of our energy and raw materials purchases to reduce volatility and risk. We believe that we have secured, or will be able to secure, adequate supply to fulfill our raw materials and energy requirements for 2022.

The raw materials needed to produce a ton of steel will fluctuate based upon the specifications of the final steel products, the quality of raw materials and, to a lesser extent, differences among steel production equipment. For example, generally, in our integrated steelmaking facilities, we consume approximately 1.4 net tons of coal to produce one net ton of coke. The process to produce one ton of raw steel generally requires approximately 1.4 net tons of iron ore pellets, 0.4 net tons of coke and 0.3 net tons of steel scrap. At normal operating levels, we also consume approximately 6 MMBtu’s of natural gas per net ton of raw steel produced. Additionally, on average, our EAFs require 1.1 net tons of ferrous or stainless scrap to produce one net ton of high quality steel. We consume approximately 420 kilowatt-hours of electricity per net ton of steel produced. While these estimated consumption amounts are presented

to give a general sense of raw material and energy consumption used in our steel production, substantial variations may occur.

Our investment into HBI production provides us access, when needed, to clean iron units in order to make advanced steel and stainless products. This access to our own production provides us flexibility and allows us to avoid the risks and carbon footprints of imported iron substitutes. Iron substitutes imported into the U.S. are traditionally sourced from regions of the world that have historically experienced greater political turmoil and have lower pollution standards than the U.S. Our investment demonstrates our raw material and company strategy in responsibly managing the risks of pricing, availability and overall carbon footprint of our critical inputs.

Our acquisition of FPT provides us sourcing and processing capabilities for both prime and obsolete scrap. This access is critical as prime scrap demand is expected to grow as new flat-rolled EAF capacity is set to come online over the next five years. The FPT Acquisition included 22 facilities that are primarily located in the Midwest near our steel facilities. We plan to pair the operational footprint of FPT with our long-standing flat-rolled automotive and other customer relationships to develop recycling partnerships that will further grow our prime scrap presence. Additionally, the FPT Acquisition furthers our commitment to being an environmentally-friendly, low-carbon intensity steelmaker with a cleaner materials mix as we are able to better optimize productivity at our existing EAFs and BOFs. Our investment in FPT further demonstrates our commitment to a vertically integrated business model.

Iron Ore

We own or co-own five active iron ore mines in Minnesota and Michigan. Based on our ownership in these mines, our share of annual rated iron ore production capacity is approximately 28 million long tons, which supplies all of the iron ore needed for our steelmaking operations. Refer to *Part I - Item 2. Properties* for additional information.

Coke and Coal

We own five cokemaking facilities, including two coke batteries located within our steelmaking facilities, one of which is temporarily idled. These facilities currently provide over half of the coke requirements for our steelmaking operations and have an annual rated capacity of 3.9 million net tons. Additionally, we have coke supply agreements with suppliers that provide our remaining requirements. Our purchases of coke are made under annual or multi-year agreements with periodic price adjustments. We typically purchase most of our metallurgical coal under annual fixed-price agreements. We have annual rated metallurgical coal production capacity of 2.3 million net tons from our Princeton mine, which supplies a portion of our metallurgical coal needs. We believe there are adequate external supplies of coke and coal available at competitive market prices to meet our needs. Refer to *Part I - Item 2. Properties* for additional information.

Steel Scrap and Other Materials

Following the FPT Acquisition, the majority of our scrap requirements are generated or processed from internal sources, including scrap generated at our steel production facilities. We believe that supplies of additional steel scrap, chrome, nickel and zinc adequate to meet the needs of our steelmaking operations are readily available from outside sources at competitive market prices.

Energy

We consume a large amount of natural gas, electricity, industrial gases and diesel fuel, which are significant costs to our operations. The majority of our energy requirements are purchased from outside sources. Access to long-term, low-cost sources of energy in various forms is critically important to our operations.

Natural gas is procured for our operations utilizing a combination of long-term, annual, quarterly, monthly and spot contracts from various suppliers at market-based pricing. We believe access to low-cost and reliable sources of natural gas is available to meet our operations' requirements.

We purchase electricity for all of our operations in either regulated or deregulated markets. Due to the distinct nature of these markets, we procure electricity through either long-term or annual contracts. Some of our operations also use self-generated coke oven gas and/or blast furnace gas to produce electricity, which is an environmentally-friendly practice that also reduces our need to purchase electricity from external sources. We also closely monitor developments at the state and federal levels that could impact electricity availability or cost and incorporate such changes into our electricity supply strategy in order to maintain reliable, low-cost supply. We are currently evaluating the use of renewable energy to complement our existing supply. We believe there is an adequate supply of competitively priced electricity to fulfill our requirements.

We purchase industrial gases under long-term contracts with various suppliers. We believe we have access to adequate supplies of industrial gases to meet our needs.

We predominantly purchase diesel fuel for our mining operations under long-term contracts with various suppliers. We believe we have access to adequate supplies of diesel fuel to meet our needs.

Human Capital

Cliffs has a long, proven history of attracting and retaining exceptional talent. We believe our employee-centric management philosophy is the key to our success. Even though many other employers are facing unprecedented labor shortages, we continued to grow during 2021.

As of December 31, 2021, we employed approximately 26,000 people. Approximately 25,500 were employed in the U.S. Approximately 24,000 employees were employed at production facilities, with the balance employed in corporate support roles. The vast majority of our approximately 21,000 hourly employees were subject to collective bargaining agreements (approximately 18,500) with various labor unions.

Labor Relations

Our labor relations philosophy is a cornerstone of our talent strategy. At Cliffs, we know that maintaining strong, positive relationships with labor unions is key to our long-term growth. We recognize and respect the right of our employees to freely associate and collectively bargain, and we do not engage in harassment, intimidation or retaliation for their efforts to bargain collectively.

More than three-quarters of Cliffs' workforce are represented by three prominent unions—USW, UAW and IAM. The hardworking men and women of Cliffs are the lifeblood of our Company. Our employees operate and maintain our facilities and are, ultimately, responsible for safely delivering a quality product to our customers. Therefore, we engage with our unions as business partners, and together, we have achieved a number of successes that benefit our business and our people alike.

In 2021, labor contracts for workers represented at our Rockport, Dearborn, Mansfield and Monessen facilities were successfully ratified. We are proud to report we did not experience any strikes or lockouts last year. We expect to continue productive dialogue with our labor partners into 2022 as a number of other site agreements reach expiration and will be renegotiated. This positive partnership with our unions helps us remain competitive for talent and protects our customers and their supply chains from disruptions due to labor disagreements.

Talent Retention

We believe that our future success largely depends upon our continued ability to attract and retain a highly skilled workforce. We provide our employees with competitive salaries, incentive-based bonus programs that provide above-market compensation opportunities when our Company performs well, development programs that enable continued learning and growth, and a robust benefit package that promotes well-being across all aspects of their lives, including health care, retirement planning and paid time off. In addition to these programs, we have used targeted, equity-based grants with vesting conditions to facilitate retention of key personnel. These tools have enabled us to increase the retention of key personnel, including our corporate and site leadership teams and critical technical talent.

Robust Employee Benefits Programs

The success of our business is fundamentally connected to the well-being of our people. Accordingly, we are committed to the health, safety and wellness of our employees. We provide our employees and their families with access to a variety of innovative, flexible and convenient health and wellness programs, including benefits that provide protection and security so they can have peace of mind concerning events that may require time away from work or that impact their financial well-being; that support their physical and mental health by providing tools and resources to help them improve or maintain their health and encourage engagement in healthy behaviors; and that offer choice where possible so they can customize their benefits to meet their needs and the needs of their families.

Diversity, Equity & Inclusion

We continue to foster a culture of diversity, equity and inclusion at Cliffs. Through our OneCliffs Way of Doing Business (our Code of Business Conduct and Ethics), we outline our Core Values, which include Trust, Respect and Open Communication. To us, this means encouraging and accepting different views, and supporting and advancing gender and racial diversity. Further, our OneCliffs Way of Doing Business provides that we will not make employment-related decisions nor will we discriminate based on race, color, national origin, gender, age, religion, mental or

physical disability, veteran status, sexual orientation or any other characteristic protected by applicable law. We strive to make Cliffs a safe place to work for all. Harassment and/or intimidation are not tolerated anywhere in our Company, and we hope our people make a career at Cliffs doing meaningful and challenging work.

COVID-19

In response to the COVID-19 pandemic, we implemented significant changes in our operations and workplaces in the best interest of our employees, as well as the communities in which we operate, which exceeded government regulations. This includes having all employees who could perform their work remotely work from home when necessary, while implementing numerous safety measures for employees continuing critical on-site work at our operations.

Additionally, in an effort to best protect our workforce and the Company, we launched a vaccine incentive program in July 2021 that was developed in partnership with our labor unions. Throughout the 45 days the program was in place, the vaccination rate more than doubled and we achieved a vaccination rate of over 75% throughout our workforce. The initiative resulted in a payout of \$45 million in total cash incentive to our vaccinated workforce. The successful vaccination program allowed us to operate efficiently and safely throughout the remainder of 2021 and into 2022.

Safety

Safe production is our primary core value as we continue toward achieving a zero injury culture at our facilities. We constantly monitor our safety performance and make continuous improvements to affect change. Best practices and incident learnings are shared globally to ensure each facility can administer the most effective policies and procedures for enhanced workplace safety. Progress toward achieving our objectives is accomplished through a focus on proactive sustainable safety initiatives, and results are measured against established industry and Company benchmarks, including our Company-wide Total Reportable Incident Rate. During 2021, our Total Reportable Incident Rate (including contractors) was 1.37 per 200,000 hours worked.

Refer to *Exhibit 95 Mine Safety Disclosures (filed herewith)* for mine safety information required in accordance with Section 1503(a) of the Dodd-Frank Act.

Available Information

Our headquarters are located at 200 Public Square, Suite 3300, Cleveland, Ohio 44114-2315, and our telephone number is (216) 694-5700. We are subject to the reporting requirements of the Exchange Act and its rules and regulations. The Exchange Act requires us to file reports, proxy statements and other information with the SEC.

The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. These materials may be obtained electronically by accessing the SEC's home page at www.sec.gov.

We use our website, www.clevelandcliffs.com, as a channel for routine distribution of important information, including news releases, investor presentations and financial information. We also make available, free of charge on our website, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file these documents with, or furnish them to, the SEC. In addition, our website allows investors and other interested persons to sign up to receive automatic email alerts when we post news releases and financial information on our website.

We also make available, free of charge, the charters of the Audit Committee, Strategy and Sustainability Committee, Governance and Nominating Committee, and Compensation and Organization Committee, as well as the Corporate Governance Guidelines, and the Code of Business Conduct and Ethics adopted by our Board of Directors. These documents are available through our investor relations page on our website at www.clevelandcliffs.com. The SEC filings are available by selecting "Investors" and then "SEC Filings," and corporate governance materials are available by selecting "Investors" and then "Governance" for the Board Committee Charters, the Corporate Governance Guidelines, and the Code of Business Conduct and Ethics.

References to our website or the SEC's website do not constitute incorporation by reference of the information contained on such websites, and such information is not part of this Annual Report on Form 10-K.

Copies of the above-referenced information are also available, free of charge, by calling (216) 694-5700 or upon written request to:

Cleveland-Cliffs Inc.

Investor Relations

200 Public Square, Suite 3300

Cleveland, OH 44114-2315

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Following are the names, ages and positions of the executive officers of the Company as of February 11, 2022. Unless otherwise noted, all positions indicated are or were held with Cleveland-Cliffs Inc.

Name	Age	Position(s) Held
Lourenco Goncalves	64	Chairman, President and Chief Executive Officer (August 2014 – present); and Chairman, President and Chief Executive Officer of Metals USA Holdings Corp., an American manufacturer and processor of steel and other metals (May 2006 – April 2013).
Clifford Smith	62	Executive Vice President & President, Cleveland-Cliffs Steel (September 2021 – present); Executive Vice President, Chief Operating Officer (January 2019 – September 2021); and Executive Vice President, Business Development (April 2015 – January 2019).
Keith Koci	57	Executive Vice President & President, Cleveland-Cliffs Services (September 2021 – present); Executive Vice President, Chief Financial Officer (February 2019 – September 2021); and Senior Vice President and Chief Financial Officer, Metals USA Holdings Corp. (2013 – February 2019).
Celso Goncalves	34	Executive Vice President, Chief Financial Officer (September 2021 – present); Senior Vice President, Finance & Treasurer (March 2020 – September 2021); Vice President, Treasurer (January 2018 – March 2020); and Assistant Treasurer (September 2016 – January 2018).
Terry Fedor	57	Executive Vice President, Operations, East (September 2021 – present); Executive Vice President, Chief Operating Officer, Steel Mills (March 2020 – September 2021); Executive Vice President, Operations (February 2019 – March 2020); and Executive Vice President, U.S. Iron Ore (January 2014 – February 2019).
Traci Forrester	50	Executive Vice President, Environmental & Sustainability (May 2021 – present); Executive Vice President, Business Development (May 2019 – May 2021); Vice President, Deputy General Counsel & Assistant Secretary (January 2018 – May 2019); and Deputy General Counsel & Assistant Secretary (January 2017 – May 2019).
James Graham	56	Executive Vice President, Chief Legal Officer & Secretary (November 2014 – present).
Maurice Harapiak	60	Executive Vice President, Human Resources & Chief Administration Officer (January 2018 – present); and Executive Vice President, Human Resources (March 2014 – January 2018).
Kimberly Floriani	39	Senior Vice President, Controller & Chief Accounting Officer (August 2021 – present); Vice President, Corporate Controller & Chief Accounting Officer (April 2020 – August 2021); and Director, Accounting & Reporting (August 2015 – April 2020).

All executive officers serve at the pleasure of the Board. There are no arrangements or understandings between any executive officer and any other person pursuant to which an executive officer was selected to be an officer of the Company. Celso Goncalves, our Executive Vice President, Chief Financial Officer, is the son of Lourenco Goncalves, our Chairman, President and Chief Executive Officer. There is no other family relationship between any of our executive officers, or between any of our executive officers and any of our directors.

Item 1A. Risk Factors

An investment in our common shares or other securities is subject to risks inherent in our businesses and the industries in which we operate. Described below are certain risks and uncertainties, the occurrences of which could have a material adverse effect on us. The risks and uncertainties described below include known material risks that we face currently, but our material risks are constantly evolving and the below descriptions may not include future risks that are not presently known, that are not currently believed to be material or that are common to all businesses. Investors should not interpret the disclosure of any risk to imply that such risk has not already materialized. Although we have extensive risk management policies, practices and procedures in place that are aimed to mitigate these risks, the occurrence of these uncertainties may nevertheless impair our business operations and adversely affect the actual outcome of matters as to which forward-looking statements are made. This report is qualified in its entirety by these risk factors. Before making an investment decision, investors should consider carefully all of the risks described below together with the other information included in this report and the other reports we file with the SEC.

Management has identified several categories of material risks that we are subject to, including: (I) economic and market, (II) regulatory, (III) financial, (IV) operational, (V) sustainability and development and (VI) human capital. Although the risks are organized by these headings, and each risk is discussed separately, many are interrelated.

I. ECONOMIC AND MARKET RISKS

The ongoing COVID-19 pandemic and the resulting economic volatility has had, and is expected to continue to have, an adverse impact on our businesses.

The ongoing COVID-19 pandemic is continuing to impact countries, communities, supply chains and markets. Responses by individuals, governments and businesses to ever-changing developments in the COVID-19 pandemic and efforts to reduce its spread, including quarantines, travel restrictions, business closures, and mandatory stay-at-home or work-from-home orders, have led to significant disruptions to overall business and economic activity. While vaccines are now widely available and the economy experienced a partial recovery during 2021, due to the number of unvaccinated individuals and the novel strains and multiple variants of the COVID-19 virus periodically being encountered on a global basis that may be more resistant to existing vaccines, it is currently unknown for how long and to what extent consumer and business activity will continue to be impacted by the volatility caused by the pandemic.

Among other things, the COVID-19 pandemic adversely affected our businesses by temporarily curtailing certain of our end markets, and certain of our mining and production facilities were idled for various periods during 2020 in response to the decrease in customer demand. While we were able to resume operations at our temporarily idled facilities later in 2020 or 2021, we cannot predict whether any of our production facilities or mines will experience disruptions in the future as a result of adverse impacts of the COVID-19 pandemic. We are also subject to risks arising out of the turbulence of the economic recovery associated with the COVID-19 pandemic, including inflationary pressures, which may increase the costs of our labor, raw materials, energy supplies and other production inputs, which could have an adverse impact on our results of operations and profitability.

In addition, the ongoing COVID-19 pandemic has heightened the risk that a significant portion of our workforce and on-site contractors will suffer illness or otherwise be unable to perform their ordinary work functions. While we have periodically instituted remote work policies where practical across our footprint, the safe and responsible operation of our production facilities often requires that workers be on-site. Accordingly, during 2021, we experienced direct and indirect workforce impacts from COVID-19 at many of our operations. We also may need to reduce our workforce as a result of declines in our business caused by any further adverse developments in the COVID-19 pandemic leading to a downturn in the economy, and there can be no assurance that we will be able to rehire our workforce once our business has recovered. We have experienced, and may continue to experience, supply chain disruptions or operational issues with our vendors or logistics providers, as our suppliers and contractors face similar challenges related to the COVID-19 pandemic.

Because the prolonged COVID-19 pandemic continues to evolve, we cannot predict the full extent to which our businesses, results of operations, financial condition or liquidity will ultimately be impacted. To the extent the COVID-19 pandemic adversely affects our businesses, it may also have the effect of exacerbating many of the other risks described in this "Risk Factors" section, any of which could have a material adverse effect on us.

The volatility of commodity prices, including steel, iron ore and scrap metal, directly and indirectly affects our ability to generate revenue, maintain stable cash flows and fund our operations.

Our profitability is dependent upon the prices of the steel, iron ore and scrap metal that we sell to our customers. As an integrated producer of steel, iron ore and scrap metal, we experience direct impacts of steel price fluctuations through customer sales, as well as direct and indirect impacts of iron ore and scrap metal price fluctuations through third-party sales and the impacts that fluctuations in iron ore and scrap metal prices have on steel prices. The prices of steel, iron ore and scrap metal have fluctuated significantly in the past and are unpredictable and affected by factors beyond our control, including: international demand for raw materials used in steel production; availability of scrap metal substitutes such as pig iron; commodity price speculation; rates of global economic growth, especially construction and infrastructure activity that requires significant amounts of steel; changes in the levels of economic activity in the U.S., China, India, Europe and other industrialized or developing economies; changes in China's emissions policies and environmental compliance enforcement practices; changes in the production capacity, production rate and inventory levels of other steel producers, iron ore suppliers and scrap metal processors and traders; changes in trade laws; volumes of unfairly traded imports; imposition or termination of duties, tariffs, import and export controls and other trade barriers impacting the steel and iron ore markets; climate change and other weather-related disruptions, infectious disease outbreaks, such as the COVID-19 pandemic, or natural disasters that may impact the global supply of steel, iron ore or scrap metal; and the proximity, capacity and cost of infrastructure and transportation.

Our earnings, therefore, fluctuate with the prices of the products we sell. Although we experienced generally higher prices for our products during 2021 as compared to 2020, to the extent that commodity prices, including the HRC price, coated and other specialty steel prices, international steel prices and scrap metal prices, significantly decline for an extended period of time, whether due to the COVID-19 pandemic or otherwise, we may have to further revise our operating plans, including curtailing production, reducing operating costs and deferring capital expenditures. We also may have to record impairments on our goodwill, intangible assets, long-lived assets and/or inventory. Sustained lower prices also could cause us to further reduce existing mineral reserves if certain reserves no longer can be economically mined or processed at prevailing prices. We may be unable to decrease our costs in an amount sufficient to offset reductions in revenues and may incur losses. These events could have a material adverse effect on us.

We sell a significant portion of our steel products to the automotive market and fluctuations or changes in the automotive market could adversely affect our business operations and financial performance.

The largest end user for our steel products is the automotive industry in North America. Beyond these direct sales to the automotive industry, we make additional sales to distributors and converters, which may ultimately resell some of that volume to the automotive market. In addition to the size of our exposure to the automotive industry, we face risks arising from our relative concentration of sales to certain specific automotive manufacturers, including several significant customers that previously idled certain automotive production facilities for varying lengths of time in response to the COVID-19 pandemic. In addition, automotive production and sales are cyclical and sensitive to general economic conditions and other factors, including interest rates, consumer credit, spending and preferences, and supply chain disruptions, such as the current semiconductor shortage. If automotive production and sales decline, our sales and shipments to the automotive market are likely to decline in a corresponding manner. Similarly, while certain market and industry experts are predicting an increase in new vehicle builds during 2022 as compared to 2020 and 2021, if this increase fails to materialize, our sales to the automotive market could be adversely affected. Adverse impacts that we may sustain as a result include, without limitation, lower margins because of the need to sell our steel to less profitable customers and markets, higher fixed costs from lower steel production if we are unable to sell the same amount of steel to other customers and markets, and lower sales, shipments, pricing and margins generally as our competitors face similar challenges and compete vigorously in other markets that we serve. These adverse impacts would negatively affect our sales, financial results and cash flows. Additionally, the trend toward light weighting in the automotive industry, which requires lighter gauges of steel at higher strengths, could result in lower steel volumes required by that industry over time.

Moreover, despite our newly acquired position as the largest flat-rolled steel producer in North America, competition for automotive business has intensified in recent years, as steel producers and companies producing alternative materials have focused their efforts on capturing and/or expanding their market share of automotive business because of less favorable conditions in other markets for steel and other metals, including commodity products. As a result, the potential exists that we may lose market share to existing or new entrants or that automotive manufacturers will take advantage of the intense competition among potential suppliers during periodic contract renewal negotiations to pressure our pricing and margins in order to maintain or expand our market share with them, which could negatively affect our sales, financial results and cash flows.

Global steelmaking overcapacity, steel imports and oversupply of iron ore could lead to lower or more volatile global steel and iron ore prices, directly or indirectly impacting our profitability.

Significant existing global steel capacity and new or expanded production capacity in recent years could potentially cause capacity to exceed demand globally. Although certain of our U.S. competitors temporarily shut down production capacity during the COVID-19 pandemic, much of the previously idled capacity has been restarted, and certain of our competitors have announced and are moving ahead with plans to develop new steelmaking capacity in the near term. In addition, certain foreign competitors, which may have cost advantages due to being owned, controlled or subsidized by foreign governments, have substantially increased their steel production capacity in the last few years and in some instances appear to have targeted the U.S. market for imports. The risk of even greater levels of imports may continue, depending upon foreign market and economic conditions, changes in trade agreements and treaties, laws, regulations or government policies affecting trade, the ability of foreign producers to circumvent U.S. trade sanctions and policy (including in the market for electrical steels), the value of the U.S. dollar relative to other currencies and other variables beyond our control. In addition, higher sustained market prices of steel and iron ore products could cause new producers to enter the market or existing producers to further expand productive capacity, which could in turn lead to lower steel prices and increasing prices of steelmaking inputs, such as scrap metal. Excess steel and iron ore supply combined with reduced global steel demand, including in China, and increased foreign imports could also lead to lower steel and iron ore prices. Downward pressure on steel and/or iron ore prices could have an adverse effect on our results of operations, financial condition and profitability.

Severe financial hardship or bankruptcy of one or more of our major customers or key suppliers could adversely affect our business operations and financial performance.

Sales and operations of a majority of our customers are sensitive to general economic conditions, especially, with respect to our steel customers, as they affect the North American automotive, housing, construction, appliance, energy, defense and other industries. Some of our customers are highly leveraged. If there is a significant weakening of current economic conditions, whether because of operational, cyclical, supply chain or other issues, including further adverse developments in the COVID-19 pandemic, it could cause customers to reduce, delay or cancel their orders with us, impact significantly the creditworthiness of our customers and lead to other financial difficulties or even bankruptcy filings by our customers. Failure to receive payment from our customers for products that we have delivered could adversely affect our results of operations, financial condition and liquidity. The concentration of customers in a specific industry, such as the automotive industry, may increase our risk because of the likelihood that circumstances may affect multiple customers at the same time. Such events could cause us to experience lost sales or losses associated with the potential inability to collect all outstanding accounts receivable and reduced liquidity. Similarly, if our key suppliers face financial hardship or need to operate in bankruptcy, such suppliers could experience operational disruption or even face liquidation, which could result in our inability to secure replacement raw materials on a timely basis, or at all, or cause us to incur increased costs to do so. Such events could adversely impact our operations, financial results and cash flows.

II. REGULATORY RISKS

U.S. government actions on trade agreements and treaties, laws, regulations or policies affecting trade could lead to lower or more volatile global steel prices, impacting our profitability.

In recent years, the U.S. government has altered its approach to international trade policy, both generally and with respect to matters directly and indirectly affecting the steel industry, including by undertaking certain unilateral actions affecting trade, renegotiating existing bilateral or multilateral trade agreements, and entering into new agreements or treaties with foreign countries. For example, in March 2018, the U.S. government issued a proclamation pursuant to Section 232 imposing a 25% tariff on imported steel. These Section 232 tariffs were imposed on the basis of national security and addressed imported steel that was being unfairly traded by certain foreign competitors at artificially low prices. In retaliation against the Section 232 tariffs, the European Union subsequently imposed its own tariffs against certain steel products and other goods imported from the U.S. Moreover, in light of the U.S. government leadership changes resulting from the November 2020 federal congressional and presidential elections, further changes in U.S. international trade policy may be forthcoming. For example, the U.S. government and the European Union recently agreed to a tariff rate quota system that will allow more European Union imports to enter the U.S. market free of Section 232 tariffs. The U.S. government may also negotiate reductions or eliminations of Section 232 duties with other trading partners. If the Section 232 tariffs are further removed or substantially lessened, whether through legal challenge, legislation, executive action or otherwise, imports of foreign steel would likely increase and steel prices in the U.S. would likely fall, which could materially adversely affect our revenues, financial results and cash flows.

In addition, during 2020, the USMCA was implemented among the U.S., Mexico and Canada in place of the North American Free Trade Agreement. Because all of our steel manufacturing facilities are located in North America and one of our principal markets is automotive manufacturing in North America, we believe that the USMCA has the potential to positively impact our business by incentivizing automakers and other manufacturers to increase manufacturing production in North America and to use North American steel. However, it is difficult to predict the short- and long-term implications of changes in trade policy and, therefore, whether the USMCA or other new or renegotiated trade agreements, treaties, laws, regulations or policies that may be implemented by the U.S. government, or otherwise, will have a beneficial or detrimental impact on our business and our customers' and suppliers' businesses. Adverse effects could occur directly from a disruption to trade and commercial transactions and/or indirectly by adversely affecting the U.S. economy or certain sectors of the economy, impacting demand for our customers' products and, in turn, negatively affecting demand for our products. Important links of the supply chain for some of our key customers, including automotive manufacturers, could be negatively impacted by the USMCA or other new or renegotiated trade agreements, treaties, laws, regulations or policies. Any of these actions and their direct and indirect impacts could materially adversely affect our revenues, financial results and cash flows.

Although we may currently benefit from certain antidumping and countervailing duty orders, any such relief is subject to periodic reviews and challenges, which can result in revocation of the orders or reduction of the duties. For example, during 2022, the U.S. government is scheduled to review antidumping and countervailing duty orders on some of our key products, including corrosion-resistant steel, cold-rolled steel, hot-rolled steel and cut-to-length plate. In addition, previously granted and future petitions for trade relief may not be successful or fully effective at preventing harm. Even if received, it is uncertain if any relief will be continued in the future or will be adequate to counteract completely the harmful effects of unfairly traded imports.

We are subject to extensive governmental regulation, which imposes potential significant costs and liabilities on us. Future laws and regulations or the manner in which they are interpreted and enforced could increase these costs and liabilities or limit our ability to produce our raw materials and products.

New laws or regulations, or changes in existing laws or regulations, or the manner of their interpretation or enforcement, could increase our cost of doing business and restrict our ability to operate our businesses or execute our strategies. This includes, among other things: changes in MSHA regulations, such as respirable silica standards; reevaluation of the National Ambient Air Quality Standards, such as revised nitrogen dioxide, sulfur dioxide, lead, ozone and particulate matter criteria; changes in the interpretation of OSHA regulations, such as standards for occupational exposure to noise, certain chemicals or hazardous substances and infectious diseases; and the possible taxation under U.S. law of certain income from foreign operations.

In addition, we and our operations are subject to various international, foreign, federal, state, provincial and local laws and regulations relating to protection of the environment and human health and safety, including those relating to air quality, water pollution, plant, wetlands, natural resources and wildlife protection (including endangered or threatened species), reclamation, remediation and restoration of properties and related surety bonds or other financial assurances, land use, the discharge of materials into the environment, the effects that industrial operations and mining have on groundwater quality and availability, the management of electrical equipment containing polychlorinated biphenyls, and other related matters. Despite implementation of rigorous environmental protocols and management systems, we cannot be certain that we have been or will be at all times in complete compliance with such laws and regulations. If we violate or fail to comply with these laws or regulations, we could be fined, required to cease operations, subject to criminal or civil liability, or otherwise sanctioned by regulators or barred from participating in government contracts. In addition, federal or state regulatory agencies have the authority, under certain circumstances following significant health and safety incidents, such as fatalities, to order a mine or production facility to be temporarily or permanently closed. Compliance with the complex and extensive laws and regulations to which we are subject imposes substantial costs on us, which could increase over time because of heightened regulatory oversight, adoption of more stringent environmental, health and safety standards and greater demand for remediation services leading to shortages of equipment, supplies and labor, as well as other factors.

Specifically, there are several notable proposed or recently enacted rulemakings or activities to which we would be subject or that would further regulate and/or tax us and our customers, which may also require us or our customers to reduce or otherwise change operations significantly or incur significant additional costs, depending on their ultimate outcome. These emerging or recently enacted rules, regulations and policy guidance include, but are not limited to: governmental regulations imposed, modified or rescinded in response to developments in the ongoing COVID-19 pandemic; trade regulations, such as the USMCA and/or other trade agreements, treaties or policies; changes in tariff policy, including with respect to the 25% tariff on certain imported steel imposed under Section 232; climate change mitigation strategies and GHG regulation; selenium discharge regulation; revisions to the sulfate wild rice water quality standard and its implementation; Minnesota's Mercury TMDL and associated federal rules governing mercury air emission reductions; evolving water quality standards and the regulation of discharges to groundwater;

the Regional Haze FIP Rule; and revised National Ambient Air Quality Standards, particularly for ozone and particulate matter. In addition, the Biden Administration has indicated via executive orders and in public statements that it will propose more stringent environmental regulation, in particular related to climate change. Any new or more stringent legislation, regulations, rules, interpretations or orders, when enacted and enforced, including any related to required reductions in, or taxes on, levels of carbon emissions, could have a material adverse effect on our business, results of operations, financial condition or profitability.

Our operations may be impacted by the recent enactment, and ongoing consideration, of significant federal and state laws and regulations relating to certain mine-related issues, such as the stability of tailings basins, mine drainage and fill activities, reclamation and safety in underground and surface mines. With respect to underground mines, for example, these laws and regulations include requirements for constructing and maintaining caches for the storage of additional self-contained self-rescuers throughout the mines; installing rescue chambers in the mines; continuous tracking of and communication with personnel in the mines; installing cable lifelines from the mine portal to all sections of the mine to assist in emergency escape; submission and approval of emergency response plans; and additional safety training. Additionally, there are requirements for the prompt reporting of accidents and increased fines and penalties for violations of these and existing regulations. These laws and regulations may cause us to incur substantial additional costs.

In addition, certain of our operations are subject to the risks of doing business abroad and we must comply with complex foreign and U.S. laws and regulations, which may include, but are not limited to, the Foreign Corrupt Practices Act and other anti-bribery laws, regulations related to import/export and trade controls, the European Union's General Data Protection Regulation and other U.S. and foreign privacy regulations, and transportation and logistics regulations. These laws and regulations may increase our costs of doing business in international jurisdictions and expose our operations and our employees to elevated risk. We require our employees, contractors and agents to comply with these and all other applicable laws and regulations, but failure to do so could result in possible administrative, civil or criminal liability and reputational harm to us and our employees.

As a supplier on federal, state and local public procurement projects, including projects that may arise out of proposed or recently enacted governmental legislation regarding infrastructure investments, we may be subject to certain stringent procurement regulations that may present compliance challenges or may increase the costs of securing certain business. We may also be indirectly affected through regulatory changes that impact our customers, which in turn could reduce the quantity of our products they demand, adversely impact the terms upon which they purchase or the prices for our products they are willing to pay. Regulatory changes that impact our suppliers could decrease the availability of products or services they sell to us or could increase the price they demand for products or services they sell to us.

Our operations use hazardous materials and inadvertently may impact the environment, which could result in material liabilities to us.

Our operations currently use, and have in the past used, hazardous materials and substances, and we have generated, and expect to continue to generate, solid and hazardous waste. We have been, and may in the future be, subject to claims under international, foreign, federal, state, provincial and local laws and regulations for toxic torts, natural resource damages and other damages as well as for the investigation and clean-up of soil, surface water, sediments, groundwater and other natural resources and reclamation of properties. Such claims for damages, as well as investigation, remediation and reclamation requirements, have arisen and may arise in the future out of current, future or former conditions at sites that we or our acquired companies own, lease or operate, as well as sites that we or our acquired companies formerly owned, leased or operated, and at contaminated sites that are or have been owned, leased or operated by our joint venture partners. We may also have liability for contamination at third-party sites where we have sent hazardous wastes. Our liability for these claims may be strict and/or joint and several, such that we may be held responsible for more than our share of the contamination or other damages, or even for entire claims regardless of fault. We may be named as a potentially responsible party at other third-party sites in the future, and we cannot be certain that the costs associated with these additional sites will not exceed any reserves we have established or otherwise be material.

We may be unable to obtain, maintain, renew or comply with permits necessary for our operations or be required to provide additional financial assurances, which could reduce our production, cash flows, profitability and available liquidity.

We must obtain, maintain and comply with numerous permits that require approval of operational plans and impose strict conditions on various environmental, health and safety matters in connection with our steel production and processing and mining and other operations. These include permits and approvals issued by various federal,

state, provincial, foreign and local agencies and regulatory bodies, with which we may not always be able to comply. The permitting rules are complex and may change over time, making our ability to comply with the applicable requirements more difficult or potentially impractical and costly, possibly precluding the continuance of ongoing operations or the development of future operations. Interpretations of rules may also change over time and may lead to requirements, such as additional financial assurances, making it costlier to comply. Moreover, despite our ongoing efforts to reduce our environmental footprint and improve the resiliency of our business model, heightened levels of regulatory oversight focused on addressing climate change and industrial activities that generate GHG emissions, such as our steelmaking, cokemaking and mining operations, could impact, delay or disrupt our ability to obtain new or renewed permits or modifications to existing permits.

In addition, the public, including special interest groups and individuals, have certain rights under various statutes to comment upon, submit objections to, and otherwise engage in the permitting process, including bringing citizens' lawsuits to challenge such permits or activities. Accordingly, required permits may not be issued or renewed in a timely fashion (or at all), or permits issued or renewed may include conditions that we cannot meet or otherwise be conditioned in ways that may restrict our ability to conduct our production, mining and processing activities efficiently or include requirements for additional financial assurances that we may not be able to provide on commercially reasonable terms (or at all), which could reduce available borrowing capacity under our ABL Facility. Such conditions, restrictions or requirements could also reduce our production, cash flows or profitability.

III. FINANCIAL RISKS

Our existing and future indebtedness may limit cash flow available to invest in the ongoing needs of our businesses, which could prevent us from fulfilling our obligations under our senior notes, ABL Facility and other debt, and we may be forced to take other actions to satisfy our obligations under our debt, which may not be successful.

As of December 31, 2021, we had \$5,369 million aggregate principal amount of long-term debt outstanding, \$1,452 million of which was secured (excluding \$175 million of outstanding letters of credit and \$291 million of finance leases), and \$48 million of cash on our balance sheet. On December 17, 2021, we amended our ABL Facility to, among other things, increase the tranche A revolver commitments available under the ABL Facility by an additional \$1,000 million and exchange \$150 million of tranche B revolver commitments available thereunder for tranche A revolver commitments. After giving effect to this amendment, the aggregate principal amount of tranche A revolver commitments under our ABL Facility is \$4,500 million, and there are no longer any tranche B commitments under our ABL Facility. As of December 31, 2021, \$1,609 million was outstanding under our ABL Facility, and the principal amount of letters of credit obligations and other commitments totaled \$175 million. As of December 31, 2021, the available borrowing capacity on our ABL Facility was \$2,716 million.

We dedicate a portion of our cash flow from operations to the payment of debt service, reducing the availability of our cash flow to fund capital expenditures, acquisitions or strategic development initiatives, and other general corporate purposes. Our ability to make scheduled payments on or to refinance our debt obligations depends on our ability to generate cash in the future and our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control, including the impact of the ongoing COVID-19 pandemic. There can be no assurance that we will maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our debt. In addition, any failure to comply with covenants in the instruments governing our debt could result in an event of default that, if not cured or waived, would have a material adverse effect on us.

Our level of indebtedness could have further consequences, including, but not limited to, increasing our vulnerability to adverse economic or industry conditions, placing us at a competitive disadvantage compared to other businesses in the industries in which we operate that are not as leveraged and that may be better positioned to withstand economic downturns, limiting our flexibility to plan for, or react to, changes in our businesses and the industries in which we operate, and requiring us to refinance all or a portion of our existing debt. We may not be able to refinance on commercially reasonable terms or at all, and any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, making it more difficult to obtain surety bonds, letters of credit or other financial assurances that may be demanded by our vendors or regulatory agencies, particularly during periods in which credit markets are weak.

A portion of our borrowing capacity and outstanding indebtedness bears interest at a variable rate based on LIBOR. According to the FCA, the IBA will permanently cease to publish each of the LIBOR settings by June 2023. It is unclear whether new methods of calculating LIBOR will be established such that it continues to exist after such end date, and there is considerable uncertainty regarding the publication or representativeness of LIBOR beyond such

end date. The U.S. Federal Reserve, in conjunction with the Alternative Reference Rates Committee, is seeking to replace U.S. dollar LIBOR with a newly created index, SOFR. Our ABL Facility provides a mechanism to automatically transition to a SOFR-based benchmark when all USD LIBOR settings are no longer provided or are no longer representative. In addition, our ABL Facility includes an option for us and the agent to jointly elect to transition early to a SOFR-based benchmark, or in certain circumstances, an alternative benchmark replacement. It is not possible to predict the effect of these changes, other reforms or the establishment of alternative reference rates. To the extent these interest rates increase, our interest expense will increase. If sources of capital for us are reduced, capital costs could increase materially. Restricted access to capital markets and/or increased borrowing costs could have an adverse effect on our results of operations, cash flows, financial condition and liquidity.

If we are unable to service our debt obligations, we could face substantial liquidity problems and we may be forced to reduce or delay investments and capital expenditures, or to sell assets, seek additional capital, including additional secured or unsecured debt, or restructure or refinance our debt, and we may be unable to continue as a going concern. We may be unable to consummate any proposed asset sales or recover the carrying value of these assets, and any proceeds may not be adequate to meet any debt service obligations then due. Any of these examples potentially could have a material adverse impact on our results of operations, profitability, shareholders' equity and capital structure.

Changes in credit ratings issued by nationally recognized statistical rating organizations could adversely affect our cost of financing and the market price of our securities.

Credit rating agencies could downgrade our ratings due to various developments, including incurring additional indebtedness and other factors specific to our businesses, a prolonged cyclical downturn in the steel, scrap metal and mining industries or macroeconomic trends (such as global or regional recessions), increases in pension and OPEB obligations, and trends in credit and capital markets more generally. Any decline in our credit ratings may result in an increase to our cost of future financing or limit our access to the capital markets, which could harm our financial condition, hinder our ability to refinance existing indebtedness on acceptable terms, or have an adverse effect on the market price of our securities and the terms under which we purchase goods and services.

Our actual operating results may differ significantly from our guidance.

From time to time, we release guidance, including that set forth under "Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook" in our Annual Reports on Form 10-K and our Quarterly Reports on Form 10-Q, regarding our future performance. This guidance, which consists of forward-looking statements, is prepared by our management and is qualified by, and subject to, the assumptions and the other information included in our Annual Reports on Form 10-K and our Quarterly Reports on Form 10-Q. Our guidance is not prepared with a view toward compliance with published guidelines of the American Institute of Certified Public Accountants, and neither our independent registered public accounting firm nor any other independent or outside party compiles or examines the guidance and, accordingly, no such person expresses any opinion or any other form of assurance with respect thereto.

Guidance is based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to business, economic, regulatory and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. The principal reason that we release such data is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such third parties.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions of the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results will vary from the guidance. Investors should also recognize that the reliability of any forecasted financial data diminishes the further in the future that the data are forecast. In light of the foregoing, investors are urged to put the guidance in context and not to place undue reliance on it.

Any failure to successfully implement our operating strategy or the occurrence of any of the risks described in our Annual Reports on Form 10-K or our Quarterly Reports on Form 10-Q could cause actual operating results to differ from the guidance, and such differences may be adverse and material.

We may be subject to various lawsuits, claims, arbitrations or governmental proceedings that could result in significant expenditures.

We are from time to time subject to various lawsuits, claims, arbitrations or governmental proceedings relating to commercial and business disputes, environmental matters, government investigations, occupational or personal injury claims, property damage, labor and employment matters, or suits involving legacy operations and other matters. For example, certain of our subsidiaries have been named in lawsuits claiming exposure to asbestos, many of which have been dismissed and/or settled for non-material amounts. Nevertheless, it is likely that similar types of claims will continue to be filed in the future, and we could experience material adverse judgments or incur significant costs to defend such claims or any other existing and future lawsuits, claims, arbitrations or governmental proceedings. The insurance we maintain may not be adequate to protect us in the event of significant claims.

IV. OPERATIONAL RISKS

Our operating expenses could increase significantly if the prices of raw materials, electrical power, fuel or other energy sources increase.

Our operations require significant use of energy and raw materials. Although we are fully self-sufficient in iron ore and partially self-sufficient in coke, metallurgical coal and scrap metal, we are wholly or partially dependent on third-party suppliers for certain critical raw materials and production inputs, including industrial gases, graphite electrodes, chrome, zinc, coke, metallurgical coal and scrap metal. Prices for electricity, natural gas, diesel fuel, oils and raw materials can fluctuate widely with availability and demand levels from other users, including fluctuations caused by the impact of the ongoing COVID-19 pandemic. For example, increased electricity demand to the grid in response to physical climate-related risks and electrification of the economy could adversely impact energy prices. During periods of peak usage, although some operations have contractual arrangements in place whereby they receive certain offsetting payments in exchange for electricity load reduction, supplies of energy and raw materials in general may be curtailed and we may not be able to purchase them at historical rates. A disruption in the transmission of energy, inadequate energy transmission infrastructure, or the termination of any of our energy supply contracts could interrupt our energy supply and adversely affect our operations. While we have some long-term contracts with electrical, natural gas and raw material suppliers, we are exposed to fluctuations in energy, natural gas and raw material costs that can affect our production costs. We enter into many market-based pricing supply contracts for electricity, natural gas and diesel fuel for use in our operations. Those contracts expose us to price increases in energy costs, which could cause our profitability to decrease significantly. As an example, our Toledo direct reduction plant is subject to changes in the market price of natural gas, which is a key input in the direct reduction of iron ore pellets to produce HBI, and natural gas experienced a substantial market price increase during the fourth quarter of 2021. In addition, U.S. public utilities may impose rate increases and pass through additional capital and operating cost increases to their customers related to new or pending U.S. environmental regulations or other charges that may require significant capital investment and use of cleaner fuels in the future. In particular, the recent decision of the U.S. Court of Appeals for the District of Columbia vacating and remanding the Affordable Clean Energy Rule, as well as recent executive orders from President Biden regarding the environment and climate change, indicate that new or revised regulations under the Biden Administration could result in rate increases from U.S. utilities.

The majority of our steel shipments are sold under contracts that do not allow us to pass through all increases in raw materials, supplies and energy costs. Some of our customer contracts include variable-pricing mechanisms allowing us to adjust the total sales price based on changes in specified raw materials, supplies and energy costs. Those adjustments, however, rarely reflect all of our underlying raw materials, supplies and energy cost changes. The scope of the adjustment may also be limited by the terms of the negotiated language, including limitations on when the adjustment occurs. Our need to consume existing inventories may also delay the impact of a change in prices of raw materials or supplies. Significant changes in raw material costs may also increase the potential for inventory value write-downs in the event of a reduction in selling prices and our inability to realize the cost of the inventory. In addition, even though we are partially self-sufficient in scrap metal, if the market price of scrap metal were to experience a sustained price increase, our cost to produce steel would be adversely affected due to the higher prices we would need to pay to acquire third-party scrap metal for consumption in our operations.

Our sales and competitive position depend on transporting our products to customers at competitive rates and in a timely manner, and our ability to optimize our operational footprint depends on predictably and cost effectively moving products and raw materials internally among our facilities.

Disruption of the rail, trucking, lake and other waterway transportation services because of weather-related problems, including ice and winter weather conditions on the Great Lakes or St. Lawrence Seaway, climate change,

strikes, lock-outs, driver shortages and other disruptions in the trucking industry, train crew shortages or other rail network constraints, global or domestic pandemics or epidemics (such as the ongoing COVID-19 pandemic) or other infectious disease outbreaks, in each case causing a business disruption, or other events and lack of alternative transportation options could impair our ability to move products internally among our facilities and to supply products to our customers at competitive rates or in a timely manner and, thus, could adversely affect our operations, revenues, margins and profitability. Further, dredging issues and environmental changes, particularly at Great Lakes ports, could impact adversely our ability to move certain of our products or result in higher freight rates. Similarly, we depend on third-party transportation services for delivery of raw materials and other production inputs to us, and failures or delays in delivery would have an adverse effect on our ability to maintain steady-state production and processing operations to meet customer obligations.

Natural or human-caused disasters, weather conditions, disruption of energy, unanticipated geological conditions, equipment failures, infectious disease outbreaks, and other unexpected events may lead our customers, our suppliers or our facilities to curtail production or shut down operations.

Operating levels within our industry and the industries of our customers and suppliers are subject to unexpected conditions and events that are beyond the industries' control. Those events, including the occurrence of an infectious disease, widespread illness or public health emergency, such as the ongoing COVID-19 pandemic, could cause industry members or their suppliers to curtail production or shut down a portion or all of their operations, which could reduce the demand for our products and adversely affect our revenues, margins and profitability. For example, the temporary production shutdowns in the automotive industry that occurred during 2020 as a result of the onset of the COVID-19 pandemic and associated reduction in demand for our products led to our decision to temporarily idle certain steelmaking facilities and iron ore mines.

Our operating levels are subject to conditions beyond our control that can delay deliveries or increase the cost of production for varying lengths of time. Factors that could cause production disruptions could include adverse weather conditions due to climate change or otherwise (such as extreme winter weather, tornadoes, floods, and the lack of availability of process water due to drought) and natural and human-caused disasters, lack of adequate raw materials, energy or other supplies, and infectious disease outbreaks, such as the COVID-19 pandemic. During 2021, for example, while it did not result in material financial consequences, we experienced a severe weather event involving a tornado that damaged one of our Tooling and Stamping production facilities and a third-party warehouse located in Kentucky, which adversely impacted our operations, destroyed some of our finished goods inventory and disrupted certain scheduled deliveries to customers. In addition, factors that could adversely impact production and operations at our mining operations include tailings dam failures, pit wall failures, unanticipated geological conditions, including variations in the amount of rock and soil overlying deposits of iron ore and metallurgical coal, and processing changes.

Our mining operations, processing facilities, steelmaking and logistics operations depend on critical pieces of equipment. This equipment may, on occasion, be out of service because of unanticipated failures or unplanned outages. In addition, most of our mines and production and processing facilities have been in operation for several decades, and the equipment is aged. In the future, we may experience additional lengthy shutdowns or periods of reduced production because of equipment failures. Further, remediation of any interruption in production capability may require us to make large capital expenditures that could have a negative impact on our profitability and cash flows. Our business interruption insurance would not cover all of the lost revenues associated with equipment failures. Longer-term business disruptions could result in a loss of customers, which could adversely affect our future sales levels and revenues.

Many of our production facilities and mines are dependent on one source for electric power, natural gas, industrial gases and/or certain other raw materials or supplies. A significant interruption in service from our suppliers due to the ongoing COVID-19 pandemic, terrorism or sabotage, weather conditions such as heat waves that may be attributable to climate change, natural disasters, equipment failure or any other cause could result in substantial losses that may not be fully recoverable, either from our business interruption insurance or responsible third parties.

A disruption in or failure of our IT systems, including those related to cybersecurity, could adversely affect our business operations, reputation and financial performance.

We rely on the accuracy, capacity, integrity and security of our IT systems for the operation of many of our business processes and to comply with regulatory, legal and tax requirements. While we maintain some of our critical IT systems, we are also dependent on third parties to provide important IT services relating to, among other things, off-site content hosting, operational process technology at our facilities, human resources, electronic communications and certain finance functions. Further, in connection with our recent acquisitions, we inherited certain legacy

hardware and software IT systems that can be supported only by a very limited number of specialists in the market, and our increased reliance on these legacy IT systems may increase the risk of IT system disruption or failure, which could adversely affect our operations.

Despite the security measures that we have implemented, including those related to cybersecurity, our IT systems could be breached or damaged by computer viruses, natural or human-caused incidents or disasters, or unauthorized physical or electronic access or intrusions. Though we have controls in place, we cannot provide assurance that a cyberattack will not occur. Furthermore, despite our efforts to audit certain critical vendors' information security controls, we may have little or no oversight with respect to security measures employed by third-party service providers, which may ultimately prove to be ineffective at countering threats. We may also experience increased risk of IT system failures or cyberattacks as many of our employees continue to work from home on a periodic basis as part of our response to the ongoing COVID-19 pandemic.

Failures of our IT systems, whether caused maliciously or inadvertently, may result in the disruption of our business processes, or in the unauthorized release of sensitive, confidential, personally identifiable or otherwise protected information, or result in the corruption of data, each of which could adversely affect our businesses. For example, cybersecurity vulnerabilities could result in an interruption of the functionality of our automated manufacturing operating or health and safety systems, which, if compromised, could cease, threaten, delay or slow down our ability to produce or process steel or any of our other products for the duration of such interruption or lead to unanticipated health or safety incidents, which could result in reputational harm and may adversely affect our employees, results of operations, financial condition and cash flows. In addition, any compromise of the security of our IT systems could result in a loss of confidence in our security measures and subject us to litigation, regulatory investigations and negative publicity that could adversely affect our reputation and financial condition. Our customers, suppliers and vendors may also access or store certain of our sensitive information on their IT systems, which, if breached, attacked or accessed by unauthorized persons, could likewise expose our sensitive information and adversely impact our businesses. Furthermore, as cybersecurity threats continue to evolve and become more sophisticated, we may be required to incur significant costs and invest additional resources to protect against and, if required, remediate the damage caused by such disruptions or system failures in the future. The amount of insurance coverage we maintain may be inadequate to cover claims or liabilities resulting from cybersecurity attacks.

The closure of an operating facility or mine entails substantial costs. If our assumptions underlying our accruals for closure costs prove to be inaccurate or we prematurely close one or more of our facilities or mines, our results of operations and financial condition would likely be adversely affected.

If faced with overcapacity in the market or other adverse conditions, including as a result of the ongoing COVID-19 pandemic, we may seek to rationalize assets through asset sales, temporary shutdowns, indefinite idles or facility closures. If we indefinitely idle or permanently close any of our facilities or mines, our production and revenues would be reduced unless we were able to increase production at our other facilities or mines in an offsetting amount, which may not be possible, and could result in customers responding negatively by taking current or future business away from us if we seek to transition production to a different facility. Alternatively, we could fail to meet customer specifications at the facilities to which products are transitioned, resulting in customer dissatisfaction or claims.

The closure of a steelmaking or other operating facility or mining operation involves significant closure costs, including reclamation and other environmental costs, the costs of terminating long-term obligations, including customer, energy and transportation contracts and equipment and real property leases, and certain accounting charges, including asset impairment and accelerated depreciation. In addition, a permanent facility or mine closure could accelerate and significantly increase employment legacy costs, including our expense and funding costs for pension and OPEB obligations and multiemployer pension withdrawal liabilities. For example, a number of employees would be eligible for immediate retirement under special eligibility rules that apply upon a steelmaking facility or mine closure. All employees eligible for immediate retirement under the pension plans at the time of the permanent closure also could be eligible for OPEB, thereby accelerating our obligation to provide these benefits. Certain closures would precipitate a pension closure liability significantly greater than an ongoing operation liability and may trigger certain severance liability obligations. In addition, we are party to several joint ventures relating to iron ore mining, downstream steel processing and scrap metal recycling, and if our joint venture partners experience financial hardships or fail to perform their obligations upon closure, we may be required to assume significant additional obligations on behalf of the joint venture, including costs of environmental remediation and pension and OPEB obligations.

We base our assumptions regarding the life of our mines on detailed studies we perform from time to time, but those studies and assumptions are subject to uncertainties and estimates that may not be accurate. We recognize the costs of reclaiming open pits, stockpiles, tailings ponds, roads and other mining support areas based on the

estimated mining life of our properties. If our assumptions underlying our accruals for closure costs, including reclamation and other environmental costs, prove to be inaccurate or insufficient, or our liability in any particular year is greater than currently anticipated, our results of operations and financial condition could be adversely affected. In addition, if we were to significantly reduce the estimated life of any of our mines, the mine closure costs would be applied to a shorter period of production, which would increase costs per ton produced and could adversely affect our results of operations and financial condition.

We incur certain costs when production capacity is idled, as well as increased costs to resume production at previously idled facilities.

Our decisions concerning which facilities to operate and at what production levels are made based in part upon our customers' orders for products, as well as the quality, performance capabilities and cost of our operations. During depressed market conditions, we may concentrate production at certain facilities and not operate others in response to customer demand, and as a result we may incur idle costs that could offset our anticipated savings from not operating the idled facility. For example, due to reduced demand arising out of the onset of the COVID-19 pandemic, certain of our steelmaking facilities and iron ore mines were temporarily idled during portions of 2020 and we continued to incur certain fixed costs at those facilities. We cannot predict whether our operations will experience additional similar or dissimilar disruptions in the future.

When we restart idled facilities, we incur certain costs to replenish inventories, prepare the previously idled facilities for operation, perform the required repair and maintenance activities, and prepare employees to return to work safely and resume production responsibilities. The amount of any such costs could be significant, depending on a variety of factors, such as the period of idle time, necessary repairs and available employees, and is difficult to project.

We face ongoing risks relating to our recent mergers and acquisitions activities.

In recent years, we have completed several significant acquisition transactions, including the AK Steel Merger, the AM USA Transaction and the FPT Acquisition. These recent acquisitions have transformed our business and involve a number of significant risks and uncertainties that may adversely affect us over the short, medium and long terms, including the following:

- inability to realize anticipated synergies or other expected benefits or cost savings;
- additional debt incurred or assumed in connection with the acquisitions could limit our financial flexibility;
- diversion of financial resources to the new operations or acquired businesses;
- assumption of substantial additional environmental exposures, commitments, contingencies and remediation and reclamation projects;
- liabilities for acquired pension and OPEB obligations, which could require us to make significant cash expenditures and funding contributions in excess of current estimates and contribution rates;
- impairment of recorded tangible and intangible asset values, including goodwill, could result in material non-cash charges to our results of operations in the future;
- failure to successfully separate from legacy systems and to integrate acquired systems, business processes, policies and procedures;
- exposure to unknown liabilities and unforeseen costs that were not disclosed to us or discovered during due diligence;
- potential loss of key employees, suppliers or customers; and
- other challenges associated with managing the larger, more complex and integrated combined businesses.

If one or more of these risks and uncertainties were to materialize, we could experience reduced revenues, higher costs, lower profitability and other adverse impacts to our operations and businesses.

We may not have adequate insurance coverage for some business risks.

Our operations are generally subject to a number of hazards and risks that could result in personal injury or damage to, or destruction of, equipment, properties or facilities. Depending on the nature and extent of a loss, the insurance that we maintain to address risks that are typical in our businesses may not be adequate or available to fully protect or reimburse us, or our insurance coverage may be limited, canceled or otherwise terminated. Insurance against some risks, such as liabilities for environmental pollution, tailings basin breaches, or certain hazards or interruption of certain business activities, may not be available at an economically reasonable cost, or at all. Even if available, we may self-insure where we determine it is most cost effective to do so. As a result, despite the insurance coverage that we carry, accidents or other negative developments involving our production, mining, processing or transportation activities causing losses in excess of policy limits, or losses arising from events not covered under insurance policies, could have a material adverse effect on our financial condition and cash flows. In addition, the potential increase in extreme weather events due to climate change or otherwise may adversely impact our access to cost effective insurance in the future. The risk of increased insurance costs may have greater impact where the adverse event, such as the tornado we recently experienced at our Tooling and Stamping operations in Kentucky, results in us asserting an insurance claim, the cost of which our insurers may seek to recoup during a future insurance renewal through increased premiums or limitations on coverage.

V. SUSTAINABILITY AND DEVELOPMENT RISKS

As our customers, competitors and investors seek to reduce their carbon footprint, transition to carbon neutrality and enhance the sustainability of their respective businesses, we face increased financial, regulatory, legal and reputational risks and potential loss of business opportunities because our operations utilize carbon-based energy sources and produce GHG emissions.

As described in detail in *Part I - Item 1, Business - Environment - Regulatory Developments - Climate Change and GHG Regulation* above, because our operations use carbon-based energy and produce GHG emissions, we are subject to a number of risks relating to decarbonization initiatives being undertaken by regulators and other stakeholders as part of global efforts to address the potential impacts of climate change. For example, as part of climate change mitigation strategies, federal, state or local governmental authorities may introduce mandatory carbon pricing obligations, carbon emissions limitations, carbon taxes or carbon trading mechanisms, any of which could impose significant costs on our operations, including causing us to incur higher energy costs, invest in costly and potentially unproven emissions control or reduction technologies, and engage in more intensive environmental monitoring and reporting efforts. In addition, complying with current or future international treaties and federal, state or local laws or regulations concerning climate change and GHG emissions could negatively impact our ability, and that of our customers and suppliers, to compete with companies located in areas not subject to or not complying with such constraints. We may also face more limited access to, or increased costs of, capital to the extent financial institutions and investors increase expectations relating to lowering GHG emissions or reduce investments in carbon-intensive businesses. Further, increased pressure from customers or other business partners seeking to reduce their indirect carbon footprints could result in the potential loss of business opportunities if we are unable to meet their carbon, GHG emissions or sustainability expectations.

In order to maintain consistent operational performance and foster growth in our businesses, we must maintain our social license to operate with our stakeholders.

Maintaining a strong reputation and consistent operational, environmental and safety track records is vital in order to continue to foster business growth and maintain our permission to operate. As stakeholders' sustainability expectations increase and regulatory requirements continue to evolve, maintaining our social license to operate becomes increasingly important. Our ability to maintain our reputation and strong operating track record could be threatened, including by challenges relating to the integration of our recent acquisitions or by circumstances outside of our control, such as disasters caused or suffered by other companies in the steel and mining industries. Our social license to operate could also be adversely affected and claims could be made against us to the extent that environmental factors negatively impact local communities, such as air emissions, discharges to water, dust, odors, noise and other factors that are inherent in industrial activities like our steelmaking, cokemaking, scrap metal processing and mining operations, even if such activities are conducted in accordance with legal, regulatory and permit requirements. If we are not able to respond effectively to these and other challenges to our social license to operate, our reputation could be damaged significantly. Damage to our reputation could adversely affect our operations, current and prospective business relationships, and ability to foster growth projects.

The cost and time to implement a strategic capital project may prove to be greater than originally anticipated.

From time to time, we undertake strategic capital projects, such as our recently-completed Toledo direct reduction plant, in order to enhance, expand or upgrade our production, mining and processing capabilities or to diversify our customer base. Our ability to achieve the anticipated production volumes, revenues or otherwise realize acceptable returns on strategic capital projects that we may undertake is subject to a number of risks, many of which are beyond our control, including a variety of market (such as a volatile pricing environment for our products), operational, permitting and labor-related factors. Further, the cost to implement any given strategic capital project ultimately may prove to be greater and may take more time than originally anticipated. Inability to achieve the anticipated results from the implementation of our strategic capital projects, incurring unanticipated implementation costs or penalties, or the inability to meet contractual obligations could adversely affect our results of operations and future earnings and cash flow generation.

We rely on estimates of our recoverable mineral reserves, which is complex due to geological characteristics of the properties and the number of assumptions made.

We regularly evaluate, and engage third-party QPs to review and validate, our mineral reserves based on revenues and costs and update them as required in accordance with SEC regulations. Estimates of mineral reserves and future net cash flows necessarily depend upon a number of variable factors and assumptions, some of which are beyond our control, such as production capacity, effects of regulations by governmental agencies, future prices for minerals we mine, future industry conditions and operating costs, severance and excise taxes, development costs, and costs of extraction and reclamation. Estimating the quantity and grade of mineral reserves requires us to determine the size, shape and depth of our mineralized bodies by analyzing geological data, such as samplings of drill holes, and a QP to review and validate our determinations. Estimated mineral reserves could be affected by future industry conditions, future changes in the SEC's mining property disclosure requirements, variation in geological conditions and ongoing mine planning. Actual volume and grade of reserves recovered, production rates, revenues on third-party sales and expenditures with respect to our reserves will likely vary from estimates, and if such variances are material, our sales and profitability could be adversely affected.

Defects in title or loss of any leasehold interests in our mining properties could limit our ability to mine these properties or result in significant unanticipated costs.

Many of our operations are conducted on properties we lease, license or as to which we have easements or other possessory interests. We generally do not maintain title insurance on our properties. A title defect or the loss of any lease, license, easement or other possessory interest for any mining property could adversely affect our ability to mine any associated reserves. In addition, from time to time the rights of third parties for competing uses of adjacent, overlying or underlying lands, such as for roads, easements, public facilities or other mining activities, may affect our ability to operate as planned if our title is not superior or mutually acceptable arrangements cannot be negotiated. Any challenge to our title could delay the exploration and development of some reserves, resources, deposits or surface rights, cause us to incur unanticipated costs, and could ultimately result in the loss of some or all of our interest in those properties. In the event we lose reserves, resources, deposits or surface rights, we may be required to shut down or significantly alter impacted mining operations, thereby affecting future production, revenues and cash flows.

VI. HUMAN CAPITAL RISKS

We may encounter labor shortages for critical operational positions, which could adversely affect our ability to produce our products.

We are predicting a long-term shortage of skilled workers in heavy industry and in certain highly specialized IT roles, and competition for available workers limits our ability to attract and retain employees as well as engage third-party contractors. As our experienced employees retire and we lose their specialized institutional knowledge of our legacy businesses and systems, we have encountered challenges and may continue to have difficulty replacing them at competitive wages. In addition, the ongoing COVID-19 pandemic has resulted in a number of workers resigning or retiring sooner than would typically be expected, and the pandemic may continue to result in increased government restrictions and regulation, including quarantines of our personnel and potential inability to access facilities, which has adversely affected and could continue to adversely affect our operations.

Our profitability could be adversely affected if we fail to maintain satisfactory labor relations.

Our production is dependent upon the efforts of our employees. We are party to labor agreements with various labor unions that represent employees at the majority of our operations. Such labor agreements are negotiated periodically, and, therefore, we are subject to the risk that these agreements may not be able to be renewed on reasonably satisfactory terms. It is difficult to predict what issues may arise as part of the collective bargaining process, and whether negotiations concerning these issues will be successful. Due to union activities or other employee actions, we could experience labor disputes, work stoppages or other disruptions in our production that could affect us adversely. While we successfully negotiated all of our labor agreements that expired in 2021, we have ten labor agreements that will expire in 2022 and three labor agreements that will expire in 2023, and the outcomes of those labor negotiations are uncertain. If we enter into a new labor agreement with any union that significantly increases our labor costs relative to our competitors or fail to come to an agreement upon expiry, our ability to compete or continuity of production may be materially and adversely affected.

We depend on our senior management team and other key employees, and the loss of these employees could adversely affect our businesses.

Our success depends in part on our ability to attract, retain, develop and motivate our senior management and key employees. Achieving this objective may be difficult due to a variety of factors, including fluctuations in the global economic and industry conditions, competitors' hiring practices, cost reduction activities, and the effectiveness of our compensation programs. Competition for qualified personnel can be intense. We must continue to recruit, retain, develop and motivate our senior management and key personnel in order to maintain our businesses and support our projects. A loss of senior management and key personnel could prevent us from capitalizing on business opportunities, and our operating results could be adversely affected. We are also subject to the risk that the ongoing COVID-19 pandemic may impact the health or effectiveness of members of our senior management team or other key employees.

Our expenditures for pension and OPEB obligations could be materially higher than we have predicted if our underlying assumptions differ from actual outcomes, there are regulatory changes or other contributors fail to perform their obligations that relate to employee pension plans.

We provide defined benefit pension plans and OPEB to certain eligible union and non-union employees. Our pension and OPEB expenses and our required contributions to our pension and OPEB plans are affected directly by the value of plan assets, the projected and actual rate of return on plan assets, and the actuarial assumptions we use to measure our defined benefit pension plan obligations, including the rate at which future obligations are discounted. We cannot predict whether changing market or economic conditions, regulatory changes or other factors will increase our pension and OPEB expenses or our funding obligations, diverting funds we would otherwise apply to other uses.

We have calculated our unfunded pension and OPEB obligations based on a number of assumptions. If our assumptions do not materialize as expected, cash expenditures and costs that we incur could be materially higher. Moreover, we cannot be certain that regulatory changes will not increase our obligations to provide these or additional benefits. These obligations also may increase substantially in the event of adverse medical cost trends or unexpected rates of early retirement, particularly for bargaining unit retirees. In addition, changes in the laws governing pensions could also materially adversely affect our costs and ability to meet our pension obligations.

We also contribute to certain multiemployer pension plans, including the Steelworkers' Pension Trust, for which we are one of the largest contributing employers. If other contributors were to default on their obligations to contribute to any such plans, we could become liable for additional unfunded contributions to the plans.

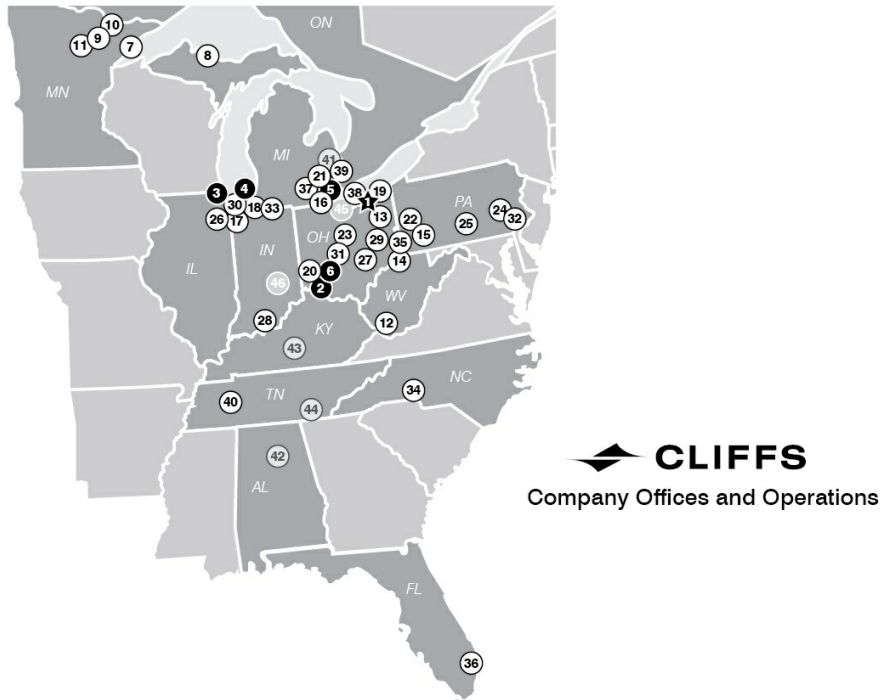
In addition, some of the transactions in which we previously sold or otherwise disposed of our non-core assets included provisions transferring certain pension and other liabilities to the purchasers or acquirers of those assets. While we believe that all such transfers were completed properly and are legally binding, if the purchaser fails to fulfill its obligations, we may be at risk that a court, arbitrator or regulatory body could disagree and determine that we remain responsible for pension and other liabilities that we intended to and did transfer.

Item 1B. *Unresolved Staff Comments*

We have no unresolved comments from the SEC.

Item 2. Properties

The following map shows the locations of our operations and offices as of December 31, 2021:



● Corporate Offices

- 1. Cleveland-Cliffs Headquarters
- 2. Regional Office – West Chester
- 3. Regional Office – Chicago
- 4. Regional Office – Burns Harbor
- 5. FPT – Detroit Office
- 6. Research & Innovation Center

○ Steelmaking

- 7. Northshore Mining Company
- 8. Tilden Mine
- 9. United Taconite
- 10. Minorca Mine
- 11. Hibbing Taconite Company
- 12. Princeton Coal
- 13. Warren
- 14. Mountain State Carbon
- 15. Monessen Coke
- 16. Toledo Direct Reduction Plant
- 17. Indiana Harbor
- 18. Burns Harbor
- 19. Cleveland Works
- 20. Middletown Works
- 21. Dearborn Works
- 22. Butler Works
- 23. Mansfield Works
- 24. Coatesville
- 25. Steelton

- 26. Riverdale
- 27. Zanesville Works
- 28. Rockport Works
- 29. Coshocton Works
- 30. Burns Harbor Plate & Gary Plate
- 31. Columbus, OH
- 32. Conshohocken
- 33. Tek & Kote
- 34. Piedmont
- 35. Weirton
- 36. FPT – Florida Locations (2)
- 37. FPT – Michigan Locations (12)
- 38. FPT – Ohio Locations (5)
- 39. FPT – Ontario Location (1)
- 40. FPT – Tennessee Locations (2)

● Tooling and Stamping

- 41. Windsor & Ontario
- 42. Sylacauga
- 43. Bowling Green
- 44. Cleveland, TN

● Tubular

- 45. Walbridge
- 46. Columbus, IN

Mexican Operations (FPT - not shown)

European Operations (not shown)

Corporate Offices

We lease our corporate headquarters in Cleveland, Ohio. We also have leased office space in West Chester, Ohio, Chicago, Illinois and Detroit, Michigan. We own our office space located in Burns Harbor, Indiana and our Research and Innovation Center located in Middletown, Ohio.

Steelmaking

Steelmaking and Finishing Facilities

Below is a listing and description of our principal steelmaking and finishing facilities:

Burns Harbor is a fully integrated steelmaking facility located on Lake Michigan in Northwest Indiana, 50 miles southeast of Chicago. The location allows for prime shipping access to the Port of Indiana, as well as excellent highway and railroad transport. Burns Harbor's major production facilities include coke plant operations, iron producing, steel producing, hot rolling, pickling, cold rolling, annealing, galvanizing, finishing and plate rolling and heat treating. The plant operates two blast furnaces and is capable of producing hot-rolled sheet, cold-rolled sheet and hot dip galvanized sheet. Burns Harbor is capable of producing nearly 5 million net tons of raw steel annually. Burns Harbor serves key markets including the automotive, appliance, construction, converters, distribution and pipe and tube markets.

Burns Harbor Plate and Gary Plate are located in Burns Harbor and Gary, Indiana, respectively, and are heat treating and finishing operations producing carbon steel plate, high-strength low alloy steel plate and ASTM grades steel plate. These operations serve the construction, distribution, energy, heavy equipment, infrastructure, military, pipe and tube, rail car and shipbuilding markets.

Butler Works is located in Butler, Pennsylvania, and produces stainless, electrical and carbon steel. Melting takes place in an EAF that feeds an argon-oxygen decarburization unit for the specialty steels. A ladle metallurgy furnace feeds two double-strand continuous casters, which are capable of producing 1 million net tons of raw steel annually. Butler Works also includes a hot rolling mill, annealing and pickling units and one tandem cold rolling mill. It also has various intermediate and finishing operations for both stainless and electrical steels. Butler Works primarily serves the power and distribution transformers and stainless and carbon converters markets.

The Cleveland facility is an integrated steelmaking facility strategically located on the Cuyahoga River in Cleveland, Ohio, with access to the Port of Cleveland and Great Lakes shipping, as well as excellent highway and railroad transport. The Cleveland facility is supplied with coke from our cokemaking operations in Warren, Ohio. Cleveland's major production facilities include iron making, steel producing, hot rolling, pickle and cold rolling, and hot galvanizing. The plant is capable of producing more than 3 million net tons of raw steel annually. Products made at this location are hot-rolled, cold-rolled and hot-dipped galvanized sheet and semi-finished slabs. The Cleveland facility serves the automotive, construction, converters and distribution markets.

Coatesville is a steel plate production facility located in Coatesville, Pennsylvania, about 40 miles west of Philadelphia, Pennsylvania, and has access to highways and railroads. The facility produces steel from scrap in an EAF and is capable of producing 0.8 million net tons of raw steel annually. The facility also operates ingot teeming facilities, a slab caster, two plate mills, heat-treating facilities, quench and temper and flame-cut shape facilities. The Coatesville facility refines more than 450 different steel chemistries and, together with the Conshohocken facility, produces some of the widest, thickest and heaviest steel plates in the industry. Steel plate products made at this location include carbon, high-strength low-alloy, commercial alloy, military alloy and flame-cut steel. Coatesville serves the aircraft and aerospace, construction, distribution, energy, heavy equipment, military, mold and tool and shipbuilding markets.

Our Columbus operations include a hot-dip galvanizing facility in Columbus, Ohio, and a processing facility in nearby Obetz, Ohio. These operations were temporarily idled due to the COVID-19 pandemic and restarted during the second quarter of 2021. These central Ohio locations are able to utilize highway and rail transport shipping access. Two zinc pots enable the transition between coatings to be accomplished in a timely manner while allowing for longer exposed runs. The plant produces hot-dip galvanized sheet using cold-rolled coils supplied by other Cliffs facilities and is capable of coating 450,000 net tons annually. The Columbus operations serve the automotive and distribution markets.

Conshohocken is a plate finishing facility located on the Schuylkill River adjacent to Philadelphia, Pennsylvania. The area is surrounded by highway and railroad systems that provide shipping access. Coatesville and Burns Harbor supply steel plates to the Conshohocken plant, which operates heat treat, finishing and inspection

facilities for steel plate finishing. The Conshohocken plant has a steckel mill that is currently idled, which is capable of producing coil and discrete plates. Conshohocken plate products are used in construction and military applications.

Coshocton Works is located in Coshocton, Ohio, and consists of a stainless steel finishing plant containing two Sendzimer mills and two Z-high mills for cold reduction, four annealing and pickling lines, bell annealing furnaces, two bright annealing lines, two temper mills, and other processing equipment, including temper rolling, slitting and a packaging line. Coshocton Works produces various flat-rolled stainless steel products including austenitic (chrome nickel) stainless steel grades, martensitic (chrome) stainless steel grades and ferritic (chrome) stainless steel grades, serving the automotive, appliance, distribution and medical markets among others.

Dearborn Works is an integrated steelmaking facility located in Dearborn, Michigan. The facility is strategically located in close proximity to the automotive center of Michigan with access to highway, railroad and waterway transport. Dearborn's major production facilities include iron making, steel producing, a pickling line tandem cold mill and a hot-dipped galvanizing line. Dearborn Works is capable of producing 3 million net tons of raw steel annually. Products made at this location include carbon slabs, cold-rolled, and hot-dip galvanized and galvanized sheet. Dearborn Works serves the automotive, HVAC, converters and distribution markets. During 2020, the Dearborn Works hot strip mill, anneal and temper operations were permanently idled as part of our cost reduction efforts.

Indiana Harbor is one of the largest integrated steelmaking facilities in North America and is located in East Chicago, Indiana, just 20 miles southeast of Chicago, Illinois. The major production facilities include iron making, a recycle plant, steel producing, hot rolling, cold rolling, annealing, and hot dip galvanizing lines. Indiana Harbor is currently capable of producing 5.5 million net tons of raw steel annually. Indiana Harbor is a leader in North American development of new automotive products and is a primary supplier of coils to Kote and Tek. Indiana Harbor serves the automotive, appliance, contractor applications, distribution, steel producers, strip converters and tubular markets.

The Kote and Tek operations are located in New Carlisle, Indiana, and receive substantially all of their feedstock from Indiana Harbor via daily unit trains. Kote has separate lines producing 0.5 million net tons of hot-dip galvanized and galvanized and 0.5 million net tons of electrogalvanized sheet annually. Tek is a continuous cold-rolling plant that is capable of producing 1.7 million net tons of sheet steel annually through a continuous descale cold mill and 1.0 million net tons of sheet steel annually through a continuous annealing processing line. The principal customers of Kote and Tek are in the automotive and appliance markets.

Mansfield Works is located in Mansfield, Ohio, and produces high chrome ferritics and martensitic stainless steels and semi-finished hot bands. The major production facilities include a melt shop with two EAFs, an argon oxygen decarburization unit, a ladle metallurgy facility, a thin slab continuous caster, a walking beam slab furnace and a hot rolling mill. The thin slab caster uses an advanced technology production system to meet customer specifications. Mansfield Works is capable of producing 0.6 million net tons of raw steel annually. Mansfield Works serves the automotive and appliance for stainless products markets.

Middletown Works is an integrated steel operation located in Middletown, Ohio, just 30 miles north of Cincinnati, Ohio with access to railroad and highway transport. The major production facilities include a coke facility, iron making and steel producing, which is capable of producing nearly 3 million net tons of raw steel annually. Middletown Works facilities also include hot rolling, pickling, cold rolling, electrogalvanizing, hot dip carbon and stainless aluminizing, hot dip galvanizing, annealing, and finishing facilities. We temporarily idled the coke facility during the third quarter of 2021, as a result of our HBI use in our blast furnaces. Products made at this location include hot-rolled and cold-rolled carbon steels, electrogalvanized steels, hot-dip galvanized products and aluminized carbon and stainless steel sheets. Middletown Works serves the automotive, appliance, HVAC, culvert and distribution markets.

Piedmont is a finishing facility located in Newton, North Carolina, 50 miles northwest of Charlotte. The facility specializes in plasma cutting plate steel products into blanks for machinery and automotive manufacturers and primarily serves the truck axle blank business. Additionally, it provides services such as part leveling and just-in-time deliveries.

Riverdale is a compact strip mill that produces hot-rolled sheet located in Illinois, 14 miles west of our Indiana Harbor facility. The location allows for close shipping access to Lake Michigan and is surrounded by highway and railroad systems. The Riverdale facility operates two BOFs, a ladle metallurgy facility, continuous thin slab caster, tunnel furnace and hot strip mill, which are capable of producing 1 million net tons of thin-slab casting and rolling annually. The light gauge capabilities and tight gauge tolerances are desired characteristics for line pipe and structural and mechanical tubing producers. Principal products made at this plant include hot-rolled black bands in a

full range of grades, including high carbon and alloy. The Riverdale facility primarily serves cold-rolled strip producers who supply the automotive, saw blade and strapping markets.

Rockport Works is located near the Ohio River in southwest Indiana near Rockport, Indiana. Rockport Works consists of a carbon and stainless steel finishing plant containing a continuous cold rolling mill, a continuous hot-dip galvanizing and galvanealing line, a continuous carbon and stainless steel pickling line, a continuous stainless steel annealing and pickling line, hydrogen annealing facilities and a temper mill. Utilizing innovative manufacturing technologies, the plant incorporates automated guidance vehicles and automated cranes to move the steel through the various finishing operations. Steel produced at Rockport Works includes a full range of cold-rolled carbon, coated and stainless steels in either the annealed and pickled or temper rolled surface condition. Product offerings include a wide variety of AHSS. The Rockport Works hot-dip galvanizing and galvanealing line incorporates revolutionary proprietary technologies, including induction transition heating, which provides rapid, accurate annealing temperature control. In addition, the Rockport Works line produces 80-inch sheet steel. Rockport Works serves the automotive, appliance, HVAC and distribution for carbon and stainless markets.

Steelton is one of only three rail producers in North and South America and is located in Steelton, Pennsylvania, about 100 miles west of Philadelphia, Pennsylvania. Steelton consists of a 150 net ton direct current EAF with ladle refining and vacuum degassing, a three-strand continuous jumbo bloom caster and an ingot teeming facility. Steelton has an annual steelmaking capacity of 1 million net tons. Steelton produces railroad rails, specialty blooms, cast ingots and flat bars for use in railroad and forging markets.

Our Weirton facility is a tinplate facility located on the northern panhandle of West Virginia along the Ohio River in the city of Weirton, West Virginia. The location provides shipping access along the Ohio River, as well as highway and railroad shipping. Products made at this location include cold-rolled and tinplate products serving the distribution and packaging markets.

Zanesville Works is located on the Muskingum River in Zanesville, Ohio. The finishing facility's products include regular GOES and cold-rolled NOES. These specialty flat-rolled steels enable customers to create a variety of products, including generators, transformers and a host of other electrical devices. Zanesville Works primarily serves the power and distribution transformers markets.

In the aggregate, we have annual production capacity of approximately 23 million net tons of raw steel. Our steelmaking facilities produced a total of 18 million net tons of raw steel during the year ended December 31, 2021. Due to the timing of the 2020 Acquisitions and the idling of facilities in response to impacts of the COVID-19 pandemic, our steelmaking facilities produced a total of 4 million net tons of raw steel during the year ended December 31, 2020.

Scrap Processing Facilities

Our scrap business consists of our subsidiary FPT, which has 22 locations in Michigan, Ohio, Tennessee, Florida and Ontario. These facilities are primarily located in Michigan and Ohio, which are in close proximity to our scrap consuming steel facilities. FPT processes approximately 3 million net tons of scrap metal annually, of which approximately 50% of total output is prime grade.

Direct Reduction Plant

Our direct reduction plant is located in Toledo, Ohio, and is near an existing dock, has rail access and heavy haul roads for operation logistics. We are leasing the property on which the plant is located. Our Toledo direct reduction plant, which began production in the fourth quarter of 2020, produces a specialized high quality iron alternative to scrap and pig iron. The Toledo direct reduction plant has annual capacity of 1.9 million metric tons of HBI per year, and we reached full nameplate capacity in 2021.

Iron Ore Mines and Pellet Plants

The following information concerning our mining properties has been prepared in accordance with the requirements of subpart 1300 of Regulation S-K, which first became applicable to us for the fiscal year ended December 31, 2021. These requirements differ significantly from the previously applicable disclosure requirements of SEC Industry Guide 7. Among other differences, subpart 1300 of Regulation S-K requires us to disclose our mineral resources, in addition to our mineral reserves, as of the end of our most recently completed fiscal year both in the aggregate and for each of our individually material mining properties.

As used in this Annual Report on Form 10-K, the terms “mineral resource,” “measured mineral resource,” “indicated mineral resource,” “inferred mineral resource,” “mineral reserve,” “proven mineral reserve” and “probable mineral reserve” are defined and used in accordance with subpart 1300 of Regulation S-K. Under subpart 1300 of Regulation S-K, mineral resources may not be classified as “mineral reserves” unless the determination has been made by a QP that the mineral resources can be the basis of an economically viable project. You are specifically cautioned not to assume that any part or all of the mineral deposits (including any mineral resources) in these categories will ever be converted into mineral reserves, as defined by the SEC.

You are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic value. Estimates of inferred mineral resources have too high of a degree of uncertainty as to their existence and may not be converted to a mineral reserve. Therefore, you are cautioned not to assume that all or any part of an inferred mineral resource exists, that it can be the basis of an economically viable project, or that it will ever be upgraded to a higher category. Likewise, you are cautioned not to assume that all or any part of measured or indicated mineral resources will ever be converted to mineral reserves.

See *Part I – Item 1A, Risk Factors – V. Sustainability and Development Risks - We rely on estimates of our recoverable mineral reserves, which estimation is complex due to geological characteristics of the properties and the number of assumptions made.*

The information that follows relating to the Hibbing, Minorca, Northshore, Tilden and United Taconite iron ore mines is derived, for the most part, from, and in some instances is an extract from, the Technical Report Summaries relating to such properties prepared in compliance with Item 601(b)(96) and subpart 1300 of Regulation S-K. Portions of the following information are based on assumptions, qualifications and procedures that are not fully described herein. Reference should be made to the full text of the Technical Report Summaries, which are filed as Exhibits 96.1 through 96.5 to this Annual Report on Form 10-K and are incorporated by reference herein.

All of our iron ore mining operations are open-pit mines. Additional development is underway as required by long-range mine plans. Drilling programs are conducted periodically to collect geologic modeling data and for refining ongoing operations.

Geologic models are developed for all mines to define the major ore and waste rock types. Computerized block models for iron ore are constructed that include all relevant geologic and metallurgical data. These are used to generate grade and tonnage estimates, followed by detailed mine design and LoM operating schedules.

We currently own or co-own and operate five production-stage iron ore mines in Michigan and Minnesota, as well as one indefinitely idled mine in Michigan. Following the AM USA Transaction, we now have an aggregate annual production capacity of approximately 28 million long tons of iron ore pellets, including our 85.3% share of the Hibbing mine production. Historically, our share of production capacity was approximately 21 million long tons of iron ore pellets annually. Our iron ore mines produce from deposits located within the Biwabik and Negaunee Iron Formation, which are classified as Lake Superior type iron formations that formed under similar sedimentary conditions in shallow marine basins approximately two billion years ago. Magnetite and hematite are the predominant iron oxide ore minerals present, with lesser amounts of goethite and limonite. Quartz is the predominant waste mineral present, with lesser amounts of other chiefly iron bearing silicate and carbonate minerals. The ore minerals liberate from the waste minerals upon fine grinding.

The following represents iron ore production for the last three fiscal years:

	Iron Ore Production (In Millions of Long Tons)		
	2021	2020	2019
Hibbing ¹	7	2	
Minorca ¹	3	—	
Northshore ²	5	4	
Tilden	7	6	
United Taconite	5	5	
Total	27	17	

¹Tonnage shown is reflective of ownership percentage during respective periods.

²As announced in February 2022, it is anticipated that the Northshore mine will be temporarily idled for approximately four months during 2022.

The following provides an overview of our iron ore properties:

All the infrastructure necessary to mine and process significant commercial quantities of iron ore is currently in place at all of our mine locations. Infrastructure items include high voltage electrical supplies, natural gas pipelines that connect to the North American distribution system, water sources, paved roads and highways, railroads for transporting crude ore and finished products, port facilities that connect to the Great Lakes, and accommodations for employees. Local and state infrastructure also includes hospitals, schools, airports, equipment suppliers, fuel suppliers, commercial laboratories, and communication systems. Labor is readily available with major population centers within 25 miles of all of our properties.

All of our iron ore mining operations grant leases, licenses, and easements for various purposes, including miscellaneous community land uses, utility infrastructure, and other third-party uses, that encumber our properties but do not materially inhibit operations. Certain assets also serve as collateral securing obligations under our ABL Facility and our senior secured notes. We maintain the requisite state and federal permits and are in material compliance with all material permits.

Property (Cliffs Ownership)	Location	Surface Rights & Mineral Leases	Facilities & Condition	History	Book Value of Long-Lived Assets (In Millions)
Hibbing (85.3%)	The property is located immediately north of the city of Hibbing, MN in the center of Minnesota's Mesabi Iron Range. The mining and processing operation is located between latitude 47°25'48" N and 47°31'48" N and longitude 93°04'54" W and 92°54'36" W.	Hibbing holds 30,670 acres of surface rights, of which 1,150 acres are associated with mineral leases. The majority of the mineral rights are leased. The property is comprised of 6,640 acres of mineral leases expiring between 2022 and 2056. Leases are maintained by making minimum prepaid royalty payments. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates.	Open pit truck and shovel mine, a concentrator that utilizes single stage crushing, AG mills and magnetic separation to produce a magnetite concentrate, which is then delivered to an on-site pellet plant. From the site, pellets are transported by BNSF rail to a ship loading port at Superior, Wisconsin, operated by BNSF.	Mining began in 1976 as a joint venture between Bethlehem Steel Corporation and Steel Company of Canada. Cliffs first became involved in the joint venture when it purchased Pickands Mather's 15% share in 1986. Prior to the AM USA Transaction, we owned 23% of Hibbing, ArcelorMittal USA had a 62.3% interest and U.S. Steel had a 14.7% interest. On December 9, 2020, as a result of the AM USA Transaction, we acquired an additional 62.3% ownership stake in the Hibbing mine and became the majority owner and mine manager.	\$199

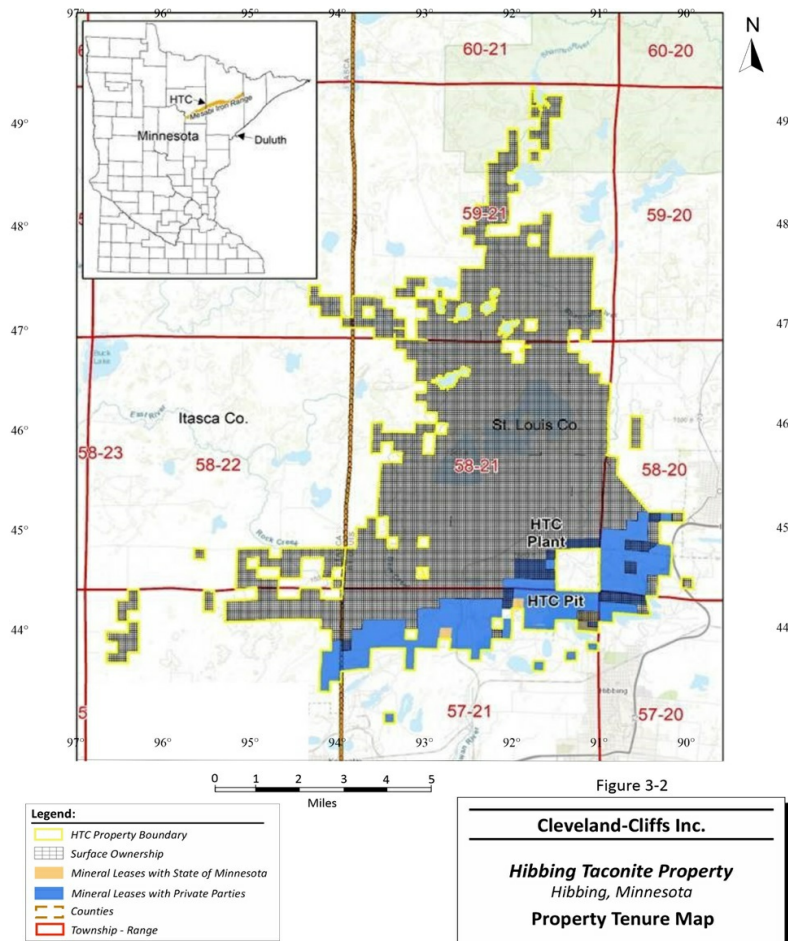


Figure 3-2

Cleveland-Cliffs Inc.
Hibbing Taconite Property
 Hibbing, Minnesota
Property Tenure Map

For more information, see Exhibit 96.1, the Technical Report Summary on the Hibbing Taconite Property, Minnesota, USA, prepared for the Company by the QP, SLR with an effective date of December 31, 2021.

Property (Cliffs Ownership)	Location	Surface Rights & Mineral Leases	Facilities & Condition	History	Book Value of Long-Lived Assets (In Millions)
Minorca (100.0%)	The property is located in the center of Minnesota's Mesabi Iron Range. The Laurentian Pit is located near the City of Gilbert, MN at latitude 47°30'0"N and longitude 92°26'30"W, East 1 Pit is located at latitude 47°31'30"N and longitude 92°23'30"W, and East 2 Pit is located just west of the City of Biwabik at latitude 47°32'0"N and longitude 92°22'30"W. The Minorca plant is located approximately seven miles to the northeast, near the town of Virginia, MN at latitude 47°33'30"N and longitude 92°31.5'30"W.	Minorca holds 13,690 acres of surface rights, of which 282 acres are associated with mineral leases. 100% of the mineral rights are leased. The property is comprised of 3,135 acres of mineral leases expiring between 2035 and 2056. Leases are maintained by making minimum prepaid royalty payments. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates.	This operation includes a concentrating and pelletizing facility, along with two open pit iron ore mines located approximately seven miles from the processing facilities. The processing operations consist of a crushing facility, a three-line concentration facility, a single-line straight grate pelletizing plant. Pellets are transported by CN rail to ports on Lake Superior.	Commenced operations in 1976 as an asset of Inland Steel Company. In 1998, Ispat International purchased Inland Steel and, in 2004, merged with LNM Holdings and International Steel Group to form Mittal Steel, which in 2007 merged with Arcelor to form ArcelorMittal. Minorca has been wholly owned by Cliffs since 2020 with the AM USA Transaction.	\$231

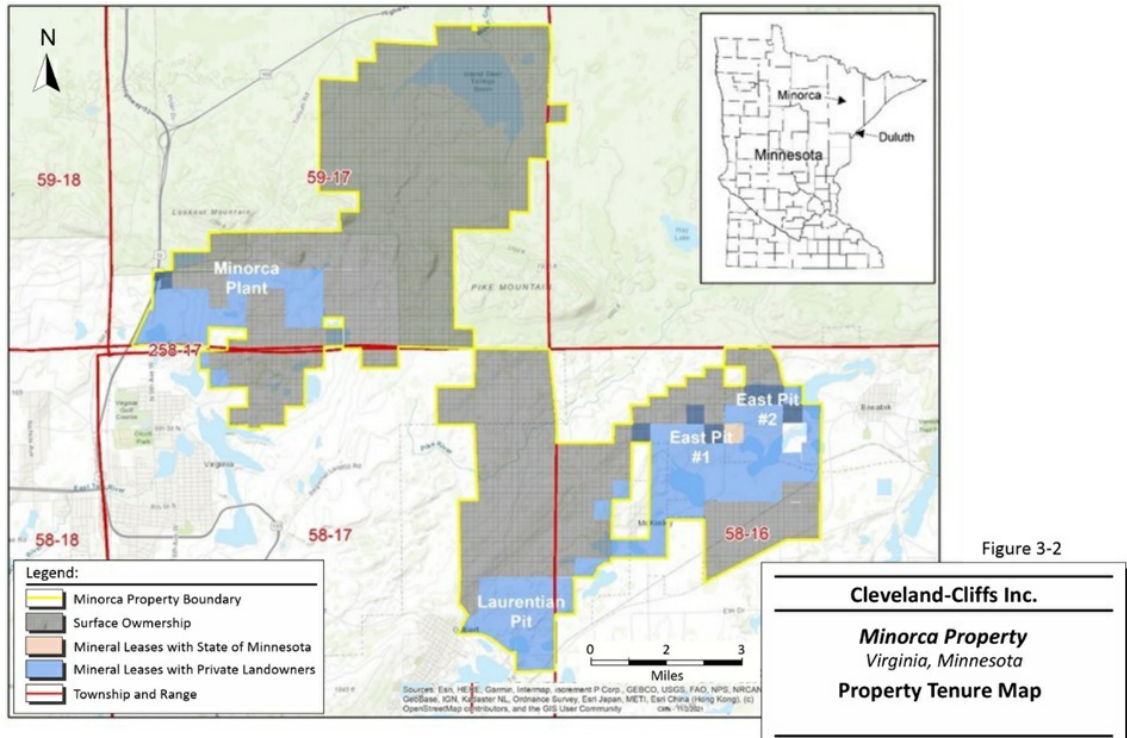
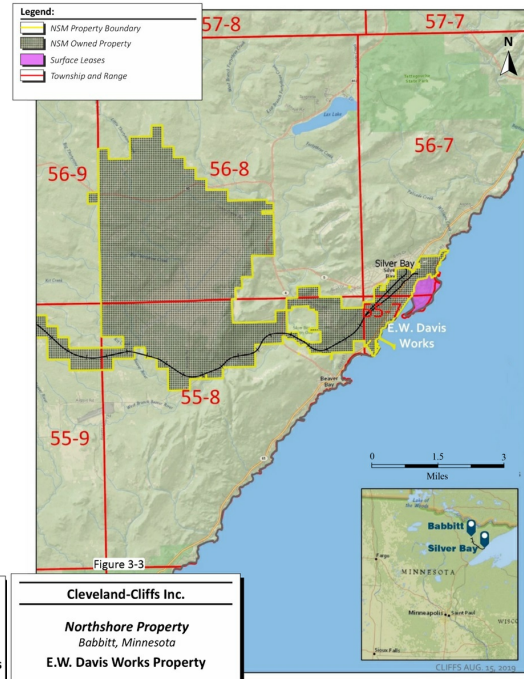
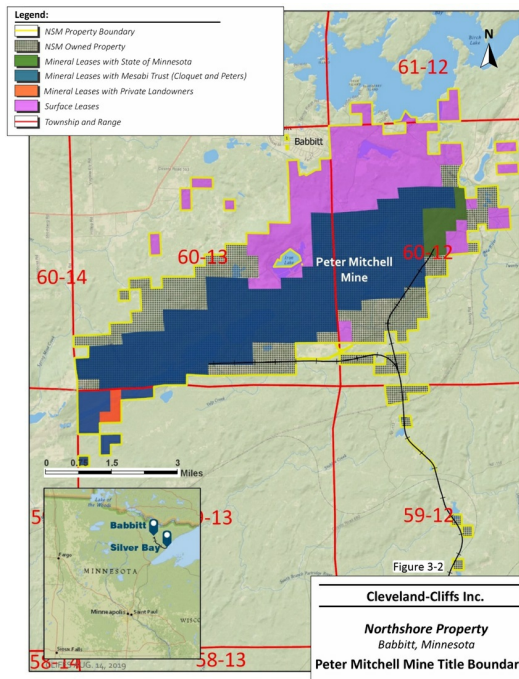


Figure 3-2

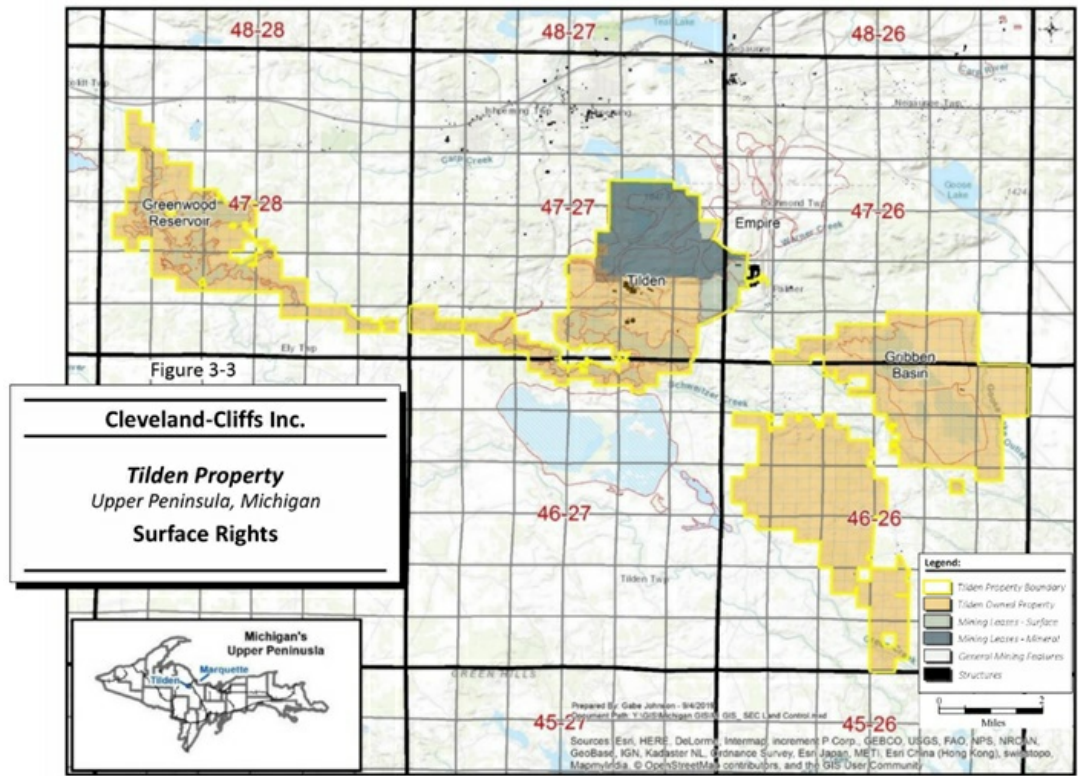
For more information, see Exhibit 96.2, Technical Report Summary on the Minorca Property, Minnesota, USA, prepared for the Company by the QP, SLR with an effective date of December 31, 2021.

Property (Cliffs Ownership)	Location	Surface Rights & Mineral Leases	Facilities & Condition	History	Book Value of Long-Lived Assets (In Millions)
Northshore (100.0%)	The mine is located on the northeastern edge of the Mesabi Iron Range in northeastern Minnesota, approximately four miles southeast of Babbitt, MN at latitude 47°40'12.15"N and longitude 91°53'1.28"W. The processing facility is approximately forty one miles to the southeast and immediately adjacent to the city of Silver Bay in Lake County, MN at latitude 47°17'38.95"N and longitude 91°15'23.38"W.	Northshore holds 28,041 acres of surface rights, of which 8,966 acres are associated with mineral leases. 100% of the mineral rights are leased. The property is comprised of 10,356 acres of mineral leases. Some leases do not expire until the mineral reserves are exhausted while others expire between 2034 and 2075. Leases are maintained by making minimum prepaid royalty payments. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates.	Open pit truck and shovel mine where two stages of crushing occur before the ore is transported along a wholly owned 47-mile rail line to the plant site in Silver Bay. At the plant site, two additional stages of crushing occur before the ore is sent to the concentrator. The concentrator utilizes rod mills and magnetic separation to produce a magnetite concentrate, which is delivered to the pellet plant located on-site. The plant can produce both standard and DR-grade pellets. The plant site has its own ship loading port located on Lake Superior.	Operations commenced in 1952 as an asset of the Reserve Mining Company and continued production until 1986 when Reserve Mining declared bankruptcy. Cyprus Minerals Company purchased the facilities in 1989. Cyprus subsequently sold the facilities to Cliffs in 1994.	\$246



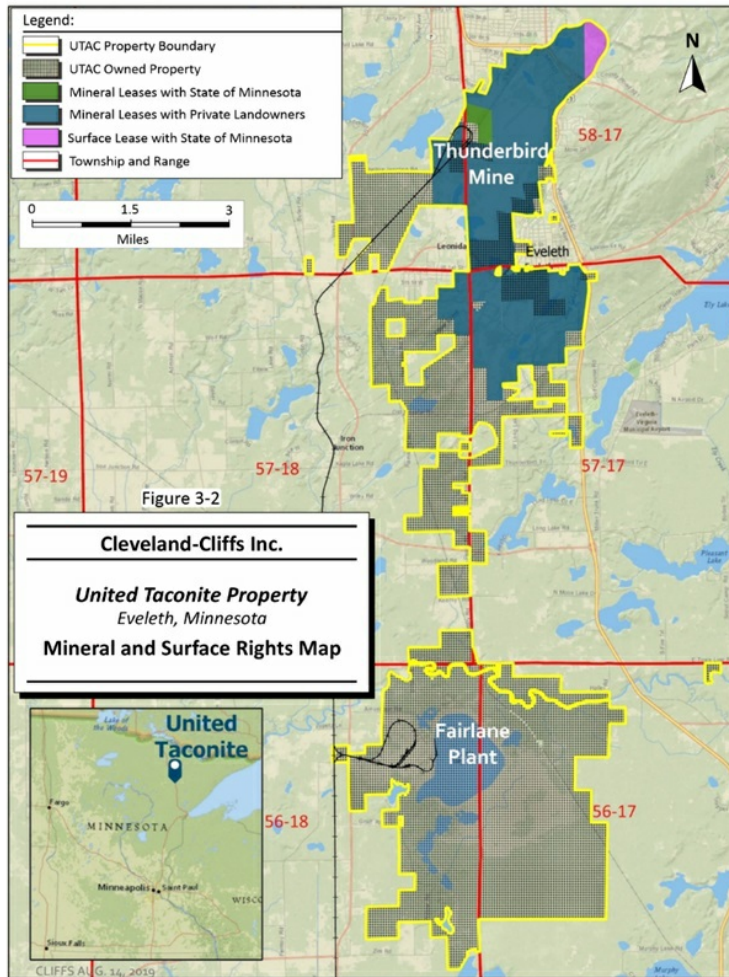
For more information, see Exhibit 96.3, Technical Report Summary on the Northshore Property, Minnesota, USA, prepared for the Company by the QP, SLR with an effective date of December 31, 2021.

Property (Cliffs Ownership)	Location	Surface Rights & Mineral Leases	Facilities & Condition	History	Book Value of Long-Lived Assets (In Millions)
Tilden (100.0%)	The property is located in Marquette County in Michigan's Upper Peninsula, on the Marquette Iron Range, approximately five miles south of the city of Ishpeming, MI at latitude 46° 29' N and longitude 87° 40' W.	Tilden holds 21,100 acres of surface rights and leases 2,470 acres of mineral rights expiring between 2061 and 2070. Leases are maintained by making minimum prepaid royalty payments. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates.	Open pit truck and shovel mine, a concentrator that utilizes single stage crushing, AG mills, and floatation to produce hematite concentrates that are then supplied to the on-site pellet plant. From the site, pellets are transported by our LS&I rail to a ship loading port at Marquette, Michigan, operated by LS&I.	The property commenced operations in 1974 under a partnership of Algoma Steel, Stelco, J&L Steel, Wheeling-Pittsburgh Steel, Sharon Steel, and Cleveland-Cliffs Iron Company. The property has since been at least partially in the possession of a subsidiary of Cliffs. In 2001, Cliffs acquired Algoma Steel's 45% interest in Tilden. In 2017, Cliffs became the sole owner of Tilden.	\$219



For more information, see Exhibit 96.5, Technical Report Summary on the Tilden Property, Michigan, USA, prepared for the Company by the QP, SLR with an effective date of December 31, 2021.

Property (Cliffs Ownership)	Location	Surface Rights & Mineral Leases	Facilities & Condition	History	Book Value of Long-Lived Assets (In Millions)
United Taconite (100%)	The mine and offices are located on Minnesota's Mesabi Iron Range just north of Eveleth, MN at latitude 47°29'1.62" N, longitude 92°32'23.69" W. The processing facilities are located approximately eight miles to the southeast.	United Taconite owns 14,199 acres of surface rights, of which 703 acres are associated with mineral leases. An additional 145 acres of surface rights are leased from the State of Minnesota. We lease 100% of the mineral rights comprising of 4,908 acres expiring between 2037 and 2066, with the exception of the State of Minnesota mineral lease, which expires in 2027. Leases are maintained by making minimum prepaid royalty payments. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates.	Open pit truck and shovel mine where two stages of crushing occur before the ore is transported by rail, operated by CN, to the plant site. At the plant site an additional stage of crushing occurs before the ore is sent to the concentrator. The concentrator utilizes rod mills and magnetic separation to produce a magnetite concentrate, which is delivered to the on-site pellet plant. From the plant site, pellets are transported by CN rail to a ship loading port at Duluth, MN, operated by CN.	The property commenced operations as an asset of Eveleth Taconite Company in 1965 before it was purchased by United Taconite (70% Cliffs and 30% Laidlaw Steel) in December 2003. The Property has been a wholly owned subsidiary of Cliffs since 2008.	\$567



For more information, see Exhibit 96.4, Technical Report Summary on the United Taconite Property, Minnesota, USA, prepared for the Company by the QP, SLR with an effective date of December 31, 2021.

Mineral Resources

Mineral resources are defined under Item 1300 of Regulation S-K as a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed justifiable technical and economic conditions, is likely to, in whole or part, become economically extractable.

A detailed breakdown of the mineral resources exclusive of mineral reserves is presented in the table below. Mineral resources were defined and constrained within open-pit shells, prepared by Cliffs, and based on a US\$90.00/WLT pellet price, while meeting defined cut-off grade criteria and existing pellet specifications. All mineral resource estimates were reviewed and validated by the QP, SLR.

The following represents iron ore mineral resources, exclusive of mineral reserves, as of December 31, 2021:

**Iron Ore Mineral Resources
as of December 31, 2021
(In Millions of Long Tons)**

	Measured		Indicated		Measured + Indicated		Process Recovery	Inferred	
	Tonnage	% Grade	Tonnage	% Grade	Tonnage	% Grade		Tonnage	% Grade
Total Iron Ore	1,351	22.5	1,483	23.6	2,834	23.1	31%	420	32.4
Michigan	—	—	135	35.5	135	35.5	36%	350	34.7
Minnesota	1,351	22.5	1,348	22.4	2,699	22.4	31%	70	21.0
Hibbing ¹	8	19.2	1	18.7	9	19.2	25%	—	—
Minorca	484	22.9	317	22.9	801	22.9	33%	30	21.1
Northshore	767	22.1	391	22.4	1,158	22.2	26%	14	19.8
Tilden	—	—	135	35.5	135	35.5	36%	350	34.7
United Taconite	92	23.6	639	22.2	731	22.4	32%	26	21.5

¹Hibbing is reported at 85.3% based on our ownership level.

Reference point selected is the saleable tons based on the process recovery.

Process recovery may change based on the required saleable product mix and is reported as wet product percentage.

Mineral resources are estimated using the following cut-off grades: 25% FeT for Tilden hematite; 15% magnetic Fe for Northshore; 16% magnetic Fe for Minorca; 17% magnetic Fe for United Taconite; and 13% magnetic Fe for Hibbing.

Tonnage is reported in long tons equivalent to 2,240 pounds and has been rounded to the nearest 100,000.

Mineral resources are reported at a \$90.00/LT wet standard pellet price freight-on-board (FOB) Lake Superior, which is based on the mine planning model's three-year trailing average of the realized product revenue rate.

Our mineral resource estimates have not been previously disclosed. The material assumptions and criteria used for the mineral resource estimates, including but not limited to leases, permits and geotechnical pit design, are covered in more detail in Sections 11 through 13 of the respective Technical Report Summaries filed as Exhibits 96.1 through 96.5 to this Annual Report on Form 10-K.

Mineral Reserves

Mineral reserves are defined under Item 1300 of Regulation S-K as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the QP, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Proven mineral reserves are defined under Item 1300 of Regulation S-K as the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource. Probable mineral reserves are defined under Item 1300 of Regulation S-K as the economically mineable part of an indicated and, in some cases, a measured mineral resource. All mineral reserves are classified as proven or probable and are supported by LoM plans.

Mineral reserves are based on pricing that does not exceed the three-year trailing average index price of iron pellets adjusted to realized price. We evaluate and analyze, and engage QPs to review and verify mineral reserves in accordance with our mineral policy and SEC requirements and then complete updated LOM plans. The table below identifies the year in which the latest updated LOM plan was completed.

Mineral reserves estimates for our iron mines are constrained by fully designed open pits developed using three-dimensional modeling techniques. These open pits incorporate design slopes, practical mining shapes and access ramps to assure the accuracy of our mineral reserve estimates. All operations' mineral reserves have been adjusted net of production through year-end 2021. All mineral reserve estimates as of December 31, 2021 were reviewed and validated by the QP, SLR.

The following represents iron ore mineral reserves as of December 31, 2021:

**Iron Ore Mineral Reserves
as of December 31, 2021
(In Millions of Long Tons)**

	Last LOM Plan Reserve Analysis	Proven		Probable		Proven & Probable		Process Recovery	
		Tonnage	% Grade	Tonnage	% Grade	Tonnage	% Grade		
Total Iron Ore		638	23.6	1,682	26.6	2,320	25.8	33%	
Michigan		4	35.3	516	34.7	520	34.7	37%	
Minnesota		634	23.5	1,166	23.0	1,800	23.2	31%	
Hibbing ¹									
	2021	85	18.7	8	18.7	93	18.7	25%	
Minorca		103	23.6	7	25.3	110	23.7	34%	
Northshore		2020	303	25.3	519	24.1	822	24.6	29%
Tilden		2021	4	35.3	516	34.7	520	34.7	37%
United Taconite		2019	143	23.1	632	22.1	775	22.3	33%

¹Hibbing is reported at 85.3% based on our ownership level.

Reference point selected by the QP is the saleable tons based on the process recovery.

Process recovery may change based on the required saleable product mix and is reported as wet product percentage.

Mineral reserves are estimated using the following cut-off grades: 25% FeT for Tilden hematite; 19% magnetic Fe for Northshore; 16% magnetic Fe for Minorca; 17% magnetic Fe for United Taconite; and 13% magnetic Fe for Hibbing.

Tonnage is reported in long tons equivalent to 2,240 pounds and has been rounded to the nearest 100,000.

Mineral reserves are classified as probable if not scheduled within the first 20 years.

Mineral reserves are reported at a \$90.00/LT wet standard pellet price freight-on-board (FOB) Lake Superior, which is based on the mine planning model's three-year trailing average of the realized product revenue rate.

The material assumptions and criteria used for the mineral reserves estimates, including but not limited to leases, permits and geotechnical pit design, are covered in more detail in Sections 11 through 13 of the respective Technical Report Summaries filed as Exhibits 96.1 through 96.5 to this Annual Report on Form 10-K.

For comparison purposes, the following represents iron ore mineral reserves as of December 31, 2020:

**Iron Ore Mineral Reserves
as of December 31, 2020
(In Millions of Long Tons)**

	Proven		Probable		Proven & Probable		Process Recovery
	Tonnage	Grade %	Tonnage	Grade %	Tonnage	Grade %	
Total Iron Ore	822	26.2	1,596	26.0	2,418	26.0	31%
Michigan	168	35.2	418	34.8	586	34.8	34%
Minnesota	654	23.9	1,178	23.0	1,832	23.3	30%
Hibbing ¹	65	19.7	21	19.6	86	19.7	27%
Minorca	113	23.6	7	25.3	120	23.7	31%
Northshore	318	25.3	519	24.1	837	24.6	29%
Tilden	168	35.2	418	34.8	586	34.8	34%
United Taconite	158	23.1	631	22.1	789	22.3	31%

¹Hibbing is reported at 85.3% based on our ownership level.

Reference point selected was the saleable tons based on the process recovery.

Process recovery may change based on the required saleable product mix and is reported as wet product percentage.

Mineral reserves are estimated using the following cut-off grades: 25% FeT for Tilden hematite; 19% magnetic Fe for Northshore; 16% magnetic Fe for Minorca; 17% magnetic Fe for United Taconite; and 15% magnetic Fe for Hibbing.

Tonnage is reported in long tons equivalent to 2,240 pounds and has been rounded to the nearest 100,000.

Mineral Reserves are classified as probable if not scheduled within the first 20 years.

Mineral Reserves are reported at a \$90.00/LT wet standard pellet price freight-on-board (FOB) Lake Superior, which is based on the mine planning model's three-year trailing average of the realized product revenue rate.

Overall, as compared to the mineral reserve estimates as of December 31, 2020, mineral reserves estimates as of December 31, 2021 decreased by 4%, which was driven by mining depletion. The mineral reserves of Minorca, Northshore and United Taconite as of December 31, 2021 have decreased mainly due to depletion through mining, the mineral reserves for Tilden as of December 31, 2021 have decreased primarily due to the mine plan changes, and the mineral reserves for Hibbing as of December 31, 2021 have increased primarily due to the mine plan changes.

Internal Controls Disclosure

We demonstrated repeated attainment of annual production and quality targets for at least 40 years at each material iron ore mine operated by the Company. Internal controls the Company uses in its industry-standard approach to exploration and mineral resource and reserve estimation efforts are governed by its Mineral Reserve and Mineral Resource Estimation Policy and are detailed in Cliffs' minimum operating standards for Resource Estimation and Strategic Mine Planning. The controls include: confirmation of drill collar locations and drill hole traces, drill logging and sample collection and security, database verification and security, QA/QC programs, internal and third-party QP statistical analysis, third-party QP model validation, and reconciliation. Modeling and analysis of the Company's resources has been developed by Company personnel or third-party consultant SLR and reviewed by internal management and the external independent QP, SLR. Reserve estimations have been completed by Company personnel and reviewed by internal management and the QP, SLR.

Drill hole collar surveying methods have evolved with advancements in technology, moving from optical methods to global positioning system, which is currently in use. For the deposit type, all survey methods used for the collar locations are expected to provide adequate accuracy for the drill hole locations. Due to the relatively shallow depth and vertical nature of drill holes at Cliffs' Minnesota mining operations, downhole deviation surveys are typically not conducted. Drill holes pierce the generally shallow-dipping, tabular iron formation at near perpendicular angles. At the more geologically and structurally complex Tilden mine in Michigan, where drilling deeper than 500 feet is required, downhole surveys have moved from a clay-impression procedure to the gyroscopic method currently in use.

Drill core is transported directly from the drill rig to each site's core logging facility by either the drilling contractor or Cliffs' personnel. Temporary core storage is located at each site's secure logging facility. Depending on the mining operation, unused sample reserves, parts, concentrates, and splits are securely stored in labeled boxes or barrels at a Cliffs laboratory facility or logging facility, or via a contracted external laboratory.

Cliffs QA/QC programs are site-specific and range from in-development to well-developed, long standing protocols that involve formal procedures for the use of crude material standards developed from on-site material, as well as regularly inserted coarse and concentrate duplicate samples, control chart analysis, and reporting. Cliffs typically uses internal and external labs for geometallurgical analyses that are accredited with ASQ/ANSI ISO-9001:2015 for their system of quality management. Quality sample results are monitored and enacted on where warranted. Also, Cliffs has implemented a drill campaign reporting practice to ensure results are documented, with defined and illustrated failure metrics, outcomes of investigations, comparisons with previous year's results, and recommendations. The QP, SLR reviewed Cliffs QA/QC practices and provided recommendations for further work. Where QA/QC programs are still in development and prior to resource estimation, Cliffs conducted data verification studies utilizing a suite of blind crude ore standards, and blind duplicates from historical sample reserves within the LoM plan. Where unaccredited labs provided data used in resource estimation, check lab studies were initiated to verify analytical results. Cliffs is currently working towards aligning QA/QC protocols at each mine to the Company's current best practice.

Cliffs maintains exploration drill hole data in an externally-managed, access-controlled acQuire database that is backed up online at regularly scheduled intervals to provide data redundancy and security. Certification of database integrity is accomplished by both visual and statistical inspections comparing geology, assay values, and survey locations cross-referenced back to laboratory data and geologic logs. Any discrepancies identified are corrected by referring to hard-copy assay and core log information archived in Cliffs' Mine Engineering department file cabinets. Prior to modeling, a secondary validation check is completed using built-in data validation routines in the modeling software.

Cliffs performs routine drill hole database verification with every new drilling program and new block model build, including: check of unique drill hole IDs and collar coordinates; check of assay or lithology points extending past the specified maximum depth of drill hole; check of abnormal dips and azimuths of downhole drill hole surveys; check of negative, overlapping, and missing intervals; and check of incorrect lithologic codes and assay values.

In 2020 and 2021, Cliffs geologists completed data verification exercises within the LoM plan area for each mining operation. This was audited by the QP, SLR to assess accuracy and completeness. Database values were checked against source documents including collar surveys, geologic logs, and assay certificates. Data verification included collar coordinates, depth intervals of geologic units and assay samples, and results of geometallurgical analyses applied to mineral resource estimation and mine planning.

Cliffs' mineral resource estimates were validated by the QP, SLR using standard industry techniques including statistical comparisons with composite samples and parallel nearest neighbor estimates, swath plots, as well as visual reviews in cross-section and plan. A visual review comparing blocks to drill holes for key economic variables, completed after the block modeling work, was performed to ensure general lithologic and analytical conformance. Cliffs' mining operations have demonstrated good agreement between planned and actual product produced over more than 40 years for each operation.

Cliffs classifies the mineral resources based primarily on drill hole spacing and influenced by geologic continuity, ranges of economic criteria, and reconciliation. Some post-processing is undertaken to ensure spatial consistency and remove isolated and fringe blocks. The resource area for each operation is limited by a polygon and subsequent pit shell based on practical mining limits. To ensure that all mineral resource statements satisfy the "reasonable prospects for economic extraction" requirement, in the definition of the mineral resources under Item 1300 of Regulation S-K, factors significant to technical feasibility and potential economic viability are considered (e.g., ability to obtain permits, and legal and land tenure considerations). Mineral resources are defined and constrained within optimized, open-pit shells, prepared by Cliffs and reviewed by the QP, SLR and based on a US\$90.00/WLT pellet value and target pellet iron content.

Grade and tonnage reconciliations are run on current production versus modeled production, which provides insight on the accuracy of the modeled assay data versus actual production for each mining operation.

For a discussion of comprehensive risk inherent in the estimation of mineral reserves, see *Part I - Item 1A, Risk Factors - V. Sustainability and Development Risks - We rely on estimates of our recoverable mineral reserves, which is complex due to the geological characteristics of the properties and the number of assumptions made.*

Coal Mining and Cokemaking

Princeton is a coal mining complex located in West Virginia that specializes in surface and underground mining of metallurgical coal to produce coke and pulverized coal injection coal. We have annual rated metallurgical coal production capacity of 2.3 million net tons from our Princeton mine. In 2021, the mine produced 1.4 million net tons of coal. We own 100% of the Princeton mine, which has been operating since 1995. We own 52% of the mineral rights and lease 48% via multiple mineral leases having varying expiration dates. Mining leases routinely are renegotiated and renewed as they approach their respective expiration dates. Princeton's operations consist of two open-pit surface mines, two underground mines, a preparation plant and two rail loadouts.

In 2021, our cokemaking facilities produced 2.9 million net tons of coke. Mountain State Carbon produces furnace coke and related by-products from its plant in Follansbee, West Virginia, which consists of four batteries. Monessen produces furnace coke and related by-products in Monessen, Pennsylvania, which was temporarily idled due to the COVID-19 pandemic and restarted production during the third quarter of 2021. Warren produces furnace coke and related by-products from its plant in Warren, Ohio, and supplies its coke to the Cleveland facility. We also operate cokemaking facilities located within Burns Harbor and Middletown Works.

As a result of our internal usage of HBI, coupled with our ongoing evaluation of coke use strategies, we idled our coke facility at Middletown Works during the third quarter of 2021, and we intend to permanently idle our Mountain State Carbon coke plant in the second quarter of 2022.

Other Businesses

Our Tubular operating segment consists of our subsidiary Tubular Components, which has plants in Walbridge, Ohio and Columbus, Indiana. The Walbridge plant operates six electric resistance welded tube mills. The Columbus plant operates five electric resistance welded tube mills and four high-speed cold saws on leased property. Tubular Components shut down and ceased tube production at the Queretaro, Mexico plant in April 2021. The high-speed cold saw that was operating at the Queretaro plant was relocated to the Columbus plant and the tube mill returned to the U.S. is replacing an existing, older tube mill currently in operation.

Our Tooling and Stamping operating segment consists of our subsidiary Tooling and Stamping, which provides advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components and complex assemblies for the automotive market across ten plants, of which certain of these are under long-term lease agreements, in Ontario, Alabama and Kentucky. Its facilities feature seven large-bed, hot-stamping presses, providing 13 lines of production; 81 cold-stamping presses ranging from 150 net tons to 3,000 net tons of pressing capacity; 17 large-bed, high-tonnage tryout presses with prove-out capabilities for new tool builds; and 149 multi-axis welding assembly cells. Construction of our new facility in Tennessee is substantially complete and the facility began producing prototype components in the third quarter of 2021. Commercial start of production at the Tennessee location is expected to begin in the second quarter of 2022.

Item 3. Legal Proceedings

Legal Proceedings Relating to our Business

JSW Steel Litigation. On June 8, 2021, JSW Steel filed a complaint against Cleveland-Cliffs Inc., AK Steel Holding Corporation (now known as Cleveland-Cliffs Steel Holding Corporation), Nucor Corporation and U.S. Steel in the United States District Court for the Southern District of Texas. JSW Steel alleges that the defendants engaged in a group boycott against JSW Steel in violation of federal and Texas antitrust laws by refusing to sell semi-finished steel slabs to JSW Steel, beginning in 2018 and continuing through the present; civil conspiracy among the defendants; and tortious interference with JSW Steel's contractual rights and business relations involving its vendors and customers. JSW Steel's allegations involve the tariffs and quotas imposed on steel imports by the U.S. government under Section 232 beginning in March 2018, which JSW Steel alleges raised the price of imported slabs, and statements made to the U.S. government related to exemption requests submitted by JSW Steel in 2018 and 2021. JSW Steel further claims that this alleged anticompetitive conduct negatively impacted JSW Steel's costs, production and revenues and prevented it from pursuing expansion plans at its Ohio and Texas facilities that would compete with the defendants. JSW Steel is seeking to hold the defendants jointly and severally liable for treble damages in an amount in excess of \$500 million and other relief. We filed a Motion to Dismiss in the case during 2021, and discovery remains stayed until the court decides our motion. We believe the claims asserted against us are without merit, and we are vigorously defending against them.

Mesabi Metallics Adversary Proceeding. On September 7, 2017, Mesabi Metallics Company LLC (f/k/a Essar Steel Minnesota LLC) ("Mesabi Metallics") filed a complaint against Cleveland-Cliffs Inc. in the *Essar Steel Minnesota*

LLC and ESML Holdings Inc. bankruptcy proceeding that is pending in the United States Bankruptcy Court, District of Delaware. Mesabi Metallica alleges tortious interference with its contractual rights and business relations involving certain vendors, suppliers and contractors, violations of federal and Minnesota antitrust laws through monopolization, attempted monopolization and restraint of trade, violation of the automatic stay, and civil conspiracy with unnamed Doe defendants. Mesabi Metallica amended its complaint to add additional defendants, including, among others, our subsidiary, Cleveland-Cliffs Minnesota Land Development Company LLC ("Cliffs Minnesota Land"), and to add additional claims, including avoidance and recovery of unauthorized post-petition transfers of real estate interests, claims disallowance, civil contempt and declaratory relief. Mesabi Metallica seeks, among other things, unspecified damages and injunctive relief. Cliffs and Cliffs Minnesota Land filed counterclaims against Mesabi Metallica, Chippewa Capital Partners ("Chippewa"), and Thomas M. Clarke ("Clarke") for tortious interference and civil conspiracy, as well as additional claims against Chippewa and Clarke for aiding and abetting tortious interference, for which we seek, among other things, damages and injunctive relief. Our counterclaim against Clarke for libel was dismissed on jurisdictional grounds. The parties filed various dispositive motions on certain of the claims, including a motion for partial summary judgment to settle a dispute over real estate transactions between Cliffs Minnesota Land and Glacier Park Iron Ore Properties LLC ("GPIOP"). A ruling in favor of Cliffs, Cliffs Minnesota Land and GPIOP was issued on July 23, 2018, finding that Mesabi Metallica's leases had terminated and upholding Cliffs' and Cliffs Minnesota Land's purchase and lease of the contested real estate interests. Mesabi Metallica filed a Motion for Leave to File an Interlocutory Appeal, which was denied on September 10, 2019. Discovery is ongoing. We believe the claims asserted against us are without merit, and we intend to continue to vigorously defend against any remaining claims in the lawsuit.

Certain Legacy Legal Proceedings Relating to our Steel Operations . Certain of our acquired subsidiaries have been named as defendants, among many other named defendants, in numerous lawsuits filed since 1990 claiming injury allegedly resulting from exposure to asbestos. Similar lawsuits seeking monetary relief continue to be filed in various jurisdictions in the U.S., which cases are vigorously defended. Although predictions about the outcome of pending litigation is subject to uncertainties, based upon present knowledge, we believe it is unlikely that the resolution in the aggregate of these claims will have a materially adverse effect on our consolidated results of operations, cash flows or financial condition.

Legal Proceedings Relating to Environmental Matters

SEC regulations require us to disclose certain information about administrative or judicial proceedings involving the environment and to which a governmental authority is a party if we reasonably believe that such proceedings may result in monetary sanctions above a stated threshold. Pursuant to SEC regulations, we use a threshold of \$1 million for purposes of determining whether disclosure of any such proceedings is required. We believe that this threshold is reasonably designed to result in disclosure of any such proceedings that are material to our business or financial condition.

Information for this item relating to certain other environmental proceedings may be found under the heading *Burns Harbor Water Issues* in NOTE 20 - COMMITMENTS AND CONTINGENCIES to the consolidated financial statements in *Part II – Item 8. Financial Statements and Supplementary Data*, which information is incorporated herein by reference.

Item 4. Mine Safety Disclosures

We are committed to protecting the occupational health and well-being of each of our employees. Safety is one of our core values, and we strive to ensure that safe production is the first priority for all employees. Our internal objective is to achieve zero injuries and incidents across the Company by focusing on proactively identifying needed prevention activities, establishing standards and evaluating performance to mitigate any potential loss to people, equipment, production and the environment. We have implemented intensive employee training that is geared toward maintaining a high level of awareness and knowledge of safety and health issues in the work environment through the development and coordination of requisite information, skills and attitudes. We believe that through these policies, we have developed an effective safety management system.

Under the Dodd-Frank Act, each operator of a coal or other mine is required to include certain mine safety results within its periodic reports filed with the SEC. As required by the reporting requirements included in §1503(a) of the Dodd-Frank Act and Item 104 of Regulation S-K, the required mine safety results regarding certain mining safety and health matters for each of our mine locations that are covered under the scope of the Dodd-Frank Act are included in Exhibit 95 of *Part IV – Item 15. Exhibits and Financial Statement Schedules* of this Annual Report on Form 10-K.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Stock Exchange Information

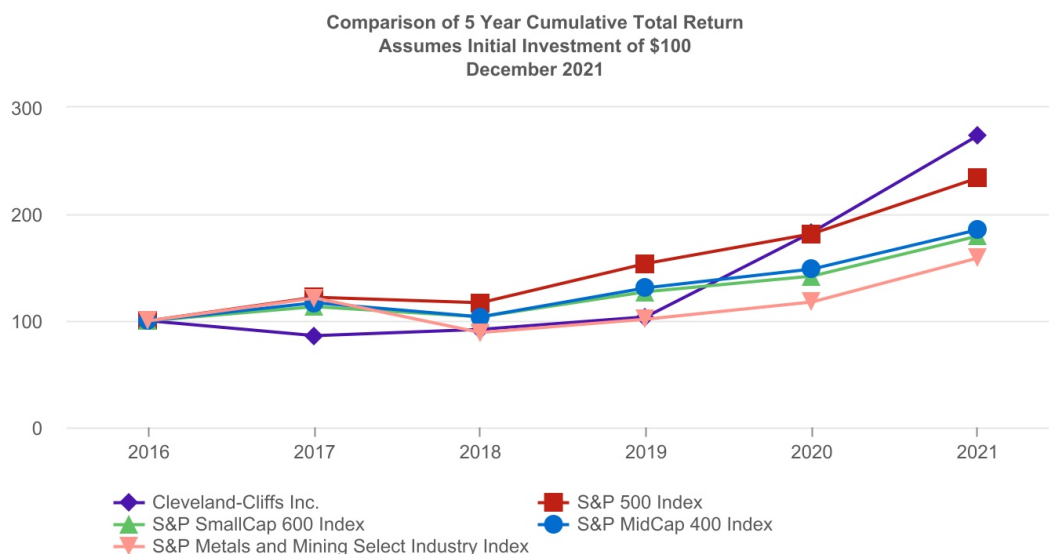
Our common shares (ticker symbol CLF) are listed on the NYSE.

Holders

At February 10, 2022, we had 2,532 shareholders of record.

Shareholder Return Performance

The following graph shows changes over the past five-year period in the value of \$100 invested in: (1) Cliffs' common shares; (2) S&P 500 Index; (3) S&P SmallCap 600 Index; (4) S&P MidCap 400 Index; and (5) S&P Metals and Mining Select Industry Index. Due to the increased market capitalization of the Company, we were included within the S&P MidCap 400 Index and removed from the S&P SmallCap 600 Index during the year ended December 31, 2021. The values of each investment are based on price change plus reinvestment of all dividends reported to shareholders, based on monthly granularity.



			2016	2017	2018	2019	2020	2021
Inc.	Cleveland-Cliffs	Return	—	(14.27)	6.66	12.60	77.46	49
		Cum \$	100.00	85.73	91.44	102.96	182.71	273
	S&P 500 Index	Return	—	21.80	(4.39)	31.48	18.39	28
		Cum \$	100.00	121.80	116.45	153.11	181.27	233
Index	S&P SmallCap 600	Return	—	13.15	(8.52)	22.74	11.24	26
		Cum \$	100.00	113.15	103.51	127.05	141.33	179
Index	S&P MidCap 400	Return	—	16.23	(11.10)	26.17	13.65	24
		Cum \$	100.00	116.23	103.33	130.37	148.16	184
Index	S&P Metals and Mining Select Industry	Return	—	20.61	(26.76)	14.70	15.97	34
		Cum \$	100.00	120.61	88.33	101.32	117.50	158

Issuer Purchases of Equity Securities

The following table presents information with respect to repurchases by the Company of our common shares during the periods indicated:

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares (or Units) Purchased ¹	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet be Purchased Under the Plans or Programs ²
October 1 - 31, 2021	534	\$ 19.66	—	\$ —
November 1 - 30, 2021	—	—	—	—
December 1 - 31, 2021	—	—	—	—
Total	534	\$ 19.66	—	\$ —

¹All shares were delivered to us to satisfy tax withholding obligations due upon the vesting or payment of stock awards.

²On February 10, 2022, our Board of Directors authorized a program to repurchase our outstanding common shares in the open market or in privately negotiated transactions, which may include purchases pursuant to Rule 10b5-1 plans or accelerated share repurchases, up to a maximum of \$1 billion. We are not obligated to make any purchases, and the program may be suspended or discontinued at any time. The share repurchase program does not have a specific expiration date.

Item 6. [Reserved]**Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations**

Management's Discussion and Analysis of Financial Condition and Results of Operations is designed to provide a reader of our financial statements with a narrative from the perspective of management on our financial condition, results of operations, liquidity and other factors that may affect our future results. The following discussion should be read in conjunction with the consolidated financial statements and related notes that appear in *Part II – Item 8. Financial Statements and Supplementary Data* of this Annual Report on Form 10-K.

Overview

The year 2021 represented a period of record financial performance in our Company's 174-year history. The advantages of our unique, vertically integrated business model as well as the immediate benefits of the transformational acquisitions we completed in 2020 were on full display during the year as we achieved these phenomenal results. Our commercial actions, along with a healthy demand environment for steel, drove substantially higher selling prices for the majority of products we sell, and we adjusted production to meet the needs of our order book. Combined with this, we believe we were able to manage costs better than our peers due to our vertically integrated footprint, which reduces the impact of material price inflation on our major cost inputs. As a result, we produced record revenues, record net income, record Adjusted EBITDA and record operating cash flow in 2021.

The HRC index averaged \$1,573 per net ton for 2021, a record year that was also 174% higher than 2020. The record prices for steel products in 2021 resulted from both supply and demand factors, each driven by a rapid recovery from the impacts of the COVID-19 pandemic. Stay-at-home mandates and fiscal stimulus drove strong demand for consumer goods, such as HVAC products and appliances. Demand from machinery and equipment producers has also been robust. The demand for light vehicles was also strong; however, automotive supply chain difficulties have limited the demand for steel from automotive manufacturers. On the supply side, spot steel availability was limited throughout the year.

We expect healthy demand to continue into 2022 as we start to see the impacts of the Infrastructure and Jobs Act of 2021, growing environmentally-focused capital projects, healthy economic conditions and pent-up automotive demand, as supply chain issues begin to show signs of waning. With strong demand and steel prices in the U.S. reaching all-time highs in 2021, we were well positioned to negotiate our fixed price contracts, which represent approximately 45% of our volumes, at favorable levels, which should enable us to deliver strong financial results and free cash flow in 2022, even if HRC pricing falls considerably.

As a result of our healthy free cash flow in 2021, we were able to complete several strategic and financial transactions, including the FPT Acquisition. FPT is one of the largest processors of prime scrap in the country, representing approximately 15% of the entire U.S. merchant market. We believe this acquisition is a complementary addition to our footprint, as prime scrap demand is expected to grow with new flat-rolled EAF capacity set to come online over the next five years and as the worldwide focus on decarbonization continues. We expect to be able to leverage our long-standing flat-rolled automotive and other customer relationships into recycling partnerships to further grow our prime scrap presence. Additionally, FPT allows us to optimize productivity at our existing EAFs and BOFs and furthers our commitment to environmentally-friendly, low-carbon intensity steelmaking with a cleaner materials mix.

Another use of our robust cash flow was the complete redemption of our Series B Participating Redeemable Preferred Stock for \$1,343 million during the third quarter of 2021. This transaction reduced our diluted share count by approximately 10%, providing a meaningful return to our shareholders. During February 2021, we executed a series of favorable debt and equity capital market transactions in an effort to extend our average debt maturity profile and increase our ratio of unsecured debt to secured debt. We also completed additional financing transactions, including the redemption of all \$396 million aggregate principal amount of our 5.750% 2025 Senior Notes in June 2021, and provided notice of our election to redeem all remaining \$294 million aggregate principal amount of our 1.500% 2025 Convertible Senior Notes in December 2021, which was completed in January 2022.

In 2021, we reached full run-rate nameplate annual capacity at our state-of-the-art direct reduction plant in Toledo, Ohio. This facility produces high-quality HBI and is the first of its kind in the Great Lakes region. While we originally expected to be a merchant seller of HBI, following the 2020 Acquisitions, we have instead maximized the value of our HBI by utilizing it primarily in our blast furnaces, which allows us to improve costs and productivity while reducing our coke rates and reducing our carbon emissions. As a result of our internal usage of HBI, coupled with our ongoing evaluation of coke use strategies, we idled our coke facility at Middletown Works in 2021 and we intend to permanently idle our Mountain State Carbon coke plant in 2022.

Along with these notable accomplishments, we have been able to continue successfully navigating through the COVID-19 pandemic while preserving the health and safety of both our workforce and our Company for the long term. The health and safety of our employees has always been our top priority. In an effort to best protect our workforce and our Company, we launched a vaccine incentive program in July 2021 that was developed in partnership with our labor unions. Throughout the 45 days the program was in place, the vaccination rate more than doubled, and we achieved a total vaccination rate of over 75% throughout our workforce. The initiative resulted in a payout of \$45 million in total cash incentives to our vaccinated workforce. The successful vaccination program allowed us to operate efficiently and safely throughout the remainder of 2021 and into 2022.

We also continued our best practices from both a safety and environmental standpoint. During 2021, our safety TRIR (including contractors) was 1.37 per 200,000 hours worked. Throughout 2021, we made continued progress towards our goal of reducing GHG emissions with our increased usage of HBI and scrap in our facilities, as well as more efficient recycling of gases at certain facilities. We are also partnering with the U.S. Department of Energy as part of the Better Climate Challenge initiative, as we aim to build on our GHG emission reduction progress.

Recent Developments

Acquisition of FPT

On November 18, 2021, we completed the acquisition of FPT, a leading prime ferrous scrap processor in the U.S. These operations consist of 22 scrap processing facilities, primarily in the Midwest region of the U.S. Refer to NOTE 3 - ACQUISITIONS for additional information.

Financing Transactions

On December 1, 2021, we issued a notice of redemption for all \$294 million in aggregate principal amount outstanding of the 1.500% 2025 Convertible Senior Notes. The 1.500% 2025 Convertible Senior Notes were redeemed on January 18, 2022, through a combination settlement, with the aggregate principal amount of \$294 million paid in cash, and 24 million common shares delivered to noteholders, with a fair value of \$499 million in settlement of the premium due per the terms of the indenture, plus cash in respect of the accrued and unpaid interest of the 1.500% 2025 Convertible Senior Notes to, but not including, the redemption date per the terms of the indenture.

On December 17, 2021, we entered into the Third ABL Amendment. The Third ABL Amendment modified our ABL Facility to, among other things, increase the amount of tranche A revolver commitments available thereunder by an additional \$1 billion and exchange \$150 million of tranche B revolver commitments available thereunder for tranche

A revolver commitments. After giving effect to the Third ABL Amendment, the aggregate principal amount of tranche A revolver commitments under our ABL Facility is \$4.5 billion and there are no longer any tranche B revolver commitments. This action increased our liquidity by \$1.0 billion. The increase is a result of a larger projected borrowing base driven by more favorable market conditions.

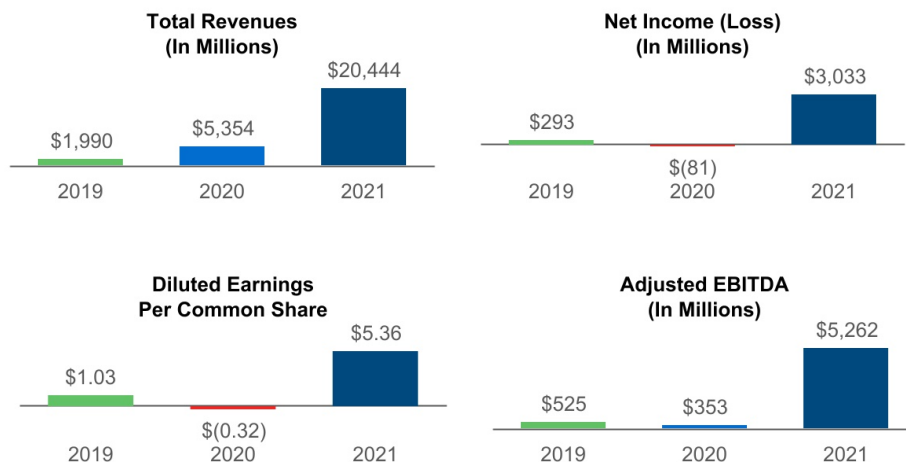
Share Repurchase Program

On February 10, 2022, our Board of Directors authorized a program to repurchase our outstanding common shares in the open market or in privately negotiated transactions, which may include purchases pursuant to Rule 10B5-1 plans or accelerated share repurchases, up to a maximum of \$1 billion. We are not obligated to make any purchases and the program may be suspended or discontinued at any time. The share repurchase program does not have a specific expiration date.

Results of Operations

Overview

Our total revenues, net income (loss), diluted EPS and Adjusted EBITDA were as follows:



See "— Results of Operations — Adjusted EBITDA" below for a reconciliation of our *Net Income (loss)* to Adjusted EBITDA.

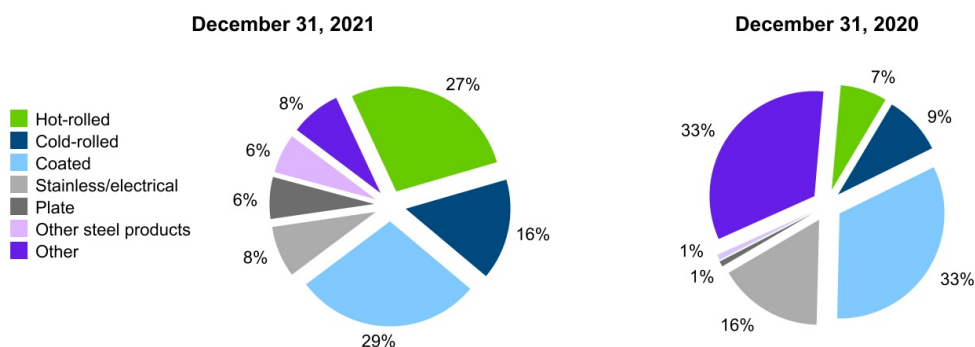
The results for 2021 include the FPT operations subsequent to November 18, 2021 and full-year results for all other operations. The results for 2020 include AK Steel operations subsequent to March 13, 2020, ArcelorMittal USA operations subsequent to December 9, 2020, and our results from operations previously reported as part of our historical Mining and Pelletizing segment.

Revenues

During the year ended December 31, 2021, our consolidated *Revenues* increased by \$15,090 million, compared to 2020. The increase was primarily due to the addition of 12.1 million net tons of steel shipments from our Steelmaking segment resulting from the 2020 Acquisitions, along with an increase in the average steel product selling price of \$240 per net ton.

Revenues by Product Line

The following represents our consolidated *Revenues* by product line for the years ended:



The change in product mix for 2021, compared to 2020, is due primarily to the inclusion of full-period results for the 2020 Acquisitions. The results for 2020 include AK Steel operations subsequent to March 13, 2020, ArcelorMittal USA operations subsequent to December 9, 2020, and our results from operations previously reported as part of our historical Mining and Pelletizing segment.

Revenues by Market

The following table represents our consolidated *Revenues* and percentage of revenues attributable to each of the markets we supply:

	(In Millions)			
	Year Ended December 31,			
	2021		2020	
	Revenue	%	Revenue	%
Automotive	\$ 5,152	25 %	\$ 2,391	45 %
Infrastructure and Manufacturing	5,427	27 %	818	15 %
Distributors and Converters	7,741	38 %	722	13 %
Steel producers	2,124	10 %	1,423	27 %
Total revenues	\$ 20,444		\$ 5,354	

The change in percentages of net revenues to each market in 2021 compared to 2020 was driven primarily by the AM USA Transaction, which increased overall sales to automotive customers, but reduced the total percentage exposure, increased exposure to infrastructure and manufacturing and distributors and converters customers, and drove more in-house iron ore sales, which reduced the percentage of sales to steel producers.

Automotive Market

The largest end user for our steel products is the automotive industry in North America, which makes light vehicle production a key driver of demand. During 2021, North American light vehicle production was approximately 13.0 million units, the same as the prior year. Production the past two years has been down approximately 3.0 million units compared to the prior ten-year average, primarily due to the global semiconductor shortage, as well as other material shortages and supply chain disruptions resulting from the COVID-19 pandemic. This has caused several outages amongst light vehicle manufacturers despite strong consumer demand. In light of these production outages, we have been able to redirect certain volumes originally intended for this end market to the spot market, where demand has been strong and pricing has reached all-time highs. The percentage of sales to the automotive market should increase in 2022 as fixed price contract prices increase and volumes expand as the material shortage issues ease.

During 2021, light vehicle sales in the U.S. were 15.1 million units, representing a 3% increase over the prior year. These improved sales, combined with continued production difficulties, brought light vehicle inventories to an all-time low of 22 days' supply during the third quarter of 2021.

Infrastructure and Manufacturing

We sell a variety of our steel products, including plate, carbon, stainless, electrical, tinplate and rail, to the infrastructure and manufacturing market. This market includes sales to manufacturers of HVAC, appliances, power transmission and distribution transformers, storage tanks, ships and railcars, wind towers, machinery parts, heavy equipment, military armor, food preservation, and railway lines. Domestic construction activity and the replacement of aging infrastructure directly affects sales of steel to this market. Residential construction spending surged in 2021 due to overwhelming demand for new houses. Nonresidential construction spending was slightly down in 2021; however, the sector saw a surge in spending in the second half of the year that will likely continue into 2022 with the passing of the Infrastructure and Jobs Act of 2021. The Infrastructure and Jobs Act of 2021 is also expected to increase demand for steel products related to renewable energy as well as the modernization of the U.S. electrical grid. Our plate products can be used in windmills, which we estimate contain 130 metric tons of steel per megawatt of electrical generating capacity. Additionally, we estimate solar panels consume 40 metric tons of steel per megawatt of electrical generating capacity. We also expect to see an increase in charging stations for EVs, which we will benefit from as we are the sole producer of electrical steel in the U.S.

Distributors and Converters

Virtually all of the grades of steel we produce are sold to the steel distributors and converters market. This market generally represents downstream steel service centers, which source various types of steel from us and fabricate it according to their customers' needs, which also includes automotive customers. Our steel is typically sold to this market on a spot basis or under short-term contracts linked to steel pricing indices. Demand and pricing for this market can be highly dependent on a variety of factors outside our control, including global and domestic commodity steel production capacity, the relative health of countries' economies and whether they are consuming or exporting excess steel production, the provisions of international trade agreements and fluctuations in international currencies and, therefore, are subject to market changes in steel prices.

The price for domestic HRC, which is an important attribute in the profitability of this end market, averaged \$1,573 per net ton for the year ended December 31, 2021, 174% higher than the prior year. The record prices for steel products in 2021 resulted from both supply and demand factors, each driven by a rapid recovery since the onset of the COVID-19 pandemic in 2020.

Steel Producers Market

The steel producers market represents third-party sales to other steel producers, including those who operate blast furnaces and EAFs. It includes sales of raw materials and semi-finished and finished goods, including iron ore pellets, coal, coke, HBI, scrap and steel products.

The increase in revenues from the steel producers market for 2021, as compared to 2020, is primarily due to the inclusion of full-period results for the AK Steel and ArcelorMittal USA operations. This was partially offset by a decrease in iron ore product revenues during 2021, as compared to 2020, primarily as a result of the 2020 Acquisitions, as our iron ore pellet production is now predominately consumed internally and the respective intercompany revenue is eliminated in consolidation.

The largest component of sales to this market during the year ended December 31, 2021 was third-party slab sales, which are primarily made under a long-term supply agreement that was initiated in connection with the closing of the AM USA Transaction. Additionally, while it has fallen from peak 2021 levels in recent months, the price of iron ore has also risen dramatically over the past year, which, along with strong demand, has been an important factor in rising steel prices globally. The Platts 62% Price averaged \$159 per metric ton during 2021, a 46% increase compared to the prior year. While higher iron ore prices play a role in increased steel prices, we also directly benefit from higher iron ore prices for the portion of iron ore pellets we sell to third parties.

Operating Costs

Cost of goods sold

Cost of goods sold increased by \$10,808 million for the year ended December 31, 2021, as compared to 2020, primarily due to the addition of 12.1 million net tons of steel shipments resulting from the 2020 Acquisitions.

Selling, general and administrative expenses

As a result of the 2020 Acquisitions, our *Selling, general and administrative expenses* increased by \$178 million during the year ended December 31, 2021, as compared to 2020.

Acquisition-related costs

The following table represents the components of *Acquisition-related costs*:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Severance	\$ (15)	\$ (38)	\$ (2)
Third-party expenses	(5)	(52)	(7)
Total	\$ (20)	\$ (90)	\$ (9)

Refer to NOTE 3 - ACQUISITIONS for further information on the acquisitions.

Miscellaneous – net

Miscellaneous – net increased by \$20 million for the year ended December 31, 2021, as compared to 2020. The increase in miscellaneous expense was primarily due to the acquisition-related loss on equity method investment during 2021.

Other Income (Expense)

Interest expense, net

Interest expense, net increased by \$99 million for the year ended December 31, 2021, as compared to the prior year. The increase during 2021 was primarily due to borrowings on our ABL Facility, a decrease in capitalized interest during 2021 due to the completion of our Toledo direct reduction plant in December 2020 and the full-year interest on the incremental debt that we incurred in connection with the AK Steel Merger.

Gain (loss) on extinguishment of debt

The loss on extinguishment of debt of \$88 million for the year ended December 31, 2021 primarily resulted from the redemption of \$396 million aggregate principal amount of 5.750% 2025 Senior Notes, \$395 million aggregate principal amount of 4.875% 2024 Senior Secured Notes and \$347 million aggregate principal amount of 9.875% 2025 Senior Secured Notes.

This compares to a gain on extinguishment of debt of \$130 million for the year ended December 31, 2020 primarily related to the repurchase of \$748 million aggregate principal amount of our outstanding senior notes of various series using the net proceeds from the issuance of an additional \$555 million aggregate principal amount of our 9.875% 2025 Senior Secured Notes on April 24, 2020 and other sources of cash. Refer to NOTE 8 - DEBT AND CREDIT FACILITIES for further details.

Net periodic benefit credits (costs) other than service cost component

The increase of \$156 million in *Net periodic benefit credits (costs) other than service cost component* primarily relates to the expected return on assets component. The higher return is primarily attributable to the full-year effect of additional pension and OPEB plan assets acquired in the 2020 Acquisitions. Refer to NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for further details.

Income Taxes

Our effective tax rate is affected by permanent items, primarily depletion. It also is affected by discrete items that may occur in any given period but are not consistent from period to period. The following represents a summary of our tax provision and corresponding effective rates:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Income tax benefit (expense)	\$ (773)	\$ 111
Effective tax rate	20 %	57 %

A reconciliation of our income tax attributable to continuing operations compared to the U.S. federal statutory rate is as follows:

	(In Millions)			
	Year Ended December 31,			
	2021		2020	
Tax at U.S. statutory rate	\$ 799	21 %	\$ (41)	21 %
Increase (decrease) due to:				
Percentage depletion in excess of cost depletion	(99)	(3)	(42)	22
Non-taxable income related to noncontrolling interests	(9)	—	(9)	4
State taxes, net	86	2	(11)	6
Other items, net	(4)	—	(8)	4
Provision for income tax expense (benefit) and effective income tax rate including discrete items	<u>\$ 773</u>	<u>20 %</u>	<u>\$ (111)</u>	<u>57 %</u>

The increase in income tax expense in 2021, as compared to the prior year, is directly related to the increase in the pre-tax book income year-over-year.

See NOTE 12 - INCOME TAXES for further information.

Adjusted EBITDA

We evaluate performance on an operating segment basis, as well as a consolidated basis, based on Adjusted EBITDA, which is a non-GAAP measure. This measure is used by management, investors, lenders and other external users of our financial statements to assess our operating performance and to compare operating performance to other companies in the steel industry. In addition, management believes Adjusted EBITDA is a useful measure to assess the earnings power of the business without the impact of capital structure and can be used to assess our ability to service debt and fund future capital expenditures in the business.

The following table provides a reconciliation of our *Net income (loss)* to Adjusted EBITDA:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Net income (loss)	\$ 3,033	\$ (81)
Less:		
Interest expense, net	(337)	(238)
Income tax benefit (expense)	(773)	111
Depreciation, depletion and amortization	(897)	(308)
Total EBITDA	<u>\$ 5,040</u>	<u>\$ 354</u>
Less:		
EBITDA from noncontrolling interests ¹	\$ 75	\$ 56
Gain (loss) on extinguishment of debt	(88)	130
Severance costs	(15)	(38)
Acquisition-related costs excluding severance costs	(5)	(52)
Acquisition-related loss on equity method investment	(31)	—
Amortization of inventory step-up	(161)	(96)
Impact of discontinued operations	3	1
Total Adjusted EBITDA	<u>\$ 5,262</u>	<u>\$ 353</u>
¹ EBITDA of noncontrolling interests includes the following:		
Net income attributable to noncontrolling interests	\$ 45	\$ 41
Depreciation, depletion and amortization	30	15
EBITDA of noncontrolling interests	<u>\$ 75</u>	<u>\$ 56</u>

The following table provides a summary of our Adjusted EBITDA by segment:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Adjusted EBITDA:		
Steelmaking	\$ 5,422	\$ 433
Other Businesses	9	47
Corporate and eliminations	(169)	(127)
Total Adjusted EBITDA	<u>\$ 5,262</u>	<u>\$ 353</u>

Adjusted EBITDA from our Steelmaking segment for the year ended December 31, 2021, increased by \$4,989 million, as compared to 2020. The results were favorably impacted by the operating results of the acquired steelmaking operations. Our Steelmaking Adjusted EBITDA included \$232 million of *Selling, general and administrative expenses* for the year ended December 31, 2021.

Adjusted EBITDA from Corporate and eliminations primarily relates to *Selling, general and administrative expenses* at our Corporate headquarters.

The discussion of our Consolidated Results of Operations for 2020 compared to 2019 can be found in [Part II, Item 7., "Management's Discussion and Analysis of Financial Condition and Results of Operations,"](#) of our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021.

Steelmaking

The following is a summary of our Steelmaking segment results included in our consolidated financial statements for the years ended December 31, 2021 and 2020. The results for 2021 include the FPT operations

subsequent to November 18, 2021 and full-year results for all other Steelmaking operations. The results for 2020 include the AK Steel operations subsequent to March 13, 2020, the ArcelorMittal USA operations subsequent to December 9, 2020, and our results from operations previously reported as part of our Mining and Pelletizing segment.

The following is a summary of the Steelmaking segment operating results:

	Year Ended December 31,	
	2021	2020
Operating Results - In Millions		
Revenues	\$ 19,901	\$ 4,965
Cost of goods sold	\$ (15,379)	\$ (4,749)
Selling Price - Per Ton		
Average net selling price per net ton of steel products	\$ 1,187	\$ 947

The following table represents our segment *Revenues* by product line:

	(Dollars In Millions, Sales Volumes In Thousands)			
	Year Ended December 31,			
	2021		2020	
	Revenue	Volume ¹	Revenue	Volume ¹
Hot-rolled steel	\$ 5,615	4,886	\$ 386	633
Cold-rolled steel	3,186	2,790	490	682
Coated steel	5,864	5,056	1,747	1,911
Stainless and electrical steel	1,622	674	868	416
Plate	1,316	1,020	46	62
Other steel products	1,247	1,460	46	79
Other	1,051	N/A	1,382	N/A
Total	\$ 19,901		\$ 4,965	

¹All steel product volumes are stated in net tons.

Operating Results

Steelmaking revenues for 2021 increased by \$14,936 million as compared to 2020, primarily due to the addition of sales following the 2020 Acquisitions. Results for the year ended December 31, 2021 were also impacted positively by the increase in the price for domestic HRC, which is the most significant index driving our revenues and profitability. The HRC index averaged \$1,573 per net ton for 2021, 174% higher than 2020. The price of HRC reached an all-time high in 2021, as a direct result of favorable supply-demand dynamics driven by a rapid recovery since the onset of the COVID-19 pandemic in 2020. We have also benefited from higher steel shipments due to stronger demand.

Cost of goods sold for 2021 increased by \$10,630 million as compared to 2020, predominantly due to additional sales as discussed above.

As a result, Adjusted EBITDA was \$5,422 million for the year ended December 31, 2021, compared to \$433 million for the prior year. Adjusted EBITDA for 2021 was positively impacted by the addition of sales following the 2020 Acquisitions, the increase in the price for HRC and the higher demand for steel products, as discussed above.

Production

Our steelmaking facilities produced a total of 18 million net tons of raw steel during the year ended December 31, 2021. Due to the timing of the 2020 Acquisitions and the idling of facilities in response to impacts of the COVID-19 pandemic, our steelmaking facilities produced a total of 4 million net tons of raw steel during the year ended December 31, 2020.

Liquidity, Cash Flows and Capital Resources

Our primary sources of liquidity are *Cash and cash equivalents* and cash generated from our operations, availability under the ABL Facility and other financing activities. Our capital allocation decision-making process is focused on preserving healthy liquidity levels, while maintaining the strength of our balance sheet and creating financial flexibility to manage through the inherent cyclical demand for our products and volatility in commodity prices. We are focused on maximizing the cash generation of our operations, reducing debt, and aligning capital investments with our strategic priorities and the requirements of our business plan, including regulatory and permission-to-operate related projects.

Following the onset of the COVID-19 pandemic in the U.S. in 2020, our primary focus was to maintain adequate levels of liquidity to manage through a potentially prolonged economic downturn. Now that business conditions have improved, allowing us to generate a healthy free cash flow during 2021, we have had the ability to make investments to both improve and grow our business, particularly as it pertains to scrap metal. We entered into the scrap business on November 18, 2021 with the FPT Acquisition. We were also able to reduce our diluted share count and effectively return capital to shareholders via the cash redemption of all of the outstanding shares of our Series B Participating Redeemable Preferred Stock during the third quarter of 2021. In December 2021, we also increased our liquidity by amending our ABL Facility to increase the aggregate revolver commitments from \$3.5 billion to \$4.5 billion. Additionally, we expect to be able to return capital to shareholders in 2022 through our share repurchase program, which was authorized by our Board on February 10, 2022.

In addition, we anticipate that the current strong market environment will provide us ample opportunities to reduce our debt with our own free cash flow generation. We also continue to look at the composition of our debt, as we are interested in both extending our average maturity length and increasing our ratio of unsecured debt to secured debt, which can be accomplished with cash provided by operating activities. On January 18, 2022, we took action to reduce our debt by redeeming all of our then-outstanding 1.500% 2025 Convertible Senior Notes. The notes were redeemed through a combination settlement, with the aggregate principal amount of \$294 million paid in cash, and 24 million common shares delivered to noteholders per the terms of the indenture.

In furtherance of these goals, we also consummated the following financing transactions during 2021:

On February 11, 2021, we sold 20 million common shares at a price per share of \$16.12, in an underwritten public offering. We used the net proceeds from the offering, plus cash on hand, to redeem \$322 million aggregate principal amount of our outstanding 9.875% 2025 Senior Secured Notes. Prior to such use, the net proceeds were used to temporarily reduce the outstanding borrowings under our ABL Facility.

On February 17, 2021, we issued \$500 million aggregate principal amount of 4.625% 2029 Senior Notes and \$500 million aggregate principal amount of 4.875% 2031 Senior Notes in an offering that was exempt from the registration requirements of the Securities Act. We used the net proceeds from the notes offering to redeem all of the outstanding 4.875% 2024 Senior Secured Notes and 6.375% 2025 Senior Notes issued by Cleveland-Cliffs Inc. and all of the outstanding 7.625% 2021 AK Senior Notes, 7.500% 2023 AK Senior Notes and 6.375% 2025 AK Senior Notes issued by AK Steel Corporation (n/k/a Cleveland-Cliffs Steel Corporation), and pay fees and expenses in connection with such redemptions, and reduce borrowings under our ABL Facility.

Additionally, on June 28, 2021, we redeemed the entirety of our outstanding 5.750% 2025 Senior Notes using available liquidity. Pursuant to the terms of the indenture governing the 5.750% 2025 Senior Notes, we paid \$415 million, including \$396 million aggregate principal amount, plus make-whole premiums and accrued and unpaid interest to, but not including, the redemption date.

These actions give us additional financial flexibility and will better prepare us to navigate more easily through potentially volatile industry conditions in the future.

Based on our outlook for the next 12 months, which is subject to continued changing demand from customers and volatility in domestic steel prices, we expect to have ample liquidity through cash generated from operations and availability under our ABL Facility sufficient to meet the needs of our operations, service and repay our debt obligations and return capital to shareholders.

The following discussion summarizes the significant items impacting our cash flows during 2021 and comparative years as well as expected impacts to our future cash flows over the next 12 months. Refer to the Statements of Consolidated Cash Flows for additional information.

Operating Activities

Net cash provided by operating activities was \$2,785 million for the year ended December 31, 2021, compared to net cash used by operating activities of \$258 million for the year ended December 31, 2020. The year-over-year improvement was driven by improved operating results, partially offset by changes in working capital. Changes in working capital included increases in inventory primarily related to the global semiconductor shortage and increased raw material and production costs, as well as increases in receivables primarily related to rising prices. Additionally, we had incremental pension and OPEB payments and contributions of \$268 million, which included \$118 million of deferred 2020 pension contributions in connection with the CARES Act.

Investing Activities

Net cash used by investing activities was \$1,379 million and \$2,042 million for the years ended December 31, 2021 and 2020, respectively. During the year ended December 31, 2021, we had net cash outflows of \$761 million related to the FPT Acquisition, net of cash acquired. We had total capital expenditures of \$705 million and \$525 million for the years ended December 31, 2021 and 2020, respectively. Included in the total capital expenditures, we had cash outflows for expansion capital expenditures relating to the development of our Toledo direct reduction plant of \$64 million and \$348 million for the years ended December 31, 2021 and 2020, respectively. Additionally, included in the total capital expenditures, we spent \$641 million and \$177 million primarily on sustaining capital expenditures during the years ended December 31, 2021 and 2020, respectively. Sustaining capital spend includes infrastructure, mobile equipment, fixed equipment, product quality, environment, health and safety.

During the year ended December 31, 2020, we had net cash outflows of \$658 million related to the AM USA Transaction, net of cash acquired. Additionally, during the year ended December 31, 2020, we had net cash outflows of \$869 million related to the AK Steel Merger, net of cash acquired, which included \$590 million used to repay the former AK Steel Corporation revolving credit facility and \$324 million used to purchase outstanding 7.500% 2023 AK Senior Notes.

We anticipate total cash used for capital expenditures during the next 12 months to be between \$800 and \$900 million.

Financing Activities

Net cash used by financing activities was \$1,470 million for the year ended December 31, 2021, compared to net cash provided by financing activities of \$2,059 million for the year ended December 31, 2020. Cash outflows from financing activities for the year ended December 31, 2021 included the redemption of all 583,273 shares outstanding of our Series B Participating Redeemable Preferred Stock at a redemption price of \$1,343 million during the third quarter of 2021, along with \$1.4 billion for repayments of debt. We used available liquidity to redeem all \$396 million aggregate principal amount outstanding of our 5.750% 2025 Senior Notes. We used the net proceeds from the issuance of the 20 million common shares, and cash on hand, to redeem \$322 million in aggregate principal amount of 9.875% 2025 Senior Secured Notes. We used the net proceeds from the issuances of the 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes to redeem all of the outstanding 4.875% 2024 Senior Secured Notes, 6.375% 2025 Senior Notes, 7.625% 2021 AK Senior Notes, 7.500% 2023 AK Senior Notes and 6.375% 2025 AK Senior Notes, and pay fees and expenses in connection with such redemptions, and reduce borrowings under our ABL Facility.

Cash inflows from financing activities for the year ended December 31, 2021 included the issuances of \$500 million aggregate principal amount of 4.625% 2029 Senior Notes, \$500 million aggregate principal amount of 4.875% 2031 Senior Notes and 20 million common shares for proceeds of \$322 million, along with net borrowings of \$73 million under credit facilities.

Net cash provided by financing activities for the year ended December 31, 2020 primarily related to the issuances of \$845 million aggregate principal amount of 6.750% 2026 Senior Secured Notes, \$955 million aggregate principal amount of 9.875% 2025 Senior Secured Notes and net borrowings of \$1,510 million under our ABL Facility. The net proceeds from the initial issuance of \$725 million aggregate principal amount of the 6.750% 2026 Senior Secured Notes, along with cash on hand, were used to purchase \$373 million aggregate principal amount of 7.625% 2021 AK Senior Notes and \$367 million aggregate principal amount of 7.500% 2023 AK Senior Notes and to pay for the \$44 million of debt issuance costs in the first quarter of 2020. The net proceeds from the additional issuance of \$555 million aggregate principal amount of the 9.875% 2025 Senior Secured Notes were used to repurchase \$736 million aggregate principal amount of our outstanding senior notes.

The discussion of our *Liquidity, Cash Flows and Capital Resources* results for 2020 compared to 2019 can be found in [Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."](#) in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021.

The following represents our future cash commitments and contractual obligations as of December 31, 2021:

	Payments Due by Period (In Millions)				
	Total	Less than 1 Year	1 - 3 Years	3 - 5 Years	More than 5 Years
Long-term debt ¹	\$ 5,369	\$ —	\$ 36	\$ 3,355	\$ 1,978
Interest on debt ¹	1,497	262	453	361	421
Operating lease obligations	378	68	103	74	133
Finance lease obligations	345	105	127	47	66
Purchase obligations:					
Open purchase orders	374	328	1	—	45
Minimum "take or pay" purchase commitments ²	8,590	2,785	2,947	1,493	1,365
Total purchase obligations	8,964	3,113	2,948	1,493	1,410
Other long-term liabilities:					
Pension funding minimums ³	132	4	61	67	—
OPEB claim payments ³	613	138	242	233	—
Environmental and asset retirement obligations	655	54	76	30	495
Other	91	4	24	18	45
Total other long-term liabilities	1,491	200	403	348	540
Total	\$ 18,044	\$ 3,748	\$ 4,070	\$ 5,678	\$ 4,548

¹ Refer to NOTE 8 - DEBT AND CREDIT FACILITIES for additional information regarding our debt and related interest rates.

² Includes minimum railroad and vessel transportation obligations, minimum electric power demand charges, minimum diesel and natural gas obligations and minimum port facility obligations. Additionally, includes our coke purchase commitments related to our coke supply agreement with SunCoke Middletown.

³ Estimates beyond five years for pension and OPEB contributions and payments are not included due to the uncertainty of future investment performance, funding legislation, discount rates, healthcare costs, plan design and other factors. Refer to NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for additional information regarding our pension and OPEB obligations.

Refer to NOTE 20 - COMMITMENTS AND CONTINGENCIES for additional information regarding our future commitments and obligations.

Capital Resources

We expect to fund our business obligations from available cash, current and future operations and existing and future borrowing arrangements. We also may pursue other funding strategies in the capital markets to strengthen our liquidity, extend debt maturities and/or fund strategic initiatives. The following represents a summary of key liquidity measures:

	(In Millions)	
	December 31, 2021	
<i>Cash and cash equivalents</i>	\$	48
Available borrowing base on ABL Facility ¹	\$	4,500
Borrowings		(1,609)
Letter of credit obligations		(175)
Borrowing capacity available	\$	2,716

¹As of December 31, 2021, the ABL Facility had a maximum borrowing base of \$4.5 billion, determined by applying customary advance rates to eligible accounts receivable, inventory and certain mobile equipment.

Our primary sources of funding are cash and cash equivalents, which totaled \$48 million as of December 31, 2021, cash generated by our business, availability under our ABL Facility and other financing activities. Cash and cash equivalents include cash on hand and on deposit. The combination of cash and availability under our ABL Facility gives us \$2.8 billion in liquidity entering the first quarter of 2022, which is expected to be adequate to fund operations, letter of credit obligations, capital expenditures and other cash commitments for at least the next 12 months.

As of December 31, 2021, we were in compliance with the ABL Facility liquidity requirements and, therefore, the springing financial covenant requiring a minimum Fixed Charge Coverage Ratio of 1.0 to 1.0 was not applicable. We believe that the cash on hand and our ABL Facility provide us sufficient liquidity to support our operating, investing and financing activities. We have the capability to issue additional unsecured notes and, subject to the limitations set forth in our existing senior notes indentures, additional secured debt, if we elect to access the debt capital markets. However, our ability to issue additional notes could be limited by market conditions.

We intend from time to time to seek to retire or repurchase our outstanding senior notes with cash on hand, borrowings from existing credit sources or new debt financings and/or exchanges for debt or equity securities, in open market purchases, privately negotiated transactions or otherwise. Such repurchases, if any, will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors, and the amounts involved may be material.

Off-Balance Sheet Arrangements

In the normal course of business, we are a party to certain arrangements that are not reflected on our Statements of Consolidated Financial Position. These arrangements include minimum "take or pay" purchase commitments, such as minimum electric power demand charges, minimum coal, diesel and natural gas purchase commitments, minimum railroad transportation commitments and minimum port facility usage commitments; and financial instruments with off-balance sheet risk, such as bank letters of credit and bank guarantees.

Information about our Guarantors and the Issuer of our Guaranteed Securities

The accompanying summarized financial information has been prepared and presented pursuant to SEC Regulation S-X, Rule 3-10, "Financial Statements of Guarantors and Issuers of Guaranteed Securities Registered or Being Registered," and Rule 13-01 "Financial Disclosures about Guarantors and Issuers of Guaranteed Securities and Affiliates Whose Securities Collateralized a Registrant's Securities." Certain of our subsidiaries (the "Guarantor subsidiaries") have fully and unconditionally, and jointly and severally, guaranteed the obligations under (a) the 5.875% 2027 Senior Notes, the 7.000% 2027 Senior Notes, the 4.625% 2029 Senior Notes and the 4.875% 2031 Senior Notes issued by Cleveland-Cliffs Inc. on a senior unsecured basis and (b) the 6.750% 2026 Senior Secured

Notes and the 9.875% 2025 Senior Secured Notes on a senior secured basis. See NOTE 8 - DEBT AND CREDIT FACILITIES for further information.

The following presents the summarized financial information on a combined basis for Cleveland-Cliffs Inc. (parent company and issuer of the guaranteed obligations) and the Guarantor subsidiaries, collectively referred to as the obligated group. Transactions between the obligated group have been eliminated. Information for the non-Guarantor subsidiaries was excluded from the combined summarized financial information of the obligated group.

Each Guarantor subsidiary is consolidated by Cleveland-Cliffs Inc. as of December 31, 2021. Refer to [Exhibit 22](#), incorporated herein by reference, for the detailed list of entities included within the obligated group as of December 31, 2021.

The guarantee of a Guarantor subsidiary with respect to Cliffs' 6.750% 2026 Senior Secured Notes, the 5.875% 2027 Senior Notes, the 7.000% 2027 Senior Notes, the 9.875% 2025 Senior Secured Notes, the 4.625% 2029 Senior Notes and the 4.875% 2031 Senior Notes will be automatically and unconditionally released and discharged, and such Guarantor subsidiary's obligations under the guarantee and the related indentures (the "Indentures") will be automatically and unconditionally released and discharged, upon the occurrence of any of the following, along with the delivery to the trustee of an officer's certificate and an opinion of counsel, each stating that all conditions precedent provided for in the applicable Indenture relating to the release and discharge of such Guarantor subsidiary's guarantee have been complied with:

- (a) any sale, exchange, transfer or disposition of such Guarantor subsidiary (by merger, consolidation, or the sale of) or the capital stock of such Guarantor subsidiary after which the applicable Guarantor subsidiary is no longer a subsidiary of the Company or the sale of all or substantially all of such Guarantor subsidiary's assets (other than by lease), whether or not such Guarantor subsidiary is the surviving entity in such transaction, to a person which is not the Company or a subsidiary of the Company; provided that (i) such sale, exchange, transfer or disposition is made in compliance with the applicable Indenture, including the covenants regarding consolidation, merger and sale of assets and, as applicable, dispositions of assets that constitute notes collateral, and (ii) all the obligations of such Guarantor subsidiary under all debt of the Company or its subsidiaries terminate upon consummation of such transaction;
- (b) designation of any Guarantor subsidiary as an "excluded subsidiary" (as defined in the Indentures); or
- (c) defeasance or satisfaction and discharge of the Indentures.

Each entity in the summarized combined financial information follows the same accounting policies as described in the consolidated financial statements. The accompanying summarized combined financial information does not reflect investments of the obligated group in non-Guarantor subsidiaries. The financial information of the obligated group is presented on a combined basis; intercompany balances and transactions within the obligated group have been eliminated. The obligated group's amounts due from, amounts due to, and transactions with, non-Guarantor subsidiaries and related parties have been presented in separate line items.

Summarized Combined Financial Information of the Issuer and Guarantor Subsidiaries:

The following table is summarized combined financial information from the Statements of Condensed Consolidated Financial Position of the obligated group:

	(In Millions)	
	December 31, 2021	December 31, 2020
Current assets	\$ 6,539	\$ 4,903
Non-current assets	12,753	10,535
Current liabilities	(3,222)	(2,767)
Non-current liabilities	(9,081)	(10,563)

The following table is summarized combined financial information from the Statements of Condensed Consolidated Operations of the obligated group:

	(In Millions)	
	Year Ended	
	December 31, 2021	
Revenues	\$	19,973
Cost of goods sold		(15,582)
Income from continuing operations		2,923
Net income		2,929
Net income attributable to Cliffs shareholders		2,929

As of December 31, 2021 and 2020, the obligated group had the following balances with non-Guarantor subsidiaries and other related parties:

	(In Millions)	
	December 31, 2021	December 31, 2020
Balances with non-Guarantor subsidiaries:		
Accounts receivable, net	\$ 199	\$ 69
Accounts payable	(186)	(17)
Balances with other related parties:		
Accounts receivable, net	\$ 3	\$ 2
Accounts payable	(7)	(6)

Additionally, for the year ended December 31, 2021, the obligated group had *Revenues* of \$139 million and *Cost of goods sold* of \$117 million, in each case with other related parties.

Market Risks

We are subject to a variety of risks, including those caused by changes in commodity prices and interest rates. We have established policies and procedures to manage such risks; however, certain risks are beyond our control.

Pricing Risks

In the ordinary course of business, we are exposed to market risk and price fluctuations related to the sale of our products, which are impacted primarily by market prices for HRC, and the purchase of energy and raw materials used in our operations, which are impacted by market prices for electricity, natural gas, ferrous and stainless steel scrap, chrome, metallurgical coal, coke, nickel and zinc. Our strategy to address market risk has generally been to obtain competitive prices for our products and services and allow operating results to reflect market price movements dictated by supply and demand; however, we make forward physical purchases and enter into hedge contracts to manage exposure to price risk related to the purchases of certain raw materials and energy used in the production process.

Our financial results can vary for our operations as a result of fluctuations in market prices. We attempt to mitigate these risks by aligning fixed and variable components in our customer pricing contracts, supplier purchasing agreements and derivative financial instruments.

Some customer contracts have fixed-pricing terms, which increase our exposure to fluctuations in raw material and energy costs. To reduce our exposure, we enter into annual, fixed-price agreements for certain raw materials. Some of our existing multi-year raw material supply agreements have required minimum purchase quantities. Under adverse economic conditions, those minimums may exceed our needs. Absent exceptions for force majeure and other circumstances affecting the legal enforceability of the agreements, these minimum purchase requirements may compel us to purchase quantities of raw materials that could significantly exceed our anticipated needs or pay damages to the supplier for shortfalls. In these circumstances, we would attempt to negotiate agreements for new purchase quantities. There is a risk, however, that we would not be successful in reducing

purchase quantities, either through negotiation or litigation. If that occurred, we would likely be required to purchase more of a particular raw material in a particular year than we need, negatively affecting our results of operations and cash flows.

Certain of our customer contracts include variable-pricing mechanisms that adjust selling prices in response to changes in the costs of certain raw materials and energy, while other of our customer contracts exclude such mechanisms. We may enter into multi-year purchase agreements for certain raw materials with similar variable-price mechanisms, allowing us to achieve natural hedges between the customer contracts and supplier purchase agreements. Therefore, in some cases, price fluctuations for energy (particularly natural gas and electricity), raw materials (such as scrap, chrome, zinc and nickel) or other commodities may be, in part, passed on to customers rather than absorbed solely by us. There is a risk, however, that the variable-price mechanisms in the sales contracts may not necessarily change in tandem with the variable-price mechanisms in our purchase agreements, negatively affecting our results of operations and cash flows.

Our strategy to address volatile natural gas rates and electricity rates includes improving efficiency in energy usage, identifying alternative providers and utilizing the lowest cost alternative fuels. If we are unable to align fixed and variable components between customer contracts and supplier purchase agreements, we use cash-settled commodity price swaps and options to hedge the market risk associated with the purchase of certain of our raw materials and energy requirements. Additionally, we routinely use these derivative instruments to hedge a portion of our natural gas and zinc requirements. Our hedging strategy is designed to protect us from excessive pricing volatility. However, since we do not typically hedge 100% of our exposure, abnormal price increases in any of these commodity markets might still negatively affect operating costs.

The following table summarizes the negative effect of a hypothetical change in the fair value of our derivative instruments outstanding as of December 31, 2021, due to a 10% and 25% change in the market price of each of the indicated commodities:

Commodity Derivative	(In Millions)	
	Positive or Negative Effect on Pre-tax Income	
	10% Increase or Decrease	25% Increase or Decrease
Natural gas	\$ 32	\$ 81
Zinc	6	15

Valuation of Goodwill and Other Long-Lived Assets

We assign goodwill arising from acquired companies to the reporting units that are expected to benefit from the synergies of the acquisition. Goodwill is tested on a qualitative basis for impairment at the reporting unit level on an annual basis (October 1) and between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value. These events or circumstances could include a significant change in the business climate, legal factors, operating performance indicators, competition, or sale or disposition of a significant portion of a reporting unit. As necessary, should our qualitative test indicate that it is more likely than not that the fair value of a reporting unit is less than its carry amount, we perform a quantitative test to determine the amount of impairment, if any, to the carrying value of the reporting unit and its associated goodwill.

Application of the goodwill impairment test requires judgment, including the identification of reporting units, assignment of assets and liabilities to reporting units, assignment of goodwill to reporting units and if a quantitative assessment is deemed necessary in determination of the fair value of each reporting unit. The fair value of each reporting unit is estimated using a discounted cash flow methodology, which considers forecasted cash flows discounted at an estimated weighted average cost of capital. Assessing the recoverability of our goodwill requires significant assumptions regarding the estimated future cash flows and other factors to determine the fair value of a reporting unit, including, among other things, estimates related to forecasts of future revenues, expected Adjusted EBITDA, expected capital expenditures and working capital requirements, which are based upon our long-range plan estimates. The assumptions used to calculate the fair value of a reporting unit may change from year to year based on operating results, market conditions and other factors. Changes in these assumptions could materially affect the determination of fair value for each reporting unit.

Long-lived assets are reviewed for impairment upon the occurrence of events or changes in circumstances that would indicate that the carrying value of the assets may not be recoverable. Such indicators may include: a significant decline in expected future cash flows; a sustained, significant decline in market pricing; a significant

adverse change in legal or environmental factors or in the business climate; changes in estimates of our recoverable reserves; and unanticipated competition. Any adverse change in these factors could have a significant impact on the recoverability of our long-lived assets and could have a material impact on our consolidated statements of operations and statements of financial position.

A comparison of each asset group's carrying value to the estimated undiscounted net future cash flows expected to result from the use of the assets, including cost of disposition, is used to determine if an asset is recoverable. Projected future cash flows reflect management's best estimate of economic and market conditions over the projected period, including growth rates in revenues and costs, and estimates of future expected changes in operating margins and capital expenditures. If the carrying value of the asset group is higher than its undiscounted net future cash flows, the asset group is measured at fair value and the difference is recorded as a reduction to the long-lived assets. We estimate fair value using a market approach, an income approach or a cost approach. For the year ended December 31, 2021, we concluded that an event triggering the need for an impairment assessment did not occur.

Interest Rate Risk

Interest payable on our senior notes is at fixed rates. Interest payable under our ABL Facility is at a variable rate based upon the applicable base rate plus the applicable base rate margin depending on the excess availability. As of December 31, 2021, we had \$1,609 million outstanding under our ABL Facility. An increase in prevailing interest rates would increase interest expense and interest paid for any outstanding borrowings under our ABL Facility. For example, a 100 basis point change to interest rates under our ABL Facility at the December 31, 2021 borrowing level would result in a change of \$16 million to interest expense on an annual basis.

Additionally, a portion of our borrowing capacity and outstanding indebtedness under the ABL Facility bears interest at a variable rate based on LIBOR. For a discussion of the attendant risk, see *Part I - Item 1A, Risk Factors - III. Financial Risks - Our existing and future indebtedness may limit cash flow available to invest in the ongoing needs of our businesses, which could prevent us from fulfilling our obligations under our senior notes, ABL Facility and other debt, and we may be forced to take other actions to satisfy our obligations under our debt, which may not be successful.*

Supply Concentration Risks

Many of our operations and mines rely on one source for each of electric power and natural gas. A significant interruption or change in service or rates from our energy suppliers could materially impact our production costs, margins and profitability.

Recently Issued Accounting Pronouncements

Refer to NOTE 1 - BASIS OF PRESENTATION AND SIGNIFICANT ACCOUNTING POLICIES of the consolidated financial statements for a description of recent accounting pronouncements, including the respective dates of adoption and effects on results of operations and financial condition.

Critical Accounting Estimates

Management's discussion and analysis of financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with GAAP. Preparation of financial statements requires management to make assumptions, estimates and judgments that affect the reported amounts of assets, liabilities, revenues, costs and expenses, and the related disclosures of contingencies. Management bases its estimates on various assumptions and historical experience, which are believed to be reasonable; however, due to the inherent nature of estimates, actual results may differ significantly due to changed conditions or assumptions. On a regular basis, management reviews the accounting policies, assumptions, estimates and judgments to ensure that our financial statements are fairly presented in accordance with GAAP. However, because future events and their effects cannot be determined with certainty, actual results could differ from our assumptions and estimates, and such differences could be material. Management believes that the following critical accounting estimates and judgments have a significant impact on our financial statements.

Business Combinations

Assets acquired and liabilities assumed in a business combination are recognized and measured based on their estimated fair values at the acquisition date, while the acquisition-related costs are expensed as incurred. Any excess of the purchase consideration when compared to the fair value of the net tangible and intangible assets acquired, if any, is recorded as goodwill. We engaged independent valuation specialists to assist with the

determination of the fair value of assets acquired, liabilities assumed, noncontrolling interest, and goodwill, for the acquisitions. If the initial accounting for the business combination is incomplete by the end of the reporting period in which the acquisition occurs, an estimate will be recorded. Subsequent to the acquisition date, and not later than one year from the acquisition date, we will record any material adjustments to the initial estimate based on new information obtained that would have existed as of the date of the acquisition. Any adjustment that arises from information obtained that did not exist as of the date of the acquisition will be recorded in the period the adjustment arises.

Valuation of Goodwill and Other Long-Lived Assets

The valuation of goodwill and other long-lived assets includes various assumptions and are considered critical accounting estimates. Refer to "–Market Risks" above for additional information.

Mineral Reserves

We regularly evaluate, and engage QPs to review and validate, our mineral reserves and update them as required in accordance with Subpart 1300 of Regulation S-K. We perform an in-depth evaluation of our mineral reserve estimates by mine on a periodic basis, in addition to routine annual assessments. The determination of mineral reserves requires us and third-party QPs to make significant estimates and assumptions related to key inputs, including, but not limited to, (1) the determination of the size and scope of the iron ore body through technical modeling, (2) the estimates of future iron ore prices, production costs and capital expenditures, and (3) management's mine plan for the proven and probable mineral reserves. The significant estimates and assumptions could be affected by future industry conditions, geological conditions and ongoing mine planning. Additional capital and development expenditures may be required to maintain effective production capacity. Generally, as mining operations progress, haul distances increase. Alternatively, changes in economic conditions or the expected quality of mineral resources and reserves could decrease effective production capacity. Technological progress could alleviate such factors or increase capacity of mineral reserves.

We use our mineral reserve estimates, combined with our estimated annual production levels, to determine the mine closure dates utilized in recording the fair value liability for asset retirement obligations for our active operating mines. Refer to NOTE 14 - ASSET RETIREMENT OBLIGATIONS, for further information. Since the liability represents the present value of the expected future obligation, a significant change in mineral reserves or mine lives could have a substantial effect on the recorded obligation. We also utilize mineral reserves for evaluating potential impairments of mine asset groups as they are indicative of future cash flows and in determining maximum useful lives utilized to calculate depreciation, depletion and amortization of long-lived mine assets and in determining the estimated fair value of mineral reserves established through the purchase price allocation in a business combination. The consolidated asset retirement obligation balance was \$449 million as of December 31, 2021, of which \$208 million related to active iron ore mine operations. The total asset balance associated with our Steelmaking reportable segment was \$18,326 million as of December 31, 2021, of which \$1,622 million related to long-lived assets associated with our combined iron ore mine asset groups, and is inclusive of \$231 million related to iron ore mineral reserves acquired through the AM USA Transaction. Depreciation, depletion and amortization expense for our combined iron ore mine asset groups was \$172 million for the year ended December 31, 2021. Increases or decreases in mineral reserves or mine lives could significantly affect these items.

Asset Retirement Obligations

The accrued closure obligation is predominantly related to our indefinitely idled and closed iron ore mining operations and provides for contractual and legal obligations associated with the eventual closure of those operations. We perform an in-depth evaluation of the liability every three years in addition to our routine annual assessments. In 2020, we employed third-party specialists to assist in the evaluation. Our obligations are determined based on detailed estimates adjusted for factors that a market participant would consider (e.g., inflation, overhead and profit), which are escalated at an assumed rate of inflation to the estimated closure dates and then discounted using the current credit-adjusted risk-free interest rate. The estimate also incorporates incremental increases in the closure cost estimates and changes in estimates of mine lives for our active mine sites. The closure date for each of our active mine sites is determined based on the exhaustion date of the remaining mineral reserves, which is dependent on our estimate of mineral reserves. The estimated obligations for our active mine sites are particularly sensitive to the impact of changes in mine lives given the difference between the inflation and discount rates. The closure dates for a majority of our steelmaking facilities are indefinite, and as such, the asset retirement obligations are recorded at present values using estimated ranges of the economic lives of the underlying assets. Changes in the base estimates of legal and contractual closure costs due to changes in legal or contractual requirements, available technology,

inflation, overhead or profit rates also could have a significant impact on the recorded obligations. Refer to NOTE 14 - ASSET RETIREMENT OBLIGATIONS, for further information.

Environmental Remediation Costs

We have a formal policy for environmental protection and remediation. Our obligations for known environmental matters at active and closed operations have been recognized based on estimates of the cost of investigation and remediation at each facility. If the obligation can only be estimated as a range of possible amounts, with no specific amount being more likely, the minimum of the range is accrued. Management reviews its environmental remediation sites quarterly to determine if additional cost adjustments or disclosures are required. The characteristics of environmental remediation obligations, where information concerning the nature and extent of clean-up activities is not immediately available and which are subject to changes in regulatory requirements, result in a significant risk of increase to the obligations as they mature. Expected future expenditures are discounted to present value unless the amount and timing of the cash disbursements cannot be reasonably estimated.

Income Taxes

Our income tax expense, deferred tax assets and liabilities and reserves for unrecognized tax benefits reflect management's best assessment of estimated future taxes to be paid. We are subject to income taxes in the U.S. and various foreign jurisdictions. Significant judgments and estimates are required in determining the consolidated income tax expense.

Deferred income taxes arise from temporary differences between tax and financial statement recognition of revenue and expense. In evaluating our ability to recover our deferred tax assets, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial operations. In projecting future taxable income, we begin with historical results adjusted for the results of discontinued operations and changes in accounting policies and incorporate assumptions including the amount of future state, federal and foreign pretax operating income, the reversal of temporary differences, and the implementation of feasible and prudent tax planning strategies. These assumptions require significant judgment about the forecasts of future taxable income and are consistent with the plans and estimates we are using to manage the underlying businesses.

At December 31, 2021 and 2020, we had a valuation allowance of \$409 million and \$836 million, respectively, against our deferred tax assets. Of these amounts, \$70 million and \$439 million relate to the U.S. deferred tax assets at December 31, 2021 and 2020, respectively, and \$339 million and \$397 million relate to foreign deferred tax assets, respectively.

Our losses in Luxembourg in recent periods represent sufficient negative evidence to require a full valuation allowance against the deferred tax assets in that jurisdiction. We intend to maintain a valuation allowance against the deferred tax assets related to these operating losses, unless and until sufficient positive evidence exists to support the realization of such assets.

Changes in tax laws and rates also could affect recorded deferred tax assets and liabilities in the future. The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in various jurisdictions across our global operations. The ultimate impact of U.S. income tax reform legislation may differ from our current estimates due to changes in the interpretations and assumptions made as well as additional regulatory guidance that may be issued.

Accounting for uncertainty in income taxes recognized in the financial statements requires that a tax benefit from an uncertain tax position be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on technical merits.

We recognize tax liabilities in accordance with ASC 740, *Income Taxes*, and we adjust these liabilities when our judgment changes because of evaluation of new information not previously available. Due to the complexity of some of these uncertainties, the ultimate resolution may result in payment that is materially different from our current estimate of the tax liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which they are determined. Refer to NOTE 12 - INCOME TAXES, for further information.

Employee Retirement Benefit Obligations

We offer defined benefit pension plans, defined contribution pension plans and OPEB plans, primarily consisting of retiree healthcare benefits, to most employees in North America as part of a total compensation and benefits program.

The following is a summary of our U.S. defined benefit pension and OPEB funding and expense:

	Pension		OPEB	
	Funding	Expense (Benefit)	Funding	Expense (Benefit)
2019	\$ 16	\$ 22	\$ 4	\$ (2)
2020	50	(31)	25	8
2021¹	163	(189)	180	86
2022 (Estimated)	4	(179)	138	72

¹ The 2021 pension funding includes \$118 million that was deferred as a result of the CARES Act.

Assumptions used in determining the benefit obligations and the value of plan assets for defined benefit pension plans and OPEB plans, primarily consisting of retiree healthcare benefits, that we offer are evaluated periodically by management. Critical assumptions, such as the discount rate used to measure the benefit obligations, the expected long-term rate of return on plan assets, the medical care cost trend, and the rate of compensation increase are reviewed annually.

The following represents weighted-average assumptions used to determine benefit obligations and net benefit costs:

	Pension		Other Benefits	
	December 31,		December 31,	
	2021	2020	2021	2020
Discount rate	2.75 %	2.34 %	3.01 %	2.71 %
Compensation rate increase	2.52	2.56	3.00	3.00
Expected return on plan assets	6.84	7.69	5.20	6.82

For the pension plans, the weighted-average expected return on plan assets for 2022 is 6.87%, an increase from 6.84% in 2021. For the OPEB plans, the weighted-average expected return on plan assets for 2022 is 4.86%, a decrease from 5.20% in 2021.

The following represents assumed weighted-average health care cost trend rates:

	December 31,	
	2021	2020
Health care cost trend rate assumed for next year	2.36 %	6.05
Ultimate health care cost trend rate	4.50	4.59
Year that the ultimate rate is reached	2031	2031

The discount rates used to measure plan liabilities as of the December 31 measurement date are determined individually for each plan. The discount rates are determined by matching the projected cash flows used to determine the plan liabilities to a projected yield curve of high-quality corporate bonds available at the measurement date. Discount rates for expense are calculated using the granular approach for each plan.

Depending on the plan, we use either company-specific base mortality tables or tables issued by the Society of Actuaries. We use the Pri-2012 mortality tables from the Society of Actuaries with adjustments for blue collar, white collar or no collar depending on the plan. On December 31, 2021, the assumed mortality improvement projection was updated from generational scale MP-2020 to generational scale MP-2021 for the Pri-2012 mortality tables.

Following are sensitivities of potential further changes in these key assumptions on the estimated 2022 pension and OPEB expense and the pension and OPEB obligations as of December 31, 2021:

	(In Millions)					
	Increase (Decrease) in Expense			Increase in Benefit Obligation		
	Pension	OPEB	Total	Pension	OPEB	Total
Decrease discount rate 0.25%	\$ (3)	\$ 6	\$ 3	\$ 147	\$ 111	\$ 258
Decrease return on assets 1.00%	54	8	62	N/A	N/A	N/A

Changes in actuarial assumptions, including discount rates, employee retirement rates, mortality, compensation levels, plan asset investment performance and healthcare costs, are determined based on analyses of actual and expected factors. Changes in actuarial assumptions and/or investment performance of plan assets may have a significant impact on our financial condition due to the magnitude of our retirement obligations.

Refer to NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for further information.

Forward-Looking Statements

This report contains statements that constitute "forward-looking statements" within the meaning of the federal securities laws. As a general matter, forward-looking statements relate to anticipated trends and expectations rather than historical matters. Forward-looking statements are subject to uncertainties and factors relating to our operations and business environment that are difficult to predict and may be beyond our control. Such uncertainties and factors may cause actual results to differ materially from those expressed or implied by the forward-looking statements. These statements speak only as of the date of this report, and we undertake no ongoing obligation, other than that imposed by law, to update these statements. Investors are cautioned not to place undue reliance on forward-looking statements. Uncertainties and risk factors that could affect our future performance and cause results to differ from the forward-looking statements in this report include, but are not limited to:

- disruptions to our operations relating to the ongoing COVID-19 pandemic, including the heightened risk that a significant portion of our workforce or on-site contractors may suffer illness or otherwise be unable to perform their ordinary work functions;
- continued volatility of steel, iron ore and scrap metal market prices, which directly and indirectly impact the prices of the products that we sell to our customers;
- uncertainties associated with the highly competitive and cyclical steel industry and our reliance on the demand for steel from the automotive industry, which has been experiencing a trend toward light weighting and supply chain disruptions, such as the semiconductor shortage, that could result in lower steel volumes being consumed;
- potential weaknesses and uncertainties in global economic conditions, excess global steelmaking capacity, oversupply of iron ore, prevalence of steel imports and reduced market demand, including as a result of the prolonged COVID-19 pandemic;
- severe financial hardship, bankruptcy, temporary or permanent shutdowns or operational challenges, due to the ongoing COVID-19 pandemic or otherwise, of one or more of our major customers, including customers in the automotive market, key suppliers or contractors, which, among other adverse effects, could lead to reduced demand for our products, increased difficulty collecting receivables, and customers and/or suppliers asserting force majeure or other reasons for not performing their contractual obligations to us;
- risks related to U.S. government actions with respect to Section 232, the USMCA and/or other trade agreements, tariffs, treaties or policies, as well as the uncertainty of obtaining and maintaining effective antidumping and countervailing duty orders to counteract the harmful effects of unfairly traded imports;
- impacts of existing and increasing governmental regulation, including potential environmental regulations relating to climate change and carbon emissions, and related costs and liabilities, including failure to receive or maintain required operating and environmental permits, approvals, modifications or other authorizations of, or from, any governmental or regulatory authority and costs related to implementing

- improvements to ensure compliance with regulatory changes, including potential financial assurance requirements;
- potential impacts to the environment or exposure to hazardous substances resulting from our operations;
 - our ability to maintain adequate liquidity, our level of indebtedness and the availability of capital could limit our financial flexibility and cash flow necessary to fund working capital, planned capital expenditures, acquisitions, and other general corporate purposes or ongoing needs of our business;
 - our ability to reduce our indebtedness or return capital to shareholders within the currently expected timeframes or at all;
 - adverse changes in credit ratings, interest rates, foreign currency rates and tax laws;
 - the outcome of, and costs incurred in connection with, lawsuits, claims, arbitrations or governmental proceedings relating to commercial and business disputes, environmental matters, government investigations, occupational or personal injury claims, property damage, labor and employment matters, or suits involving legacy operations and other matters;
 - supply chain disruptions or changes in the cost or quality of energy sources, including electricity, natural gas and diesel fuel, or critical raw materials and supplies, including iron ore, industrial gases, graphite electrodes, scrap metal, chrome, zinc, coke and metallurgical coal;
 - problems or disruptions associated with transporting products to our customers, moving manufacturing inputs or products internally among our facilities, or suppliers transporting raw materials to us;
 - uncertainties associated with natural or human-caused disasters, adverse weather conditions, unanticipated geological conditions, critical equipment failures, infectious disease outbreaks, tailings dam failures and other unexpected events;
 - disruptions in, or failures of, our information technology systems, including those related to cybersecurity;
 - liabilities and costs arising in connection with any business decisions to temporarily idle or permanently close an operating facility or mine, which could adversely impact the carrying value of associated assets and give rise to impairment charges or closure and reclamation obligations, as well as uncertainties associated with restarting any previously idled operating facility or mine;
 - our ability to realize the anticipated synergies and benefits of our recent acquisition transactions and to successfully integrate the acquired businesses into our existing businesses, including uncertainties associated with maintaining relationships with customers, vendors and employees and known and unknown liabilities we assumed in connection with the acquisitions;
 - our level of self-insurance and our ability to obtain sufficient third-party insurance to adequately cover potential adverse events and business risks;
 - challenges to maintaining our social license to operate with our stakeholders, including the impacts of our operations on local communities, reputational impacts of operating in a carbon-intensive industry that produces GHG emissions, and our ability to foster a consistent operational and safety track record;
 - our ability to successfully identify and consummate any strategic capital investments or development projects, cost-effectively achieve planned production rates or levels, and diversify our product mix and add new customers;
 - our actual economic mineral reserves or reductions in current mineral reserve estimates, and any title defect or loss of any lease, license, easement or other possessory interest for any mining property;
 - availability of workers to fill critical operational positions and potential labor shortages caused by the ongoing COVID-19 pandemic, as well as our ability to attract, hire, develop and retain key personnel;
 - our ability to maintain satisfactory labor relations with unions and employees;
 - unanticipated or higher costs associated with pension and OPEB obligations resulting from changes in the value of plan assets or contribution increases required for unfunded obligations;
 - the amount and timing of any repurchases of our common shares; and

- potential significant deficiencies or material weaknesses in our internal control over financial reporting.

For additional factors affecting our businesses, refer to *Part I – Item 1A. Risk Factors*. You are urged to carefully consider these risk factors.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Information regarding our market risk is presented under the caption "Market Risks," which is included in *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations* and is incorporated by reference and made a part hereof.

Item 8. Financial Statements and Supplementary Data
Statements of Consolidated Financial Position

Cleveland-Cliffs Inc. and Subsidiaries

	(In Millions)	
	December 31,	
	2021	2020
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 48	\$ 112
Accounts receivable, net	2,154	1,169
Inventories	5,188	3,828
Other current assets	263	189
Total current assets	7,653	5,298
Non-current assets:		
Property, plant and equipment, net	9,186	8,743
Goodwill	1,116	1,406
Other non-current assets	1,020	1,324
TOTAL ASSETS	\$ 18,975	\$ 16,771
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	\$ 2,073	\$ 1,575
Accrued employment costs	585	460
State and local taxes	138	147
Other current liabilities	765	747
Total current liabilities	3,561	2,929
Non-current liabilities:		
Long-term debt	5,238	5,390
Pension liability, non-current	578	1,224
OPEB liability, non-current	2,383	2,889
Other non-current liabilities	1,441	1,260
TOTAL LIABILITIES	13,201	13,692
Commitments and contingencies (See Note 20)		
Series B Participating Redeemable Preferred Stock - no par value		
Authorized, Issued and Outstanding - no shares (2020 - 583,273 shares)	—	738
Equity:		
Common Shares - par value \$0.125 per share		
Authorized - 1,200,000,000 shares (2020 - 600,000,000 shares);		
Issued - 506,832,537 shares (2020 - 506,832,537 shares);		
Outstanding - 500,158,955 shares (2020 - 477,517,372 shares)	63	63
Capital in excess of par value of shares	4,892	5,431
Retained deficit	(1)	(2,989)
Cost of 6,673,582 common shares in treasury (2020 - 29,315,165 shares)	(82)	(354)
Accumulated other comprehensive income (loss)	618	(133)
Total Cliffs shareholders' equity	5,490	2,018
Noncontrolling interest	284	323
TOTAL EQUITY	5,774	2,341
TOTAL LIABILITIES, REDEEMABLE PREFERRED STOCK AND EQUITY	\$ 18,975	\$ 16,771

The accompanying notes are an integral part of these consolidated financial statements.

Statements of Consolidated Operations

Cleveland-Cliffs Inc. and Subsidiaries

	(In Millions, Except Per Share Amounts)		
	Year Ended December 31,		
	2021	2020	2019
Revenues	\$ 20,444	\$ 5,354	\$ 1,990
Operating costs:			
Cost of goods sold	(15,910)	(5,102)	(1,414)
Selling, general and administrative expenses	(422)	(244)	(113)
Acquisition-related costs	(20)	(90)	(7)
Miscellaneous – net	(80)	(60)	(27)
Total operating costs	(16,432)	(5,496)	(1,561)
Operating income (loss)	4,012	(142)	429
Other income (expense):			
Interest expense, net	(337)	(238)	(101)
Gain (loss) on extinguishment of debt	(88)	130	(18)
Net periodic benefit credits (costs) other than service cost component	210	54	(1)
Other non-operating income	6	3	4
Total other expense	(209)	(51)	(116)
Income (loss) from continuing operations before income taxes	3,803	(193)	313
Income tax benefit (expense)	(773)	111	(18)
Income (loss) from continuing operations	3,030	(82)	295
Income (loss) from discontinued operations, net of tax	3	1	(2)
Net income (loss)	3,033	(81)	293
Income attributable to noncontrolling interest	(45)	(41)	—
Net income (loss) attributable to Cliffs shareholders	\$ 2,988	\$ (122)	\$ 293
Earnings (loss) per common share attributable to Cliffs shareholders - basic			
Continuing operations	\$ 5.62	\$ (0.32)	\$ 1.07
Discontinued operations	0.01	—	(0.01)
	<u>\$ 5.63</u>	<u>\$ (0.32)</u>	<u>\$ 1.06</u>
Earnings (loss) per common share attributable to Cliffs shareholders - diluted			
Continuing operations	\$ 5.35	\$ (0.32)	\$ 1.04
Discontinued operations	0.01	—	(0.01)
	<u>\$ 5.36</u>	<u>\$ (0.32)</u>	<u>\$ 1.03</u>

The accompanying notes are an integral part of these consolidated financial statements.

Statements of Consolidated Comprehensive Income

Cleveland-Cliffs Inc. and Subsidiaries

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Net income (loss)	\$ 3,033	\$ (81)	\$ 293
Other comprehensive income (loss):			
Changes in pension and OPEB, net of tax	684	181	(35)
Changes in foreign currency translation	(2)	3	—
Changes in derivative financial instruments, net of tax	69	2	—
Total other comprehensive income (loss)	751	186	(35)
Comprehensive income	3,784	105	258
Comprehensive income attributable to noncontrolling interests	(45)	(41)	—
Comprehensive income attributable to Cliffs shareholders	\$ 3,739	\$ 64	\$ 258

The accompanying notes are an integral part of these consolidated financial statements.

Statements of Consolidated Cash Flows

Cleveland-Cliffs Inc. and Subsidiaries

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
OPERATING ACTIVITIES			
Net income (loss)	\$ 3,033	\$ (81)	\$ 293
Adjustments to reconcile net income (loss) to net cash provided (used) by operating activities:			
Depreciation, depletion and amortization	897	308	85
Amortization of inventory step-up	161	96	—
Deferred income taxes	767	(101)	17
Pension and OPEB costs (credits)	(103)	(23)	20
Loss (gain) on extinguishment of debt	88	(130)	18
Other	139	(70)	93
Changes in operating assets and liabilities, net of business combination:			
Receivables and other assets	(858)	(42)	255
Inventories	(1,370)	(146)	(136)
Pension and OPEB payments and contributions	(343)	(75)	(20)
Payables, accrued expenses and other liabilities	374	6	(57)
Net cash provided (used) by operating activities	<u>2,785</u>	<u>(258)</u>	<u>568</u>
INVESTING ACTIVITIES			
Purchase of property, plant and equipment	(705)	(525)	(656)
Acquisition of FPT, net of cash acquired	(761)	—	—
Acquisition of ArcelorMittal USA, net of cash acquired	54	(658)	—
Acquisition of AK Steel, net of cash acquired	—	(869)	—
Other investing activities	33	10	12
Net cash used by investing activities	<u>(1,379)</u>	<u>(2,042)</u>	<u>(644)</u>
FINANCING ACTIVITIES			
Series B Redeemable Preferred Stock redemption	(1,343)	—	—
Proceeds from issuance of common shares	322	—	—
Repurchase of common shares	—	—	(253)
Proceeds from issuance of debt	1,000	1,763	721
Debt issuance costs	(20)	(76)	(7)
Repayments of debt	(1,372)	(1,023)	(729)
Borrowings under credit facilities	5,962	2,060	—
Repayments under credit facilities	(5,889)	(550)	—
Other financing activities	(130)	(115)	(126)
Net cash provided (used) by financing activities	<u>(1,470)</u>	<u>2,059</u>	<u>(394)</u>
Net decrease in cash and cash equivalents	(64)	(241)	(470)
Cash and cash equivalents at beginning of year	112	353	823
Cash and cash equivalents at end of year	<u>\$ 48</u>	<u>\$ 112</u>	<u>\$ 353</u>

The accompanying notes are an integral part of these consolidated financial statements.

Statements of Consolidated Changes in Equity

Cleveland-Cliffs Inc. and Subsidiaries

	(In Millions)							
	Cliffs Shareholders							Non-controlling Interest
	Number of Common Shares Outstanding	Par Value of Common Shares Issued	Capital in Excess of Par Value of Shares	Retained Earnings (Deficit)	Common Shares in Treasury	AOCI (Loss)		
December 31, 2018	293	\$ 37	\$ 3,917	\$ (3,060)	\$ (186)	\$ (284)	\$ —	\$ 424
Comprehensive income (loss)	—	—	—	293	—	(35)	—	258
Stock and other incentive plans	2	—	(44)	—	48	—	—	4
Common share repurchases	(24)	—	—	—	(253)	—	—	(253)
Common share dividends (\$0.27 per share)	—	—	—	(75)	—	—	—	(75)
December 31, 2019	271	\$ 37	\$ 3,873	\$ (2,842)	\$ (391)	\$ (319)	\$ —	\$ 358
Comprehensive income (loss)	—	—	—	(122)	—	186	41	105
Stock and other incentive plans	2	—	(24)	—	37	—	—	13
Acquisition of AK Steel	127	16	602	—	—	—	330	948
Acquisition of ArcelorMittal USA	78	10	980	—	—	—	13	1,003
Common share dividends (\$0.06 per share)	—	—	—	(25)	—	—	—	(25)
Net distributions to noncontrolling interests	—	—	—	—	—	—	(61)	(61)
December 31, 2020	478	\$ 63	\$ 5,431	\$ (2,989)	\$ (354)	\$ (133)	\$ 323	\$ 2,341
Comprehensive income (loss)	—	—	—	2,988	—	751	45	3,784
Issuance of common shares	20	—	78	—	244	—	—	322
Stock and other incentive plans	2	—	(8)	—	28	—	—	20
Series B Redeemable Preferred Stock redemption	—	—	(604)	—	—	—	—	(604)
1.500% 2025 Convertible Senior Notes redemption	—	—	(5)	—	—	—	—	(5)
Acquisition of ArcelorMittal USA - Measurement period adjustments	—	—	—	—	—	—	(22)	(22)
Net distributions to noncontrolling interests	—	—	—	—	—	—	(62)	(62)
December 31, 2021	500	\$ 63	\$ 4,892	\$ (1)	\$ (82)	\$ 618	\$ 284	\$ 5,774

The accompanying notes are an integral part of these consolidated financial statements.

Notes to Consolidated Financial Statements

Cleveland-Cliffs Inc. and Subsidiaries

NOTE 1 - BASIS OF PRESENTATION AND SIGNIFICANT ACCOUNTING POLICIES

Business, Consolidation and Presentation

Nature of Business

Cliffs is the largest flat-rolled steel producer in North America. Founded in 1847 as a mine operator, we are also the largest manufacturer of iron ore pellets in North America. We are vertically integrated from mined raw materials, direct reduced iron and ferrous scrap to primary steelmaking and downstream finishing, stamping, tooling and tubing. We serve a diverse range of markets due to our comprehensive offering of flat-rolled steel products and are the largest supplier of steel to the automotive industry in North America. Headquartered in Cleveland, Ohio, we employ approximately 26,000 people across our operations in the United States and Canada.

Unless otherwise noted, discussion of our business and results of operations in this Annual Report on Form 10-K refers to our continuing operations.

Acquisition of FPT

On November 18, 2021, we completed the acquisition of FPT. FPT is a leading prime ferrous scrap processor in the U.S. FPT's operations consist of 22 scrap facilities located primarily in the Midwest region of the United States.

Refer to NOTE 3 - ACQUISITIONS for further information.

Business Operations

We are organized into four operating segments based on differentiated products, Steelmaking, Tubular, Tooling and Stamping, and European Operations. We primarily operate through one reportable segment – the Steelmaking segment.

Basis of Consolidation

The condensed consolidated financial statements consolidate our accounts and the accounts of our wholly owned subsidiaries, all subsidiaries in which we have a controlling interest and VIEs for which we are the primary beneficiary. All intercompany transactions and balances are eliminated upon consolidation.

Investments in Affiliates

We have investments in several businesses accounted for using the equity method of accounting. These investments are included within our Steelmaking segment. We review an investment for impairment when circumstances indicate that a loss in value below its carrying amount is other than temporary.

As of December 31, 2019, our 23% ownership in Hibbing was recorded as an equity method investment. As a result of the acquisition of ArcelorMittal USA, we acquired an additional 62.3% ownership interest in Hibbing. As of both December 31, 2021 and December 31, 2020, our ownership in the Hibbing joint venture was 85.3% and was fully consolidated within our operating results with a noncontrolling interest.

Our investment in affiliates of \$ 128 million and \$ 105 million as of December 31, 2021 and 2020, respectively, was classified in *Other non-current assets*.

Significant Accounting Policies

We consider the following policies to be beneficial in understanding the judgments involved in the preparation of our consolidated financial statements and the uncertainties that could impact our financial condition, results of operations and cash flows. Certain prior period amounts have been reclassified to conform with the current year presentation.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the

reporting period. Our mineral reserves; future realizable cash flow; environmental, reclamation and closure obligations; valuation of business combinations, long-lived assets, inventory, tax assets and post-employment, post-retirement and other employee benefit liabilities; reserves for contingencies and litigation require the use of various management estimates and assumptions. Actual results could differ from estimates. Management reviews its estimates on an ongoing basis. Changes in facts and circumstances may alter such estimates and affect the results of operations and financial position in future periods.

Business Combinations

Assets acquired and liabilities assumed in a business combination are recognized and measured based on their estimated fair values at the acquisition date, while the acquisition-related costs are expensed as incurred. Any excess of the purchase consideration when compared to the fair value of the net tangible and intangible assets acquired, if any, is recorded as goodwill. We engaged independent valuation specialists to assist with the determination of the fair value of assets acquired, liabilities assumed, noncontrolling interest, and goodwill, for the acquisitions. If the initial accounting for the business combination is incomplete by the end of the reporting period in which the acquisition occurs, an estimate will be recorded. Subsequent to the acquisition date, and not later than one year from the acquisition date, we will record any material adjustments to the initial estimate based on new information obtained that would have existed as of the date of the acquisition. Any adjustment that arises from information obtained that did not exist as of the date of the acquisition will be recorded in the period the adjustment arises.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand and on deposit as well as all short-term securities held for the primary purpose of general liquidity. We routinely monitor and evaluate counterparty credit risk related to the financial institutions in which our short-term investment securities are held. Where right of offset exists, we report cash balances net.

Trade Accounts Receivable and Allowance for Credit Loss

Trade accounts receivable are recorded at the point control transfers and represent the amount of consideration we expect to receive in exchange for transferred goods and do not bear interest. We establish provisions for expected lifetime losses on accounts receivable at the time a receivable is recorded based on historical experience, customer credit quality and forecasted economic conditions. We regularly review our accounts receivable balances and the allowance for credit loss and establish or adjust the allowance as necessary using the specific identification method in accordance with CECL. We evaluate the aggregation and risk characteristics of receivable pools and develop loss rates that reflect historical collections, current forecasts of future economic conditions over the time horizon we are exposed to credit risk, and payment terms or conditions that may materially affect future forecasts.

Inventories

Inventories are generally stated at the lower of cost or net realizable value using average cost, excluding depreciation and amortization. Certain iron ore inventories are stated at the lower of cost or market using the LIFO method.

Refer to NOTE 2 - SUPPLEMENTARY FINANCIAL STATEMENT INFORMATION for further information.

Derivative Financial Instruments and Hedging Activities

We are exposed to certain risks related to the ongoing operations of our business, including those caused by changes in commodity prices and energy rates. We have established policies and procedures, including the use of certain derivative instruments, to manage such risks.

Derivative financial instruments are recognized as either assets or liabilities in the Statements of Consolidated Financial Position and measured at fair value. On the date a qualifying hedging instrument is executed, we designate the hedging instrument as a hedge of the variability of cash flows to be received or paid related to a forecasted transaction (cash flow hedge). We formally document all relationships between hedging instruments and hedged items, as well as our risk-management objective and strategy for undertaking various hedge transactions. This process includes linking all derivatives that are designated as cash flow hedges to specific firm commitments or forecasted transactions. We also formally assess, both at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in cash flows of the related hedged items. When it is determined that a derivative is not highly effective as a hedge, we discontinue hedge

accounting prospectively and record all future changes in fair value in the period of the instrument's earnings or losses.

For derivative instruments that have been designated as cash flow hedges, the changes in fair value are recorded in *Accumulated other comprehensive income (loss)*. Amounts recorded in *Accumulated other comprehensive income (loss)* are reclassified to earnings or losses in the period the underlying hedged transaction affects earnings or when the underlying hedged transaction is no longer reasonably possible of occurring.

For derivative instruments that have not been designated as cash flow hedges, changes in fair value are recorded in the period of the instrument's earnings or losses.

Property, Plant and Equipment

Our properties are stated at cost less accumulated depreciation. Depreciation of plant and equipment is computed principally by the straight-line method based on estimated useful lives. Depreciation continues to be recognized when operations are idled temporarily. Depreciation and depletion are recorded over the following estimated useful lives:

Asset Class	Basis	Life
Land, land improvements and mineral rights		
Land and mineral rights	Units of production	Life of mine
Land improvements	Straight line	20 to 45 years
Buildings	Straight line	20 to 45 years
Equipment	Straight line/Double declining balance	3 to 27 years

Refer to NOTE 6 - PROPERTY, PLANT AND EQUIPMENT for further information.

Goodwill

Goodwill represents the excess purchase price paid over the fair value of the net assets from an acquisition. Goodwill is not amortized for financial statement purposes, but it is assessed for impairment on an annual basis on October 1 (or more frequently if necessary).

Refer to NOTE 3 - ACQUISITIONS and NOTE 7 - GOODWILL AND INTANGIBLE ASSETS AND LIABILITIES for further information.

Other Intangible Assets and Liabilities

Intangible assets and liabilities are subject to periodic amortization on a straight-line basis over their estimated useful lives.

Refer to NOTE 3 - ACQUISITIONS and NOTE 7 - GOODWILL AND INTANGIBLE ASSETS AND LIABILITIES for further information.

Leases

We determine if an arrangement contains a lease at inception. We recognize right-of-use assets and lease liabilities associated with leases based on the present value of the future minimum lease payments over the lease term at the commencement date. Lease terms reflect options to extend or terminate the lease when it is reasonably certain that the option will be exercised. For short-term leases (leases with an initial lease term of 12 months or less), right-of-use assets and lease liabilities are not recognized in the consolidated balance sheet. Operating lease expense is recognized on a straight-line basis over the lease term.

Refer to NOTE 13 - LEASE OBLIGATIONS for further information.

Asset Impairment

We monitor conditions that may affect the carrying value of our long-lived tangible and intangible assets when events and circumstances indicate that the carrying value of the asset groups may not be recoverable. In order to determine if assets have been impaired, assets are grouped and tested at the lowest level for which identifiable, independent cash flows are available ("asset group"). The measurement of the impairment loss to be recognized is

based on the difference between the fair value and the carrying value of the asset group. Fair value can be determined using a market approach, income approach or cost approach.

For the years ended December 31, 2021, 2020 and 2019, no impairment indicators were present that would indicate the carrying value of any of our asset groups may not be recoverable; as a result, no impairment assessments were required.

Fair Value Measurements

ASC Topic 820, *Fair Value Measurements and Disclosures*, establishes a three-level valuation hierarchy for classification of fair value measurements. The valuation hierarchy is based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date. Inputs refer broadly to the assumptions that market participants would use in pricing an asset or liability. Inputs may be observable or unobservable. Observable inputs are inputs that reflect the assumptions market participants would use in pricing the asset or liability developed based on market data obtained from independent sources. Unobservable inputs are inputs that reflect our own views about the assumptions market participants would use in pricing the asset or liability developed based on the best information available in the circumstances. The three-tier hierarchy of inputs is summarized below:

- Level 1 — Valuation is based upon quoted prices (unadjusted) for identical assets or liabilities in active markets.
- Level 2 — Valuation is based upon quoted prices for similar assets and liabilities in active markets, or other inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.
- Level 3 — Valuation is based upon other unobservable inputs that are significant to the fair value measurement.

The classification of assets and liabilities within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement in its entirety.

Refer to NOTE 9 - FAIR VALUE OF FINANCIAL INSTRUMENTS and NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for further information.

Pensions and Other Postretirement Benefits

We offer defined benefit pension plans, defined contribution pension plans and OPEB plans, primarily consisting of retiree healthcare benefits as part of our total compensation and benefits programs.

We recognize the funded or unfunded status of our pension and OPEB obligations on the Statements of Consolidated Financial Position based on the difference between the market value of plan assets and the actuarial present value of our retirement obligations on that date, on a plan-by-plan basis. If the plan assets exceed the pension and OPEB obligations, the amount of the surplus is recorded as an asset; if the pension and OPEB obligations exceed the plan assets, the amount of the underfunded obligations is recorded as a liability. Year-end balance sheet adjustments to pension and OPEB assets and obligations are recorded as *Accumulated other comprehensive income (loss)* in the Statements of Consolidated Financial Position.

The actuarial estimates of the PBO and APBO incorporate various assumptions including the discount rates, the rates of increases in compensation, healthcare cost trend rates, mortality, retirement timing and employee turnover. The discount rate is determined based on the prevailing year-end rates for high-grade corporate bonds with a duration matching the expected cash flow timing of the benefit payments from the various plans. The remaining assumptions are based on our estimates of future events by incorporating historical trends and future expectations. The amount of net periodic cost that is recorded in the Statements of Consolidated Operations consists of several components including service cost, interest cost, expected return on plan assets, and amortization of previously unrecognized amounts. Service cost represents the value of the benefits earned in the current year by the participants. Interest cost represents the cost associated with the passage of time. Certain items, such as plan amendments, gains and/or losses resulting from differences between actual and assumed results for demographic and economic factors affecting the obligations and assets of the plans, and changes in other assumptions are subject to deferred recognition for income and expense purposes. The expected return on plan assets is calculated on a plan-by-plan basis using each plan's strategic asset allocation and our expected long-term capital market return assumptions. Service costs are classified within *Cost of goods sold*, *Selling, general and administrative expenses* and *Miscellaneous – net* while the interest cost, expected return on assets, amortization of prior service costs/credits,

net actuarial gain/loss, and other costs are classified within *Net periodic benefit credits (costs) other than service cost component*.

Refer to NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for further information.

Labor Agreements

At December 31, 2021, we employed approximately 26,000 people, of which approximately 18,500 were represented by labor unions under various agreements. We have ten agreements that expire in 2022 and three agreements that expire in 2023. Workers at some of our North American facilities are covered by agreements with the USW, UAW and IAM, as well as several other smaller unions that have various expiration dates.

Asset Retirement Obligations

Asset retirement obligations are recognized when incurred and recorded as liabilities at fair value. The fair value of the liability is determined as the discounted value of the expected future cash flows. The asset retirement obligation is accreted over time through periodic charges to earnings. In addition, the asset retirement cost is capitalized and amortized over the life of the related asset. Reclamation costs are adjusted periodically to reflect changes in the estimated present value resulting from the passage of time and revisions to the estimates of either the timing or amount of the reclamation costs. We review, on an annual basis, unless otherwise deemed necessary, the asset retirement obligation for each applicable operation in accordance with the provisions of *ASC Topic 410, Asset Retirement and Environmental Obligations*. We perform an in-depth evaluation of the liability every three years in addition to our routine annual assessments.

Future reclamation costs for inactive operations are accrued based on management's best estimate at the end of each period of the costs expected to be incurred at a site. Such cost estimates include, where applicable, ongoing maintenance and monitoring costs. Changes in estimates at inactive operations are reflected in earnings in the period an estimate is revised.

Refer to NOTE 14 - ASSET RETIREMENT OBLIGATIONS for further information.

Environmental Remediation Costs

Certain of our operating activities are subject to various laws and regulations governing protection of the environment. We conduct our operations to protect the public health and environment and believe our operations are in compliance with applicable laws and regulations in all material respects. Our environmental liabilities, including obligations for known environmental remediation exposures, have been recognized based on the estimated cost of investigation and remediation at each site. If the cost can only be estimated as a range of possible amounts with no point in the range being more likely, the minimum of the range is accrued. Future expenditures are discounted unless the amount and timing of the cash disbursements cannot be reasonably estimated. It is possible that additional environmental obligations could be incurred, the extent of which cannot be assessed. Potential insurance recoveries have not been reflected in the determination of the liabilities.

Refer to NOTE 20 - COMMITMENTS AND CONTINGENCIES for further information.

Revenue Recognition

Sales are recognized when our performance obligations are satisfied. Generally, our performance obligations are satisfied, control of our products is transferred and revenue is recognized at a single point in time, when title transfers to our customer for product shipped according to shipping terms. Shipping and other transportation costs charged to customers are treated as fulfillment activities and are recorded in both revenue and cost of sales at the time control is transferred to the customer.

Refer to NOTE 4 - REVENUES for further information.

Repairs and Maintenance

Repairs, maintenance and replacement of components are expensed as incurred. The cost of major equipment overhauls is capitalized and depreciated over the estimated useful life, which is the period until the next scheduled overhauls. All other planned and unplanned repairs and maintenance costs are expensed when incurred.

Share-Based Compensation

The fair value of each performance share grant is estimated on the date of grant using a Monte Carlo simulation to forecast relative TSR performance. A correlation matrix of historical and projected stock prices was developed for both the Company and its predetermined peer group of mining and metals companies. The fair value assumes that the performance objective will be achieved. The expected term of the grant represents the time from the grant date to the end of the service period. We estimate the volatility of our common shares and that of the peer group of mining and metals companies using daily price intervals for all companies. The risk-free interest rate is the rate at the grant date on zero-coupon government bonds, with a term commensurate with the remaining performance period.

The fair value of the restricted stock units is determined based on the closing price of our common shares on the grant date.

Upon vesting of share-based compensation awards, we issue shares from treasury shares before issuing new shares. Forfeitures are recognized when they occur.

The fair value of stock options is estimated on the date of grant using a Black-Scholes model using the grant date price of our common shares, the option exercise price, the option's expected term, the volatility of our common shares, the risk-free interest rate and the dividend yield over the option's expected term.

Refer to NOTE 11 - STOCK COMPENSATION PLANS for additional information.

Income Taxes

Income taxes are based on income for financial reporting purposes, calculated using tax rates by jurisdiction, and reflect a current tax liability or asset for the estimated taxes payable or recoverable on the current year tax return and expected annual changes in deferred taxes. Any interest or penalties on income tax are recognized as a component of *Income tax benefit (expense)*.

We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined based on the differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized within *Net income (loss)* in the period that includes the enactment date.

We record net deferred tax assets to the extent we believe these assets will more likely than not be realized. In making such determination, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies and recent financial results of operations.

Accounting for uncertainty in income taxes recognized in the financial statements requires that a tax benefit from an uncertain tax position be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on technical merits.

Refer to NOTE 12 - INCOME TAXES for further information.

Foreign Currency

Our financial statements are prepared with the U.S. dollar as the reporting currency, and the functional currency of all subsidiaries is the U.S. dollar, except for our European Operations for which the functional currency is the Euro.

Earnings Per Share

We present both basic and diluted EPS amounts for continuing operations and discontinued operations. Total basic EPS amounts are calculated by dividing *Net income (loss) attributable to Cliffs shareholders*, less the earnings allocated to our Series B Participating Redeemable Preferred Stock, by the weighted average number of common shares outstanding during the period presented.

Total diluted EPS amounts are calculated by dividing *Net income (loss) attributable to Cliffs shareholders* by the weighted average number of common shares, common share equivalents under stock plans using the treasury-stock method, common share equivalents of the Series B Participating Redeemable Preferred Stock using the if-

converted method and the calculated common share equivalents in excess of the conversion rate related to our 1.500% 2025 Convertible Senior Notes using the treasury-stock method. Common share equivalents are excluded from EPS computations in the periods in which they have an anti-dilutive effect.

Refer to NOTE 8 - DEBT AND CREDIT FACILITIES and NOTE 19 - EARNINGS PER SHARE for further information.

Variable Interest Entities

We assess whether we have a variable interest in legal entities in which we have a financial relationship and, if so, whether or not those entities are VIEs. A VIE is an entity with insufficient equity at risk for the entity to finance its activities without additional subordinated financial support or in which equity investors lack the characteristics of a controlling financial interest. If an entity is determined to be a VIE, we evaluate whether we are the primary beneficiary. The primary beneficiary analysis is a qualitative analysis based on power and economics. We conclude that we are the primary beneficiary and consolidate the VIE if we have both (i) the power to direct the activities of the VIE that most significantly influence the VIE's economic performance and (ii) the obligation to absorb losses of, or the right to receive benefits from, the VIE that could potentially be significant to the VIE.

Refer to NOTE 18 - VARIABLE INTEREST ENTITIES for additional information.

Recent Accounting Pronouncements

Issued and Not Effective

In August 2020, the FASB issued *ASU 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40)*. This update requires certain convertible instruments to be accounted for as a single liability measured at its amortized cost. Additionally, the update requires the use of the "if-converted" method, removing the treasury stock method, when calculating diluted shares. The two methods of adoption are the full and modified retrospective approaches. We expect to utilize the modified retrospective approach. Using this approach, the guidance shall be applied to transactions outstanding as of the beginning of the fiscal year in which the amendment is adopted. Subsequent to the year ended December 31, 2021, we redeemed all of our outstanding 1.500% 2025 Convertible Senior Notes; therefore, there will be no impact as a result of our adoption of this update as of January 1, 2022. Refer to NOTE 21 - SUBSEQUENT EVENTS for further information.

NOTE 2 - SUPPLEMENTARY FINANCIAL STATEMENT INFORMATION

Allowance for Credit Losses

The following is a roll-forward of our allowance for credit losses associated with *Accounts receivable, net*:

	(In Millions)	
	2021	2020
Allowance for credit losses as of January 1	\$ (5)	\$ —
Decrease (increase) in allowance	1	(5)
Allowance for credit losses as of December 31	\$ (4)	\$ (5)

Inventories

The following table presents the detail of our *Inventories* in the Statements of Consolidated Financial Position:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Product inventories		
Finished and semi-finished goods	\$ 2,814	\$ 2,125
Raw materials	2,070	1,431
Total product inventories	4,884	3,556
Manufacturing supplies and critical spares	304	272
Inventories	<u>\$ 5,188</u>	<u>\$ 3,828</u>

The excess of current cost over LIFO cost of iron ore inventories was \$ 124 million and \$104 million at December 31, 2021 and 2020, respectively. As of December 31, 2021, the product inventory balance for iron ore inventories increased, resulting in a LIFO increment in 2021. The effect of the inventory build was an increase in *Inventories* of \$45 million in the Statements of Consolidated Operations for the year ended December 31, 2021. As of December 31, 2020, the product inventory balance for iron ore inventories decreased, resulting in the liquidation of a LIFO layer. The effect of the inventory reduction was an increase in *Cost of goods sold* of \$30 million in the Statements of Consolidated Operations for the year ended December 31, 2020.

Cash Flow Information

A reconciliation of capital additions to cash paid for capital expenditures is as follows:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Capital additions	\$ 857	\$ 483	\$ 690
Less:			
Non-cash accruals	102	(86)	15
Right-of-use assets - finance leases	50	44	29
Grants	—	—	(10)
Cash paid for capital expenditures including deposits	<u>\$ 705</u>	<u>\$ 525</u>	<u>\$ 656</u>

Cash payments (receipts) for interest and income taxes are as follows:

	(In Millions)		
	2021	2020	2019
Taxes paid on income	\$ 166	\$ 5	\$ —
Income tax refunds	(16)	(120)	(118)
Interest paid on debt obligations net of capitalized interest ¹	299	170	98

¹ Capitalized interest was \$6 million, \$53 million and \$25 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Other Non-Cash Investing and Financing Activities

	(In Millions)		
	2021	2020	2019
Fair value of settlement of a pre-existing relationship as part of consideration in connection with FPT Acquisition	\$ (20)	\$ —	\$ —
Fair value of common shares issued as part of consideration in connection with AM USA Transaction	—	990	—
Fair value of Series B Participating Redeemable Preferred Stock issued as part of consideration in connection with AM USA Transaction	—	738	—
Fair value of settlement of a pre-existing relationship as part of consideration in connection with AM USA Transaction	—	237	—
Fair value of common shares issued as consideration in connection with AK Steel Merger	—	618	—
Fair value of equity awards assumed in connection with AK Steel Merger	—	4	—

NOTE 3 - ACQUISITIONS

In 2020, we acquired two major steelmakers, AK Steel and ArcelorMittal USA, vertically integrating our legacy iron ore business with steel production. In 2021, we also entered into the scrap business with the FPT Acquisition. We are vertically integrated from mined raw materials, direct reduced iron and ferrous scrap to primary steelmaking and downstream finishing, stamping, tooling and tubing. We now have a presence across the entire steel manufacturing process, from mining to pelletizing to the development and production of finished high value steel products. The AK Steel Merger combined Cliffs, a historic producer of iron ore pellets, with AK Steel, a producer of flat-rolled carbon, stainless and electrical steel products, to create a vertically integrated producer of value-added iron ore and steel products. The AM USA Transaction transformed us into a fully-integrated steel enterprise with the size and scale to expand product offerings and improve through-the-cycle margins. The FPT Acquisition gives us a competitive advantage in sourcing prime scrap, a key raw material for our steelmaking facilities.

FPT Acquisition

Overview

On November 18, 2021, pursuant to the FPT Acquisition Agreement, we completed the FPT Acquisition, in which we were the acquirer. Following the FPT Acquisition, the operating results of FPT are included in our consolidated financial statements. For the period subsequent to the FPT Acquisition (November 18, 2021 through December 31, 2021), FPT generated *Revenues* of \$153 million and a loss of \$18 million included within *Net income (loss) attributable to Cliffs shareholders*, which included \$22 million related to amortization of the fair value inventory step-up.

Additionally, we incurred acquisition-related costs, excluding severance costs, of \$ 1 million for the year ended December 31, 2021 in connection with the FPT Acquisition, which was recorded in *Acquisition-related costs* on the Statements of Consolidated Operations .

The fair value of the total purchase consideration was determined as follows:

	(In Millions)	
Cash consideration (subject to customary working capital adjustments)	\$	775
Fair value of settlement of a pre-existing relationship		(20)
Total purchase consideration	\$	755

The cash portion of the purchase price is subject to customary working capital adjustments. Additionally, if the Company decides to make any elections under Section 338(h)(10) of the IRC with respect to entities acquired in connection with the FPT Acquisition, the final cash consideration could potentially change.

Valuation Assumption and Purchase Price Allocation

We estimated fair values at November 18, 2021 for the preliminary allocation of consideration to the net tangible and intangible assets acquired and liabilities assumed in connection with the FPT Acquisition. During the measurement period, we will continue to obtain information to assist in finalizing the fair value of assets acquired and

liabilities assumed, which may differ materially from these preliminary estimates. If we determine any measurement period adjustments are material, we will apply those adjustments, including any related impacts to net income, in the reporting period in which the adjustments are determined. We are in the process of conducting a valuation of the assets acquired and liabilities assumed related to the FPT Acquisition, most notably, inventories, personal and real property, leases, investments, deferred taxes, environmental obligations and intangible assets, and the final allocation will be made when completed, including the result of any identified goodwill. Accordingly, the provisional measurements noted below are preliminary and subject to modification in the future.

The preliminary purchase price allocation to assets acquired and liabilities assumed in the FPT Acquisition was:

	(In Millions)	
	Initial Allocation of Consideration	
Cash and cash equivalents	\$	9
Accounts receivable, net		233
Inventories		137
Other current assets		4
Property, plant and equipment		179
Other non-current assets		74
Accounts payable		(122)
Accrued employment costs		(8)
State and local taxes		(1)
Other current liabilities		(8)
Other non-current liabilities		(21)
Net identifiable assets acquired		476
Goodwill		279
Total net assets acquired	\$	755

The goodwill resulting from the FPT Acquisition primarily represents the incremental benefit of providing substantial access to prime scrap for our vertically integrated steelmaking business, as well as any synergistic benefits to be realized from the FPT Acquisition within our Steelmaking segment.

The preliminary purchase price allocated to identifiable intangible assets acquired was:

	(In Millions)		Weighted Average Life (In Years)
Customer relationships	\$	18	15
Supplier relationships		18	18
Trade names and trademarks		7	15
Total identifiable intangible assets	\$	43	16

Intangible assets are classified as *Other non-current assets* on the Statements of Consolidated Financial Position.

Acquisition of ArcelorMittal USA

Overview

On December 9, 2020, pursuant to the terms of the AM USA Transaction Agreement, we purchased ArcelorMittal USA from ArcelorMittal. In connection with the closing of the AM USA Transaction, as contemplated by the terms of the AM USA Transaction Agreement, ArcelorMittal's former joint venture partner in Kote and Tek exercised its put right pursuant to the terms of the Kote and Tek joint venture agreements. As a result, we purchased all of such joint venture partner's interests in Kote and Tek. Following the closing of the AM USA Transaction, we own 100% of the interests in Kote and Tek.

We incurred acquisition-related costs, excluding severance costs, of \$ 3 million and \$26 million for the years ended December 31, 2021 and 2020, respectively, in connection with the AM USA Transaction, which were recorded in *Acquisition-related costs* on the Statements of Consolidated Operations.

The fair value of the total purchase consideration was determined as follows:

	(In Millions)
Fair value of Cliffs common shares issued	\$ 990
Fair value of Cliffs Series B Participating Redeemable Preferred Stock issued	738
Fair value of settlement of a pre-existing relationship	237
Cash consideration	639
Total purchase consideration	\$ 2,604

The fair value of Cliffs common shares issued was calculated as follows:

Number of Cliffs common shares issued	78,186,671
Closing price of Cliffs common share as of December 9, 2020	\$ 12.66
Fair value of Cliffs common shares issued (in millions)	\$ 990

The fair value of Cliffs Series B Participating Redeemable Preferred Stock issued was calculated as follows:

Number of Cliffs Series B Participating Redeemable Preferred Stock issued	583,273
Redemption price per share as of December 9, 2020	\$ 1,266
Fair value of Cliffs Series B Participating Redeemable Preferred Stock issued (in millions)	\$ 738

The fair value of the cash consideration was comprised of the following:

	(In Millions)
Cash consideration pursuant to the AM USA Transaction Agreement	\$ 505
Cash consideration for purchase of the remaining JV partner's interest of Kote and Tek	182
Total cash consideration receivable	(48)
Total cash consideration	\$ 639

The cash portion of the purchase price was subject to customary working capital adjustments, and the working capital adjustments were finalized during the second quarter of 2021. We made certain elections under Section 338(h)(10) of the IRC with respect to entities acquired in connection with the AM USA Transaction, which did not change the final cash consideration.

The fair value of the settlement of a pre-existing relationship was comprised of the following:

	(In Millions)
Accounts receivable	\$ 97
Freestanding derivative asset from customer supply agreement	140
Total fair value of settlement of a pre-existing relationship	\$ 237

Valuation Assumption and Purchase Price Allocation

The allocation of consideration to the net tangible and intangible assets acquired and liabilities assumed in connection with the AM USA Transaction was based on estimated fair values at December 9, 2020, and was finalized during the quarter ended December 31, 2021. The following is a summary of the purchase price allocation to assets acquired and liabilities assumed in the AM USA Transaction:

	(In Millions)		
	Initial Allocation of Consideration	Measurement Period Adjustments	Final Allocation Consideration as of December 31, 2021
Cash and cash equivalents	\$ 35	\$ —	\$ 35
Accounts receivable, net	349	(3)	346
Inventories	2,115	14	2,129
Other current assets	34	2	36
Property, plant and equipment	4,017	387	4,404
Deferred income taxes	—	285	285
Other non-current assets	158	7	165
Accounts payable	(736)	8	(728)
Accrued employment costs	(271)	5	(266)
State and local taxes	(76)	—	(76)
Other current liabilities	(453)	23	(430)
Pension liability, non-current	(730)	—	(730)
OPEB liability, non-current	(2,465)	—	(2,465)
Other non-current liabilities	(598)	(171)	(769)
Noncontrolling interest	(13)	21	8
Net identifiable assets acquired	1,366	578	1,944
Goodwill	1,230	(570)	660
Total net assets acquired	\$ 2,596	\$ 8	\$ 2,604

During the period subsequent to the AM USA Transaction, we made certain measurement period adjustments to the acquired assets and liabilities assumed due to clarification of information utilized to determine fair value during the measurement period. The measurement period adjustments related to the revaluation of the Company's previously held equity method investment, which is now being consolidated post-acquisition, resulting in a loss of \$31 million, within *Miscellaneous – net* for the year ended December 31, 2021.

The goodwill resulting from the acquisition of ArcelorMittal USA primarily represents the growth opportunities in the automotive, construction, appliances, infrastructure and machinery and equipment markets, as well as any synergistic benefits to be realized from the AM USA Transaction, and was assigned to our flat steel operations within our Steelmaking segment.

Acquisition of AK Steel

Overview

On March 13, 2020, pursuant to the AK Steel Merger Agreement, we completed the acquisition of AK Steel, in which we were the acquirer. As a result of the AK Steel Merger, each share of AK Steel common stock issued and outstanding immediately prior to the effective time of the AK Steel Merger (other than excluded shares) was converted into the right to receive 0.400 Cliffs common shares and, if applicable, cash in lieu of any fractional Cliffs common shares.

We incurred acquisition-related costs, excluding severance costs, of \$ 1 million and \$26 million for the years ended December 31, 2021 and 2020, respectively, in connection with the AK Steel Merger, which were recorded in *Acquisition-related costs* on the Statements of Consolidated Operations.

The fair value of the total purchase consideration was determined as follows:

	(In Millions)
Fair value of AK Steel debt	\$ 914
Fair value of Cliffs common shares issued for AK Steel outstanding common stock	618
Other	3
Total purchase consideration	\$ 1,535

The fair value of Cliffs common shares issued for outstanding shares of AK Steel common stock and with respect to Cliffs common shares underlying converted AK Steel equity awards that vested upon completion of the AK Steel Merger was calculated as follows:

	(In Millions, Except Per Share Amounts)
Number of shares of AK Steel common stock issued and outstanding	317
Exchange ratio	0.400
Shares of Cliffs common shares issued to AK Steel stockholders	127
Price per share of Cliffs common shares	\$ 4.87
Fair value of Cliffs common shares issued for outstanding AK Steel common stock	\$ 618

The fair value of AK Steel's debt included in the consideration was calculated as follows:

	(In Millions)
Credit Facility	\$ 590
7.500% Senior Secured Notes due July 2023	324
Fair value of debt included in consideration	\$ 914

Valuation Assumption and Purchase Price Allocation

The allocation of consideration to the net tangible and intangible assets acquired and liabilities assumed in connection with the AK Steel Merger was based on estimated fair values at March 13, 2020, and was finalized during the quarter ended March 31, 2021. The following is a summary of the purchase price allocation to assets acquired and liabilities assumed in the AK Steel Merger:

	(In Millions)		
	Initial Allocation of Consideration	Measurement Period Adjustments	Final Allocation of Consideration as of March 31, 2021
Cash and cash equivalents	\$ 38	\$ 1	\$ 39
Accounts receivable, net	666	(2)	664
Inventories	1,563	(243)	1,320
Other current assets	68	(16)	52
Property, plant and equipment	2,184	90	2,274
Deferred income taxes	—	69	69
Other non-current assets	475	(4)	471
Accounts payable	(636)	(8)	(644)
Accrued employment costs	(94)	1	(93)
State and local taxes	(35)	4	(31)
Other current liabilities	(276)	2	(274)
Long-term debt	(1,179)	—	(1,179)
Pension liability, non-current	(473)	10	(463)
OPEB liability, non-current	(400)	(8)	(408)
Other non-current liabilities	(507)	72	(435)
Noncontrolling interest	—	(1)	(1)
Net identifiable assets acquired	1,394	(33)	1,361
Goodwill	141	33	174
Total net assets acquired	<u>\$ 1,535</u>	<u>\$ —</u>	<u>\$ 1,535</u>

During the period subsequent to the AK Steel Merger, we made certain measurement period adjustments to the acquired assets and liabilities assumed due to clarification of information utilized to determine fair value during the measurement period.

The goodwill resulting from the acquisition of AK Steel was assigned to our downstream Tubular and Tooling and Stamping operating segments. Goodwill is calculated as the excess of the purchase price over the net identifiable assets recognized and primarily represents the growth opportunities in light weighting solutions to automotive customers, as well as any synergistic benefits to be realized. Goodwill from the AK Steel Merger is not expected to be deductible for income tax purposes.

The purchase price allocated to identifiable intangible assets and liabilities acquired was:

	(In Millions)	Weighted Average Life (In Years)
	Intangible assets:	
Customer relationships	\$ 77	18
Developed technology	60	17
Trade names and trademarks	11	10
Total identifiable intangible assets	<u>\$ 148</u>	<u>17</u>
Intangible liabilities:		
Above-market supply contracts	<u>\$ (71)</u>	<u>12</u>

Intangible assets are classified as *Other non-current assets* on the Statements of Consolidated Financial Position. Intangible liabilities are classified as *Other non-current liabilities* on the Statements of Consolidated Financial Position.

The above-market supply contracts relate to the long-term coke and energy supply agreements with SunCoke Energy, which includes SunCoke Middletown, a consolidated VIE. Refer to NOTE 18 - VARIABLE INTEREST ENTITIES for further information.

Pro Forma Results

2020 Acquisitions

The following table provides unaudited pro forma financial information, prepared in accordance with Topic 805, as if ArcelorMittal USA and AK Steel had been acquired as of January 1, 2019:

	(In Millions)	
	Year Ended December 31,	
	2020	2019
Revenues	\$ 12,837	\$ 17,163
Net income (loss) attributable to Cliffs shareholders	(520)	(11)

The unaudited pro forma financial information has been calculated after applying our accounting policies and adjusting the historical results with pro forma adjustments, net of tax, that assume the 2020 Acquisitions occurred on January 1, 2019. Significant pro forma adjustments include the following:

1. The elimination of intercompany revenues between Cliffs and ArcelorMittal USA and AK Steel of \$ 844 million and \$1,499 million for the years ended December 31, 2020 and 2019, respectively.
2. The 2020 pro forma net loss was adjusted to exclude \$ 96 million of non-recurring inventory acquisition accounting adjustments incurred during the year ended December 31, 2020. The 2019 pro forma net loss was adjusted to include \$362 million of non-recurring inventory acquisition accounting adjustments for the year ended December 31, 2019.
3. The elimination of non-recurring transaction costs incurred by Cliffs, AK Steel and ArcelorMittal USA in connection with the 2020 Acquisitions were \$93 million for the year ended December 31, 2020. The 2019 pro forma net loss was adjusted to include \$93 million of non-recurring transaction cost adjustments for the year ended December 31, 2019.
4. The 2020 pro forma net loss was adjusted to exclude restructuring costs of \$ 1,820 million of non-recurring costs incurred by ArcelorMittal USA prior to the AM USA Transaction.
5. The 2020 and 2019 pro forma net losses were adjusted to exclude \$ 140 million and \$129 million for the years ended December 31, 2020 and 2019, respectively, for the impact of reversal of the fees charged for management, financial and legal services under the Industrial Franchise Agreement with the former parent.
6. Total other pro forma adjustments included reduced expenses of \$ 32 million for the year ended December 31, 2020, primarily due to decreased depreciation expense and pension and OPEB expense, offset partially by increased interest and amortization expense.
7. Total other pro forma adjustments included an expense of \$ 76 million for the year ended December 31, 2019, primarily due to increased interest, amortization and pension and OPEB expense, offset partially by decreased depreciation expense.
8. The income tax impact of pro forma transaction adjustments that affect *Net income (loss) attributable to Cliffs shareholders* at a statutory rate of 24.3% resulted in an increased benefit to *Income tax benefit (expense)* of \$170 million and \$117 million for the years ended December 31, 2020 and 2019, respectively.

FPT Acquisition

The following table provides unaudited pro forma financial information, prepared in accordance with Topic 805, as if FPT had been acquired as of January 1, 2020:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Revenues	\$ 21,701	\$ 13,549
Net income (loss) attributable to Cliffs shareholders	3,074	(526)

The unaudited pro forma financial information has been calculated after applying our accounting policies and adjusting the historical results with pro forma adjustments, net of tax, that assume the FPT Acquisition occurred on January 1, 2020. There were no significant pro forma adjustments for the FPT Acquisition.

The unaudited pro forma financial information does not reflect the potential realization of synergies or cost savings, nor does it reflect other costs relating to the integration of the acquired companies. This unaudited pro forma financial information should not be considered indicative of the results that would have actually occurred if the 2020 Acquisitions had been consummated on January 1, 2019, or if the FPT Acquisition had been consummated on January 1, 2020, nor are they indicative of future results.

NOTE 4 - REVENUES

We generate our revenue through product sales, in which shipping terms indicate when we have fulfilled our performance obligations and transferred control of products to our customer. Our revenue transactions consist of a single performance obligation to transfer promised goods. Our contracts with customers define the mechanism for determining the sales price, which is generally fixed upon transfer of control, but the contracts generally do not impose a specific quantity on either party. Quantities to be delivered to the customer are determined at a point near the date of delivery through purchase orders or other written instructions we receive from the customer. Spot market sales are made through purchase orders or other written instructions. We consider our performance obligation to be complete and recognize revenue when control transfers in accordance with shipping terms.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring product. We reduce the amount of revenue recognized for estimated returns and other customer credits, such as discounts and volume rebates, based on the expected value to be realized. Payment terms are consistent with terms standard to the markets we serve. Sales taxes collected from customers are excluded from revenues.

Prior to the AM USA Transaction, we had a supply agreement with ArcelorMittal USA, which included supplemental revenue or refunds based on the HRC price in the year the iron ore was consumed in ArcelorMittal USA's blast furnaces. As control transferred prior to consumption, the supplemental revenue was recorded in accordance with Topic 815. All sales occurring subsequent to the AM USA Transaction are intercompany and eliminated in consolidation. Included within *Revenues* related to Topic 815 for the supplemental revenue portion of the supply agreement is derivative revenue of \$ 122 million and \$78 million for the years ended December 31, 2020 and 2019, respectively.

The following table represents our *Revenues* by market:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Steelmaking:			
Automotive	\$ 4,726	\$ 2,062	\$ —
Infrastructure and manufacturing	5,380	784	—
Distributors and converters	7,671	696	—
Steel producers	2,124	1,423	1,990
Total Steelmaking	19,901	4,965	1,990
Other Businesses:			
Automotive	426	329	—
Infrastructure and manufacturing	47	34	—
Distributors and converters	70	26	—
Total Other Businesses	543	389	—
Total revenues	\$ 20,444	\$ 5,354	\$ 1,990

The following table represents our *Revenues* by product line:

	(Dollars In Millions, Sales Volumes in Thousands)					
	Year Ended December 31,					
	2021		2020		2019	
	Revenue	Volume ¹	Revenue	Volume ¹	Revenue	Volume ¹
Steelmaking:						
Hot-rolled steel	\$ 5,615	4,886	\$ 386	633	\$ —	—
Cold-rolled steel	3,186	2,790	490	682	—	—
Coated steel	5,864	5,056	1,747	1,911	—	—
Stainless and electrical steel	1,622	674	868	416	—	—
Plate	1,316	1,020	46	62	—	—
Other steel products	1,247	1,460	46	79	—	—
Other	1,051	N/A	1,382	N/A	1,990	N/A
Total steelmaking	19,901		4,965		1,990	
Other Businesses:						
Other	543	N/A	389	N/A	—	N/A
Total revenues	\$ 20,444		\$ 5,354		\$ 1,990	

¹ All product volumes are stated in net tons.

Deferred Revenue

The table below summarizes our deferred revenue balances:

	(In Millions)			
	Deferred Revenue (Current)		Deferred Revenue (Long-Term)	
	2021	2020	2021	2020
Opening balance as of January 1	\$ 7	\$ 22	\$ —	\$ 26
Net increase (decrease)	18	(15)	—	(26)
Closing balance as of December 31	\$ 25	\$ 7	\$ —	\$ —

Prior to the AK Steel Merger, our iron ore pellet sales agreement with Severstal Dearborn, LLC, subsequently assumed by AK Steel, required supplemental payments to be paid by the customer during the period from 2009 through 2013. Installment amounts received under this arrangement in excess of sales were classified as deferred revenue in the Statements of Consolidated Financial Position upon receipt of payment and the revenue was recognized over the term of the supply agreement, which had extended until 2022, in equal annual installments. As a result of the termination of that iron ore pellet sales agreement, we realized \$35 million of deferred revenue, which was recognized within *Revenues* in the Statements of Consolidated Operations during the year ended December 31, 2020.

NOTE 5 - SEGMENT REPORTING

We are vertically integrated from mined raw materials and direct reduced iron and ferrous scrap to primary steelmaking and downstream finishing, stamping, tooling and tubing. We are organized into four operating segments based on our differentiated products - Steelmaking, Tubular, Tooling and Stamping, and European Operations. We have one reportable segment - Steelmaking. The operating segment results of our Tubular, Tooling and Stamping, and European Operations that do not constitute reportable segments are combined and disclosed in the Other Businesses category. Our Steelmaking segment operates as the largest flat-rolled steel producer supported by being the largest iron ore pellet producer as well as a leading prime scrap processor in North America, primarily serving the automotive, infrastructure and manufacturing, and distributors and converters markets. Our Other Businesses primarily include the operating segments that provide customer solutions with carbon and stainless steel tubing products, advanced-engineered solutions, tool design and build, hot- and cold-stamped steel components, and complex assemblies. All intersegment transactions were eliminated in consolidation.

We evaluate performance on an operating segment basis, as well as a consolidated basis, based on Adjusted EBITDA, which is a non-GAAP measure. This measure is used by management, investors, lenders and other external users of our financial statements to assess our operating performance and to compare operating performance to other companies in the steel industry. In addition, management believes Adjusted EBITDA is a useful measure to assess the earnings power of the business without the impact of capital structure and can be used to assess our ability to service debt and fund future capital expenditures in the business.

Our results by segment are as follows:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Revenues:			
Steelmaking	\$ 19,901	\$ 4,965	\$ 1,990
Other Businesses	543	389	—
Total revenues	<u>\$ 20,444</u>	<u>\$ 5,354</u>	<u>\$ 1,990</u>
Adjusted EBITDA:			
Steelmaking	\$ 5,422	\$ 433	\$ 636
Other Businesses	9	47	—
Corporate and eliminations	(169)	(127)	(111)
Total Adjusted EBITDA	<u>\$ 5,262</u>	<u>\$ 353</u>	<u>\$ 525</u>

The following table provides a reconciliation of our consolidated *Net income (loss)* to total Adjusted EBITDA:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Net income (loss)	\$ 3,033	\$ (81)	\$ 293
Less:			
Interest expense, net	(337)	(238)	(101)
Income tax benefit (expense)	(773)	111	(18)
Depreciation, depletion and amortization	(897)	(308)	(85)
	<u>5,040</u>	<u>354</u>	<u>497</u>
Less:			
EBITDA from noncontrolling interests ¹	75	56	—
Gain (loss) on extinguishment of debt	(88)	130	(18)
Severance costs	(15)	(38)	(2)
Acquisition-related costs excluding severance costs	(5)	(52)	(7)
Acquisition-related loss on equity method investment	(31)	—	—
Amortization of inventory step-up	(161)	(96)	—
Impact of discontinued operations	3	1	(1)
Total Adjusted EBITDA	<u>\$ 5,262</u>	<u>\$ 353</u>	<u>\$ 525</u>

¹ EBITDA of noncontrolling interests includes the following:

Net income attributable to noncontrolling interests	\$ 45	\$ 41	\$ —
Depreciation, depletion and amortization	30	15	—
EBITDA of noncontrolling interests	<u>\$ 75</u>	<u>\$ 56</u>	<u>\$ —</u>

The following table summarizes our depreciation, depletion and amortization and capital additions by segment:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Depreciation, depletion and amortization:			
Steelmaking	\$ 855	\$ 276	\$ 80
Other Businesses	37	27	—
Corporate	5	5	5
Total depreciation, depletion and amortization	<u>\$ 897</u>	<u>\$ 308</u>	<u>\$ 85</u>
Capital additions ¹ :			
Steelmaking	\$ 787	\$ 436	\$ 687
Other Businesses	52	45	—
Corporate	18	2	3
Total capital additions	<u>\$ 857</u>	<u>\$ 483</u>	<u>\$ 690</u>

¹ Refer to NOTE 2 - SUPPLEMENTARY FINANCIAL STATEMENT INFORMATION for additional information.

The following summarizes our assets by segment:

	(In Millions)	
	December 31,	
	2021	2020
Assets:		
Steelmaking	\$ 18,326	\$ 15,849
Other Businesses	306	239
Total segment assets	18,632	16,088
Corporate	343	683
Total assets	\$ 18,975	\$ 16,771

Included in the consolidated financial statements are the following amounts relating to geographic location based on product destination:

	(In Millions)		
	2021	2020	2019
	Revenues:		
United States	\$ 18,881	\$ 4,580	\$ 1,505
Canada	803	602	448
Other countries	760	172	37
Total revenues	\$ 20,444	\$ 5,354	\$ 1,990
Property, plant and equipment, net:			
United States	\$ 9,092	\$ 8,647	\$ 1,929
Canada	93	91	—
Other countries	1	5	—
Total property, plant and equipment, net	\$ 9,186	\$ 8,743	\$ 1,929

NOTE 6 - PROPERTY, PLANT AND EQUIPMENT

The following table indicates the carrying value of each of the major classes of our depreciable assets:

	(In Millions)	
	December 31,	
	2021	2020
Land, land improvements, and mineral rights	\$ 1,291	\$ 1,213
Buildings	889	703
Equipment	8,709	6,786
Other	229	151
Construction in progress	408	1,364
Total property, plant and equipment ¹	11,526	10,217
Allowance for depreciation and depletion	(2,340)	(1,474)
Property, plant, and equipment, net	\$ 9,186	\$ 8,743

¹Includes right-of-use assets related to finance leases of \$411 million and \$361 million as of December 31, 2021 and 2020, respectively.

We recorded depreciation expense of \$848 million, \$298 million and \$77 million for the years ended December 31, 2021, 2020 and 2019, respectively.

We recorded capitalized interest into property, plant and equipment of \$6 million, \$53 million and \$25 million during the years ended December 31, 2021, 2020 and 2019, respectively.

The net book value of the mineral and land rights are as follows:

	(In Millions)	
	December 31,	
	2021	2020
Mineral rights:		
Cost	\$ 780	\$ 773
Depletion	(187)	(142)
Net mineral rights	\$ 593	\$ 631
Land rights	\$ 406	\$ 361

We recorded depletion expense of \$46 million, \$8 million and \$8 million for the years ended December 31, 2021, 2020, and 2019, respectively.

NOTE 7 - GOODWILL AND INTANGIBLE ASSETS AND LIABILITIES

Goodwill

The following is a summary of *Goodwill* by segment:

	(In Millions)	
	December 31,	
	2021	2020
Steelmaking	\$ 942	\$ 1,232
Other Businesses	174	174
Total goodwill	\$ 1,116	\$ 1,406

The decrease of \$290 million in the balance of *Goodwill* in our Steelmaking segment as of December 31, 2021, compared to December 31, 2020, is due to the decrease in estimated identified goodwill as a result of measurement period adjustments to the purchase price allocation for the acquisition of ArcelorMittal USA, partially offset by the increase due to the preliminary assignment of *Goodwill* in 2021 based on the preliminary purchase price allocation for the acquisition of FPT. Refer to NOTE 3 - ACQUISITIONS for further details.

Intangible Assets and Liabilities

The following is a summary of our intangible assets and liabilities:

	(In Millions)					
	December 31, 2021			December 31, 2020		
	Gross Amount	Accumulated Amortization	Net Amount	Gross Amount	Accumulated Amortization	Net Amount
Intangible assets ¹ :						
Customer relationships	\$ 95	\$ (8)	\$ 87	\$ 77	\$ (3)	\$ 74
Developed technology	60	(6)	54	60	(3)	57
Trade names and trademarks	18	(2)	16	11	(1)	10
Mining permits	72	(26)	46	72	(25)	47
Supplier relationships	18	—	18	—	—	—
Total intangible assets	<u>\$ 263</u>	<u>\$ (42)</u>	<u>\$ 221</u>	<u>\$ 220</u>	<u>\$ (32)</u>	<u>\$ 188</u>
Intangible liabilities ² :						
Above-market supply contracts	<u>\$ (71)</u>	<u>\$ 14</u>	<u>\$ (57)</u>	<u>\$ (71)</u>	<u>\$ 7</u>	<u>\$ (64)</u>

¹ Intangible assets are classified as *Other non-current assets*. Amortization related to mining permits is recognized in *Cost of goods sold*. Amortization of all other intangible assets is recognized in *Selling, general and administrative expenses*.

² Intangible liabilities are classified as *Other non-current liabilities*. Amortization of all intangible liabilities is recognized in *Cost of goods sold*.

Amortization expense related to intangible assets was \$ 10 million and \$8 million for the years ended December 31, 2021 and 2020, respectively. Estimated future amortization expense related to intangible assets is \$13 million annually for the years 2022 through 2026.

Income from amortization related to intangible liabilities was \$ 7 million in both of the years ended December 31, 2021 and 2020. Estimated future amortization income related to the intangible liabilities is \$5 million annually for the years 2022 through 2026.

NOTE 8 - DEBT AND CREDIT FACILITIES

The following represents a summary of our long-term debt:

(In Millions)						
December 31, 2021						
Debt Instrument	Issuer ¹	Annual Effective Interest Rate	Total Principal Amount	Unamortized Debt Issuance Costs	Unamortized Premiums (Discounts)	Total Debt
Senior Secured Notes:						
9.875% 2025 Senior Secured Notes	Cliffs	10.57%	\$ 607	\$ (4)	\$ (13)	\$ 590
6.750% 2026 Senior Secured Notes	Cliffs	6.99%	845	(16)	(7)	822
Senior Unsecured Notes:						
1.500% 2025 Convertible Senior Notes	Cliffs	6.26%	294	(3)	(39)	252
7.000% 2027 Senior Notes	Cliffs	9.24%	73	—	(7)	66
7.000% 2027 AK Senior Notes	AK Steel	9.24%	56	—	(5)	51
5.875% 2027 Senior Notes	Cliffs	6.49%	556	(3)	(15)	538
4.625% 2029 Senior Notes	Cliffs	4.63%	500	(8)	—	492
4.875% 2031 Senior Notes	Cliffs	4.88%	500	(8)	—	492
6.250% 2040 Senior Notes	Cliffs	6.34%	263	(2)	(3)	258
IRBs due 2024 to 2028	AK Steel	Various	66	—	2	68
ABL Facility ³	Cliffs ²	1.87%	4,500	—	—	1,609
Total long-term debt						<u>\$ 5,238</u>

¹ Unless otherwise noted, references in this column and throughout this NOTE 8 - DEBT AND CREDIT FACILITIES to "Cliffs" are to Cleveland-Cliffs Inc., and references to "AK Steel" are to AK Steel Corporation (n/k/a Cleveland-Cliffs Steel Corporation).

² Refers to Cleveland-Cliffs Inc. as borrower under our ABL Facility.

³ The total principal amount for the ABL Facility is stated at the maximum borrowing capacity.

(In Millions)

December 31, 2020

Debt Instrument	Issuer ¹	Annual Effective Interest Rate	Total Principal Amount	Unamortized Debt Issuance Costs	Unamortized Premiums (Discounts)	Total Debt
Senior Secured Notes:						
4.875% 2024 Senior Secured Notes	Cliffs	5.00%	\$ 395	\$ (3)	\$ (1)	\$ 391
9.875% 2025 Senior Secured Notes	Cliffs	10.57%	955	(8)	(25)	922
6.750% 2026 Senior Secured Notes	Cliffs	6.99%	845	(20)	(9)	816
Senior Unsecured Notes:						
7.625% 2021 AK Senior Notes	AK Steel	7.33%	34	—	—	34
7.500% 2023 AK Senior Notes	AK Steel	6.17%	13	—	—	13
6.375% 2025 Senior Notes	Cliffs	8.11%	64	—	(4)	60
6.375% 2025 AK Senior Notes	AK Steel	8.11%	29	—	(2)	27
1.500% 2025 Convertible Senior Notes	Cliffs	6.26%	296	(4)	(49)	243
5.750% 2025 Senior Notes	Cliffs	6.01%	396	(3)	(4)	389
7.000% 2027 Senior Notes	Cliffs	9.24%	73	—	(8)	65
7.000% 2027 AK Senior Notes	AK Steel	9.24%	56	—	(6)	50
5.875% 2027 Senior Notes	Cliffs	6.49%	556	(4)	(18)	534
6.250% 2040 Senior Notes	Cliffs	6.34%	263	(2)	(3)	258
IRBs due 2024 to 2028	AK Steel	Various	92	—	2	94
EDC Revolving Facility ³	*	3.25%	40	—	—	18
ABL Facility ³	Cliffs ²	2.15%	3,500	—	—	1,510
Total debt						5,424
Less: current						34
Total long-term debt						\$ 5,390

*Our subsidiaries, Fleetwood Metal Industries Inc. and The Electromac Group Inc., were the borrowers under the EDC Revolving Facility.

¹ Unless otherwise noted, references in this column and throughout this NOTE 8 - DEBT AND CREDIT FACILITIES to "Cliffs" are to Cleveland-Cliffs Inc., and references to "AK Steel" are to "AK Steel Corporation (n/k/a Cleveland-Cliffs Steel Corporation).

² Refers to Cleveland-Cliffs Inc. as borrower under our ABL Facility.

³ The total principal amounts for the indicated credit facilities are stated at their respective maximum borrowing capacities.

Outstanding Senior Secured Notes

The following represents a summary of our senior secured notes' maturity and interest payable due dates:

Debt Instrument	Maturity	Interest Payable (until maturity)
9.875% 2025 Senior Secured Notes	October 17, 2025	April 17 and October 17
6.750% 2026 Senior Secured Notes	March 15, 2026	March 15 and September 15

The senior secured notes of each series are jointly and severally and fully and unconditionally guaranteed on a senior secured basis by substantially all of our material domestic subsidiaries and are secured (subject in each case to certain exceptions and permitted liens) by (i) a first-priority lien, on a pari passu basis with the senior secured notes of the other series, on substantially all of our assets and the assets of the guarantors, other than the ABL Collateral (as defined below), and (ii) a second-priority lien on the ABL Collateral, which is junior to a first-priority lien for the benefit of the lenders under our ABL Facility.

We may redeem the 9.875% 2025 Senior Secured Notes, in whole or in part, at any time at our option upon not less than 30, and not more than 60, days' prior notice sent to the holders of the 9.875% 2025 Senior Secured Notes. The 9.875% 2025 Senior Secured Notes are redeemable prior to October 17, 2022, at a redemption price equal to 100% of the principal amount thereof plus a "make-whole" premium set forth in the indenture, plus accrued

and unpaid interest, if any, to, but not including, the date of redemption. We may also redeem up to 35% of the aggregate principal amount of the 9.875% 2025 Senior Secured Notes prior to October 17, 2022, at a redemption price equal to 109.875% of the principal amount thereof, plus accrued and unpaid interest, if any, to but not including, the date of redemption with the net cash proceeds of one or more equity offerings. On March 11, 2021, we exercised this optional redemption feature when we purchased \$322 million aggregate principal amount of the 9.875% 2025 Senior Secured Notes using the net proceeds from the underwritten public offering of 20 million common shares. The 9.875% 2025 Senior Secured Notes are redeemable beginning on October 17, 2022, at a redemption price equal to 107.406% of the principal amount thereof, decreasing on each April 17 thereafter until April 17, 2025, on and after which the 9.875% 2025 Senior Secured Notes are redeemable at par, in each case, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

We may redeem the 6.750% 2026 Senior Secured Notes in whole or in part, at any time at our option upon not less than 30, and not more than 60, days' prior notice sent to the holders of the 6.750% 2026 Senior Secured Notes. The 6.750% 2026 Senior Secured Notes are redeemable prior to March 15, 2022, at a redemption price equal to 100% of the principal amount thereof plus a "make-whole" premium set forth in the indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. We may also redeem up to 35% of the aggregate principal amount of the 6.750% 2026 Senior Secured Notes prior to March 15, 2022, at a redemption price equal to 106.750% of the principal amount thereof, plus accrued and unpaid interest, if any, to but not including, the date of redemption with the net cash proceeds of one or more equity offerings. The 6.750% 2026 Senior Secured Notes are redeemable beginning on March 15, 2022, at a redemption price equal to 105.063% of the principal amount thereof, decreasing on each March 15 thereafter until March 15, 2025, on and after which the 6.750% 2026 Senior Secured Notes are redeemable at par, in each case, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

In addition, if a change in control triggering event, as defined in the indenture, occurs with respect to the senior secured notes, we will be required to offer to purchase the notes at a purchase price equal to 101% of their principal amount, plus accrued and unpaid interest, if any, to, but not including, the date of purchase.

The terms of the senior secured notes contain certain customary covenants; however, there are no financial covenants.

Outstanding Senior Unsecured Notes

2021 Issuances

On February 17, 2021, we entered into an indenture among Cliffs, the guarantors party thereto and U.S. Bank National Association, as trustee, relating to the issuances of \$500 million aggregate principal amount of 4.625% 2029 Senior Notes and \$ 500 million aggregate principal amount of 4.875% 2031 Senior Notes, each issued at par. The 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes were issued in private placement transactions exempt from the registration requirements of the Securities Act.

The 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes are unsecured senior obligations and rank equally in right of payment with all of our existing and future unsecured and unsubordinated indebtedness. The 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes are guaranteed on a senior unsecured basis by our material direct and indirect wholly owned domestic subsidiaries and, therefore, are structurally senior to any of our existing and future indebtedness that is not guaranteed by such guarantors and are structurally subordinated to all existing and future indebtedness and other liabilities of our subsidiaries that do not guarantee the 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes.

In addition, if a change in control triggering event, as defined in the indenture, occurs with respect to the 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes, we will be required to offer to repurchase the notes at a purchase price equal to 101% of their principal amount, plus accrued and unpaid interest, if any, to, but not including, the date of repurchase.

The terms of the 4.625% 2029 Senior Notes and 4.875% 2031 Senior Notes contain certain customary covenants; however, there are no financial covenants.

4.625% 2029 Senior Notes

The 4.625% 2029 Senior Notes bear interest at a rate of 4.625% per annum, payable semi-annually in arrears on March 1 and September 1 of each year, commencing on September 1, 2021. The 4.625% 2029 Senior Notes will mature on March 1, 2029.

The 4.625% 2029 Senior Notes may be redeemed, in whole or in part, on not less than 10, nor more than 60, days' prior notice sent to the holders of the notes. The following is a summary of redemption prices for our 4.625% 2029 Senior Notes:

Redemption Period	Redemption Price¹	Restricted Amount
Prior to March 1, 2024 - using the proceeds of equity issuance	104.625 %	Up to 35% of original aggregate principal
Prior to March 1, 2024 ²	100.000	
Beginning March 1, 2024	102.313	
Beginning March 1, 2025	101.156	
Beginning on March 1, 2026 and thereafter	100.000	

¹ Plus accrued and unpaid interest, if any, up to, but excluding, the redemption date.

² Plus a "make-whole" premium.

4.875% 2031 Senior Notes

The 4.875% 2031 Senior Notes bear interest at a rate of 4.875% per annum, payable semi-annually in arrears on March 1 and September 1 of each year, commencing on September 1, 2021. The 4.875% 2031 Senior Notes will mature on March 1, 2031.

The 4.875% 2031 Senior Notes may be redeemed, in whole or in part, on not less than 10, nor more than 60, days' prior notice sent to the holders of the notes. The following is a summary of redemption prices for our 4.875% 2031 Senior Notes:

Redemption Period	Redemption Price¹	Restricted Amount
Prior to March 1, 2026 - using the proceeds of equity issuance	104.875 %	Up to 35% of original aggregate principal
Prior to March 1, 2026 ²	100.000	
Beginning March 1, 2026	102.438	
Beginning March 1, 2027	101.625	
Beginning March 1, 2028	100.813	
Beginning on March 1, 2029 and thereafter	100.000	

¹ Plus accrued and unpaid interest, if any, up to, but excluding, the redemption date.

² Plus a "make-whole" premium.

1.500% 2025 Convertible Senior Notes

The 1.500% 2025 Convertible Senior Notes bear interest at a rate of 1.500% per year, payable semiannually in arrears on January 15 and July 15 of each year. The 1.500% 2025 Convertible Senior Notes mature on January 15, 2025. The 1.500% 2025 Convertible Senior Notes are senior unsecured obligations and rank senior in right of payment to any of our indebtedness that is expressly subordinated in right of payment to the 1.500% 2025 Convertible Senior Notes; equal in right of payment to any of our unsecured indebtedness that is not so subordinated; effectively junior in right of payment to any of our secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally junior to all indebtedness and other liabilities (including trade payables) of our subsidiaries. The terms of the 1.500% 2025 Convertible Senior Notes contain certain customary covenants; however, there are no financial covenants.

Holders may convert their 1.500% 2025 Convertible Senior Notes at their option at any time prior to the close of business on the business day immediately preceding July 15, 2024, only under the following circumstances: (1) during any calendar quarter commencing after the calendar quarter ending on March 31, 2018, if the last reported sale price of our common shares, par value \$0.125 per share, for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (2) during the five-business day period after any five-consecutive trading day period (the "measurement period") in which the trading price per \$1,000 principal amount of 1.500% 2025 Convertible Senior Notes for each trading day of

the measurement period was less than 98% of the product of the last reported sale price of our common shares and the conversion rate on each such trading day; (3) if we call the notes for redemption, at any time prior to the close of business on the scheduled trading day immediately preceding the redemption date; or (4) upon the occurrence of specified corporate events. On or after July 15, 2024 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their 1.500% 2025 Convertible Senior Notes at any time, regardless of the foregoing circumstances. Upon conversion, we will pay or deliver, as the case may be, cash, common shares or a combination of cash and common shares, at our election.

Upon the issuance of the 1.500% 2025 Convertible Senior Notes the initial conversion rate was 122.4365 common shares per \$1,000 principal, with a conversion price of \$8.17 per common share. The conversion rate is subject to adjustment in some circumstances, including the payment of dividends on common shares, but will not be adjusted for any accrued and unpaid interest. In addition, following certain corporate events that occur prior to the maturity date, or if we deliver a notice of redemption, we will, in certain circumstances, increase the conversion rate for a holder who elects to convert its 1.500% 2025 Convertible Senior Notes in connection with such a corporate event or notice of redemption, as the case may be. As of December 31, 2021, the conversion rate was 129.2985 common shares per \$1,000 principal amount of 1.500% 2025 Convertible Senior Notes.

We may not redeem the 1.500% 2025 Convertible Senior Notes prior to January 15, 2022. We may redeem all or any portion of the 1.500% 2025 Convertible Senior Notes, for cash at our option on or after January 15, 2022 if the last reported sale price of our common shares has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30-consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which we provide notice of redemption at a redemption price equal to 100% of the principal amount of the 1.500% 2025 Convertible Senior Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date.

If we undergo a fundamental change as defined in the indenture, holders may require us to repurchase for cash all or any portion of their 1.500% 2025 Convertible Senior Notes at a fundamental change repurchase price equal to 100% of the principal amount of the 1.500% 2025 Convertible Senior Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

In accounting for the issuance of the notes, we separated the 1.500% 2025 Convertible Senior Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of similar liabilities that did not have associated convertible features. The carrying amount of the equity component of \$86 million representing the conversion option was determined by deducting the fair value of the liability component from the par value of the notes. The difference represents the debt discount that is amortized to interest expense over the term of the notes. The equity component is not remeasured as long as it continues to qualify for equity classification.

On December 1, 2021, we issued a notice of redemption for all \$ 294 million aggregate principal amount outstanding of the 1.500% 2025 Convertible Senior Notes. Refer to NOTE 21 - SUBSEQUENT EVENTS for further information on the redemption of the 1.500% 2025 Convertible Senior Notes.

Other Outstanding Unsecured Senior Notes

The following represents a summary of our other unsecured senior notes' maturity and interest payable due dates:

Debt Instrument	Maturity	Interest Payable (until maturity)
7.000% 2027 Senior Notes	March 15, 2027	March 15 and September 15
5.875% 2027 Senior Notes	June 1, 2027	June 1 and December 1
6.250% 2040 Senior Notes	October 1, 2040	April 1 and October 1

The senior notes are unsecured obligations and rank equally in right of payment with all our other existing and future unsecured and unsubordinated indebtedness. The 7.000% 2027 Senior Notes and 5.875% 2027 Senior Notes are guaranteed on a senior unsecured basis by our material direct and indirect wholly owned domestic subsidiaries and, therefore, are structurally senior to any of our existing and future indebtedness that is not guaranteed by such guarantors and are structurally subordinated to all existing and future indebtedness and other liabilities of our subsidiaries that do not guarantee the notes. There are no subsidiary guarantees of the interest and principal amounts for the 6.250% 2040 Senior Notes.

The 7.000% 2027 Senior Notes may be redeemed, in whole or in part, at any time at our option upon not less than 30, and not more than 60 days' prior notice sent to the holders. The 7.000% 2027 Senior Notes are redeemable prior to March 15, 2022, at a redemption price equal to 100% of the principal amount thereof plus a "make-whole" premium set forth in the indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. The 7.000% 2027 Senior Notes are redeemable beginning on March 15, 2022, at a redemption price equal to 103.500% of the principal amount thereof, decreasing on each March 15 thereafter until March 15, 2025, on and after which the 7.000% 2027 Senior Notes are redeemable at par, in each case, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

The 5.875% 2027 Senior Notes are redeemable prior to June 1, 2022, at a redemption price equal to 100% of the principal amount thereof plus a "make-whole" premium set forth in the indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. We may also redeem up to 35% of the aggregate principal amount of the 5.875% 2027 Senior Notes prior to June 1, 2022 at a redemption price equal to 105.875% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the date of redemption with the net cash proceeds of one or more equity offerings. The 5.875% 2027 Senior Notes are redeemable beginning on June 1, 2022, at a redemption price equal to 102.938% of the principal amount thereof, decreasing on each June 1 thereafter until June 1, 2025, on and after which the 5.875% 2027 Senior Notes are redeemable at par, in each case, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

The 6.250% 2040 Senior Notes may be redeemed any time at our option upon not less than 30, nor more than 60, days' prior notice is sent to the holders. The 6.250% 2040 Senior Notes are redeemable at a redemption price equal to the greater of (1) 100% of the principal amount of the notes to be redeemed or (2) the sum of the present values of the remaining scheduled payments of principal and interest on the notes to be redeemed, discounted to the redemption date on a semi-annual basis at the treasury rate plus 40 basis points, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

In addition, if a change of control triggering event, as defined in the applicable indenture, occurs with respect to the unsecured notes, we will be required to offer to purchase the notes of the applicable series at a purchase price equal to 101% of the principal amount, plus accrued and unpaid interest, if any, to, but not including, the date of purchase.

The terms of the unsecured notes contain certain customary covenants; however, there are no financial covenants.

AK Steel Corporation Unsecured Senior Notes

As of December 31, 2021, AK Steel had outstanding a total of \$ 56 million aggregate principal amount of 7.000% 2027 AK Senior Notes. These senior notes are unsecured obligations and rank equally in right of payment with AK Steel's guarantees of Cliffs' unsecured and unsubordinated indebtedness. These notes contain no financial covenants.

The 7.000% 2027 AK Senior Notes may be redeemed, in whole or in part, at any time at our option upon not less than 30, and not more than 60, days' prior notice sent to the holders. The 7.000% 2027 AK Senior Notes are redeemable prior to March 15, 2022, at a redemption price equal to 100% of the principal amount thereof plus a "make-whole" premium set forth in the indenture, plus accrued and unpaid interest, if any, to, but not including, the date of redemption. The 7.000% 2027 AK Senior Notes are redeemable beginning on March 15, 2022, at a redemption price equal to 103.500% of the principal amount thereof, decreasing on each March 15 thereafter until March 15, 2025, on and after which the 7.000% 2027 Senior Notes are redeemable at par, in each case, plus accrued and unpaid interest, if any, to, but not including, the date of redemption.

ABL Facility

On March 13, 2020, in connection with the AK Steel Merger, we entered into a new ABL Facility with various financial institutions to replace and refinance Cliffs' Former ABL Facility and AK Steel Corporation's former revolving credit facility. The ABL Facility will mature upon the earlier of March 13, 2025 or 91 days prior to the maturity of certain other material debt and provided for up to \$2 billion in borrowings, including a \$555 million sublimit for the issuance of letters of credit and a \$125 million sublimit for swingline loans. Availability under the ABL Facility is limited to an eligible borrowing base, as applicable, determined by applying customary advance rates to eligible accounts receivable, inventory and certain mobile equipment.

On March 27, 2020, we amended our ABL Facility to, among other things, provide for a new FILO tranche B of commitments in the aggregate amount of \$150 million by exchanging existing commitments under the ABL Facility.

The total commitments under the ABL Facility after giving effect to this first amendment remained at \$ 2 billion. The terms and conditions (other than the pricing) that apply to the FILO tranche were substantially the same as the terms and conditions that apply to the tranche A facility of the ABL Facility immediately prior to the amendment.

On December 9, 2020, we entered into the Second ABL Amendment. The Second ABL Amendment modified the ABL Facility to, among other things, increase the amount of tranche A revolver commitments available thereunder by an additional \$ 1.5 billion and increase certain dollar baskets related to certain negative covenants that apply to the ABL Facility. After giving effect to the ABL Amendment, the aggregate principal amount of tranche A revolver commitments under the ABL Facility was \$3.35 billion and the aggregate principal amount of FILO tranche B revolver commitments under the ABL Facility remained at \$ 150 million.

On December 17, 2021, we entered into the Third ABL Amendment. The Third ABL Amendment modified the ABL Facility to, among other things, increase the amount of tranche A revolver commitments available thereunder by an additional \$ 1 billion and exchange \$150 million of tranche B revolver commitments available thereunder for tranche A revolver commitments. After giving effect to the Third ABL Amendment, the aggregate principal amount of tranche A revolver commitments under the ABL Facility is \$4.5 billion and there are no remaining tranche B revolver commitments under the ABL Facility. The increase is a result of a larger projected borrowing base driven by more favorable market conditions.

The ABL Facility and certain bank products and hedge obligations are guaranteed by certain of our existing wholly owned U.S. subsidiaries and are required to be guaranteed by certain of our future U.S. subsidiaries. Amounts outstanding under the ABL Facility are secured by (i) a first-priority security interest in the accounts receivable and other rights to payment, inventory, as-extracted collateral, certain investment property, deposit accounts, securities accounts, certain general intangibles and commercial tort claims, certain mobile equipment, commodities accounts and other related assets of ours, the other borrowers and the guarantors, and proceeds and products of each of the foregoing (collectively, the "ABL Collateral") and (ii) a second-priority security interest in substantially all of our assets and the assets of the other borrowers and the guarantors other than the ABL Collateral.

Borrowings under the ABL Facility bear interest, at our option, at a base rate or, if certain conditions are met, a LIBOR rate, in each case, plus an applicable margin. We may amend our ABL Facility to replace the LIBOR rate with one or more secured overnight financing based rates or an alternative benchmark rate, giving consideration to any evolving or then-existing convention for similar dollar denominated syndicated credit facilities for such alternative benchmarks.

The ABL Facility contains customary representations and warranties and affirmative and negative covenants including, among others, covenants regarding the maintenance of certain financial ratios if certain conditions are triggered, covenants relating to financial reporting, covenants relating to the payment of dividends on, or purchase or redemption of, our capital stock, covenants relating to the incurrence or prepayment of certain debt, covenants relating to the incurrence of liens or encumbrances, covenants relating to compliance with laws, covenants relating to transactions with affiliates, covenants relating to mergers and sales of all or substantially all of our assets and limitations on changes in the nature of our business.

The ABL Facility provides for customary events of default, including, among other things, the event of nonpayment of principal, interest, fees or other amounts, a representation or warranty proving to have been materially incorrect when made, failure to perform or observe certain covenants within a specified period of time, a cross-default to certain material indebtedness, the bankruptcy or insolvency of the Company and certain of its subsidiaries, monetary judgment defaults of a specified amount, invalidity of any loan documentation, a change of control of the Company, and ERISA defaults resulting in liability of a specified amount. If an event of default exists (beyond any applicable grace or cure period), the administrative agent may, and at the direction of the requisite number of lenders shall, declare all amounts owing under the ABL Facility immediately due and payable, terminate such lenders' commitments to make loans under the ABL Facility and/or exercise any and all remedies and other rights under the ABL Facility. For certain events of default related to insolvency and receivership, the commitments of the lenders will be automatically terminated and all outstanding loans and other amounts will become immediately due and payable.

As of December 31, 2021 and 2020, we were in compliance with the ABL Facility liquidity requirements and, therefore, the springing financial covenant requiring a minimum fixed charge coverage ratio of 1.0 to 1.0 was not applicable.

The following represents a summary of our borrowing capacity under the ABL Facility:

	(In Millions)	
	December 31, 2021	
Available borrowing base on ABL Facility ¹	\$	4,500
Borrowings		(1,609)
Letter of credit obligations ²		(175)
Borrowing capacity available	\$	2,716

¹As of December 31, 2021, the ABL Facility has a maximum available borrowing base of \$4.5 billion. The borrowing base is determined by applying customary advance rates to eligible accounts receivable, inventory and certain mobile equipment.

²We issued standby letters of credit with certain financial institutions in order to support business obligations including, but not limited to, workers' compensation, employee severance, insurance, operating agreements and environmental obligations.

Other Financing Arrangements

Industrial Revenue Bonds

AK Steel had outstanding \$66 million aggregate principal amount of fixed-rate, tax-exempt IRBs as of December 31, 2021. The weighted-average fixed rate of these IRBs is 6.86%. These IRBs are unsecured senior debt obligations that are equal in ranking with AK Steel's senior notes and AK Steel's guarantees of Cliffs' unsubordinated indebtedness. These IRBs are effectively subordinated to AK Steel's guarantees of Cliffs' secured indebtedness to the extent of the value of AK Steel's assets securing such guarantees. These IRBs contain certain customary covenants; however, there are no financial covenants.

Debt Extinguishment - 2021

During the fourth quarter of 2021, we paid in full the outstanding balance of our EDC revolving facilities for \$ 55 million in aggregate principal amount and terminated the agreements. Prior to such terminations, the EDC revolving facilities provided for up to \$80 million in borrowings.

On October 15, 2021, we redeemed \$26 million in aggregate principal amount of the IRBs due 2024. During the third quarter of 2021, we repurchased \$2 million in aggregate principal amount of 1.500% 2025 Convertible Senior Notes. On June 28, 2021, we redeemed all \$396 million aggregate principal amount outstanding of the 5.750% 2025 Senior Notes using available liquidity. During the second quarter of 2021, we also repurchased \$25 million aggregate principal amount of 9.875% 2025 Senior Secured Notes.

On March 11, 2021, we purchased \$ 322 million aggregate principal amount of the 9.875% 2025 Senior Secured Notes using the net proceeds from the February 11, 2021 issuance of 20 million common shares and cash on hand. On March 12, 2021, we fully redeemed the 4.875% 2024 Senior Secured Notes, 7.625% 2021 AK Senior Notes, 7.50% 2023 AK Senior Notes, 6.375% 2025 Senior Notes and 6.375% 2025 AK Senior Notes, which totaled an aggregate principal amount of \$535 million.

The following is a summary of the debt extinguished and the respective impact on extinguishment:

	(In Millions)	
	Year Ended December 31, 2021	
	Debt Extinguished	(Loss) on Extinguishment
9.875% 2025 Senior Secured Notes	\$ 347	\$ (47)
4.875% 2024 Senior Secured Notes	395	(14)
7.625% 2021 AK Senior Notes	34	—
7.500% 2023 AK Senior Notes	13	—
6.375% 2025 Senior Notes	64	(7)
1.500% 2025 Convertible Senior Notes	2	—
6.375% 2025 AK Senior Notes	29	(3)
5.750% 2025 Senior Notes	396	(17)
IRBs due 2024	26	—
Total	<u>\$ 1,306</u>	<u>\$ (88)</u>

Debt Extinguishment - 2020

During the year ended December 31, 2020, we used the net proceeds from the offering of the additional 9.875% 2025 Senior Secured Notes to repurchase \$736 million aggregate principal amount of our outstanding senior notes of various series, which resulted in a net debt reduction of \$ 181 million. We also repurchased an additional \$35 million aggregate principal amount of our outstanding senior notes of various series and we redeemed \$ 7 million aggregate principal amount of our outstanding 2020 IRBs, with cash on hand.

Additionally, in connection with the AK Steel Merger, we purchased \$ 364 million aggregate principal amount of 7.625% 2021 AK Senior Notes and \$ 311 million aggregate principal amount of 7.500% 2023 AK Senior Notes upon early settlement of tender offers made by Cliffs. The net proceeds from the offering of 6.750% 2026 Senior Secured Notes, along with a portion of the ABL Facility borrowings, were used to fund such purchases. As the 7.625% 2021 AK Senior Notes and 7.500% 2023 AK Senior Notes were recorded at fair value just prior to being purchased, there was no gain or loss on extinguishment. Additionally, in connection with the final settlement of the tender offers, we purchased \$9 million aggregate principal amount of the 7.625% 2021 AK Senior Notes and \$ 56 million aggregate principal amount of the 7.500% 2023 AK Senior Notes with cash on hand.

The following is a summary of the debt extinguished and the respective impact on extinguishment:

	(In Millions)	
	Year Ended December 31, 2020	
	Debt Extinguished	Gain (Loss) on Extinguishment
7.625% 2021 AK Senior Notes	\$ 373	\$ —
7.500% 2023 AK Senior Notes	367	3
4.875% 2024 Senior Secured Notes	6	1
6.375% 2025 Senior Notes	168	21
1.500% 2025 Convertible Senior Notes	20	1
5.750% 2025 Senior Notes	77	16
7.000% 2027 Senior Notes	262	27
5.875% 2027 Senior Notes	195	49
6.250% 2040 Senior Notes	36	13
6.375% 2025 AK Senior Notes	9	(1)
Total	<u>\$ 1,513</u>	<u>\$ 130</u>

Debt Extinguishment - 2019

During the year ended December 31, 2019, we used the net proceeds from the issuance of \$ 750 million aggregate principal amount of 5.875% 2027 Senior Notes, along with cash on hand, to redeem in full all of our outstanding 4.875% 2021 Senior Notes and to fund the repurchase of \$600 million aggregate principal amount of our outstanding 5.750% 2025 Senior Notes in a tender offer.

The following is a summary of the debt extinguished and the respective impact on extinguishment:

	(In Millions)	
	Year Ended December 31, 2019	
	Debt Extinguished	(Loss) on Extinguishment
4.875% 2021 Senior Notes	\$ 124	\$ (5)
5.750% 2025 Senior Notes	600	(13)
Total	<u>\$ 724</u>	<u>\$ (18)</u>

Debt Maturities

The following represents a summary of our debt instrument maturities based on the principal amounts outstanding at December 31, 2021:

	(In Millions)	
	Maturities of Debt	
2022	\$	—
2023		—
2024		36
2025		2,510
2026		845
Thereafter		1,978
Total maturities of debt	<u>\$</u>	<u>5,369</u>

NOTE 9 - FAIR VALUE OF FINANCIAL INSTRUMENTS

There were no significant assets or liabilities measured at fair value as of December 31, 2021 or December 31, 2020.

The valuation of financial assets classified in Level 2 was determined using a market approach based upon quoted prices for similar assets in active markets or other inputs that were observable.

Our supply agreement with ArcelorMittal USA contained provisions for supplemental revenue or refunds based on the HRC price in the year the iron ore product was consumed in ArcelorMittal USA's blast furnaces. We accounted for these provisions as derivative instruments at the time of sale and adjusted the derivative instruments to fair value through *Revenues* each reporting period until the product was consumed and the amounts were settled. These instruments were classified as Level 3 assets. Upon the completion of the AM USA Transaction, the outstanding derivatives were settled as part of acquisition accounting.

The following tables represent a reconciliation of the changes in fair value of financial instruments measured at fair value on a recurring basis using significant unobservable inputs (Level 3):

	(In Millions)	
	Level 3 Assets	
	2021	2020
Beginning balance - January 1	\$ —	\$ 45
Total gains included in earnings	—	122
Settlements	—	(27)
Settlement of pre-existing relationship	—	(140)
Ending balance - December 31	<u>\$ —</u>	<u>\$ —</u>
Total gains for the period included in earnings attributable to the change in unrealized gains on assets still held at the reporting date	<u>\$ —</u>	<u>\$ —</u>

The carrying values of certain financial instruments (e.g. *Accounts receivable, net*, *Accounts payable* and *Other current liabilities*) approximate fair value and, therefore, have been excluded from the table below. A summary of the carrying value and fair value of other financial instruments were as follows:

	Classification	(In Millions)			
		December 31, 2021		December 31, 2020	
		Carrying Value	Fair Value	Carrying Value	Fair Value
Senior notes	Level 1	\$ 3,561	\$ 3,911	\$ 3,802	\$ 4,446
IRBs due 2024 to 2028	Level 1	68	66	94	91
EDC Revolving Facility - outstanding balance	Level 2	—	—	18	18
ABL Facility - outstanding balance	Level 2	1,609	1,609	1,510	1,510
Total		<u>\$ 5,238</u>	<u>\$ 5,586</u>	<u>\$ 5,424</u>	<u>\$ 6,065</u>

The fair value of both current and long-term debt was determined using quoted market prices.

NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS

We offer defined benefit pension plans, defined contribution pension plans and OPEB plans to a significant portion of our employees and retirees. Benefits are also provided through multiemployer plans for certain union members.

As a result of the acquisitions of AK Steel and ArcelorMittal USA, we assumed the obligations under their defined benefit pension plans, OPEB plans, defined contribution plans and commitments to multiemployer pension plans according to collective bargaining agreements that cover certain union-represented employees. The AK Steel defined benefit pension plans and OPEB plans acquired amounted to a benefit obligation, net of assets of \$949 million based on a March 13, 2020 measurement. The ArcelorMittal USA defined benefit pension plans and OPEB plans acquired amounted to a benefit obligation, net of assets of \$3,294 million based on a December 9, 2020 measurement.

Defined Benefit Pension Plans

The defined benefit pension plans are largely noncontributory and limited in participation. Most plans are closed to new participants with only the legacy iron ore hourly and salaried plans still open. The pension benefit calculations vary by plan but are generally based on employees' years of service and compensation or a fixed rate and years of service. Certain salaried plans calculate benefits using a cash balance formula, which earns interest credits and allocations based on a percent of pay.

OPEB Plans

We offer postretirement health care and life insurance benefits to retirees through various plans. The vast majority of our plans are closed to new participants. In lieu of retiree medical coverage, many union-represented employees receive a 401(k) contribution per hour worked to a restricted Retiree Health Care Account. Cost sharing features between the employer and retiree vary by plan and several plans include employer caps. Retiree healthcare coverage is provided through programs administered by insurance companies whose charges are based on benefits paid. Certain labor agreements require the funding of VEBAs, which, depending on funding levels, may be used to reimburse the employer for paid benefits.

Obligations and Funded Status

The following tables and information provide additional disclosures:

	(In Millions)			
	Pension Benefits		OPEB	
	2021	2020	2021	2020
Change in benefit obligations:				
Benefit obligations — beginning of year	\$ 6,565	\$ 1,021	\$ 3,757	\$ 255
Service cost	56	23	51	8
Interest cost	103	64	74	19
Plan amendments	—	—	8	—
Actuarial loss (gain)	(131)	162	(456)	14
Benefits paid	(456)	(146)	(227)	(89)
Participant contributions	—	—	47	22
Acquired through business combinations	—	5,535	—	3,528
Effect of settlement	(101)	(94)	—	—
Benefit obligations — end of year	<u>\$ 6,036</u>	<u>\$ 6,565</u>	<u>\$ 3,254</u>	<u>\$ 3,757</u>
Change in plan assets:				
Fair value of plan assets — beginning of year	\$ 5,332	\$ 749	\$ 783	\$ 260
Actual return on plan assets	668	472	29	45
Participant contributions	—	—	26	17
Employer contributions	155	50	139	30
Benefits paid	(454)	(146)	(165)	(88)
Acquired through business combinations	—	4,301	—	519
Effect of settlement	(95)	(94)	—	—
Fair value of plan assets — end of year	<u>\$ 5,606</u>	<u>\$ 5,332</u>	<u>\$ 812</u>	<u>\$ 783</u>
Funded status	<u>\$ (430)</u>	<u>\$ (1,233)</u>	<u>\$ (2,442)</u>	<u>\$ (2,974)</u>
Amounts recognized in Statements of Financial Position:				
Non-current assets	\$ 153	\$ 3	\$ 71	\$ 54
Current liabilities	(5)	(12)	(130)	(139)
Non-current liabilities	(578)	(1,224)	(2,383)	(2,889)
Total amount recognized	<u>\$ (430)</u>	<u>\$ (1,233)</u>	<u>\$ (2,442)</u>	<u>\$ (2,974)</u>
Amounts recognized in accumulated other comprehensive loss (income):				
Net actuarial loss (gain)	\$ (286)	\$ 164	\$ (392)	\$ 56
Prior service cost (credit)	5	6	4	(6)
Net amount recognized	<u>\$ (281)</u>	<u>\$ 170</u>	<u>\$ (388)</u>	<u>\$ 50</u>

The accumulated benefit obligation for all defined benefit pension plans was \$ 6,013 million and \$6,537 million at December 31, 2021 and 2020, respectively.

Components of Net Periodic Benefit Cost (Credit)

	(In Millions)					
	Pension Benefits			OPEB		
	2021	2020	2019	2021	2020	2019
Service cost	\$ 56	\$ 23	\$ 17	\$ 51	\$ 8	\$ 2
Interest cost	103	64	35	74	19	10
Expected return on plan assets	(359)	(140)	(55)	(40)	(20)	(17)
Amortization:						
Net actuarial loss	32	27	24	3	3	5
Prior service costs (credits)	1	1	1	(2)	(2)	(2)
Settlements	(22)	(6)	—	—	—	—
Net periodic benefit cost (credit)	\$ (189)	\$ (31)	\$ 22	\$ 86	\$ 8	\$ (2)

For 2022, we estimate net periodic benefit cost (credit) as follows:

	(In Millions)
Defined benefit pension plans	\$ (179)
OPEB plans	72
Total	\$ (107)

Components of Accumulated Other Comprehensive Loss (Income)

The following includes details on the significant actuarial losses (gains) impacting the benefit obligation:

	(In Millions)			
	Pension Benefits		OPEB	
	2021	2020	2021	2020
Discount rates	\$ (224)	\$ 181	\$ (117)	\$ 44
Demographic updates	76	(3)	3	(11)
Mortality	19	(16)	13	(4)
Per capita health care costs	—	—	(350)	(10)
Other	(2)	—	(5)	(5)
Actuarial loss (gain) on benefit obligation	(131)	162	(456)	14
Actual returns on assets under (over) expected	(309)	(332)	11	(26)
Amortization of net actuarial gain (loss)	(32)	(27)	2	(3)
Amortization of prior service credits (costs)	(1)	(1)	(3)	2
Settlements	22	6	—	—
Other	—	(27)	8	(2)
Total recognized in accumulated other comprehensive income	\$ (451)	\$ (219)	\$ (438)	\$ (15)

Contributions

Annual contributions to the pension plans are made within income tax deductibility restrictions in accordance with statutory regulations. OPEB plans are not subject to minimum regulatory funding requirements, but rather amounts are contributed pursuant to bargaining agreements.

Company Contributions & Payments	(In Millions)			
	Pension Benefits ¹	Other Benefits ²		Total
		VEBA	Direct Payments	
2020	\$ 50	\$ —	\$ 25	\$ 25
2021	163	67	113	180
2022 (Expected)	4	28	110	138

¹ The 2021 pension contributions include \$118 million in deferred 2020 pension contributions in connection with the CARES Act that were paid on January 4, 2021.

² Pursuant to the applicable bargaining agreements, benefits can be paid from certain VEBA assets that are at least 70% funded (all VEBA assets were over 70% funded at December 31, 2021). Certain agreements with plans holding VEBA assets have capped healthcare costs. For the Cleveland-Cliffs Steel LLC VEBA, we are required to make contributions based on earnings, and we may withdraw money from the VEBA plan to the extent funds are available for costs in excess of the cap. VEBA withdrawals are represented net of direct payments. The amount expected for 2022 in the VEBA column reflects the contribution to be made in February 2022 for earnings in the quarter ended December 31, 2021. We do not include an estimate for contributions beyond that due to the variability of the calculation.

Estimated Future Benefit Payments

	(In Millions)		
	Pension Benefits	OPEB	
2022	\$ 475	\$	180
2023	477		171
2024	451		167
2025	428		163
2026	424		163
2027-2031	1,879		823

Assumptions

The discount rates used to measure plan liabilities as of the December 31 measurement date are determined individually for each plan. The discount rates are determined by matching the projected cash flows used to determine the plan liabilities to a projected yield curve of high-quality corporate bonds available at the measurement date. Discount rates for expense are calculated using the granular approach for each plan.

Depending on the plan, we use either company-specific base mortality tables or tables issued by the Society of Actuaries. We use the Pri-2012 mortality tables from the Society of Actuaries with adjustments for blue collar, white collar or no collar depending on the plan. On December 31, 2021, the assumed mortality improvement projection was updated from generational scale MP-2020 to generational scale MP-2021 for the Pri-2012 mortality tables.

The following represents weighted-average assumptions used to determine benefit obligations:

	Pension Benefits				OPEB			
	December 31,				December 31,			
	2021		2020		2021		2020	
Discount rate	2.75	%	2.34	%	3.01	%	2.71	%
Interest crediting rate	5.35		5.25		N/A		N/A	
Compensation rate increase	2.52		2.56		3.00		3.00	

The following represents weighted-average assumptions used to determine net benefit cost:

	Pension Benefits			OPEB		
	December 31,			December 31,		
	2021	2020	2019	2021	2020	2019
Obligation discount rate	2.32 %	3.02 %	4.27 %	2.46 %	3.28 %	4.29 %
Service cost discount rate	2.78	3.34	4.35	3.28	3.35	4.49
Interest cost discount rate	1.64	2.53	3.92	2.04	2.51	3.94
Interest crediting rate	5.35	5.50	6.00	N/A	N/A	N/A
Expected return on plan assets	6.84	7.69	8.25	5.20	6.82	7.00
Compensation rate increase	2.54	2.56	2.53	3.00	3.00	3.00

The following represents assumed weighted-average health care cost trend rates:

	December 31,	
	2021	2020
Health care cost trend rate assumed for next year	2.36 %	6.05 %
Ultimate health care cost trend rate	4.50	4.59
Year that the ultimate rate is reached	2031	2031

Plan Assets

Our financial objectives with respect to our pension and VEBA assets are to fully fund the actuarial accrued liability for each of the plans, to maximize investment returns within reasonable and prudent levels of risk, and to maintain sufficient liquidity to meet benefit obligations on a timely basis.

Our investment objective is to outperform the expected return on assets assumption used in the plans' actuarial reports over the life of the plans. The expected return on assets takes into account historical returns and estimated future long-term returns based on capital market assumptions applied to the asset allocation strategy. The expected return is net of investment expenses paid by the plans. In addition, investment performance is monitored quarterly by benchmarking to various indices and metrics for the one-, three- and five-year periods.

The asset allocation strategy is determined through a detailed analysis of assets and liabilities by plan, which defines the overall risk that is acceptable with regard to the expected level and variability of portfolio returns, surplus (assets compared to liabilities), contributions and pension expense.

The asset allocation review process involves simulating capital market behaviors including global asset class performance, inflation and interest rates in order to evaluate various asset allocation scenarios and determine the asset mix with the highest likelihood of meeting financial objectives. The process includes factoring in the current funded status and likely future funded status levels of the plans by taking into account expected growth or decline in the contributions over time.

The asset allocation strategy varies by plan. The following table reflects the actual asset allocations for pension and VEBA assets as of December 31, 2021 and 2020, as well as the 2022 weighted average target asset allocations. Equity investments include securities in large-cap, mid-cap and small-cap companies located in the U.S. and worldwide. Fixed income investments primarily include corporate bonds and government debt securities.

Asset Category	Pension Assets			VEBA Assets		
	2022 Target Allocation	Percentage of Plan Assets at December 31,		2022 Target Allocation	Percentage of Plan Assets at December 31,	
		2021	2020		2021	2020
Equity securities	46.3 %	47.6 %	51.8 %	21.2 %	22.5 %	22.2 %
Fixed income	34.6	34.6	33.8	68.5	66.4	66.4
Hedge funds	2.2	2.2	2.2	1.4	1.8	1.8
Private equity	5.0	2.7	2.1	1.1	—	0.4
Structured credit	5.2	5.6	5.0	1.0	1.2	0.9
Real estate	5.2	5.6	3.3	1.0	2.1	1.8
Absolute return fixed income	1.5	1.7	1.8	5.8	6.0	6.5
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

As a practical expedient, in accordance with ASC 820-10, certain investments that are measured at fair value using the NAV per share have not been classified in the fair value hierarchy below. NAV is based on the value of the underlying assets owned by the fund, minus its liabilities, and then divided by its number of shares outstanding.

The fair value of our pension assets by asset category is as follows:

Asset Category	(In Millions)									
	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)		Investments Measured at Net Asset Value		Total	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Equity securities:										
U.S. equities	\$ 1,157	\$ 1,163	\$ —	\$ —	\$ —	\$ —	\$ 775	\$ 787	\$ 1,932	\$ 1,950
Global equities	617	615	—	—	—	—	117	195	734	810
Fixed income:										
U.S. government securities ¹	140	141	310	295	—	—	50	40	500	476
U.S. corporate bonds	502	512	371	466	—	—	503	303	1,376	1,281
Non U.S. and other bonds	—	—	66	46	—	—	—	—	66	46
Hedge funds	—	—	—	—	125	118	—	—	125	118
Private equity	—	—	—	—	151	114	—	—	151	114
Structured credit	—	—	—	—	315	264	—	—	315	264
Real estate	—	—	—	—	313	174	—	—	313	174
Absolute return fixed income	—	—	—	—	—	—	94	99	94	99
Total	\$ 2,416	\$ 2,431	\$ 747	\$ 807	\$ 904	\$ 670	\$ 1,539	\$ 1,424	\$ 5,606	\$ 5,332

¹ Includes cash equivalents.

Assets for OPEB plans include VEBA trusts pursuant to bargaining agreements that are available to fund retired employees' life insurance obligations and medical benefits. The fair value of our other benefit plan assets by asset category is as follows:

Asset Category	(In Millions)									
	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)		Investments Measured at Net Asset Value		Total	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Equity securities:										
U.S. equities	\$ 26	\$ 26	\$ —	\$ —	\$ —	\$ —	\$ 103	\$ 93	\$ 129	\$ 119
Global equities	6	6	—	—	—	—	48	49	54	55
Fixed income:										
U.S. government securities ¹	111	62	80	94	—	—	—	—	191	156
U.S. corporate bonds	219	237	129	127	—	—	—	—	348	364
Hedge funds	—	—	—	—	15	14	—	—	15	14
Private equity	—	—	—	—	—	3	—	—	—	3
Structured credit	—	—	—	—	10	7	—	—	10	7
Real estate	—	—	—	—	17	14	—	—	17	14
Absolute return fixed income	—	—	—	—	—	—	48	51	48	51
Total	\$ 362	\$ 331	\$ 209	\$ 221	\$ 42	\$ 38	\$ 199	\$ 193	\$ 812	\$ 783

¹ Includes cash equivalents.

The following represents the fair value measurements of changes in plan assets using significant unobservable inputs (Level 3):

	(In Millions)			
	Pension Assets		VEBA Assets	
	2021	2020	2021	2020
Beginning balance — January 1	\$ 670	\$ 212	\$ 38	\$ 34
Actual return on plan assets:				
Relating to assets still held at the reporting date	124	8	6	2
Relating to assets sold during the period	8	6	—	1
Purchases	142	195	—	—
Sales	(40)	(13)	(2)	(1)
Acquired through business combinations	—	262	—	2
Ending balance — December 31	\$ 904	\$ 670	\$ 42	\$ 38

Following is a description of the inputs and valuation methodologies used to measure the fair value of our plan assets.

Equity Securities

Equity securities classified as Level 1 investments include U.S. large-, small- and mid-cap investments and international equities. These investments are comprised of securities listed on an exchange, market or automated quotation system for which quotations are readily available. The valuation of these securities is determined using a market approach and is based upon unadjusted quoted prices for identical assets in active markets.

Fixed Income

Fixed income securities classified as Level 1 investments include bonds, government debt securities and cash equivalents. These investments are comprised of securities listed on an exchange, market or automated quotation system for which quotations are readily available. The valuation of these securities is determined using a

market approach and is based upon unadjusted quoted prices for identical assets in active markets. Also included in fixed income is a portfolio of U.S. Treasury STRIPS, which are zero-coupon bearing fixed income securities backed by the full faith and credit of the U.S. government. The securities sell at a discount to par because there are no incremental coupon payments. STRIPS are not issued directly by the Treasury, but rather are created by a financial institution, government securities broker or government securities dealer. Liquidity on the issue varies depending on various market conditions; however, in general, the STRIPS market is slightly less liquid than that of the U.S. Treasury Bond market. The STRIPS are priced daily through a bond pricing vendor and are classified as Level 2.

Hedge Funds

Hedge funds are alternative investments comprised of direct or indirect investment in offshore hedge funds with an investment objective to achieve equity-like returns with one half the volatility of equities and moderate correlation. The valuation techniques used to measure fair value attempt to maximize the use of observable inputs and minimize the use of unobservable inputs. Considerable judgment is required to interpret the factors used to develop estimates of fair value. Valuations of the underlying investment funds are obtained and reviewed. The securities that are valued by the funds are interests in the investment funds and not the underlying holdings of such investment funds. Thus, the inputs used to value the investments in each of the underlying funds may differ from the inputs used to value the underlying holdings of such funds. Hedge funds are valued monthly and recorded on a one-month lag.

Private Equity Funds

Private equity funds are alternative investments that represent direct or indirect investments in partnerships, venture funds or a diversified pool of private investment vehicles (fund of funds).

Investment commitments are made in private equity funds based on an asset allocation strategy, and capital calls are made over the life of the funds to fund the commitments. As of December 31, 2021, remaining commitments total \$151 million for our pension and OPEB plans. Committed amounts are funded from plan assets when capital calls are made. Investment commitments are not pre-funded in reserve accounts.

Private equity investments are valued quarterly and recorded on a one-quarter lag. For private equity investment values reported on a lag, current market information is reviewed for any material changes in values at the reporting date. Capital distributions for the funds do not occur on a regular frequency. Liquidation of these investments would require sale of the partnership interest.

Structured Credit

Structured credit funds provide flexibility and access to both complex and illiquid premiums by investing across global, public and private residential, commercial, corporate and specialty credit markets that are priced based on valuations provided by independent, third-party pricing agents, if available. Such values generally reflect the last reported sales price if the security is actively traded. The third-party pricing agents may also value structured credit investments at an evaluated bid price by employing methodologies that utilize actual market transactions, broker-supplied valuations or other methodologies designed to identify the market value of such securities.

Structured credit investments are valued monthly and certain funds have an initial lock-up period and withdrawal restrictions on a semi-annual and quarterly basis. For structured credit investment values reported on a lag, current market information is reviewed for any material changes in values at the reporting date.

Real Estate

The real estate portfolio for the pension plans is an alternative investment comprised of funds with strategic categories of real estate investments. All real estate holdings are appraised externally at least annually, and appraisals are conducted by reputable, independent appraisal firms that are members of the Appraisal Institute. All external appraisals are performed in accordance with the Uniform Standards of Professional Appraisal Practices. The property valuations and assumptions about each property are reviewed quarterly by the investment manager and values are adjusted if there has been a significant change in circumstances relating to the property since the last external appraisal. The fair values of the funds are updated on either a monthly or quarterly basis. Redemption requests are considered on a quarterly basis, subject to notice requirements.

The real estate fund of funds investment for the VEBA trusts invests in pooled investment vehicles that, in turn, invest in commercial real estate properties. Valuations are performed quarterly and financial statements are prepared on a semi-annual basis, with annual audited statements. Asset values for this fund are reported with a one-

quarter lag, and current market information is reviewed for any material changes in values at the reporting date. Withdrawals are permitted on the last business day of each quarter subject to a 95-day prior written notice.

Absolute Return Fixed Income

Absolute return fixed income investments consist of a global fixed income fund with the investment objective of generating positive absolute returns over a full market cycle. The fund's investments in securities, forward exchange contracts and futures contracts are reported at fair value on a recurring monthly basis. The fund's trustee values securities based upon independent pricing sources and futures contracts are valued at closing settled prices. Redemptions of the fund at NAV are permitted monthly under most circumstances.

Defined Contribution Plans

Most employees are eligible to participate in various defined contribution plans. Certain of these plans have features with matching contributions or other Company contributions based on our financial results. Company contributions to these plans are expensed as incurred. Total expense from these plans was \$55 million, \$22 million and \$3 million in 2021, 2020 and 2019, respectively.

Multiemployer Plans

We contribute to multiemployer pension plans according to collective bargaining agreements that cover certain union-represented employees. The risks of participating in these multiemployer plans are different from the risks of participating in single-employer pension plans in the following respects:

- Assets contributed to a multiemployer plan by one employer may be used to provide benefits to employees of other participating employers.
- If a participating employer stops contributing to a multiemployer plan, the unfunded obligations of the plan may be borne by the remaining participating employers.
- If the multiemployer plan becomes significantly underfunded or is unable to pay its benefits, we may be required to contribute additional amounts in excess of the rate required by the collective bargaining agreements.
- If we choose to stop participating in a multiemployer plan, we may be required to pay that plan an amount based on the underfunded status of the plan, referred to as a withdrawal liability.

Information with respect to multiemployer plans in which we participate follows:

Pension Fund	EIN/Pension Plan Number	Pension Protection Act Zone Status (a)		FIP/RP Status Pending/Implemented (b)	Contributions			Surcharge Imposed (c)	Expiration Date of Collective Bargaining Agreement (d)
		2021	2020		2021	2020	2019		
Steelworkers Pension Trust	23-6648508/499	Green	Green	No	\$ 88	\$ 14	\$ 4	No	9/1/2022 to 09/1/2025
IAM National Pension Fund's National Pension Plan	51-6031295/002	Red	Red	Yes	16	16	—	Yes	5/31/2022 to 5/15/2023
Other Plans ^(e)					—	—	—		
Total					\$ 104	\$ 30	\$ 4		

(a) The most recent Pension Protection Act zone status available in 2021 and 2020 is for each plan's year-end at December 31, 2020 and 2019. The plan's actuary certifies the zone status. Generally, plans in the red zone are less than 65% funded, plans in the yellow zone are between 65% and 80% funded, and plans in the green zone are at least 80% funded. The IAM National Pension Fund's National Pension Plan voluntarily elected to place itself in the "Red Zone" in April 2019 and has implemented a rehabilitation plan to address its underfunded status. Additional contributions will be required as part of the rehabilitation plan until the plan exits the "Red Zone".

(b) The "FIP/RP Status Pending/Implemented" column indicates plans for which a financial improvement plan or a rehabilitation plan is either pending or has been implemented, as defined by ERISA.

(c) The surcharge represents an additional required contribution due as a result of the critical funding status of the plan.

(d) We are a party to five collective bargaining agreements that require contributions to the Steelworkers Pension Trust and three collective bargaining agreements that require contributions to the IAM National Pension Fund's National Pension Plan.

(e) Plans that are not individually significant to our Company are presented in aggregate.

With the 2020 Acquisitions, we are one of the largest contributors to the Steelworkers Pension Trust. Our contributions exceeded 5% of total combined contributions in 2021 and 2020. As of January 1, 2021 (the last date for which we have information), the Steelworkers Pension Trust had a total actuarial liability of \$5,960 million and assets with a market value of \$ 5,998 million, for a funded ratio of about 101%.

NOTE 11 - STOCK COMPENSATION PLANS

At December 31, 2021, we had outstanding awards under three share-based compensation plans: the 2021 Equity Plan, the A&R 2015 Equity Plan and the 2012 Amended Equity Plan. On April 28, 2021, the Company's shareholders approved the 2021 Equity Plan, which succeeded the A&R 2015 Equity Plan and made available 26.0 million new common shares plus 2.5 million shares remaining available under the A&R 2015 Equity Plan. As of December 31, 2021, there were 28.0 million remaining shares available for grant under the 2021 Equity Plan. No additional grants were issued from the 2012 Amended Equity Plan or the A&R 2015 Equity Plan after the date of approval of the 2021 Equity Plan; however, all awards previously granted under the predecessor plans will continue in accordance with the terms of the outstanding awards.

On March 13, 2020, the maximum number of shares that may be issued under the A&R 2015 Equity Plan increased by 5.7 million common shares in relation to the outstanding AK Steel stock-based incentive awards that we converted at a 0.400 rate of exchange. The converted stock-based incentive awards include 2.0 million stock options, 1.0 million long-term performance plan awards, 0.5 million performance shares, 0.2 million restricted stock awards and 0.3 million restricted stock units.

Stock-Based Compensation Expense

The following table summarizes the total compensation expense recognized for stock-based compensation awards:

	(In Millions, except per share amounts)		
	Year Ended December 31,		
	2021	2020	2019
Cost of goods sold	\$ (2)	\$ (2)	\$ (2)
Selling, general and administrative expenses	(16)	(13)	(16)
Acquisition-related costs	—	(2)	—
Stock based compensation expense	(18)	(17)	(18)
Income tax benefit	4	4	4
Stock based compensation expense, net of tax	\$ (14)	\$ (13)	\$ (14)
Decrease in basic earnings per common share	\$ (0.03)	\$ (0.03)	\$ (0.05)
Decrease in diluted earnings per common share	\$ (0.03)	\$ (0.03)	\$ (0.05)

The total compensation cost related to outstanding awards not yet recognized is \$ 24 million at December 31, 2021. This expense is expected to be recognized over the remaining weighted-average period of 1.4 years.

Performance Shares

The following table summarizes the performance award activity:

	Year Ended December 31,					
	2021		2020		2019	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Outstanding at beginning of year	2,452,226	\$ 10.34	1,935,878	\$ 15.58	1,424,723	\$ 14.46
Granted	652,888	25.12	960,637	6.93	572,104	18.31
Granted - replacement awards	—	—	1,550,216	4.59	—	—
Distributed	(1,279,509)	11.74	(1,938,786)	12.23	—	—
Performance adjustment	625,355	11.93	549,154	15.63	—	—
Forfeited/canceled	(80,490)	11.27	(604,873)	5.70	(60,949)	15.12
Outstanding at end of year	2,370,470	\$ 14.04	2,452,226	\$ 10.34	1,935,878	\$ 15.58

On March 13, 2020, we granted 1.0 million long-term performance plan awards and 0.5 million performance shares as AK Steel replacement awards. As of December 31, 2021, 0.2 million long-term performance plan awards and 0.1 million performance shares were outstanding as a result of qualifying termination events that triggered accelerated performance share payouts and prorated long-term performance plan awards payouts at target. The long-term performance plan awards are based on a three-year Adjusted EBITDA metric.

The outstanding performance shares vest over a period of three years and are intended to be paid out in common shares. Performance is measured on the basis of relative TSR for the period and measured against the constituents of the S&P Metals and Mining ETF Index. The number of shares actually earned at the end of the three-year period will vary, based on performance, from 0% to 200% of the number of performance shares granted.

Restricted Stock Units

The following table summarizes the restricted stock units activity:

	Year Ended December 31,					
	2021		2020		2019	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Outstanding at beginning of year	2,143,583	\$ 7.12	2,147,183	\$ 9.10	4,694,360	\$ 4.18
Granted	678,420	17.45	960,637	4.87	572,104	11.24
Granted - replacement awards	—	—	200,291	4.87	—	—
Distributed	(642,992)	7.31	(1,101,115)	8.58	(3,058,307)	1.95
Forfeited/canceled	(56,185)	9.50	(63,413)	7.31	(60,974)	9.31
Outstanding at end of year	2,122,826	\$ 10.31	2,143,583	\$ 7.12	2,147,183	\$ 9.10

On March 13, 2020, we granted 0.2 million restricted stock awards as AK Steel replacement awards. The restricted stock awards relating to AK Steel vest ratably on the first, second and third anniversaries of the grant. We valued the AK Steel replacement rewards at \$4.87 per share using the closing price of our common shares on March 13, 2020, the grant date.

We value our restricted stock units using the closing price of our common shares on the grant date. All of the outstanding restricted stock units are subject to continued employment, are retention based, and are payable in common shares or cash in certain circumstances at a time determined by the Compensation Committee at its discretion. Most restricted stock units that were granted in 2021, 2020 and 2019 cliff vest over three years on December 31, 2023, December 31, 2022 and December 31, 2021, respectively.

Stock Options

The following table summarizes the stock option activity:

	Year Ended December 31,					
	2021		2020		2019	
	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
Outstanding at beginning of year	2,485,808	\$ 11.60	563,230	\$ 10.42	563,230	\$ 10.42
Granted - replacement awards	—	—	2,010,277	11.86	—	—
Exercised	(1,457,495)	10.36	(79,973)	7.01	—	—
Forfeited/canceled	(26,253)	36.48	(7,726)	41.04	—	—
Outstanding at end of year	1,002,060	\$ 12.75	2,485,808	\$ 11.60	563,230	\$ 10.42
Exercisable at end of year	904,574	\$ 13.35	2,172,052	\$ 11.86	563,230	\$ 10.42

Stock options granted to date generally vest over a period from one to three years with an expiration date at ten years from the date of grant. On March 13, 2020, we granted 2.0 million options as AK Steel replacement awards. The weighted average fair value of the converted options was \$0.51 per share and was calculated using the Black-Scholes option-pricing model. Qualifying termination events resulted in vest date accelerations and reductions to the option expiration date from ten years to three years.

The total intrinsic value of options exercised in 2021 was \$ 13 million and the amount in 2020 was immaterial. For options outstanding at December 31, 2021, the weighted-average remaining contractual life was 3.0 years and the aggregate intrinsic value was \$ 10 million. For options exercisable at December 31, 2021, the weighted-average remaining contractual life was 2.6 years and the aggregate intrinsic value was \$ 8 million.

Nonemployee Directors

Our nonemployee directors are entitled to receive restricted share awards under the Directors' Plan. For 2021, 2020 and 2019, nonemployee directors were granted a specified number of restricted shares, with a value equal to \$120,000, \$100,000 and \$100,000, respectively. The number of shares is based on the closing price of our common shares on the date of the Annual Meeting. The restricted share awards issued under the Directors' Plan generally vest 12 months from the grant date. The awards are subject to any deferral election and the terms of the Directors' Plan and an award agreement.

On March 13, 2020, 0.3 million restricted stock units previously awarded to the members of the AK Steel board of directors were distributed per the terms of the AK Steel Merger Agreement.

For the last three years, grants of restricted and/or deferred shares have been awarded to elected or re-elected nonemployee directors as follows:

Year of Grant	Restricted Shares	Deferred Shares
2021	58,851	13,078
2020	253,809	54,794
2019	86,477	23,659

NOTE 12 - INCOME TAXES

Income (loss) from continuing operations before income taxes includes the following components:

	(In Millions)		
	2021	2020	2019
United States	\$ 3,827	\$ (201)	\$ 313
Foreign	(24)	8	—
	<u>\$ 3,803</u>	<u>\$ (193)</u>	<u>\$ 313</u>

The components of the income tax provision (benefit) on continuing operations consist of the following:

	(In Millions)		
	2021	2020	2019
Current provision (benefit):			
United States federal	\$ 14	\$ (2)	\$ (1)
United States state & local	55	—	—
Foreign	—	(1)	—
	<u>69</u>	<u>(3)</u>	<u>(1)</u>
Deferred provision (benefit):			
United States federal	683	(95)	19
United States state & local	31	(11)	—
Foreign	(10)	(2)	—
Total income tax provision (benefit) from continuing operations	<u>\$ 773</u>	<u>\$ (111)</u>	<u>\$ 18</u>

Reconciliation of our income tax attributable to continuing operations computed at the U.S. federal statutory rate is as follows:

	(In Millions)					
	2021		2020		2019	
Tax at U.S. statutory rate	\$ 799	21 %	\$ (41)	21 %	\$ 66	21 %
Increase (decrease) due to:						
Percentage depletion in excess of cost depletion	(99)	(3)	(42)	22	(49)	(16)
Non-taxable income related to noncontrolling interests	(9)	—	(9)	4	—	—
Luxembourg legal entity reduction	—	—	—	—	846	271
Valuation allowance release:						
Luxembourg legal entity reduction	—	—	—	—	(846)	(271)
State taxes, net	86	2	(11)	6	—	—
Other items, net	(4)	—	(8)	4	1	1
Provision for income tax expense (benefit) and effective income tax rate including discrete items	<u>\$ 773</u>	<u>20 %</u>	<u>\$ (111)</u>	<u>57 %</u>	<u>\$ 18</u>	<u>6 %</u>

The increase in income tax expense in 2021 from income tax benefit in 2020 is directly correlated to the increase in pre-tax book income from the prior period for both federal and state income tax purposes.

The increase in income tax benefit from 2019 to 2020 is directly correlated to the decrease in pre-tax book income from the prior period for both federal and state income tax purposes. The Luxembourg legal entity reduction relates to initiatives resulting in the dissolution of certain entities and settlement of related financial instruments in 2019. The 2019 NOL deferred tax asset reduction resulted in tax expense of \$846 million, which was fully offset by a decrease in the respective valuation allowance.

The components of income taxes for other than continuing operations consisted of the following:

	(In Millions)		
	2021	2020	2019
Other comprehensive income (loss):			
Pension and OPEB	\$ (206)	\$ (52)	\$ 11
Derivative financial instruments	(21)	(1)	—
Total	<u>\$ (227)</u>	<u>\$ (53)</u>	<u>\$ 11</u>

Significant components of our deferred tax assets and liabilities are as follows:

	(In Millions)	
	2021	2020
Deferred tax assets:		
Operating loss and other carryforwards	\$ 379	\$ 1,236
Pension and OPEB liabilities	584	228
State and local	109	132
Other liabilities	287	190
Total deferred tax assets before valuation allowance	1,359	1,786
Deferred tax asset valuation allowance	(409)	(836)
Net deferred tax assets	950	950
Deferred tax liabilities:		
Investment in partnerships	(191)	(144)
Property, plant and equipment and mineral rights	(641)	(246)
Other assets	(216)	(68)
Total deferred tax liabilities	(1,048)	(458)
Net deferred tax assets (liabilities)	\$ (98)	\$ 492

We had gross domestic (including states) and foreign NOLs of \$ 2,081 million and \$ 1,407 million, respectively, at December 31, 2021. We had gross domestic and foreign NOLs of \$ 7,444 million and \$ 1,592 million, respectively, at December 31, 2020. The U.S. federal NOLs will begin to expire in 2034 and state NOLs will begin to expire in 2022. The foreign NOLs can be carried forward indefinitely. We had gross interest expense limitation carryforwards of \$ 18 million and \$ 80 million for the years ended December 31, 2021 and 2020, respectively. This interest expense can be carried forward indefinitely.

The changes in the valuation allowance are presented below:

	(In Millions)		
	2021	2020	2019
Balance at beginning of year	\$ 836	\$ 441	\$ 1,287
Change in valuation allowance:			
Included in income tax benefit	(82)	(3)	(846)
Increase (decrease) from acquisitions	(345)	398	—
Balance at end of year	\$ 409	\$ 836	\$ 441

During 2021, we recorded a decrease to the valuation allowance of \$ 345 million related to the election filed with our 2020 federal tax return to waive the pre-acquisition NOLs that are limited under Section 382 of the IRC. An offsetting decrease is recorded in the NOL deferred tax asset in the same period. These amounts relate to a portion of the \$ 398 million valuation allowance recorded during 2020 through opening balance sheet adjustments to reflect the portion of federal and state NOLs that are limited under Section 382 of the IRC acquired through the AK Steel Merger.

During 2019, a legal entity reduction initiative was completed in Luxembourg resulting in the dissolution of certain entities and settlement of related financial instruments, triggering the utilization of \$ 1.3 billion of NOL deferred tax asset and reversal of the intercompany notes deferred tax liability of \$ 447 million. The total net deferred tax reduction resulted in an expense of \$ 846 million, which was fully offset by a decrease in the valuation allowance. Our losses in Luxembourg in recent periods represent sufficient negative evidence to require a full valuation allowance against the remaining deferred tax assets in that jurisdiction. We intend to maintain a valuation allowance against the deferred tax assets related to these operating losses until sufficient positive evidence exists to support the realization of such assets.

We also have a valuation allowance recorded against certain state NOLs, which are expected to expire before utilization. At December 31, 2021 and 2020, we had a valuation allowance recorded against certain state NOLs of \$ 70 million and \$ 98 million, respectively.

At December 31, 2021 and 2020, we had no cumulative undistributed earnings of foreign subsidiaries included in retained earnings. Accordingly, no provision has been made for U.S. deferred taxes related to future repatriation of earnings.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	(In Millions)		
	2021	2020	2019
Unrecognized tax benefits balance as of January 1	\$ 107	\$ 29	\$ 29
Increase for tax positions in current year	4	7	—
Decrease for tax positions of prior year	(66)	(4)	—
Lapses in statutes of limitations	(10)	—	—
Increases from acquisitions	—	75	—
Unrecognized tax benefits balance as of December 31	<u>\$ 35</u>	<u>\$ 107</u>	<u>\$ 29</u>

At December 31, 2021 and 2020, we had \$ 35 million and \$ 107 million, respectively, of unrecognized tax benefits recorded. Of this amount, \$1 million was recorded in *Other current liabilities* for the year ended December 31, 2021. Additionally, \$34 million and \$2 million, were recorded in *Other non-current liabilities* for the years ended December 31, 2021 and 2020, respectively. An additional \$96 million was recorded in *Other non-current assets* for the year ended December 31, 2020. If the unrecognized tax benefits were recognized, \$30 million would impact the effective tax rate. We do not expect that the amount of unrecognized benefits will change significantly within the next 12 months.

Tax years 2016 and forward remain subject to examination for the U.S., and tax years 2008 and forward remain subject to examination for Canada.

NOTE 13 - LEASE OBLIGATIONS

Our operating leases consist primarily of leases for office space, iron ore vessels, rail cars and processing equipment. Our finance leases consist primarily of processing equipment and mining equipment. We use our incremental borrowing rate as the discount rate to determine the present value of the lease payments, as our leases do not have readily determinable implicit discount rates. Our incremental borrowing rate is the rate of interest that we would have to borrow on a collateralized basis over a similar term and amount in a similar economic environment to pay our lease obligations. We determine the incremental borrowing rates for our leases by adjusting the local risk-free interest rate with a credit risk premium corresponding to our credit rating. From time to time, we may enter into arrangements for the construction or purchase of an asset and then enter into a financing arrangement to lease the asset. We recognize leased assets and liabilities under these arrangements when we obtain control of the asset.

Lease costs are presented below:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Operating leases	\$ 70	\$ 43
Finance leases:		
Amortization of lease cost	94	15
Interest on lease liabilities	9	4
Short-term leases	66	13
Total	<u>\$ 239</u>	<u>\$ 75</u>

Other information related to leases was as follows:

	(In Millions)	
	Year Ended December 31,	
	2021	2020
Cash paid for amounts included in measurement of lease liabilities:		
Operating leases within cash flows from operating activities	\$ 70	\$ 43
Finance leases within cash flows from operating activities	\$ 9	\$ 4
Finance leases within cash flows from financing activities	\$ 94	\$ 15
Right-of-use assets obtained in exchange for new finance lease liabilities ¹	\$ 50	\$ 44
Weighted-average remaining lease term - operating leases (in years)	8	8
Weighted-average remaining lease term - finance leases (in years)	5	5
Weighted-average discount rate - operating leases	7 %	8 %
Weighted-average discount rate - finance leases	4 %	4 %

¹ Right-of-use assets obtained in acquisitions are not included in this figure.

Future minimum lease payments under noncancellable finance and operating leases as of December 31, 2021 were as follows:

	(In Millions)	
	Finance Leases	Operating Leases
2022	\$ 105	\$ 68
2023	96	56
2024	31	47
2025	28	39
2026	19	35
Thereafter	66	133
Total future minimum lease payments	345	378
Less: imputed interest	54	108
Total lease payments	291	270
Less: current portion of lease liabilities	97	50
Long-term lease liabilities	\$ 194	\$ 220

The current and long-term portions of our finance and operating lease liabilities are included in *Other current liabilities* and *Other non-current liabilities*, respectively.

NOTE 14 - ASSET RETIREMENT OBLIGATIONS

The following is a summary of our asset retirement obligations:

	(In Millions)	
	December 31,	
	2021	2020
Asset retirement obligations ¹	\$ 449	\$ 342
Less: current portion	35	7
Long-term asset retirement obligations	\$ 414	\$ 335

¹ Includes \$293 million and \$190 million related to our active operations as of December 31, 2021 and 2020, respectively.

The accrued closure obligation provides for contractual and legal obligations related to our indefinitely idled and closed operations and for the eventual closure of our active operations. We performed a detailed assessment of our asset retirement obligations related to our active operations most recently in 2020 in accordance with our accounting policy, which requires us to perform an in-depth evaluation of the liability every three years in addition to

routine annual assessments. In 2020, we employed third-party specialists to assist in the evaluation.

The closure date for each of our active mine sites was determined based on the exhaustion date of the remaining mineral reserves, and the amortization of the related asset and accretion of the liability is recognized over the estimated mine lives. The closure date and expected timing of the capital requirements to meet our obligations for our indefinitely idled or closed mines is determined based on the unique circumstances of each property. For indefinitely idled or closed mines, the accretion of the liability is recognized over the anticipated timing of remediation. As the majority of our asset retirement obligations at our steelmaking operations have indeterminate settlement dates, asset retirement obligations have been recorded at present values using estimated ranges of the economic lives of the underlying assets.

The following is a roll-forward of our asset retirement obligation liability:

	(In Millions)	
	2021	2020
Asset retirement obligation as of January 1	\$ 342	\$ 165
Increase from acquisitions	116	172
Accretion expense	18	14
Remediation payments	(29)	(9)
Revision in estimated cash flows	2	—
Asset retirement obligation as of December 31	<u>\$ 449</u>	<u>\$ 342</u>

The increase from acquisitions for the year ended December 31, 2021 relates to measurement period adjustments as a result of the final purchase price allocation of the AM USA Transaction.

NOTE 15 - CAPITAL STOCK

Underwritten Public Offering

On February 11, 2021, we sold 20 million of our common shares and 40 million common shares were sold by an affiliate of ArcelorMittal in an underwritten public offering. In each case, shares were sold at a price per share of \$16.12. Prior to this sale, ArcelorMittal held approximately 78 million of our common shares, which were issued as a part of the consideration in connection with the AM USA Transaction. We did not receive any proceeds from the sale of the 40 million common shares sold on behalf of ArcelorMittal. We used the net proceeds from the offering, plus cash on hand, to redeem \$322 million aggregate principal amount of our outstanding 9.875% 2025 Senior Secured Notes.

Acquisition of AK Steel

As more fully described in NOTE 3 - ACQUISITIONS, we acquired AK Steel on March 13, 2020. At the effective time of the AK Steel Merger, each share of AK Steel common stock issued and outstanding prior to the effective time of the AK Steel Merger was converted into, and became exchangeable for, 0.400 Cliffs common shares, par value \$0.125 per share. We issued a total of 127 million common shares in connection with the AK Steel Merger at a fair value of \$ 618 million. Following the closing of the AK Steel Merger, AK Steel's common stock was de-listed from the NYSE.

Acquisition of ArcelorMittal USA

As more fully described in NOTE 3 - ACQUISITIONS, we acquired ArcelorMittal USA on December 9, 2020. Pursuant to the terms of the AM USA Transaction Agreement, we issued 78,186,671 common shares and 583,273 shares of a new series of our Serial Preferred Stock, Class B, without par value, designated as the "Series B Participating Redeemable Preferred Stock," in each case to an indirect, wholly owned subsidiary of ArcelorMittal as part of the consideration paid by us in connection with the closing of the AM USA Transaction.

Series B Participating Redeemable Preferred Stock Redemption

We had 583,273 shares of our Series B Participating Redeemable Preferred Stock issued and outstanding as of December 31, 2020. During the third quarter of 2021, we redeemed all 583,273 shares of our Series B Participating Redeemable Preferred Stock at a redemption price of \$ 1.3 billion using borrowings under our ABL Facility.

Amendment to Articles of Incorporation

On April 29, 2021, we filed a Certificate of Amendment to our Fourth Amended Articles of Incorporation, as amended, to increase the total number of authorized common shares from 600,000,000 to 1,200,000,000.

Preferred Stock

We have 3,000,000 shares of Serial Preferred Stock, Class A, without par value, authorized, of which, none are issued or outstanding as of December 31, 2021. We also have 4,000,000 shares of Serial Preferred Stock, Class B, without par value, authorized, of which, none are issued or outstanding as of December 31, 2021.

Dividends

The below table summarizes our recent dividend activity:

Declaration Date	Record Date	Payment Date	Dividend Declared per Common Share
2/18/2020	4/3/2020	4/15/2020	\$ 0.06
12/2/2019	1/3/2020	1/15/2020	0.06

Subsequent to the dividend paid on April 15, 2020, our Board suspended future dividends.

Share Repurchase Program

In 2018, our Board of Directors authorized a program to repurchase outstanding common shares in the open market or in privately negotiated transactions. The share repurchase program was effective until December 31, 2019. During 2019, we repurchased 24 million common shares at a cost of \$ 253 million in the aggregate, including commissions and fees.

NOTE 16 - ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

The components of *Accumulated other comprehensive income (loss)* within Cliffs shareholders' equity and related tax effects allocated to each are shown below:

	(In Millions)		
	Pre-tax Amount	Tax Benefit (Expense)	After-tax Amount
As of December 31, 2021:			
Pension and OPEB	\$ 669	\$ (120)	\$ 549
Foreign currency translation adjustments	1	—	1
Derivative financial instruments	89	(21)	68
	<u>\$ 759</u>	<u>\$ (141)</u>	<u>\$ 618</u>
As of December 31, 2020:			
Pension and OPEB	\$ (221)	\$ 86	\$ (135)
Foreign currency translation adjustments	3	—	3
Derivative financial instruments	(1)	—	(1)
	<u>\$ (219)</u>	<u>\$ 86</u>	<u>\$ (133)</u>
As of December 31, 2019:			
Pension and OPEB	\$ (454)	\$ 138	\$ (316)
Derivative financial instruments	(4)	1	(3)
	<u>\$ (458)</u>	<u>\$ 139</u>	<u>\$ (319)</u>

The following table reflects the changes in *Accumulated other comprehensive income (loss)* related to Cliffs shareholders' equity:

	(In Millions)			
	Postretirement Benefit Liability, net of tax	Foreign Currency Translation	Derivative Financial Instruments, net of tax	Accumulated Other Comprehensive Income (Loss)
December 31, 2018	\$ (281)	\$ —	\$ (3)	\$ (284)
Other comprehensive loss before reclassifications	(57)	—	(2)	(59)
Net loss reclassified from AOCI	22	—	2	24
December 31, 2019	(316)	—	(3)	(319)
Other comprehensive income (loss) before reclassifications	163	3	(6)	160
Net loss reclassified from AOCI	18	—	8	26
December 31, 2020	(135)	3	(1)	(133)
Other comprehensive income (loss) before reclassifications	675	(2)	117	790
Net loss (gain) reclassified from AOCI	9	—	(48)	(39)
December 31, 2021	<u>\$ 549</u>	<u>\$ 1</u>	<u>\$ 68</u>	<u>\$ 618</u>

The following table reflects the details about *Accumulated other comprehensive income (loss)* components reclassified from Cliffs shareholders' equity:

Details about Accumulated Other Comprehensive Income (Loss) Components	(In Millions)			Affected Line Item in the Statement of Consolidated Operations
	Amount of (Gain)/Loss Reclassified into Income, Net of Tax			
	Year Ended December 31,			
	2021	2020	2019	
Changes in pension and OPEB:				
Prior service costs ¹	\$ (1)	\$ (1)	\$ (1)	<i>Net periodic benefit credits (costs) other than service cost component</i>
Net actuarial loss ¹	35	30	29	<i>Net periodic benefit credits (costs) other than service cost component</i>
Settlements ¹	(22)	(6)	—	<i>Net periodic benefit credits (costs) other than service cost component</i>
Total before taxes	12	23	28	
Income tax benefit	(3)	(5)	(6)	<i>Income tax benefit (expense)</i>
Net of taxes	<u>\$ 9</u>	<u>\$ 18</u>	<u>\$ 22</u>	
Changes in derivative financial instruments:				
Commodity contracts	\$ (61)	\$ 10	\$ 3	<i>Cost of goods sold</i>
Income tax expense (benefit)	13	(2)	(1)	<i>Income tax benefit (expense)</i>
Net of taxes	<u>\$ (48)</u>	<u>\$ 8</u>	<u>\$ 2</u>	
Total reclassifications for the period, net of tax	<u>\$ (39)</u>	<u>\$ 26</u>	<u>\$ 24</u>	

¹ See NOTE 10 - PENSIONS AND OTHER POSTRETIREMENT BENEFITS for further information.

NOTE 17 - RELATED PARTIES

We have certain co-owned joint ventures with companies from the steel and mining industries, including integrated steel companies, their subsidiaries and other downstream users of steel and iron ore products.

Hibbing is a co-owned joint venture with U.S. Steel, in which, as of both December 31, 2020 and December 31, 2021, we own 85.3% and U.S. Steel owns 14.7%. As a result of the AM USA Transaction, we acquired an additional 62.3% ownership stake in the Hibbing mine and became the majority owner and mine manager. Prior to the AM USA Transaction, ArcelorMittal was a related party due to its ownership interest in Hibbing. As such, certain long-term contracts with ArcelorMittal resulted in *Revenues* from related parties, and are included within the below.

Revenues from related parties were as follows:

	(In Millions)		
	Year Ended December 31,		
	2021	2020	2019
Revenue from related parties	\$ 139	\$ 893	\$ 1,015
Revenues	\$ 20,444	\$ 5,354	\$ 1,990
Related party revenues as a percent of Revenues	0.7 %	16.7 %	51.0 %
Purchases from related parties	\$ 94	\$ 16	\$ —

The following table presents the classification of related party assets and liabilities in the Statements of Consolidated Financial Position:

Balance Sheet Location of Assets (Liabilities)	(In Millions)	
	December 31,	
	2021	2020
<i>Accounts receivable, net</i>	\$ 3	\$ 2
<i>Accounts payable</i>	(7)	(6)

NOTE 18 - VARIABLE INTEREST ENTITIES

SunCoke Middletown

We purchase all the coke and electrical power generated from SunCoke Middletown's plant under long-term supply agreements and have committed to purchase all the expected production from the facility through 2032. We consolidate SunCoke Middletown as a VIE because we are the primary beneficiary despite having no ownership interest in SunCoke Middletown. SunCoke Middletown had income before income taxes of \$52 million and \$41 million for the years ended December 31, 2021 and 2020, respectively, which was included in our consolidated *Income (loss) from continuing operations before income taxes*.

The assets of the consolidated VIE can only be used to settle the obligations of the consolidated VIE and not obligations of the Company. The creditors of SunCoke Middletown do not have recourse to the assets or general credit of the Company to satisfy liabilities of the VIE. The Statements of Consolidated Financial Position includes the following amounts for SunCoke Middletown:

	(In Millions)	
	December 31,	
	2021	2020
Cash and cash equivalents	\$ —	\$ 5
Inventories	20	21
Property, plant and equipment, net	300	308
Accounts payable	(12)	(15)
Other assets (liabilities), net	(12)	(10)
Noncontrolling interests	(296)	(309)

NOTE 19 - EARNINGS PER SHARE

The following table summarizes the computation of basic and diluted EPS:

	(In Millions, Except Per Share Amounts)		
	Year Ended December 31,		
	2021	2020	2019
Income (loss) from continuing operations	\$ 3,030	\$ (82)	\$ 295
Income from continuing operations attributable to noncontrolling interest	(45)	(41)	—
Net income (loss) from continuing operations attributable to Cliffs shareholders	2,985	(123)	295
Income (loss) from discontinued operations, net of tax	3	1	(2)
Net income (loss) attributable to Cliffs shareholders	<u>\$ 2,988</u>	<u>\$ (122)</u>	<u>\$ 293</u>
Weighted average number of shares:			
Basic	498	379	277
Redeemable preferred shares	33	—	—
Convertible senior notes	22	—	4
Employee stock plans	5	—	3
Diluted	<u>558</u>	<u>379</u>	<u>284</u>
Earnings (loss) per common share attributable to Cliffs common shareholders - basic ¹ :			
Continuing operations	\$ 5.62	\$ (0.32)	\$ 1.07
Discontinued operations	0.01	—	(0.01)
	<u>\$ 5.63</u>	<u>\$ (0.32)</u>	<u>\$ 1.06</u>
Earnings (loss) per common share attributable to Cliffs common shareholders - diluted:			
Continuing operations	\$ 5.35	\$ (0.32)	\$ 1.04
Discontinued operations	0.01	—	(0.01)
	<u>\$ 5.36</u>	<u>\$ (0.32)</u>	<u>\$ 1.03</u>

¹ For the year ended December 31, 2021, basic earnings per share was calculated by dividing *Net income (loss) attributable to Cliffs shareholders*, less \$187 million of earnings attributed to Series B Participating Redeemable Preferred Stock, by the weighted average number of basic common shares outstanding during the period presented.

The following table summarizes the shares that have been excluded from the diluted earnings per share calculation for the year ended December 31, 2020, as they were anti-dilutive:

	(In Millions)
	2020
Redeemable preferred shares	4
Convertible senior notes	2
Shares related to employee stock plans	1

NOTE 20 - COMMITMENTS AND CONTINGENCIES
Purchase Commitments

We purchase portions of the principal raw materials required for our steel manufacturing operations under annual and multi-year agreements, some of which have minimum quantity requirements. We also use large volumes of natural gas, electricity and industrial gases in our steel manufacturing operations. We negotiate most of our purchases of chrome, industrial gases and a portion of our electricity under multi-year agreements. Our purchases of

coke are made under annual or multi-year agreements with periodic price adjustments. We typically purchase coal under annual fixed-price agreements. We also purchase certain transportation services under multi-year contracts with minimum quantity requirements.

Contingencies

We are currently the subject of, or party to, various claims and legal proceedings incidental to our current and historical operations. These claims and legal proceedings are subject to inherent uncertainties and unfavorable rulings could occur. An unfavorable ruling could include monetary damages, additional funding requirements or an injunction. If an unfavorable ruling were to occur, there exists the possibility of a material adverse effect on our financial position and results of operations for the period in which the ruling occurs or future periods. However, based on currently available information we do not believe that any pending claims or legal proceedings will result in a material adverse effect in relation to our consolidated financial statements.

Environmental Contingencies

Although we believe our operating practices have been consistent with prevailing industry standards, hazardous materials may have been released at operating sites or third-party sites in the past, including operating sites that we no longer own. If we reasonably can, we estimate potential remediation expenditures for those sites where future remediation efforts are probable based on identified conditions, regulatory requirements, or contractual obligations arising from the sale of a business or facility. For sites involving government required investigations, we typically make an estimate of potential remediation expenditures only after the investigation is complete and when we better understand the nature and scope of the remediation. In general, the material factors in these estimates include the costs associated with investigations, delineations, risk assessments, remedial work, governmental response and oversight, site monitoring, and preparation of reports to the appropriate environmental agencies.

The following is a summary of our environmental obligations:

	(In Millions)	
	December 31, 2021	December 31, 2020
Environmental obligations	\$ 207	\$ 135
Less current portion	20	18
Long-term environmental obligations	<u>\$ 187</u>	<u>\$ 117</u>

The increase in environmental obligations as of December 31, 2021, compared to December 31, 2020, related to measurement period adjustments as a result of the purchase price allocation of the AM USA Transaction and the preliminary purchase price allocation of the FPT Acquisition.

We cannot predict the ultimate costs for each site with certainty because of the evolving nature of the investigation and remediation process. Rather, to estimate the probable costs, we must make certain assumptions. The most significant of these assumptions is for the nature and scope of the work that will be necessary to investigate and remediate a particular site and the cost of that work. Other significant assumptions include the cleanup technology that will be used, whether and to what extent any other parties will participate in paying the investigation and remediation costs, reimbursement of past response costs and future oversight costs by governmental agencies, and the reaction of the governing environmental agencies to the proposed work plans. Costs for future investigation and remediation are not discounted to their present value, unless the amount and timing of the cash disbursements are readily known. To the extent that we have been able to reasonably estimate future liabilities, we do not believe that there is a reasonable possibility that we will incur a loss or losses that exceed the amounts we accrued for the environmental matters discussed below that would, either individually or in the aggregate, have a material adverse effect on our consolidated financial condition, results of operations or cash flows. However, since we recognize amounts in the consolidated financial statements in accordance with GAAP that exclude potential losses that are not probable or that may not be currently estimable, the ultimate costs of these environmental matters may be higher than the liabilities we currently have recorded in our consolidated financial statements.

Pursuant to RCRA, which governs the treatment, handling and disposal of hazardous waste, the EPA and authorized state environmental agencies may conduct inspections of RCRA-regulated facilities to identify areas where there have been releases of hazardous waste or hazardous constituents into the environment and may order the facilities to take corrective action to remediate such releases. Likewise, the EPA or the states may require closure or post-closure care of residual, industrial and hazardous waste management units. Environmental regulators have the

authority to inspect all of our facilities. While we cannot predict the future actions of these regulators, it is possible that they may identify conditions in future inspections of these facilities that they believe require corrective action.

Pursuant to CERCLA, the EPA and state environmental authorities have conducted site investigations at some of our facilities and other third-party facilities, portions of which previously may have been used for disposal of materials that are currently regulated. The results of these investigations are still pending, and we could be directed to spend funds for remedial activities at the former disposal areas. Because of the uncertain status of these investigations, however, we cannot reasonably predict whether or when such spending might be required or its magnitude.

On April 29, 2002, AK Steel entered a mutually agreed-upon administrative order with the consent of the EPA pursuant to Section 122 of CERCLA to perform a RI/FS of the Hamilton plant site located in New Miami, Ohio. The plant ceased operations in 1990 and all of its former structures have been demolished. AK Steel submitted the investigation portion of the RI/FS and completed supplemental studies. Until the RI/FS is complete, we cannot reasonably estimate the additional costs, if any, we may incur for potentially required remediation of the site or when we may incur them.

Burns Harbor Water Issues

In August 2019, ArcelorMittal Burns Harbor LLC (n/k/a Cleveland-Cliffs Burns Harbor LLC) suffered a loss of the blast furnace cooling water recycle system, which led to the discharge of cyanide and ammonia in excess of the Burns Harbor plant's NPDES permit limits. Since that time, the facility has taken numerous steps to prevent recurrence and maintain compliance with its NPDES permit. We engaged in settlement discussions with the U.S. Department of Justice, the EPA and the State of Indiana to resolve any alleged violations of environmental laws or regulations arising out of the August 2019 event. Later stages of the settlement discussions included the Environmental Law and Policy Center (ELPC) and Hoosier Environmental Council (HEC), which had filed a lawsuit on December 20, 2019 in the U.S. District Court for the Northern District of Indiana alleging violations resulting from the August 2019 event and other Clean Water Act claims. We believe that a consent decree has been finalized and is currently pending final approvals, which requires specified enhancements to the mill's wastewater treatment systems and a \$3 million civil penalty, along with other terms and conditions. ELPC and HEC are also proposed signatories to the consent decree. ArcelorMittal Burns Harbor LLC was served with a subpoena on December 5, 2019, from the United States District Court for the Northern District of Indiana, relating to the August 2019 event and has responded to the subpoena requests, including follow-up requests. With the resolution of monetary sanctions and injunctive relief requirements under the pending consent decree, we do not believe that the costs to resolve any other third-party claims, including potential natural resource damages claims, that may arise out of the August 2019 event are likely to have, individually or in the aggregate, a material adverse effect on our consolidated financial condition, results of operations or cash flows.

In addition to the foregoing matters, we are or may be involved in proceedings with various regulatory authorities that may require us to pay fines, comply with more rigorous standards or other requirements or incur capital and operating expenses for environmental compliance. We believe that the ultimate disposition of any such proceedings will not have, individually or in the aggregate, a material adverse effect on our consolidated financial condition, results of operations or cash flows.

Tax Matters

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax regulations. We recognize liabilities for anticipated tax audit issues based on our estimate of whether, and the extent to which, additional taxes will be due. If we ultimately determine that payment of these amounts is unnecessary, we reverse the liability and recognize a tax benefit during the period in which we determine that the liability is no longer necessary. We also recognize tax benefits to the extent that it is more likely than not that our positions will be sustained when challenged by the taxing authorities. To the extent we prevail in matters for which liabilities have been established, or are required to pay amounts in excess of our liabilities, our effective tax rate in a given period could be materially affected. An unfavorable tax settlement would require use of our cash and result in an increase in our effective tax rate in the year of resolution. A favorable tax settlement would be recognized as a reduction in our effective tax rate in the year of resolution. Refer to NOTE 12 - INCOME TAXES for further information.

Other Contingencies

In addition to the matters discussed above, there are various pending and potential claims against us and our subsidiaries involving product liability, personal injury, commercial, employee benefits and other matters arising in the ordinary course of business. Because of the considerable uncertainties that exist for any claim, it is difficult to reliably

or accurately estimate what the amount of a loss would be if a claimant prevails. If material assumptions or factual understandings we rely on to evaluate exposure for these contingencies prove to be inaccurate or otherwise change, we may be required to record a liability for an adverse outcome. If, however, we have reasonably evaluated potential future liabilities for all of these contingencies, including those described more specifically above, it is our opinion, unless we otherwise noted, that the ultimate liability from these contingencies, individually or in the aggregate, should not have a material adverse effect on our consolidated financial position, results of operations or cash flows.

NOTE 21 - SUBSEQUENT EVENTS

On December 1, 2021, we issued a notice of redemption for all \$ 294 million in aggregate principal amount outstanding of the 1.500% 2025 Convertible Senior Notes. The 1.500% 2025 Convertible Senior Notes were redeemed on January 18, 2022, through a combination settlement, with the aggregate principal amount of \$294 million paid in cash, and 24 million common shares, with a fair value of \$ 499 million, delivered to noteholders in settlement of the premium due per the terms of the indenture, plus cash in respect of the accrued and unpaid interest on the 1.500% 2025 Convertible Senior Notes to, but not including, the redemption date per the terms of the indenture.

On February 10, 2022, our Board of Directors authorized a program to repurchase outstanding common shares in the open market or in privately negotiated transactions, which may include purchases pursuant to Rule 10b5-1 plans or accelerated share repurchases, up to a maximum of \$1 billion. We are not obligated to make any purchases and the program may be suspended or discontinued at any time. The share repurchase program does not have a specific expiration date.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of
Cleveland-Cliffs Inc.

Opinion on the Financial Statements

We have audited the accompanying statements of consolidated financial position of Cleveland-Cliffs Inc. and subsidiaries (the "Company") as of December 31, 2021 and 2020, the related statements of consolidated operations, comprehensive income, cash flows, and changes in equity, for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 11, 2022, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Mineral Reserves — Asset Retirement Obligations, Valuation of Long-Lived Assets, Depreciation, Depletion and Amortization of Property, Plant and Equipment and Valuation in Acquisition Accounting — Refer to Notes 3, 5, 6 and 14 to the financial statements

Critical Audit Matter Description

Iron ore mineral reserve estimates, combined with estimated annual production levels, are used to determine the iron ore mine closure dates utilized in recording the fair value liability for asset retirement obligations for active operating iron ore mines. Since the liability represents the present value of the expected future obligation, a significant change in iron ore mineral reserves or iron ore mine lives could have a substantial effect on the recorded obligation. Iron ore mineral reserve estimates are also used in evaluating potential impairments of iron ore mine asset groups as they are indicative of future cash flows and in determining maximum useful lives utilized to calculate depreciation, depletion and amortization of long-lived iron ore mine assets. Further, iron ore mineral reserve estimates are used in estimating the fair value of mineral reserves established through the purchase price allocation in a business combination.

The Company performs an in-depth evaluation of its iron ore mineral reserve estimates by iron ore mine on a periodic basis, in addition to routine annual assessments. The determination of iron ore mineral reserves requires management, with the support of management's experts, to make significant estimates and assumptions related to key inputs including (1) the determination of the size and scope of the iron ore body through technical modeling, (2) the estimates of future iron ore prices recognizing that the price shall not exceed the three-year trailing average index price of iron ore adjusted to the Company's realized price, production costs and capital expenditures, and (3) management's mine plan for the proven and probable iron ore mineral reserves (collectively "the iron ore mineral reserve inputs"). Changes in any of the judgments or assumptions related to the iron ore mineral reserve inputs can have a significant impact with respect to the accrual for asset retirement obligations, the impairment of long-lived asset groups, the amount of depreciation, depletion and amortization expense and the estimated fair value of mineral reserves established through the purchase price allocation in a business combination. The consolidated asset retirement obligation balance was \$449 million as of December 31, 2021, of which \$208 million related to active iron ore mine operations. The total asset balance associated with the Company's Steelmaking reportable segment was \$18,326 million as of December 31, 2021, of which \$1,622 million related to long-lived assets associated with the Company's combined iron ore mine asset groups, and is inclusive of \$231 million related to iron ore mineral reserves acquired through the AM USA Transaction. Depreciation, depletion and amortization expense for the Company's combined iron ore mine asset groups was \$172 million for the year ended December 31, 2021.

Given the significant judgments and assumptions made by management to estimate iron ore mineral reserves and the sensitivity of changes to iron ore mineral reserve estimates on the Company's recorded asset retirement obligations, long-lived asset impairment considerations, calculated depreciation, depletion and amortization expense and estimated fair value of mineral reserves established through the purchase price allocation of a business combination, performing audit procedures to evaluate the reasonableness of management's judgments and estimates related to the iron ore mineral reserve inputs required a high degree of auditor judgment and an increased extent of effort.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's significant judgments and assumptions related to iron ore mineral reserve quantities and the related iron ore mine closure dates included the following, among others:

- We tested the operating effectiveness of internal controls related to the Company's estimation of iron ore mineral reserve quantities and the related iron ore mine closure dates.
- We evaluated the experience, qualifications and objectivity of management's experts, including in-house iron ore mine engineers and the third-party Qualified Person.
- For an iron ore mine subject to the Company's routine annual assessment we evaluated management's assessment by:
 - Understanding the process used by management to survey and analyze the geological and operational status of current year iron ore mine production.
 - Evaluating the historical accuracy of management's technical model as compared to actual iron ore mine production results.
 - Comparing the iron ore mine plan per the most recent Technical Report Summary, updated for current year depletion, to:
 - Presentations to the Audit Committee.
 - Information by asset group, asset retirement obligation valuation models, depreciation, depletion and amortization expense calculations and mineral reserve purchase price allocation valuation models.
- For an iron ore mine subject to the Company's periodic in-depth evaluation of its iron ore mineral reserve estimate:
 - We evaluated management's determination of the size and scope of the iron ore body, by:
 - Understanding the process used by management to complete research and exploration activities including mineralized resource drill samples.

- Understanding the methodology utilized by management to apply the research and exploration data to the development of a technical model of the iron ore body.
- Evaluating the historical accuracy of management's technical model as compared to actual iron ore mine production results.
- We evaluated management's estimates of future iron ore prices, production costs and capital expenditures (the "financial assumptions") as included in the Technical Report Summary, by:
 - Understanding and testing the methodology utilized by management for development of the future iron ore prices recognizing that the price shall not exceed the three-year trailing average index price of iron ore adjusted to the Company's realized price.
 - Evaluated management's ability to accurately forecast future iron ore prices, production costs and capital expenditures by comparing actual results to management's historical forecasts.
 - Evaluated the reasonableness of management's estimates of future iron ore prices to forecasted information included in analyst reports.
 - Evaluated the reasonableness of management's forecast for production costs and capital expenditures by comparing the forecasts to: (1) historical results and (2) internal communications among management and to the Board of Directors.
- We evaluated management's iron ore mine plan for the proven and probable mineral reserves as included in the Technical Report Summary, by:
 - Understanding the process used by management to develop the iron ore mine plan for proven and probable iron ore mineral reserves applying key inputs such as the technical model of the iron ore body and the financial assumptions.
 - Comparing the iron ore mine plan to
 - Presentations to the Audit Committee.
 - Historical iron ore mine plan(s).
 - Information by asset group, asset retirement obligation valuation models, depreciation, depletion and amortization expense calculations, and mineral reserve purchase price allocation valuation models.

/s/ DELOITTE & TOUCHE LLP

Cleveland, Ohio

February 11, 2022

We have served as the Company's auditor since 2004.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our President and Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure based solely on the definition of "disclosure controls and procedures" in Rule 13a-15(e) promulgated under the Exchange Act. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As of the end of the period covered by this report, we carried out an evaluation under the supervision and with the participation of our management, including our President and Chief Executive Officer and our Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. Based on the foregoing, our President and Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined under Rule 13a-15(f) promulgated under the Exchange Act.

Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's consolidated financial statements for external purposes in accordance with generally accepted accounting principles.

Internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of the consolidated financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with appropriate authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management conducted an assessment of the Company's internal control over financial reporting as of December 31, 2021 using the framework specified in *Internal Control - Integrated Framework (2013)*, published by the Committee of Sponsoring Organizations of the Treadway Commission. We have excluded from our assessment the internal control over financial reporting at FPT, which was acquired on November 18, 2021, and whose assets as of December 31, 2021 constituted 5% of the Company's consolidated total assets as of December 31, 2021, and whose revenues for the period from November 18, 2021 through December 31, 2021, inclusive, constituted less than 1% of the Company's consolidated revenues for the year ended December 31, 2021.

Based on such assessment, management has concluded that the Company's internal control over financial reporting was effective as of December 31, 2021.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2021 has been audited by Deloitte & Touche LLP (PCAOB ID No. 34), an independent registered public accounting firm, as stated in their report that appears herein.

February 11, 2022

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting or in other factors that occurred during our last fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of
Cleveland-Cliffs Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Cleveland-Cliffs Inc. and subsidiaries (the "Company") as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2021, of the Company and our report dated February 11, 2022, expressed an unqualified opinion on those financial statements.

As described in *Management's Report on Internal Control Over Financial Reporting*, management excluded from its assessment the internal control over financial reporting at FPT, which was acquired on November 18, 2021, and whose assets as of December 31, 2021 constituted 5% of the Company's consolidated total assets as of December 31, 2021, and whose revenues for the period from November 18, 2021 through December 31, 2021, inclusive, constituted less than 1% of the Company's consolidated revenues for the year ended December 31, 2021. Accordingly, our audit did not include the internal control over financial reporting at FPT.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ DELOITTE & TOUCHE LLP

Cleveland, Ohio
February 11, 2022

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required to be furnished by this Item will be set forth in the definitive proxy statement for our 2022 Annual Meeting of Shareholders (the "Proxy Statement") under the headings "Board Meetings and Committees — Audit Committee", "Code of Business Conduct and Ethics", "Independence and Related Party Transactions", and "Information Concerning Director Nominees", and is incorporated herein by reference and made a part hereof from the Proxy Statement. The information regarding executive officers required by this Item is set forth in *Part I - Item 1. Business* hereof under the heading "Information About Our Executive Officers", which information is incorporated herein by reference and made a part hereof.

Item 11. *Executive Compensation*

The information required to be furnished by this Item will be set forth in the Proxy Statement under the headings "Director Compensation", "Compensation Discussion and Analysis", "Compensation Committee Report", "Compensation Committee Interlocks and Insider Participation", "Compensation-Related Risk Assessment" and "Executive Compensation" and is incorporated herein by reference and made a part hereof from the Proxy Statement.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters*

The information required to be furnished by this Item will be set forth in the Proxy Statement under the headings "Ownership of Equity Securities of the Company" and "Equity Compensation Plan Information" and is incorporated herein by reference and made a part hereof from the Proxy Statement.

Item 13. *Certain Relationships and Related Transactions, and Director Independence*

The information required to be furnished by this Item will be set forth in the Proxy Statement under the heading "Independence and Related Party Transactions" and is incorporated herein by reference and made a part hereof from the Proxy Statement.

Item 14. *Principal Accountant Fees and Services*

The information required to be furnished by this Item will be set forth in the Proxy Statement under the heading "Ratification of Independent Registered Public Accounting Firm" and is incorporated herein by reference and made a part hereof from the Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) - List of Financial Statements

The following consolidated financial statements of Cleveland-Cliffs Inc. are included at *Item 8. Financial Statements and Supplementary Data* above:

- Statements of Consolidated Financial Position - December 31, 2021 and 2020
- Statements of Consolidated Operations - Years ended December 31, 2021, 2020 and 2019
- Statements of Consolidated Comprehensive Income - Years ended December 31, 2021, 2020 and 2019
- Statements of Consolidated Cash Flows - Years ended December 31, 2021, 2020 and 2019
- Statements of Consolidated Changes in Equity - Years ended December 31, 2021, 2020 and 2019
- Notes to Consolidated Financial Statements

(a)(2) - Financial Statement Schedules

All schedules for which provision is made in the applicable accounting regulation of the SEC are not required under the related instructions or are inapplicable, and therefore have been omitted or are contained in the applicable financial statements or the notes thereto.

(a)(3) List of Exhibits

All documents referenced below have been filed pursuant to the Securities Exchange Act of 1934 by Cleveland-Cliffs Inc., file number 1-09844, unless otherwise indicated.

Exhibit Number	Exhibit
	<u>Articles of Incorporation and Regulations of Cleveland-Cliffs Inc.</u>
3.1	Fourth Amended Articles of Incorporation of Cliffs, as filed with the Secretary of State of Ohio on September 25, 2020 (filed as Exhibit 3.2 to Cliffs' Form 8-K on September 28, 2020 and incorporated herein by reference).
3.2	Certificate of Amendment to Fourth Amended Articles of Incorporation of Cliffs, as filed with the Secretary of State of Ohio on December 7, 2020 (filed as Exhibit 3.1 to Cliffs' Form 8-K on December 9, 2020 and incorporated herein by reference).
3.3	Certificate of Amendment to Fourth Amended Articles of Incorporation of Cliffs, as amended, as filed with the Secretary of State of Ohio on April 29, 2021 (filed as Exhibit 3.1 to Cliffs' Form 8-K on April 30, 2021 and incorporated herein by reference).
3.4	Regulations of Cliffs (filed as Exhibit 3.2 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
	<u>Instruments defining rights of security holders, including indentures</u>
4.1	Indenture, dated as of March 17, 2010, between Cliffs Natural Resources Inc. (n/k/a Cleveland-Cliffs Inc.) and U.S. Bank National Association, as trustee (filed as Exhibit 4.3 to Cliffs' Registration Statement on Form S-3 (Registration No. 333-186617) on February 12, 2013 and incorporated herein by reference).
4.2	Third Supplemental Indenture, dated as of September 20, 2010, between Cliffs Natural Resources Inc. (n/k/a Cleveland-Cliffs Inc.) and U.S. Bank National Association, as trustee, including Form of 6.25% Notes due 2040 (filed as Exhibit 4.4 to Cliffs' Form 8-K on September 17, 2010 and incorporated herein by reference).
4.3	Fifth Supplemental Indenture, dated as of March 31, 2011, between Cliffs Natural Resources Inc. (n/k/a Cleveland-Cliffs Inc.) and U.S. Bank National Association, as trustee (filed as Exhibit 4(b) to Cliffs' Form 10-Q for the period ended June 30, 2011 and incorporated herein by reference).
4.4	Seventh Supplemental Indenture, dated as of May 7, 2013, between Cliffs Natural Resources Inc. (n/k/a Cleveland-Cliffs Inc.) and U.S. Bank National Association, as trustee (filed as Exhibit 4.1 to Cliffs' Form 10-Q for the period ended June 30, 2013 and incorporated herein by reference).

Exhibit Number	Exhibit
4.5	Eighth Supplemental Indenture, dated as of December 19, 2017, by and between Cleveland-Cliffs Inc. and U.S. Bank National Association, as trustee, including Form of 1.50% Convertible Senior Notes due 2025 (filed as Exhibit 4.2 to Cliffs' Form 8-K on December 19, 2017 and incorporated herein by reference).
4.6	Indenture, dated as of May 13, 2019, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee, including Form of 5.875% Senior Notes due 2027 (filed as Exhibit 4.1 to Cliffs' Form 8-K on May 14, 2019 and incorporated herein by reference).
4.7	First Supplemental Indenture, dated as of March 13, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.4 to Cliffs' Form 10-Q for the period ended March 31, 2020 and incorporated herein by reference).
4.8	Second Supplemental Indenture, dated as of May 22, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.6 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.9	Third Supplemental Indenture, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.24 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.10	Fourth Supplemental Indenture, dated as of December 18, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.25 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.11	Fifth Supplemental Indenture, dated as of December 22, 2021, among Cleveland-Cliffs Inc., the Additional Guarantor party thereto and U.S. Bank National Association, as trustee (filed herewith).
4.12	Indenture, dated as of March 13, 2020, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent, including Form of 6.75% Senior Secured Notes due 2026 (filed as Exhibit 4.1 to Cliffs' Form 10-Q for the period ended March 31, 2020 and incorporated herein by reference).
4.13	First Supplemental Indenture, dated as of May 22, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.9 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.14	Second Supplemental Indenture, dated as of June 19, 2020, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent, including Form of 6.75% Senior Secured Notes due 2026 (filed as Exhibit 4.10 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.15	Third Supplemental Indenture, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.29 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.16	Fourth Supplemental Indenture, dated as of December 18, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.30 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.17	Fifth Supplemental Indenture, dated as of December 22, 2021, among Cleveland-Cliffs Inc., the Additional Guarantor party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed herewith).
4.18	Indenture, dated as of March 16, 2020, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee, including Form of 7.00% Senior Notes due 2027 (filed as Exhibit 4.7 to Cliffs' Form 10-Q for the period ended March 31, 2020 and incorporated herein by reference).
4.19	First Supplemental Indenture, dated as of May 22, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.7 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.20	Second Supplemental Indenture, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.38 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.21	Third Supplemental Indenture, dated as of December 18, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee (filed as Exhibit 4.39 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.22	Fourth Supplemental Indenture, dated as of December 22, 2021, among Cleveland-Cliffs Inc., the Additional Guarantor party thereto and U.S. Bank National Association, as trustee (filed herewith).

Exhibit Number	Exhibit
4.23	Indenture, dated as of April 17, 2020, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent, including Form of 9.875% Senior Secured Notes due 2025 (filed as Exhibit 4.1 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.24	First Supplemental Indenture, dated as of April 24, 2020, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent, including Form of 9.875% Senior Secured Notes due 2025 (filed as Exhibit 4.2 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.25	Second Supplemental Indenture, dated as of May 22, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.3 to Cliffs' Form 10-Q for the period ended June 30, 2020 and incorporated herein by reference).
4.26	Third Supplemental Indenture, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.44 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference)
4.27	Fourth Supplemental Indenture, dated as of December 18, 2020, among Cleveland-Cliffs Inc., the Additional Guarantors party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed as Exhibit 4.45 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
4.28	Fifth Supplemental Indenture, dated as of December 22, 2021, among Cleveland-Cliffs Inc., the Additional Guarantor party thereto and U.S. Bank National Association, as trustee and first lien notes collateral agent (filed herewith).
4.29	Indenture, dated as of February 17, 2021, among Cleveland-Cliffs Inc., the Guarantors party thereto and U.S. Bank National Association, as trustee, including Forms of 4.625% Senior Guaranteed Notes due 2029 and 4.875% Senior Guaranteed Notes due 2031 (filed as Exhibit 4.1 to Cliffs' Form 10-Q for the period ended March 31, 2021 and incorporated herein by reference).
4.30	First Supplemental Indenture, dated as of December 22, 2021, among Cleveland-Cliffs Inc., the Additional Guarantor party thereto and U.S. Bank National Association, as trustee (filed herewith).
4.31	Form of Common Share Certificate (filed as Exhibit 4.1 to Cliffs' Form 10-Q for the period ended September 30, 2019 and incorporated herein by reference).
4.32	Description of Securities Registered under Section 12 of the Securities Exchange Act of 1934 (filed herewith).
Material contracts	
10.1	* Form of Change in Control Severance Agreement (covering newly hired officers) (filed as Exhibit 10.4 to Cliffs' Form 8-K/A on September 16, 2014 and incorporated herein by reference).
10.2	* Form of 2016 Change in Control Severance Agreement (filed as Exhibit 10.1 to Cliffs' 10-Q for the period ended September 30, 2016 and incorporated herein by reference).
10.3	* Cleveland-Cliffs Inc. 2012 Non-Qualified Deferred Compensation Plan (Amended and Restated effective October 26, 2021) (filed herewith).
10.4	* Form of Director and Officer Indemnification Agreement between Cleveland-Cliffs Inc. and Directors and Officers (filed as Exhibit 10.2 to Cliffs' Form 10-Q for the period ended March 31, 2019 and incorporated herein by reference).
10.5	* Cleveland-Cliffs Inc. 2021 Nonemployee Directors' Compensation Plan (filed as Exhibit 10.2 to Cliffs' Form 8-K on April 30, 2021 and incorporated herein by reference).
10.6	*Form of Restricted Shares Agreement for Nonemployee Directors (filed as Exhibit 10.3 to Cliffs' Form 10-Q for the period ended June 30, 2021 and incorporated herein by reference).
10.7	*Form of Deferred Shares Agreement for Nonemployee Directors (filed as Exhibit 10.4 to Cliffs' Form 10-Q for the period ended June 30, 2021 and incorporated herein by reference).
10.8	* Trust Agreement No. 1 (Amended and Restated effective June 1, 1997), dated June 12, 1997, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee, with respect to the Cleveland-Cliffs Inc Supplemental Retirement Benefit Plan, Severance Pay Plan for Key Employees and certain executive agreements (filed as Exhibit 10.10 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.9	* Trust Agreement No. 1 Amendments to Exhibits, effective as of January 1, 2000, by and between Cleveland-Cliffs Inc and KeyBank National Association, as Trustee (filed as Exhibit 10.11 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).

Exhibit Number	Exhibit
10.10	* First Amendment to Trust Agreement No. 1, effective September 10, 2002, by and between Cleveland-Cliffs Inc and KeyBank National Association, as Trustee (filed as Exhibit 10.12 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.11	* Second Amendment to Trust Agreement No. 1 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of December 31, 2008 (filed as Exhibit 10(y) to Cliffs' Form 10-K for the period ended December 31, 2008 and incorporated herein by reference).
10.12	* Third Amendment to Trust Agreement No. 1 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of July 28, 2014 (filed as Exhibit 10.15 to Cliffs' Form 10-K for the period ended December 31, 2014 and incorporated herein by reference).
10.13	* Amended and Restated Trust Agreement No. 2, effective as of October 15, 2002, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee, with respect to Executive Agreements and Indemnification Agreements with the Company's Directors and certain Officers, the Company's Severance Pay Plan for Key Employees, and the Retention Plan for Salaried Employees (filed as Exhibit 10.14 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.14	* Second Amendment to Amended and Restated Trust Agreement No. 2 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of December 31, 2008 (filed as Exhibit 10(aa) to Cliffs' Form 10-K for the period ended December 31, 2008 and incorporated herein by reference).
10.15	* Third Amendment to Amended and Restated Trust Agreement No. 2 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of July 28, 2014 (filed as Exhibit 10.18 to Cliffs' Form 10-K for the period ended December 31, 2014 and incorporated herein by reference).
10.16	* Trust Agreement No. 7, dated as of April 9, 1991, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee, with respect to the Cleveland-Cliffs Inc Supplemental Retirement Benefit Plan (filed as Exhibit 10.23 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.17	* First Amendment to Trust Agreement No. 7, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee, dated as of March 9, 1992 (filed as Exhibit 10.24 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.20	* Second Amendment to Trust Agreement No. 7, dated November 18, 1994, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee (filed as Exhibit 10.25 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.21	* Third Amendment to Trust Agreement No. 7, dated May 23, 1997, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee (filed as Exhibit 10.26 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.22	* Fourth Amendment to Trust Agreement No. 7, dated July 15, 1997, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee (filed as Exhibit 10.27 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.23	* Amendment to Exhibits to Trust Agreement No. 7, effective as of January 1, 2000, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee (filed as Exhibit 10.28 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.24	* Sixth Amendment to Trust Agreement No. 7 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of December 31, 2008 (filed as Exhibit 10(oo) to Cliffs' Form 10-K for the period ended December 31, 2008 and incorporated herein by reference).
10.25	* Seventh Amendment to Trust Agreement No. 7 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of July 28, 2014 (filed as Exhibit 10.34 to Cliffs' Form 10-K for the period ended December 31, 2014 and incorporated herein by reference).
10.26	* Trust Agreement No. 10, dated as of November 20, 1996, by and between Cleveland-Cliffs Inc and KeyBank National Association, Trustee, with respect to the Cleveland-Cliffs Inc Nonemployee Directors' Compensation Plan (filed as Exhibit 10.36 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.27	* First Amendment to Trust Agreement No. 10 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of December 31, 2008 (filed as Exhibit 10(ww) to Cliffs' Form 10-K for the period ended February 26, 2009 and incorporated herein by reference).

Exhibit Number	Exhibit
10.28	* Second Amendment to Trust Agreement No. 10 between Cliffs Natural Resources Inc. (f/k/a Cleveland-Cliffs Inc) and KeyBank National Association, Trustee, entered into and effective as of July 28, 2014 (filed as Exhibit 10.45 to Cliffs' Form 10-K for the period ended December 31, 2014 and incorporated herein by reference).
10.29	* Letter Agreement, by and between Lourenco Goncalves and Cliffs Natural Resources Inc., signed as of September 11, 2014 (filed as Exhibit 10.1 to Cliffs' Form 8-K/A on September 16, 2014 and incorporated herein by reference).
10.30	* Cleveland-Cliffs Inc and Subsidiaries Management Performance Incentive Plan Summary, effective January 1, 2004 (filed as Exhibit 10.47 to Cliffs' Form 10-K for the period ended December 31, 2011 and incorporated herein by reference).
10.31	* Cliffs Natural Resources Inc. 2017 Executive Management Performance Incentive Plan effective January 1, 2017 (filed as Exhibit 10.2 to Cliffs' Form 8-K on April 27, 2017 and incorporated herein by reference).
10.32	* Cliffs Natural Resources Inc. Amended and Restated 2012 Incentive Equity Plan (filed as Exhibit 10.1 to Cliffs' Form 8-K on August 4, 2014 and incorporated herein by reference).
10.33	* Form of Cliffs Natural Resources Inc. Amended and Restated 2012 Incentive Equity Plan Non-Qualified Stock Option Award Memorandum (3-Year Vesting – January 2015 Grant) and Stock Option Award Agreement (filed as Exhibit 10.69 to Cliffs' Form 10-K for the period ended December 31, 2014 and incorporated herein by reference).
10.34	* Cliffs Natural Resources Inc. 2015 Equity and Incentive Compensation Plan (filed as Exhibit 10.1 to Cliffs' Form 8-K on May 21, 2015 and incorporated herein by reference).
10.35	* Cliffs Natural Resources Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan (filed as Exhibit 10.1 to Cliffs' Form 8-K on April 27, 2017 and incorporated herein by reference).
10.36	* Form of Cleveland-Cliffs Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan Restricted Stock Unit Award Memorandum and Restricted Stock Unit Award Agreement (filed as Exhibit 10.2 to Cliffs' Form 10-Q for the period ended March 31, 2018 and incorporated herein by reference).
10.37	* Form of Cleveland-Cliffs Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan Performance Share Award Memorandum and Performance Share Award Agreement (filed as Exhibit 10.3 to Cliffs' Form 10-Q for the period ended March 31, 2018 and incorporated herein by reference).
10.38	* Form of Cleveland-Cliffs Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan Cash Incentive Award Memorandum (TSR) and Cash Incentive Award Agreement (TSR) (filed as Exhibit 10.4 to Cliffs' Form 10-Q for the period ended March 31, 2018 and incorporated herein by reference).
10.39	* Cleveland-Cliffs Inc. 2021 Equity and Incentive Compensation Plan (filed as Exhibit 10.1 to Cliffs' Form 8-K on April 30, 2021 and incorporated herein by reference).
10.40	* Cleveland-Cliffs Inc. Supplemental Retirement Benefit Plan (as Amended and Restated effective October 26, 2021) (filed herewith).
10.41	Asset-Based Revolving Credit Agreement, dated as of March 13, 2020, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent (filed as Exhibit 10.1 to Cliffs' Form 10-Q for the period ended March 31, 2020 and incorporated herein by reference).
10.42	First Amendment to Asset-Based Revolving Credit Agreement, dated as of March 27, 2020, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent (filed as Exhibit 10.2 to Cliffs' Form 10-Q for the period ended March 31, 2020 and incorporated herein by reference).
10.43	Second Amendment to Asset-Based Revolving Credit Agreement, dated as of December 9, 2020, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent (filed as Exhibit 10.42 to Cliffs' Form 10-K for the period ended December 31, 2020 and incorporated herein by reference).
10.44	Third Amendment to Asset-Based Revolving Credit Agreement, dated as of December 17, 2021, among Cleveland-Cliffs Inc., the lenders party thereto from time to time and Bank of America, N.A., as administrative agent (filed as Exhibit 10.1 to Cliffs' Form 8-K on December 23, 2021 and incorporated herein by reference).
21	Subsidiaries of the Registrant (filed herewith).
22	Schedule of the obligated group, including the parent and issuer and the subsidiary guarantors that have guaranteed the obligations under the 6.750% 2026 Senior Secured Notes, the 5.875% 2027 Senior Notes, the 7.000% 2027 Senior Notes, the 9.875% 2025 Senior Secured Notes, the 4.625% 2029 Senior Notes and the 4.875% 2031 Senior Notes issued by Cleveland-Cliffs Inc. (filed herewith).
23.1	Consent of Independent Registered Public Accounting Firm (filed herewith).

Exhibit Number	Exhibit
23.2	Consent of SLR International Corporation regarding Hibbing Taconite Property, Minnesota, USA (filed as Exhibit 23.1 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
23.3	Consent of SLR International Corporation regarding Minorca Property, Minnesota, USA (filed as Exhibit 23.2 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
23.4	Consent of SLR International Corporation regarding Northshore Property, Minnesota, USA (filed as Exhibit 23.3 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
23.5	Consent of SLR International Corporation regarding United Taconite Property, Minnesota, USA (filed as Exhibit 23.4 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
23.6	Consent of SLR International Corporation regarding Tilden Property, Michigan, USA (filed herewith).
24	Power of Attorney (filed herewith).
31.1	Certification Pursuant to 15 U.S.C. Section 7241, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, signed and dated by Lourenco Goncalves as of February 11, 2022 (filed herewith).
31.2	Certification Pursuant to 15 U.S.C. Section 7241, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, signed and dated by Celso L. Goncalves Jr. as of February 11, 2022 (filed herewith).
32.1	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed and dated by Lourenco Goncalves, Chairman, President and Chief Executive Officer of Cleveland-Cliffs Inc., as of February 11, 2022 (filed herewith).
32.2	Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, signed and dated by Celso L. Goncalves Jr., Executive Vice President, Chief Financial Officer of Cleveland-Cliffs Inc., as of February 11, 2022 (filed herewith).
95	Mine Safety Disclosures (filed herewith).
96.1	Technical Report Summary on the Hibbing Taconite Property, Minnesota, USA, prepared for the Company by SLR International Corporation with an effective date of December 31, 2021 (filed as Exhibit 96.1 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
96.2	Technical Report Summary on the Minorca Property, Minnesota, USA, prepared for the Company by SLR International Corporation with an effective date of December 31, 2021 (filed as Exhibit 96.2 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
96.3	Technical Report Summary on the Northshore Property, Minnesota, USA, prepared for the Company by SLR International Corporation with an effective date of December 31, 2021 (filed as Exhibit 96.3 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
96.4	Technical Report Summary on the United Taconite Property, Minnesota, USA, prepared for the Company by SLR International Corporation with an effective date of December 31, 2021 (filed as Exhibit 96.4 to Cliffs' Form 8-K on February 11, 2022 and incorporated herein by reference).
96.5	Technical Report Summary on the Tilden Property, Michigan, USA, prepared for the Company by SLR International Corporation with an effective date of December 31, 2021 (filed herewith).
101	The following financial information from Cleveland-Cliffs Inc.'s Annual Report on Form 10-K for the year ended December 31, 2021 formatted in Inline XBRL (Extensible Business Reporting Language) includes: (i) the Statements of Consolidated Financial Position, (ii) the Statements of Consolidated Operations, (iii) the Statements of Consolidated Comprehensive Income, (iv) the Statements of Consolidated Cash Flows, (v) the Statements of Consolidated Changes in Equity, and (vi) Notes to the Consolidated Financial Statements.
104	The cover page from this Annual Report on Form 10-K, formatted in Inline XBRL.

* Indicates management contract or other compensatory arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CLEVELAND-CLIFFS INC.

By: /s/ K. A. Floriani
Name: Kimberly A. Floriani
Title: Senior Vice President, Controller &
Chief Accounting Officer

Date: February 11, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signatures	Title	Date
<u>/s/ C. L. Goncalves</u> C. L. Goncalves	Chairman, President and Chief Executive Officer (Principal Executive Officer)	February 11, 2022
<u>/s/ C. L. Goncalves Jr.</u> C. L. Goncalves Jr.	Executive Vice President, Chief Financial Officer (Principal Financial Officer)	February 11, 2022
<u>/s/ K. A. Floriani</u> K. A. Floriani	Senior Vice President, Controller & Chief Accounting Officer (Principal Accounting Officer)	February 11, 2022
<u>*</u> J. T. Baldwin	Director	February 11, 2022
<u>*</u> R. P. Fisher, Jr.	Director	February 11, 2022
<u>*</u> W. K. Gerber	Director	February 11, 2022
<u>*</u> S. M. Green	Director	February 11, 2022
<u>*</u> R. S. Michael, III	Director	February 11, 2022
<u>*</u> J. L. Miller	Director	February 11, 2022
<u>*</u> G. Stoliar	Director	February 11, 2022
<u>*</u> D. C. Taylor	Director	February 11, 2022
<u>*</u> A. M. Yocum	Director	February 11, 2022

* The undersigned, by signing his name hereto, does sign and execute this Annual Report on Form 10-K pursuant to a Power of Attorney executed on behalf of the above-indicated directors of the registrant and filed herewith as Exhibit 24 on behalf of the registrant.

By: /s/ C. L. Goncalves Jr.
(C. L. Goncalves Jr., as Attorney-in-Fact)

FIFTH SUPPLEMENTAL INDENTURE
5.875% SENIOR GUARANTEED NOTES DUE 2027

This Fifth Supplemental Indenture, dated as of December 22, 2021 (this "**Supplemental Indenture**" or "**Guarantee**"), among Cliffs Steel Inc., an Ohio corporation (the "**Additional Guarantor**"), Cleveland-Cliffs Inc. (together with its successors and assigns, the "**Company**") and U.S. Bank National Association, as Trustee (the "**Trustee**") under the Indenture referred to below.

WITNESSETH:

WHEREAS, the Company, the Guarantors party thereto and the Trustee have heretofore executed and delivered an Indenture, dated as of May 13, 2019 (as amended, supplemented, waived or otherwise modified, the "**Indenture**"), providing for the issuance of an aggregate principal amount of \$750,000,000 of 5.875% Senior Guaranteed Notes due 2027 of the Company (the "**Notes**");

WHEREAS, Section 3.08 of the Indenture provides that, after the Issue Date, the Company is required to cause certain direct or indirect Subsidiaries of the Company to execute and deliver to the Trustee a supplemental indenture pursuant to which such Subsidiary will unconditionally guarantee, on a joint and several basis with the other Guarantors, the full and prompt payment of the principal of, premium, if any, and interest on the Notes on an unsecured basis; and

WHEREAS, pursuant to Section 9.01 of the Indenture, the Trustee and the Company are authorized to execute and deliver this Supplemental Indenture to amend or supplement the Indenture, without the consent of any Holder.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, the Additional Guarantor, the Company and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Notes as follows:

ARTICLE 1
Definitions

Section 1.01 *Defined Terms*. As used in this Supplemental Indenture, terms defined in the Indenture or in the preamble or recitals hereto are used herein as therein defined. The words "herein," "hereof" and "hereby" and other words of similar import used in this Supplemental Indenture refer to this Supplemental Indenture as a whole and not to any particular section hereof.

ARTICLE 2
Agreement to be Bound; Guarantee

Section 2.01 *Agreement to be Bound*. The Additional Guarantor hereby becomes a party to the Indenture as a Guarantor and as such will have all of the rights and be subject to all of the obligations and agreements of a Guarantor under the Indenture. The Additional Guarantor agrees to be bound by all of the provisions of the Indenture applicable to a Guarantor and to perform all of the obligations and agreements of a Guarantor under the Indenture.

Section 2.02 *Guarantee*. The Additional Guarantor agrees, on a joint and several basis with all the existing Guarantors, to fully, unconditionally and irrevocably Guarantee to each Holder of the Notes and the Trustee the Guaranteed Obligations pursuant to Article 10 of the Indenture on an unsecured basis.

ARTICLE 3
Miscellaneous

Section 3.01 *Notices*. All notices and other communications to the Additional Guarantor shall be given as provided in the Indenture to the Additional Guarantor, at its address set forth below, with a copy to the Company as provided in the Indenture for notices to the Company.

Cliffs Steel Inc.
c/o Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, Ohio 44114
Attention: James Graham, Executive Vice President,
Chief Legal Officer & Secretary

Section 3.02 *Parties*. Nothing expressed or mentioned herein is intended or shall be construed to give any Person, other than the Company, the Additional Guarantor, Holders and the Trustee, any legal or equitable right, remedy or claim under or in respect of this Supplemental Indenture or the Indenture or any provision herein or therein contained.

Section 3.03 *Governing Law*. This Supplemental Indenture shall be governed by, and construed in accordance with, the laws of the State of New York.

Section 3.04 *Severability Clause*. In case any provision in this Supplemental Indenture shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.

Section 3.05 *Ratification of Indenture; Supplemental Indenture Part of Indenture*. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Notes heretofore or hereafter authenticated and delivered shall be bound hereby. The Trustee shall not be responsible for and makes no representation or warranty as to the validity, execution, or sufficiency of this Supplemental Indenture or with respect to the recitals contained herein, all of which recitals are made solely by the other parties hereto.

Section 3.06 *Counterparts*. The parties hereto may sign one or more copies of this Supplemental Indenture in counterparts, all of which together shall constitute one and the same agreement.

Section 3.07 *Headings*. The headings of the Articles and the sections in this Guarantee are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

Section 3.08 *Execution, Delivery and Validity*. The Company and the Additional Guarantor each represent and warrant to the Trustee that this Supplemental Indenture has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as enforcement may be limited by equitable principles or by bankruptcy, insolvency, receivership, administration, reorganization, moratorium, or similar laws relating to or limiting creditors' rights generally.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

CLIFFS STEEL INC., as a Guarantor

By: /s/ James D. Graham
Name: James D. Graham
Title: Executive Vice President, Chief Legal Officer
& Secretary

CLEVELAND-CLIFFS INC.

By: /s/ Celso L. Goncalves, Jr.
Name: Celso L. Goncalves, Jr.
Title: Executive Vice President, Chief Financial
Officer

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: /s/ William Sicking
Name: William Sicking
Title: Vice President

[Fifth Supplemental Indenture – 5.875% Senior Guaranteed Notes due 2027]

FIFTH SUPPLEMENTAL INDENTURE
6.75% SENIOR SECURED NOTES DUE 2026

This Fifth Supplemental Indenture, dated as of December 22, 2021 (this “**Supplemental Indenture**” or “**Guarantee**”), among Cliffs Steel Inc. (the “**Additional Guarantor**”), Cleveland-Cliffs Inc. (together with its successors and assigns, the “**Company**”) and U.S. Bank National Association, as Trustee and First Lien Notes Collateral Agent under the Indenture referred to below.

WITNESSETH:

WHEREAS, the Company, the Guarantors, the First Lien Notes Collateral Agent and the Trustee have heretofore executed and delivered an Indenture, dated as of March 13, 2020 (as amended, supplemented, waived or otherwise modified, the “**Indenture**”), providing for the issuance of an aggregate principal amount of \$845,000,000 of 6.75% Senior Secured Notes due 2026 of the Company (the “**Notes**”);

WHEREAS, Section 3.08 of the Indenture provides that, after the Issue Date, the Company is required to cause certain direct or indirect Subsidiaries of the Company to execute and deliver to the Trustee a supplemental indenture pursuant to which such Subsidiary will unconditionally guarantee, on a joint and several basis with the other Guarantors, the full and prompt payment of the principal of, premium, if any, and interest on the Notes on a secured basis; and

WHEREAS, pursuant to Section 9.01 of the Indenture, the Trustee and the Company are authorized to execute and deliver this Supplemental Indenture to amend or supplement the Indenture, without the consent of any Holder.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, the Additional Guarantor, the Company and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Notes as follows:

ARTICLE 1
Definitions

Section 1.01 *Defined Terms*. As used in this Supplemental Indenture, terms defined in the Indenture or in the preamble or recitals hereto are used herein as therein defined. The words “herein,” “hereof” and “hereby” and other words of similar import used in this Supplemental Indenture refer to this Supplemental Indenture as a whole and not to any particular section hereof.

ARTICLE 2
Agreement to be Bound; Guarantee

Section 2.01 *Agreement to be Bound*. The Additional Guarantor hereby becomes a party to the Indenture as a Guarantor and as such will have all of the rights and be subject to all of the obligations and agreements of a Guarantor under the Indenture. The Additional Guarantor hereby becomes a party to the Security Agreement, pursuant to the terms of such agreement, as a Grantor thereunder with the same force and effect as if originally named therein as a Grantor and as such hereby assumes all obligations and liabilities of a Grantor thereunder. The Additional Guarantor agrees to be bound by all of the provisions of the Indenture and the Collateral Documents applicable to a Guarantor and to perform all of the obligations and agreements of a Guarantor under the Indenture and the Collateral Documents.

Section 2.02 *Guarantee*. The Additional Guarantor agrees, on a joint and several basis with all the existing Guarantors, to fully, unconditionally and irrevocably Guarantee to each Holder of the Notes and the Trustee the Guaranteed Obligations pursuant to Article 10 of the Indenture on a secured basis.

ARTICLE 3
Miscellaneous

Section 3.01 *Notices*. All notices and other communications to the Additional Guarantor shall be given as provided in the Indenture to the Additional Guarantor, at its address set forth below, with a copy to the Company as provided in the Indenture for notices to the Company.

Cliffs Steel Inc.
c/o Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, Ohio 44114
Attention: James Graham, Executive Vice President,
Chief Legal Officer & Secretary

Section 3.02 *Parties*. Nothing expressed or mentioned herein is intended or shall be construed to give any Person, other than the Company, the Additional Guarantor, Holders and the Trustee, any legal or equitable right, remedy or claim under or in respect of this Supplemental Indenture or the Indenture or any provision herein or therein contained.

Section 3.03 *Governing Law*. This Supplemental Indenture shall be governed by, and construed in accordance with, the laws of the State of New York.

Section 3.04 *Severability Clause*. In case any provision in this Supplemental Indenture shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.

Section 3.05 *Ratification of Indenture; Supplemental Indenture Part of Indenture*. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Notes heretofore or hereafter authenticated and delivered shall be bound hereby. The Trustee shall not be responsible for and makes no representation or warranty as to the validity, execution, or sufficiency of this Supplemental Indenture or with respect to the recitals contained herein, all of which recitals are made solely by the other parties hereto.

Section 3.06 *Counterparts*. The parties hereto may sign one or more copies of this Supplemental Indenture in counterparts, all of which together shall constitute one and the same agreement.

Section 3.07 *Headings*. The headings of the Articles and the sections in this Guarantee are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

Section 3.08 *Execution, Delivery and Validity*. The Company and the Additional Guarantor each represent and warrant to the Trustee that this Supplemental Indenture has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as enforcement may be limited by equitable principles or by bankruptcy, insolvency, receivership, administration, reorganization, moratorium, or similar laws relating to or limiting creditors' rights generally.

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

CLIFFS STEEL INC., as a Guarantor

By: /s/ James D. Graham

Name: James D. Graham

Title: Executive Vice President, Chief Legal Officer & Secretary

CLEVELAND-CLIFFS INC.

By: /s/ Celso L. Goncalves, Jr.

Name: Celso L. Goncalves, Jr.

Title: Executive Vice President, Chief Financial Officer

U.S. BANK NATIONAL ASSOCIATION,
as Trustee and First Lien Notes Collateral Agent

By: /s/ William Sicking

Name: William Sicking

Title: Vice President

[Fifth Supplemental Indenture – 6.75% Senior Secured Notes due 2026]

**FOURTH SUPPLEMENTAL INDENTURE
7.00% SENIOR GUARANTEED NOTES DUE 2027**

This Fourth Supplemental Indenture, dated as of December 22, 2021 (this “**Supplemental Indenture**” or “**Guarantee**”), among Cliffs Steel Inc., an Ohio corporation (the “**Additional Guarantor**”), Cleveland-Cliffs Inc. (together with its successors and assigns, the “**Company**”) and U.S. Bank National Association, as Trustee under the Indenture referred to below.

WITNESSETH:

WHEREAS, the Company, the Guarantors and the Trustee have heretofore executed and delivered an Indenture, dated as of March 16, 2020 (as amended, supplemented, waived or otherwise modified, the “**Indenture**”), providing for the issuance of an aggregate principal amount of \$335,376,000 of 7.00% Senior Guaranteed Notes due 2027 of the Company (the “**Notes**”);

WHEREAS, Section 3.08 of the Indenture provides that, after the Issue Date, the Company is required to cause certain direct or indirect Subsidiaries of the Company to execute and deliver to the Trustee a supplemental indenture pursuant to which such Subsidiary will unconditionally guarantee, on a joint and several basis with the other Guarantors, the full and prompt payment of the principal of, premium, if any, and interest on the Notes on an unsecured basis; and

WHEREAS, pursuant to Section 9.01 of the Indenture, the Trustee and the Company are authorized to execute and deliver this Supplemental Indenture to amend or supplement the Indenture, without the consent of any Holder.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, the Additional Guarantor, the Company and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Notes as follows:

ARTICLE 1
Definitions

Section 1.01 *Defined Terms*. As used in this Supplemental Indenture, terms defined in the Indenture or in the preamble or recitals hereto are used herein as therein defined. The words “herein,” “hereof” and “hereby” and other words of similar import used in this Supplemental Indenture refer to this Supplemental Indenture as a whole and not to any particular section hereof.

ARTICLE 2
Agreement to be Bound; Guarantee

Section 2.01 *Agreement to be Bound*. The Additional Guarantor hereby becomes a party to the Indenture as a Guarantor and as such will have all of the rights and be subject to all of the obligations and agreements of a Guarantor under the Indenture. The Additional Guarantor agrees to be bound by all of the provisions of the Indenture applicable to a Guarantor and to perform all of the obligations and agreements of a Guarantor under the Indenture.

Section 2.02 *Guarantee*. The Additional Guarantor agrees, on a joint and several basis with all the existing Guarantors, to fully, unconditionally and irrevocably Guarantee to each Holder of the Notes and the Trustee the Guaranteed Obligations pursuant to Article 10 of the Indenture on an unsecured basis.

ARTICLE 3
Miscellaneous

Section 3.01 *Notices*. All notices and other communications to the Additional Guarantor shall be given as provided in the Indenture to the Additional Guarantor, at its address set forth below, with a copy to the Company as provided in the Indenture for notices to the Company.

Cliffs Steel Inc.
c/o Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, Ohio 44114
Attention: James Graham, Executive Vice President,
Chief Legal Officer & Secretary

Section 3.02 *Parties*. Nothing expressed or mentioned herein is intended or shall be construed to give any Person, other than the Company, the Additional Guarantor, Holders and the Trustee, any legal or equitable right, remedy or claim under or in respect of this Supplemental Indenture or the Indenture or any provision herein or therein contained.

Section 3.03 *Governing Law*. This Supplemental Indenture shall be governed by, and construed in accordance with, the laws of the State of New York.

Section 3.04 *Severability Clause*. In case any provision in this Supplemental Indenture shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.

Section 3.05 *Ratification of Indenture; Supplemental Indenture Part of Indenture*. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Notes heretofore or hereafter authenticated and delivered shall be bound hereby. The Trustee shall not be responsible for and makes no representation or warranty as to the validity, execution or sufficiency of this Supplemental Indenture or with respect to the recitals contained herein, all of which recitals are made solely by the other parties hereto.

Section 3.06 *Counterparts*. The parties hereto may sign one or more copies of this Supplemental Indenture in counterparts, all of which together shall constitute one and the same agreement.

Section 3.07 *Headings*. The headings of the Articles and the sections in this Guarantee are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

Section 3.08 *Execution, Delivery and Validity*. The Company and the Additional Guarantor each represent and warrant to the Trustee that this Supplemental Indenture has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as enforcement may be limited by equitable principles or by bankruptcy, insolvency, receivership, administration, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

CLIFFS STEEL INC., as a Guarantor

By: /s/ James D. Graham
Name: James D. Graham
Title: Executive Vice President, Chief Legal Officer
& Secretary

CLEVELAND-CLIFFS INC.

By: /s/ Celso L. Goncalves, Jr.
Name: Celso L. Goncalves, Jr.
Title: Executive Vice President, Chief Financial
Officer

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: /s/ William Sicking
Name: William Sicking
Title: Vice President

[*Fourth Supplemental Indenture – 7.00% Senior Guaranteed Notes due 2027*]

FIFTH SUPPLEMENTAL INDENTURE
9.875% SENIOR SECURED NOTES DUE 2025

This Fifth Supplemental Indenture is made as of December 22, 2021 (this "**Supplemental Indenture**" or "**Guarantee**"), among Cliffs Steel Inc., an Ohio corporation (the "**Additional Guarantor**"), Cleveland-Cliffs Inc. (together with its successors and assigns, the "**Company**") and U.S. Bank National Association, as Trustee and First Lien Notes Collateral Agent under the Indenture referred to below.

WITNESSETH:

WHEREAS, the Company, the Guarantors, the First Lien Notes Collateral Agent and the Trustee have heretofore executed and delivered an Indenture, dated as of April 17, 2020, as supplemented by that certain First Supplemental Indenture, dated as of April 24, 2020, among the Company, the Guarantors party thereto, the Trustee and the First Lien Notes Collateral Agent, that certain Second Supplemental Indenture, dated as of May 22, 2020, among the Company, the Guarantors party thereto, the Trustee and the First Lien Notes Collateral Agent, and that certain Third Supplemental Indenture, dated as of December 9, 2020, among the Company, the Guarantors party thereto, the Trustee and the First Lien Notes Collateral Agent, and that certain Fourth Supplemental Indenture, dated as of December 18, 2020, among the Company, the Guarantors party thereto, the Trustee and the First Lien Notes Collateral Agent (as so supplemented and as otherwise amended, supplemented, waived or otherwise modified, the "**Indenture**"), providing for the issuance of an aggregate principal amount of \$955,159,000 of 9.875% Senior Secured Notes due 2025 of the Company (the "**Notes**");

WHEREAS, Section 3.08 of the Indenture provides that, after the Issue Date, the Company is required to cause certain direct or indirect Subsidiaries of the Company to execute and deliver to the Trustee a supplemental indenture pursuant to which such Subsidiary will unconditionally guarantee, on a joint and several basis with the other Guarantors, the full and prompt payment of the principal of, premium, if any, and interest on the Notes on a secured basis; and

WHEREAS, pursuant to Section 9.01 of the Indenture, the Trustee and the Company are authorized to execute and deliver this Supplemental Indenture to amend or supplement the Indenture, without the consent of any Holder.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, the Additional Guarantor, the Company and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Notes as follows:

ARTICLE 1
Definitions

Section 1.01 *Defined Terms*. As used in this Supplemental Indenture, terms defined in the Indenture or in the preamble or recitals hereto are used herein as therein defined. The words "herein," "hereof" and "hereby" and other words of similar import used in this Supplemental Indenture refer to this Supplemental Indenture as a whole and not to any particular section hereof.

ARTICLE 2
Agreement to be Bound; Guarantee

Section 2.01 *Agreement to be Bound*. The Additional Guarantor hereby becomes a party to the Indenture as a Guarantor and as such will have all of the rights and be subject to all of the obligations and agreements of a Guarantor under the Indenture. The Additional Guarantor hereby becomes a party to the

Security Agreement, pursuant to the terms of such agreement, as a Grantor thereunder with the same force and effect as if originally named therein as a Grantor and as such hereby assumes all obligations and liabilities of a Grantor thereunder. The Additional Guarantor agrees to be bound by all of the provisions of the Indenture and the Collateral Documents applicable to a Guarantor and to perform all of the obligations and agreements of a Guarantor under the Indenture and the Collateral Documents.

Section 2.02 *Guarantee*. The Additional Guarantor agrees, on a joint and several basis with all the existing Guarantors, to fully, unconditionally and irrevocably Guarantee to each Holder of the Notes and the Trustee the Guaranteed Obligations pursuant to Article 10 of the Indenture on a secured basis.

ARTICLE 3 Miscellaneous

Section 3.01 *Notices*. All notices and other communications to the Additional Guarantor shall be given as provided in the Indenture to the Additional Guarantor, at its address set forth below, with a copy to the Company as provided in the Indenture for notices to the Company.

Cliffs Steel Inc.
c/o Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, Ohio 44114
Attention: James Graham, Executive Vice President,
Chief Legal Officer & Secretary

Section 3.02 *Parties*. Nothing expressed or mentioned herein is intended or shall be construed to give any Person, other than the Company, the Additional Guarantor, Holders and the Trustee, any legal or equitable right, remedy or claim under or in respect of this Supplemental Indenture or the Indenture or any provision herein or therein contained.

Section 3.03 *Governing Law*. This Supplemental Indenture shall be governed by, and construed in accordance with, the laws of the State of New York.

Section 3.04 *Severability Clause*. In case any provision in this Supplemental Indenture shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.

Section 3.05 *Ratification of Indenture; Supplemental Indenture Part of Indenture*. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Notes heretofore or hereafter authenticated and delivered shall be bound hereby. The Trustee shall not be responsible for and makes no representation or warranty as to the validity, execution or sufficiency of this Supplemental Indenture or with respect to the recitals contained herein, all of which recitals are made solely by the other parties hereto.

Section 3.06 *Counterparts*. The parties hereto may sign one or more copies of this Supplemental Indenture in counterparts, all of which together shall constitute one and the same agreement.

Section 3.07 *Headings*. The headings of the Articles and the sections in this Guarantee are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

Section 3.08 *Execution, Delivery and Validity*. The Company and the Additional Guarantor each represent and warrant to the Trustee that this Supplemental Indenture has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as enforcement may be limited by equitable principles or by bankruptcy, insolvency, receivership, administration, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

CLIFFS STEEL INC., as a Guarantor

By: /s/ James D. Graham
Name: James D. Graham
Title: Executive Vice President, Chief Legal Officer &
Secretary

CLEVELAND-CLIFFS INC.

By: /s/ Celso L. Goncalves, Jr.
Name: Celso L. Goncalves, Jr.
Title: Executive Vice President, Chief Financial Officer

U.S. BANK NATIONAL ASSOCIATION,
as Trustee and First Lien Notes Collateral Agent

By: /s/ William Sicking
Name: William Sicking
Title: Vice President

[Fifth Supplemental Indenture – 9.875% Senior Secured Notes due 2025]

FIRST SUPPLEMENTAL INDENTURE
4.625% SENIOR GUARANTEED NOTES DUE 2029
4.875% SENIOR GUARANTEED NOTES DUE 2031

This First Supplemental Indenture is made as of December 22, 2021 (this “**Supplemental Indenture**” or “**Guarantee**”), among Cliffs Steel Inc., an Ohio corporation (the “**Additional Guarantor**”), Cleveland-Cliffs Inc. (together with its successors and assigns, the “**Company**”) and U.S. Bank National Association, as Trustee (the “**Trustee**”) under the Indenture referred to below.

WITNESSETH:

WHEREAS, the Company, the Guarantors party thereto and the Trustee have heretofore executed and delivered an Indenture, dated as of February 17, 2021 (as amended, supplemented, waived or otherwise modified, the “**Indenture**”), providing for the issuance of an aggregate principal amount of \$500,000,000 of 4.625% Senior Guaranteed Notes due 2029 and \$500,000,000 of 4.875% Senior Guaranteed Notes due 2031 of the Company (collectively, the “**Notes**”);

WHEREAS, Section 3.08 of the Indenture provides that, after the Issue Date, the Company is required to cause certain direct or indirect Subsidiaries of the Company to execute and deliver to the Trustee a supplemental indenture pursuant to which such Subsidiary will unconditionally guarantee, on a joint and several basis with the other Guarantors, the full and prompt payment of the principal of, premium, if any, and interest on the Notes on an unsecured basis; and

WHEREAS, pursuant to Section 9.01 of the Indenture, the Trustee and the Company are authorized to execute and deliver this Supplemental Indenture to amend or supplement the Indenture, without the consent of any Holder.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is hereby acknowledged, the Additional Guarantor, the Company and the Trustee mutually covenant and agree for the equal and ratable benefit of the Holders of the Notes as follows:

ARTICLE 1
Definitions

Section 1.01 *Defined Terms*. As used in this Supplemental Indenture, terms defined in the Indenture or in the preamble or recitals hereto are used herein as therein defined. The words “herein,” “hereof” and “hereby” and other words of similar import used in this Supplemental Indenture refer to this Supplemental Indenture as a whole and not to any particular section hereof.

ARTICLE 2
Agreement to be Bound; Guarantee

Section 2.01 *Agreement to be Bound*. The Additional Guarantor hereby becomes a party to the Indenture as a Guarantor and as such will have all of the rights and be subject to all of the obligations and agreements of a Guarantor under the Indenture. The Additional Guarantor agrees to be bound by all of the provisions of the Indenture applicable to a Guarantor and to perform all of the obligations and agreements of a Guarantor under the Indenture.

Section 2.02 *Guarantee*. The Additional Guarantor agrees, on a joint and several basis with all the existing Guarantors, to fully, unconditionally and irrevocably Guarantee to each Holder of the Notes and the Trustee the Guaranteed Obligations pursuant to Article 10 of the Indenture on an unsecured basis.

ARTICLE 3
Miscellaneous

Section 3.01 *Notices*. All notices and other communications to the Additional Guarantor shall be given as provided in the Indenture to the Additional Guarantor, at its address set forth below, with a copy to the Company as provided in the Indenture for notices to the Company.

Cliffs Steel Inc.
c/o Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, Ohio 44114
Attention: James Graham, Executive Vice President,
Chief Legal Officer & Secretary

Section 3.02 *Parties*. Nothing expressed or mentioned herein is intended or shall be construed to give any Person, other than the Company, the Additional Guarantor, Holders and the Trustee, any legal or equitable right, remedy or claim under or in respect of this Supplemental Indenture or the Indenture or any provision herein or therein contained.

Section 3.03 *Governing Law*. This Supplemental Indenture shall be governed by, and construed in accordance with, the laws of the State of New York.

Section 3.04 *Severability Clause*. In case any provision in this Supplemental Indenture shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby and such provision shall be ineffective only to the extent of such invalidity, illegality or unenforceability.

Section 3.05 *Ratification of Indenture; Supplemental Indenture Part of Indenture*. Except as expressly amended hereby, the Indenture is in all respects ratified and confirmed and all the terms, conditions and provisions thereof shall remain in full force and effect. This Supplemental Indenture shall form a part of the Indenture for all purposes, and every Holder of Notes heretofore or hereafter authenticated and delivered shall be bound hereby. The Trustee shall not be responsible for and makes no representation or warranty as to the validity, execution or sufficiency of this Supplemental Indenture or with respect to the recitals contained herein, all of which recitals are made solely by the other parties hereto.

Section 3.06 *Counterparts*. The parties hereto may sign one or more copies of this Supplemental Indenture in counterparts, all of which together shall constitute one and the same agreement.

Section 3.07 *Headings*. The headings of the Articles and the sections in this Guarantee are for convenience of reference only and shall not be deemed to alter or affect the meaning or interpretation of any provisions hereof.

Section 3.08 *Execution, Delivery and Validity*. The Company and the Additional Guarantor each represent and warrant to the Trustee that this Supplemental Indenture has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation, enforceable against it in accordance with its terms, except as enforcement may be limited by equitable principles or by bankruptcy,

insolvency, receivership, administration, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have caused this Supplemental Indenture to be duly executed as of the date first above written.

CLIFFS STEEL INC., as a Guarantor

By: /s/ James D. Graham
Name: James D. Graham
Title: Executive Vice President, Chief Legal Officer &
Secretary

CLEVELAND-CLIFFS INC.

By: /s/ Celso L. Goncalves, Jr.
Name: Celso L. Goncalves, Jr.
Title: Executive Vice President, Chief Financial Officer

U.S. BANK NATIONAL ASSOCIATION, as Trustee

By: /s/ William Sicking
Name: William Sicking
Title: Vice President

[First Supplemental Indenture – 4.625% Senior Guaranteed Notes due 2029 and 4.875% Senior Guaranteed Notes due 2031]

**DESCRIPTION OF SECURITIES REGISTERED UNDER
SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934**

The following is a summary of the terms and provisions of the common shares, par value \$0.125 per share ("Common Shares"), of Cleveland-Cliffs Inc., an Ohio corporation (the "Company"), and is qualified by reference to the Company's articles of incorporation and regulations, which are incorporated by reference herein and attached as exhibits to the Company's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, and to applicable provisions of Ohio law.

Common Shares

The Company has authorized 1,200,000,000 Common Shares. The holders of Common Shares are entitled to one vote for each share on all matters upon which shareholders have the right to vote and, upon proper notice, are entitled to cumulative voting rights in the election of directors. The Common Shares do not have any preemptive rights, are not subject to redemption and do not have the benefit of any sinking fund. Holders of Common Shares are entitled to receive such dividends as the Company's directors from time to time may declare out of funds legally available therefor. Entitlement to dividends is subject to the preferences granted to other classes of securities the Company has or may have outstanding in the future. In the event of the Company's liquidation, holders of Common Shares are entitled to share in any of the Company's assets remaining after satisfaction in full of its liabilities and satisfaction of such dividend and liquidation preferences as may be possessed by the holders of other classes of securities the Company has or may have outstanding in the future.

Preferred Stock

The Company has authorized 3,000,000 shares of serial preferred stock, Class A, without par value ("Class A Preferred Stock"), and 4,000,000 shares of serial preferred stock, Class B, without par value ("Class B Preferred Stock" and, collectively with the Class A Preferred Stock, "Preferred Stock"). Under the Company's articles of incorporation, the Company's board of directors can issue, without further shareholder action, up to 3,000,000 shares of Class A Preferred Stock and up to 4,000,000 shares of Class B Preferred Stock, in each case, with such rights and restrictions as the Company's board of directors may determine, subject to any shares of Preferred Stock of the applicable class then outstanding.

In some cases, the issuance of Preferred Stock could delay, defer or prevent a change in control and make it harder to remove present management, without further action by the Company's shareholders. Under some circumstances, Preferred Stock could also decrease the amount of earnings and assets available for distribution to holders of Common Shares if the Company liquidates or dissolves and could also restrict or limit dividend payments to holders of Common Shares.

Ohio Control Share Acquisition Statute

The Ohio Control Share Acquisition Statute requires the prior authorization of the shareholders of certain corporations in order for any person to acquire, either directly or indirectly, shares of that corporation that would entitle the acquiring person to exercise or direct the exercise of 20% or more of the voting power of that corporation in the election of directors or to exceed specified other percentages of voting power. In the event an acquiring person proposes to make such an acquisition, the person is required to deliver to the corporation a statement disclosing, among other things, the number of shares owned, directly or indirectly, by the person, the range of voting power that may result from the proposed acquisition and the identity of the acquiring person. Within 10 days after receipt of this statement, the corporation must call a special meeting of shareholders to vote on the proposed acquisition. The

acquiring person may complete the proposed acquisition only if the acquisition is approved by the affirmative vote of the holders of at least a majority of the voting power of all shares entitled to vote in the election of directors represented at the meeting excluding the voting power of all "interested shares." Interested shares include any shares held by the acquiring person and those held by officers and directors who are employees of the corporation as well as by certain others, including many holders commonly characterized as arbitrageurs. The Ohio Control Share Acquisition Statute does not apply to a corporation if its articles of incorporation or code of regulations state that the statute does not apply to such corporation. Neither the Company's articles of incorporation nor its regulations contain a provision opting out of this statute.

Ohio Interested Shareholder Statute

Chapter 1704 of the Ohio Revised Code prohibits certain corporations from engaging in a "chapter 1704 transaction" with an "interested shareholder" for a period of three years after the date of the transaction in which the person became an interested shareholder, unless, among other things:

- the articles of incorporation expressly provide that the corporation is not subject to the statute (the Company has not made this election); or
- the board of directors of the corporation approves the chapter 1704 transaction or the acquisition of the shares before the date the shares were acquired.

After the three-year moratorium period, the corporation may not consummate a chapter 1704 transaction unless, among other things, it is approved by the affirmative vote of the holders of at least two-thirds of the voting power in the election of directors and the holders of a majority of the voting shares, excluding all shares beneficially owned by an interested shareholder or an affiliate or associate of an interested shareholder, or the shareholders receive certain minimum consideration for their shares. A chapter 1704 transaction includes certain mergers, sales of assets, consolidations, combinations and majority share acquisitions involving an interested shareholder. An interested shareholder is defined to include, with limited exceptions, any person who, together with affiliates and associates, is the beneficial owner of a sufficient number of shares of the corporation to entitle the person, directly or indirectly, alone or with others, to exercise or direct the exercise of 10% or more of the voting power in the election of directors after taking into account all of the person's beneficially owned shares that are not then outstanding.

CLEVELAND-CLIFFS INC.

2012 NON-QUALIFIED DEFERRED COMPENSATION PLAN
(AMENDED AND RESTATED EFFECTIVE AS OF OCTOBER 26, 2021)

This Cleveland-Cliffs Inc. 2012 Non-Qualified Deferred Compensation Plan was originally adopted as of the Effective Date (as defined hereunder) to provide certain supplemental non-qualified deferred compensation deferral opportunities and benefits for Participants (as defined hereunder). The Company hereby adopts this amendment and restatement to make certain changes set forth herein effective as of October 26, 2021.

ARTICLE I

DEFINITIONS

As used in this Plan, the following definitions shall apply:

1.1 **“Account”** or **“Accounts”** means the bookkeeping accounts established and maintained for each Participant under Article IV. The Account types and the Contributions associated with each Account type are as more fully described and defined under Article IV.

1.2 **“Base Salary”** means a Participant’s base earnings paid by an Employer to a Participant without regard to any increases or decreases in base earnings as a result of an election to defer under this Plan or under a plan of an Employer maintained pursuant to Section 125, 132(f) or 401(k) of the Code; provided, however, that base earnings will be included in “Base Salary” only to the extent that had there been no such Plan or plan, the amount would have been payable in cash to the Participant. Base Salary payable after the last day of the calendar year for services performed during a final payroll period that spans two (2) calendar years shall be treated as Base Salary for services performed in the subsequent calendar year in which the payment is made.

1.3 **“Beneficiary”** means the person or persons designated or deemed to be designated by the Participant pursuant to Article VI to receive benefits payable under the Plan in the event of the Participant’s death. A Beneficiary’s right to (and the Committee’s duty to provide to the Beneficiary, if any) information concerning the Plan does not arise until the Beneficiary first becomes entitled to receive a benefit under the Plan.

1.4 **“Board”** means the Company’s Board of Directors.

1.5 **“Bonus”** means a cash bonus payable to the Participant under, as applicable, the Company’s Management Performance Incentive Plan or Executive Management Performance Incentive Plan and such other cash payments awarded under such other incentive compensation arrangements that are designated by the Committee as eligible for deferral under this Plan.

1.6 **“Cause”** means that, prior to Termination, the Participant shall have committed: (i) and been convicted of a criminal violation involving fraud, embezzlement or theft in connection with his duties or in the course of his employment with the Company or any other Employer; (ii) intentional wrongful damage to property of the Company or any other Employer; (iii) intentional wrongful disclosure of secret processes or confidential information of the Company or any other Employer; or (iv) intentional wrongful engagement in any competitive activity; and any such act shall have been demonstrably and materially harmful to the Company. For purposes of this Plan, no act or failure to act on the part of the Participant shall be deemed “intentional” if it was due primarily to an error in judgment or negligence, but shall be deemed “intentional” only if done or omitted to be done by the Participant not in good faith and without reasonable belief that the Participant’s action or omission was in the best interest of the Company.

Notwithstanding the foregoing, the Participant shall not be deemed to have been terminated for "Cause" hereunder unless and until there shall have been delivered to the Participant a copy of a resolution duly adopted by the affirmative vote of not less than three quarters of the Board then in office at a meeting of the Board called and held for such purpose, after reasonable notice to the Participant and an opportunity for the Participant, together with the Participant's counsel (if the Participant chooses to have counsel present at such meeting), to be heard before the Board, finding that, in the good faith opinion of the Board, the Participant had committed an act constituting "Cause" as herein defined and specifying the particulars thereof in detail. Nothing herein will limit the right of the Participant or his Beneficiaries to contest the validity or propriety of any such determination.

1.7 "**Change in Control**" means, with respect to any Participant, the first to occur of any of the following events:

(a) Any one person, or more than one person acting as a group, acquires ownership of stock of the Company that, together with stock held by such person or group, constitutes more than 50% of the total fair market value or total voting power of the stock of the Company. However, if any one person, or more than one person acting as a group, is considered to own more than 50% of the total fair market value or total voting power of the stock of the Company, the acquisition of additional stock by the same person or persons is not considered to cause a Change in Control. An increase in the percentage of stock owned by any one person, or persons acting as a group, as a result of a transaction in which the Company acquires its stock in exchange for property will be treated as an acquisition of stock for purposes of this Section 1.7. This Section 1.7 applies only when there is a transfer of stock of the Company (or issuance of stock of the Company) and stock in the Company remains outstanding after the transaction;

(b) Any one person, or more than one person acting as a group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or persons) ownership of stock of the Company possessing 35% or more of the total voting power of the stock of the Company;

(c) A majority of members of the Board is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of the Board prior to the date of the appointment or election; or

(d) Any one person, or more than one person acting as a group, acquires (or has acquired during the 12-month period ending on the date of the most recent acquisition by such person or persons) assets from the Company that have a total gross fair market value equal to or more than 40% of the total gross fair market value of all of the assets of the Company immediately prior to such acquisition or acquisitions.

Notwithstanding the foregoing, for purposes of this Section 1.7, any acquisition of ownership of stock of the Company by any one person, or more than one person acting as a group, pursuant to a Business Combination shall not constitute a Change in Control. A "**Business Combination**" shall mean any business transaction such as a reorganization, merger or consolidation involving the Company, a sale or other disposition of all or substantially all of the assets of the Company, or any other transaction involving the Company, if, in each case, immediately following any such business transaction:

(1) all or substantially all of the individuals and entities who were the beneficial owners of stock of the Company immediately prior to such business transaction beneficially own, directly or indirectly, more than 55% of the combined voting power of the then outstanding shares of stock of the entity resulting from such business transaction (including, without limitation, an entity which as a result of such transaction owns the Company or all or substantially all of the Company's assets either directly or through one or more subsidiaries) in substantially the same proportions relative to each other as their ownership, immediately prior to such business transaction, of the stock of the Company;

(2) no one person, or more than one person acting as a group (other than the Company, such entity resulting from such business transaction, or any employee benefit plan (or related trust) sponsored or maintained by the Company, any subsidiary corporation, as defined under Section 424(f) of the Code, or such entity resulting from such business transaction), beneficially owns, directly or indirectly, 30% or more of the combined voting power of the then outstanding shares of stock of the entity resulting from such business transaction; and

(3) at least a majority of the members of the board of directors of the entity resulting from such business transaction were members of the Incumbent Board at the time of the execution of the initial agreement or of the action of the Board providing for such business transaction.

The "**Incumbent Board**" shall mean those individuals who, as of January 1, 2012, constitute the Board; provided, however, that any individual becoming a director subsequent to January 1, 2012 whose election, or nomination for election by the Company's shareholders, was approved by a vote of at least a majority of the directors then comprising the Incumbent Board (either by a specific vote or by approval of the proxy statement of the Company in which such person is named as a nominee for director, without objection to such nomination) shall be deemed to have been a member of the Incumbent Board, but excluding for this purpose any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest (as described in Rule 14a-12(c) of the Securities Exchange Act of 1934) with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a person other than the Board.

For purposes of this Section 1.7, other than the definition of "Business Combination," (x) persons will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock, or similar business transaction with the Company, and (y) if a person, including an entity, owns stock in both corporations that enter into a merger, consolidation, purchase or acquisition of stock, or similar transaction, such shareholder is considered to be acting as a group with other shareholders in a corporation prior to the transaction giving rise to the change and not with respect to the ownership interest in the other corporation.

1.8 "Code" means the Internal Revenue Code of 1986, as amended, and all lawful regulations and pronouncements promulgated thereunder upon which taxpayers may rely. References to a particular section of the Code include references to successor provisions of the Code or any successor statute.

1.9 "Committee" means the committee described in Section 7.1.

1.10 "Company" means Cleveland-Cliffs Inc.

1.11 "Contribution" or "Contributions" means the amounts credited to a Participant's Accounts under Article IV. The Contribution types and the Account associated with each Contribution type are as more fully described and defined under Articles III and IV.

1.12 "Disability" means, with respect to any Participant, that such Participant is, by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, either (a) unable to engage in any substantial gainful activity, or (b) receiving income replacement benefits for a period of not less than three (3) months under an accident and health plan covering employees of an Employer. Without limitation, for purpose of this Plan, a Participant will be deemed to have a Disability if the Participant is determined to be totally disabled by the Social Security Administration, or is determined to be disabled in accordance with a disability insurance program of the Company or any Employer (provided that the definition of disability applied under such disability insurance program complies with the requirements of Section 409A of the Code).

1.13 **"Effective Date"** means January 1, 2012, as applied in the manner more fully described in Article II.

1.14 **"Election Deadline"** means, as applicable, the deadline established for an Elective Contribution pursuant to Article III.

1.15 **"Elective Contribution"** means an elective contribution made or deemed made by a Participant under Article III and allocated to a Participant Account under Article IV.

1.16 **"Eligible Employee"** generally means a corporate officer of the Company, a Mine Manager of an Employer or an employee of an Employer in "Salary Band E" or higher; provided, however, that "Eligible Employee" status: (a) shall not include any person who is an employee of a non-U.S. affiliate outside the United States unless he or she was an employee of a U.S. affiliate in the United States and, immediately prior to his or her transfer to the non-U.S. affiliate, was an Eligible Employee hereunder; (b) shall first become effective only as confirmed by the Company in writing, at its discretion; and (c) may be prospectively revoked by the Company at its discretion, upon written notice to the affected individual, subject to the applicable requirements of Code Section 409A; and provided, further, that such Eligible Employee is among a select group of management or highly compensated employees (within the meaning of Section 201(2) of ERISA).

1.17 **"Employer"** means the Company and any corporation or business organization during any period in which it is a member of a controlled group of corporations or trades or businesses that includes the Company within the meaning of Code Sections 414(b) and 414(c) provided that in such Code Sections "50%" shall be used wherever "80%" appears; but only during the periods any such corporation or business organization would be so considered under such Code Sections.

1.18 **"Employer Contribution"** means Contributions credited allocated to a Participant's Account under Section 4.2.

1.19 **"ERISA"** means the Employee Retirement Income Security Act of 1974, as amended, and regulations and rulings thereunder. References to a particular section of ERISA include references to successor provisions of ERISA or any successor statute.

1.20 **"Initial Election Deadline"** means December 31, 2011 or, if later, the first Election Deadline applicable to the Eligible Employee under Section 3.2 for his or her first Plan Year (or portion thereof) of eligibility thereunder.

1.21 **"Initial Participation Agreement"** means: (a) for each Eligible Employee who is a Participant in the Plan on January 1, 2012, the first Participation Agreement properly completed and submitted by the Participant on or before the Initial Election Deadline; and (b) for each Eligible Employee who first becomes a Participant after January 1, 2012, the first Participation Agreement properly completed and submitted by the Participant on or before the Initial Election Deadline for the new Participant's initial period of Plan participation, as described under Section 3.2.

1.22 **"Investment Credit"** means the deemed earnings/losses credited to a Participant's Accounts using the applicable Investment Measure.

1.23 **"Investment Measure"** means the deemed investment measure or measures established at any given time, and from time to time, for purposes of determining the Investment Credits applicable to a Participant's Accounts. For this purpose, the deemed measure or measures may include investment options which allow Participant direction among the alternatives pursuant to any and all rules and procedures as are or may be established, at any time or from time to time, for this purpose by the Company at its discretion. If the Company does not establish a deemed investment measure or measures for a given period of time, the Participant's Accounts shall be deemed invested in a vehicle

producing the return equivalent to the Moody's Corporate Average Bond Yield, as adjusted on the first business day of each January, April, July and October.

1.24 "Participant" means an Eligible Employee who satisfies the requirements for participation set forth in Section 3.2 and who otherwise receives a Contribution allocation pursuant to Article IV.

1.25 "Participating Employer" means the Company and/or any other Employer that pays compensation to a Participant.

1.26 "Participation Agreement" means, for a Plan Year, the timely submitted form for that Plan Year pursuant to which a Participant elects to make Elective Contributions under Article III.

1.27 "Plan" means this Cleveland-Cliffs Inc. 2012 Non-Qualified Deferred Compensation Plan, as amended from time to time pursuant to Article VIII.

1.28 "Plan Year" means the calendar year.

1.29 "Savings Plan" means, as applicable to the Participant, the Cleveland-Cliffs Inc. and Associated Employers Salaried Employees Savings Plan or the Northshore Mining Company and Silver Bay Power Company Retirement Savings Plan (or any successors thereto).

1.30 "Six-Month Date" means the first day next following six (6) months after the date of a Participant's Termination.

1.31 "Subsequent Deferral Election" means a one-time election by a Participant to change the form and/or timing of distributions under the Plan subject to and in accordance with the requirements of Section 6.2(c).

1.32 "Subsequent Deferral Election Commencement Date" means, if effective under Section 6.2(c), the day next following the fifth anniversary of the Participant's Six-Month Date.

1.33 "Termination" or "Terminated" means the "separation from service" for purposes of Code Section 409A of any Participant or former Participant from the Company and all other Employers, generally including the severance of such employee's employment relationship with the Company and all Employers for any reason, voluntarily or involuntarily, and with or without cause, including without limitation, quit, discharge, retirement, disability, death, failure to return to active employment at the end of a leave of absence (including military leave, sick leave, or other bona fide leave of absence) or permanent decrease in service to the Company and all Employers to a level that is no more than twenty percent (20%) of its prior level, as described below. For this purpose, whether a separation from service has occurred is determined based on whether it is reasonably anticipated that no further services will be performed by such employee after a certain date or that the level of bona fide services the employee will perform after such date (whether as an employee or as an independent contractor) would permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or an independent contractor) over the immediately preceding thirty-six (36) month period (or the full period of services if the employee has been providing services for less than thirty-six (36) months). The transfer of an employee from the Company or other Employer to the Company or another Employer shall not constitute a Termination for purposes of this Plan.

1.34 "Valuation Date" means, for each Account, a date as of which the Account is valued for purposes of the Plan, as determined under rules and procedures reasonably established by the Company for administrative convenience.

1.35 “Vested” means the existence of a vested interest in an Account, as determined under Article V.

ARTICLE II

EFFECTIVE DATE

2.1 Effective Date and First Plan Year. The general Effective Date of this Plan is January 1, 2012. For the first Plan Year (2012), the following deferrals under the Plan become effective as follows: (a) Elective Contributions relating to any Base Salary and/or Bonus earned for the 2012 Plan Year, in order to be effective, must be elected under a properly completed Participation Agreement, submitted by the applicable Election Deadline, but no later than December 31, 2011, or if later, as permitted under Section 3.2(d); (b) Employer Contributions relating to any such Elective Contributions (i.e., if applicable, the Supplemental Matching Contribution) shall be credited for the 2012 Plan Year only if the requirements of clause (a), above are satisfied with respect to such Elective Contributions; and (c) Employer Contributions relating to discretionary performance contributions under the Savings Plan, if any, shall be credited under this Plan to the extent such Employer Contributions relate to Savings Plan discretionary performance contributions made on behalf of the 2012 Plan Year under the Savings Plan.

2.2 Coordination with 2005 Plan. Amounts elected to be deferred and contributions or other amounts required to be credited under the provisions of the Cliffs Natural Resources Inc. 2005 Voluntary Non-Qualified Deferred Compensation Plan, as amended (the “**2005 Plan**”) as in effect immediately prior to the Effective Date, including the crediting of investment or interest credits after 2011, shall continue to be governed in all respects by the terms and conditions of the 2005 Plan. Deferral and contribution opportunities under the 2005 Plan shall cease with respect to the periods for which Elective Contribution opportunities and Employer Contributions commence under this Plan in the manner set forth in Section 2.1. There shall be no duplication of deferral opportunities or benefits under this Plan and the 2005 Plan.

ARTICLE III

PARTICIPATION AND DEFERRAL ELECTIONS

3.1 Participation. Each Eligible Employee shall become a Participant when he or she properly and timely submits an election to make Elective Contributions pursuant to a Participation Agreement under Section 3.2 or when he or she otherwise is credited with an amount pursuant to Section 4.2. In addition, the Committee shall establish from time to time such other enrollment requirements as it determines in its sole discretion are necessary. A Participant who ceases to be an Eligible Employee shall remain a Participant for Plan purposes, but shall have no further opportunity to elect or make Elective Contributions and shall have no eligibility for further Employer Contributions, except as may be required under Code Section 409A.

3.2 Elective Contribution Deferral Elections.

(a) *General.* An Eligible Employee may make Elective Contributions by properly completing and timely submitting a Participation Agreement made available by the Company in accordance with this Section 3.2, subject to any and all further rules and procedures as may be required by the Company, at its discretion. If no such election is timely made for a Plan Year, the amount of Elective Contributions shall be zero for that Plan Year. All deferral elections hereunder shall become null and void upon the occurrence of a Change in Control.

(b) *Base Salary Deferral.* For each Plan Year, an Eligible Employee may irrevocably elect to defer as an Elective Contribution hereunder up to 50% of the Base Salary earned and payable during such Plan Year (“**Base Salary Deferral Contribution**”). The election to make a Base Salary

Deferral Contribution for a Plan Year shall become irrevocable on the December 31st preceding the commencement of the Plan Year and the Election Deadline for making and submitting such an election shall be such date or such earlier date as may be established by the Company at its discretion.

(c) *Bonus Deferral.* For each Plan Year, an Eligible Employee may irrevocably elect to defer as an Elective Contribution hereunder up to 100% of the Bonus earned during such Plan Year and payable during the next following Plan Year ("**Bonus Deferral Contribution**"). The election to make a Bonus Deferral Contribution of the Bonus earned during a Plan Year shall become irrevocable on the December 31st preceding the commencement of such Plan Year and the Election Deadline for making and submitting such an election shall be such date or such earlier date as may be established by the Company at its discretion.

(d) *Special Rules for New Eligible Employees.* In the event that an Eligible Employee first becomes eligible to participate in the Plan or first commences employment during the course of a Plan Year, a properly completed Participation Agreement may be submitted not later than 30 days following the later of his or her eligibility date or date of employment (the "**Initial Election Deadline**" under this Section 3.2(d)); provided, however, that, for purposes of this Section 3.2(d), an Eligible Employee who was in employment with an Employer in a status other than that of an Eligible Employee is considered to be first eligible to participate in this Plan only if the individual is not a participant in any other agreement, method, program or arrangement that, along with this Plan, would be treated as a single nonqualified deferred compensation plan under Code Section 409A. A deferral election hereunder becomes irrevocable as of the last permissible date for making such election, as described in this Section, and shall be prospectively applied only (i) to amounts of Base Salary to be paid for services performed after the election becomes irrevocable and (ii) to amounts of Bonuses that are earned based upon a specified performance period equal to the total amount of the applicable Bonus for the performance period multiplied by the ratio of the number of days remaining in the performance period after the election becomes effective over the total number of days in the performance period.

ARTICLE IV

ACCOUNTS AND ALLOCATIONS

4.1 Elective Contributions.

(a) *Base Salary Deferral Contribution.* All Base Salary Deferral Contributions deferred with respect to a Participant under Article III shall be credited and allocated to the Participant's Base Salary Deferral Contribution Account as of the date such amounts would have been paid to the Participant absent the deferral election or such later date established by the Company for administrative convenience.

(b) *Bonus Deferral Contribution.* All Bonus Deferral Contributions deferred with respect to a Participant under Article III shall be credited and allocated to the Participant's Bonus Deferral Contribution Account as of the date such amounts would have been paid to the Participant absent the deferral election or such later date established by the Company for administrative convenience.

4.2 Employer Contributions.

(a) *Supplemental Performance Contribution.* If a discretionary Employer performance contribution percentage is determined for a plan year under the Savings Plan (with such determination made after the end of such plan year) and such amount (expressed as a percentage of Base Salary) cannot be fully allocated to a Participant due to the limitations under the Savings Plan imposed by Code Section 401(a)(17) and/or 415, then the portion of such amount that cannot be allocated with respect to the Participant under the Savings Plan for such plan year shall be credited as a Supplemental Performance Contribution hereunder and shall be allocated to the Participant's

Supplemental Performance Contribution Account as of the date such amount would have been received and allocated under the Savings Plan or such later date established by the Company for administrative convenience.

(b) *Supplemental Matching Contribution.* From time to time, but not less frequently than once per Plan Year, a Supplemental Matching Contribution shall be determined and credited to the Supplemental Matching Contribution Account of each "Matching Eligible Participant" (as defined below) equal to the amount, if any, by which the Full Formula Match amount described in (1) below exceeds the Actual Savings Plan Match amount described in (2) below:

(1) *Full Formula Match.* The "**Full Formula Match**" is the total matching contribution amount that would result by applying the matching formula under the Savings Plan for the period on account of which the matching contribution was made (the "matching contribution period") to the Matching Eligible Participant's Base Salary for such matching contribution period, taking into account: (A) the elective deferrals and other contributions that were made under the Savings Plan and would be eligible for matching under such formula if the limitations of Code Sections 401(a)(17) and 415 did not apply; and (B) if applicable, Base Salary Deferral Contributions made under this Plan as to such matching contribution period as if made as regular (non-catch-up) elective deferrals under the Savings Plan, determined without regard to the limitations of Code Section 402(g).

(2) *Actual Savings Plan Match.* The "**Actual Savings Plan Match**" is the total matching contribution amount actually allocated under the Savings Plan for the Matching Eligible Participant under the Savings Plan matching formula for such matching contribution period.

The Supplemental Matching Contribution, if any, shall be credited on a date or dates as more specifically determined by the Company for administrative convenience. For purposes of this Section 4.2(b), a person is a "**Matching Eligible Participant**" for a matching contribution period under the Savings Plan only if he or she was both an Eligible Employee at the beginning of such matching contribution period and remained employed by an Employer as an Eligible Employee from such date through the date as of which the Supplemental Matching Contribution is credited under the immediately preceding sentence.

(c) *Cessation of Employer Contributions upon Certain Events.* In the event a Participant's employment is Terminated for Cause, no additional Employer Contributions shall be credited to such Participant's Account on or after the date of such Termination. Additionally, pursuant to Section 9.12, Employer Contributions will no longer be credited to a Participant's Account in the event a legal action is filed in any court other than those prescribed by Section 9.12.

4.3 *Investment Credits.* On a periodic basis not less frequently than once per calendar quarter, all Participant Accounts shall be credited, positively or negatively, with Investment Credits to reflect the deemed investment performance of each such Account during the relevant period using the applicable Investment Measure, as determined under the crediting rules and procedures reasonably established by the Company.

4.4 *Status of Accounts.* Anything contained herein to the contrary notwithstanding: (a) all amounts respecting a Participant's Accounts under this Plan, including amounts that may be determined, credited, allocated or considered Vested under the terms hereof or amounts that may be reported to the Participant in any form, shall at all times be mere bookkeeping entries, with no actual assets or funds being specifically dedicated, set aside or otherwise associated with such amounts; and (b) all rights of, or relating to, Participants, Contributions and/ or Accounts under this Plan shall be limited to those contained in this Plan instrument, the Participation Agreement and other forms used to administer this Plan, with such rights and any related claims being no greater than that of a general unsecured creditor of the Company.

ARTICLE V

VESTING

All Accounts of a Participant under this Plan shall be fully Vested and nonforfeitable at all times.

ARTICLE VI

DISTRIBUTIONS

6.1 Time of Distribution.

(a) *Distribution Following Termination*. A Participant's Accounts shall become distributable upon a Participant's Termination for reasons other than death or Disability, with actual distribution occurring or commencing on, or as soon as is practicable following, the Participant's Six-Month Date, or such later date as required pursuant to Section 6.2(c).

(b) *Distribution Following Death or Disability*. A Participant's Accounts shall become distributable upon a Participant's death or Disability, with actual distribution occurring within sixty (60) days following his or her death or Disability.

(c) *Distribution Upon Change in Control*. A Participant's Accounts shall become distributable upon the occurrence of a Change in Control, with actual distribution occurring within three (3) business days after the Change in Control.

6.2 Form of Distribution.

(a) *Lump-Sum Normal Form*. All distributions pursuant to Section 6.1(a) shall be in the form of one lump-sum cash payment, except as provided otherwise under Section 6.2(b). All distributions pursuant to Section 6.1(b) and 6.1(c) shall be in the form of one lump-sum cash payment. All lump-sum distributions made to or with respect to a Participant under Section 6.1 shall be based upon the value of each of the Participant's Accounts as of the Valuation Date immediately preceding the date distribution thereunder occurs.

(b) *Optional Installments*. If elected by a Participant on a properly completed and submitted Initial Participation Agreement prior to the applicable Initial Election Deadline or under a properly completed and effective Subsequent Deferral Election under Section 6.2(c), under such further rules and procedures established by the Company consistent with the requirements of Code Section 409A, distribution under 6.1(a) shall be made in the number of annual installments (from two (2) to ten (10)) so elected by the Participant with respect to all of his or her Accounts. The first payment of an installment distribution elected under a Participant's Initial Participation Agreement shall commence on, or as soon as is practicable following, the Participant's Six-Month Date, and the remaining installments shall be paid on each anniversary of the Participant's Six-Month Date or as soon thereafter as is administratively practicable. The first payment of an installment distribution elected under a Participant's Subsequent Deferral Election, if effective under Section 6.2(c), shall commence on, or as soon as is practicable following, the Participant's Subsequent Deferral Election Commencement Date, and the remaining installments shall be paid on each anniversary of the Participant's Subsequent Deferral Election Commencement Date or as soon thereafter as is administratively practicable. All installment payments made to or with respect to a Participant under this Section 6.2(b) shall be calculated by multiplying the balance of the Participant's Accounts as of the Valuation Date immediately preceding the installment payment date by a fraction, the numerator of which is one (1) and the denominator of which is the number of annual installments remaining to be paid (including the installment for which the amount is being determined).

(c) *One-Time Subsequent Deferral Election.* Subject to the further requirements of this Section 6.2(c), each Participant, on a form made available by the Company and subject to such other rules and requirements as the Company may prescribe, may irrevocably elect to receive installment distributions under Section 6.2(b) in lieu of an otherwise applicable lump-sum distribution method (whether applicable by election or default) or an election to receive installment distributions under his or her Initial Participation Agreement or may irrevocably elect to receive a lump-sum distribution in lieu of an otherwise applicable lump-sum distribution (whether applicable by election or default) or an election to receive installment distributions under his or her Initial Participation Agreement. In order for an election under the preceding sentence to be effective, any such election: (1) must be the only election or attempted election ever made by the Participant under this Section 6.2(c); (2) must provide that the distribution so elected shall be made or, in the case of installments, shall commence, on the Participant's Subsequent Deferral Election Commencement Date; and (3) the date such irrevocable election is properly made and submitted to the Company in accordance with the rules and requirements the Company may prescribe must, in fact, precede the Participant's Termination by at least twelve (12) months. Any election or attempted election that is not effective under the preceding sentence is not considered to be an effective Subsequent Deferral Election hereunder and shall be completely null and void.

(d) *Automatic Cash-Out.* Notwithstanding the election of installments under the preceding provisions of this Section 6.2: (1) if the combined value of a Participant's Accounts is less than \$50,000 on a Valuation Date as of which an installment to the Participant is being determined, then the remaining undistributed value of all such Accounts as of such Valuation Date shall be distributed in one final lump-sum distribution as soon as is practicable, but no later than 30 days following the date the installment otherwise is or would be made; or (2) if the Participant dies with installments remaining to be paid following the date of death, then the remaining undistributed value of all of his or her undistributed Accounts shall be distributed to the Participant's Beneficiary in one final lump-sum as soon as is practicable, but no later than 60 days following proper notice of the Participant's death, based upon the value of the undistributed Accounts as of the Valuation Date next preceding the date of distribution.

6.3 Distributions to Beneficiary Upon Death. For a distribution under Section 6.1(b) following a Participant's Termination on account of death or for a distribution under Section 6.2(d) with respect to a Participant who dies with installments remaining to be paid, distribution shall be made to the Participant's Beneficiary. For purposes of this Plan, each Participant shall have the right, at any time, to designate any person or persons, contingently or successively, as his or her Beneficiary to whom payment under the Plan shall be made in the event of his or her death prior to complete distribution to the Participant of his or her Account(s). Any Beneficiary designation shall be made in a written instrument properly completed and filed with the Company and shall be effective only when received in writing by the Company. Any Beneficiary designation may be changed by a Participant by the filing of a new Beneficiary designation, which will cancel all Beneficiary designations previously filed. If a Participant fails to designate a Beneficiary as provided above, or if all designated Beneficiaries (and all contingent or successive Beneficiaries) predecease the Participant, or such designations are invalid for any reason, or all such Beneficiaries disclaim the Participant's benefits under this Plan and the Committee has accepted the disclaimers as valid under applicable law, then the Participant's designated Beneficiary shall be deemed to be the Participant's estate. Notwithstanding the foregoing, a divorce decree, or a decree of legal separation that is effective after the Effective Date of this Plan, shall revoke the Participant's prior designation, if any, of his or her spouse or former spouse as his or her Beneficiary under the Plan unless a qualified domestic relations order provides otherwise. Payment to a Participant's Beneficiary (or, upon the death of all designated Beneficiaries (and all contingent or successive Beneficiaries), to the Beneficiary's estate) shall completely discharge the Participating Employer, all other Employers, and the Committee from all liability with respect to such benefit obligations under the Plan.

If the Committee has any bona fide doubt as to the proper Beneficiary to receive a deceased Participant's benefit under this Plan, the Committee shall have the right, exercisable in their sole discretion, to cause the Participating Employer to withhold such payment until this dispute is resolved to the Committee's satisfaction. In this case, the payment shall be made no later than the end of the first

taxable year of the Beneficiary(ies) in which the Committee and the Beneficiary(ies) enter into a legally binding settlement of such dispute or the Participating Employer is required to make such payment pursuant to a final and nonappealable judgment or other binding decision.

ARTICLE VII

ADMINISTRATION

7.1 Administration by Committee. The Plan shall be administered by the Company, acting by and through the "Committee" comprised of those members of the Compensation and Organization Committee of the Board (or any successor committee) who are not Participants, as long as there are at least three (3) such members. If there are not at least three (3) such non-participating persons on the Compensation and Organization Committee (or any successor committee), the chief executive officer of the Company shall appoint other non-participating Directors or Company officers to serve on the Committee. The Committee shall supervise the administration and operation of the Plan, may from time to time adopt rules and procedures governing the Plan and shall have authority to construe and interpret the Plan (including, without limitation, by supplying omissions from, correcting deficiencies in, or resolving inconsistencies and ambiguities in, the language of the Plan).

7.2 Delegation. The Committee may appoint an individual or group of individuals, who may be an employee or employees of the Company, to be the Committee's authorized agent with respect to the day-to-day administration of Company duties and determinations under the Plan. In addition, the Committee may, from time to time, employ other agents and delegate to them such administrative duties as it sees fit, and may from time to time consult with counsel who may be counsel to the Company.

7.3 Binding Effect of Decisions. Any decision or action of the Committee with respect to any question arising out of or in connection with the administration, interpretation and application of the Plan shall be final and binding upon all persons who at any time have, have had, or may have a claim to any interest or rights whatsoever under this Plan.

7.4 Indemnity of Committee. The Company shall indemnify and hold harmless the members of the Committee and their duly appointed agents under Section 7.2 against any and all claims, loss, damage, expense or liability arising from any action or failure to act with respect to the Plan, except in the case of gross negligence or willful misconduct by any such member or agent of the Committee.

ARTICLE VIII

AMENDMENT AND TERMINATION

8.1 Amendment. The Company, on behalf of itself and of each Employer may, subject to Section 8.3, at any time amend, suspend or reinstate any or all of the provisions of the Plan, except that no such amendment, suspension or reinstatement may adversely affect any Account of any Participant, as it existed as of the effective date of such amendment, suspension or reinstatement, without such Participant's prior written consent, unless such amendment is deemed necessary by the Company to bring this Plan into compliance with Section 409A of the Code or any other applicable law.

8.2 Termination. The Company, on behalf of itself and of each Employer, in its sole discretion, may, subject to Section 8.3, terminate this Plan at any time and for any reason whatsoever.

8.3 Prohibition Against Acceleration. Notwithstanding the authority of the Company to amend, suspend, reinstate or terminate this Plan and/or its provisions under this Article and notwithstanding the interpretative authority retained under Article VII, in no event shall any such action provide for, allow or result in an acceleration of payment or benefits prohibited by Code Section 409A, recognizing the exceptions to such prohibitions contained in Treas. Reg. § 1.409A-3(j).

ARTICLE IX

MISCELLANEOUS

9.1 Funding. Participants, their Beneficiaries, and their heirs, successors and assigns, shall have no secured interest or claim in any property or assets of any Employer. The obligation of the Company and other Employers under the Plan shall be merely that of an unfunded and unsecured promise to pay money in the future. Notwithstanding the foregoing, in the event of a Change in Control, the Company shall create an irrevocable trust to hold funds to be used in payment of the obligations of the Employers under the Plan, and the Company shall fund such trust in an amount equal to no less than the total value of the Participants' Accounts under the Plan as of the date immediately preceding the Change in Control, provided that any funds contained therein shall remain liable for the claims of the respective Employer's general creditors.

9.2 Employer's Liability. A Participating Employer's liability for the payment of benefits under this Plan is exclusively contained in this Plan instrument, Participation Agreements and other forms used to administer this Plan. Neither a Participating Employer nor any other Employer shall have an obligation to a Participant under the Plan except as expressly provided in the Plan and his or her Participation Agreement and other administrative forms.

9.3 Nonassignability. No right or interest under the Plan of a Participant or his or her Beneficiary (or any person claiming through or under any of them) shall be assignable or transferable in any manner or be subject to alienation, anticipation, sale, pledge, encumbrance or other legal process or in any manner be liable for or subject to the debts or liabilities of any such Participant or Beneficiary, except as expressly required by law. If any Participant or Beneficiary shall attempt to or shall transfer, assign, alienate, anticipate, sell, pledge or otherwise encumber his or her benefits hereunder or any part thereof, or if by reason of his or her bankruptcy or other event happening at any time such benefits would devolve upon anyone else or would not be enjoyed by him or her, then such assignment shall be null and void, except as expressly required by law. Notwithstanding to foregoing provisions of this Section 9.3, the Plan will recognize, to the extent lawful, applicable and required, orders issued under domestic relations laws.

9.4 Legal Fees and Expenses. It is the intent of the Company and each other Employer that following a Change in Control no Eligible Employee or former Eligible Employee be required to incur the expenses associated with the enforcement of his or her rights under this Plan by litigation or other legal action because the cost and expense thereof would substantially detract from the benefits intended to be extended to an Eligible Employee hereunder. Accordingly, if it should appear that the Employer has failed to comply with any of its obligations under this Plan or in the event that the Employer or any other person takes any action to declare this Plan void or unenforceable, or institutes any litigation designed to deny, or to recover from, the Eligible Employee the benefits intended to be provided to such Eligible Employee hereunder, the Employer irrevocably authorizes such Eligible Employee from time to time to retain counsel of his or her choice, at the expense of the Employer as hereafter provided, to represent such Eligible Employee in connection with the initiation or defense of any litigation or other legal action, whether by or against the Employer or any director, officer, stockholder or other person affiliated with the Employer in any jurisdiction. The Employer shall pay and be solely responsible for any and all attorneys' and related fees and expenses incurred by such Eligible Employee as a result of the Employer's failure to perform under this Plan or any provision thereof; or as a result of the Employer or any person contesting the validity or enforceability of this Plan or any provision thereof. The Employer agrees to reimburse an Eligible Employee or pay directly to such counsel any and all reasonable costs and expenses (including but not limited to reasonable attorneys' fees) an Eligible Employee may incur in connection with such failure to perform under the Plan with such reimbursement to occur no later than the end of the taxable year following the taxable year in which such expense was incurred. In addition, the amounts eligible for reimbursement during any one taxable year under this Section 9.4 may not affect the expenses eligible for reimbursement in any other taxable year under this Section 9.4.

9.5 Withholding Taxes. The Employer shall withhold the minimum amount of taxes which it determines it is required by law or required by the terms of this Plan to withhold in connection with any recognition of income incident to this Plan payable to a Participant or Beneficiary.

9.6 Captions. The captions contained herein are for convenience only and shall not control or affect the meaning or construction hereof.

9.7 Governing Law. The provisions of the Plan shall be construed and interpreted according to the laws of the State of Ohio without regard to its conflicts of laws principals unless superseded by ERISA or other federal law.

9.8 Successors. The provisions of the Plan shall bind and inure to the benefit of the Company, the other Employers, and their respective successors and assigns. The term "successors" as used herein shall include any corporate or other business entity which shall, whether by merger, consolidation, purchase or otherwise, acquire all or substantially all of the business and assets of the Company or another Employer and successors of any such corporation or other business entity.

9.9 Right to Continued Service. Nothing contained herein shall be construed to be a contract of employment or to confer upon any Eligible Employee the right to continue to serve as an Eligible Employee of the Employer or in any other capacity.

9.10 Section 409A Compliance. It is the intention and purpose of the Company that this Plan shall be, at all relevant times, in compliance with (or, where applicable, exempt from) Code Section 409A and other applicable laws, and this Plan shall be so interpreted and administered. In addition to the general amendment rights of the Company with respect to the Plan, the Company specifically retains the unilateral right (but not the obligation) to make, prospectively or retroactively, any amendment to this Plan or any related document as it deems necessary or desirable to more fully address issues in connection with compliance with (or exemption from) Code Section 409A and/or such other laws. In no event, however, shall this Section 9.10 or any other provisions of this Plan be construed to require the Company to provide any gross-up for the tax consequences of any provisions of, or payments under, this Plan and the Company shall have no responsibility for tax or legal consequences to any Participant (or Beneficiary) resulting from the terms or operation of this Plan.

9.11 Deadline to File a Claim under Plan; Deadline to file Legal Action. No claim for benefits may be made by a Participant or Beneficiary on any disputed matter pertaining to this Plan unless such claim is made within one (1) year following the occurrence of the earliest event upon which the claim may be made. With respect to any claim relating to the contents of a notice pertaining to this Plan, the Participant or Beneficiary must make such claim within one (1) year following the date the notice was given. No legal action to enforce or clarify rights under this Plan or under any provision of law, whether or not statutory, or any other action arising from, or related to, this Plan, may be brought by any Participant or Beneficiary on any matter pertaining to this Plan unless the legal action is commenced in the proper forum as prescribed by Section 9.12 before the earlier of: (a) two (2) years after the Participant or Beneficiary knew or reasonably should have known of the principal facts on which the claim is based; or (b) one (1) year after the Participant or Beneficiary has exhausted any claim procedure applicable to this Plan. For purposes of applying the foregoing provisions of this Section, knowledge of all of the facts that a Participant knew or reasonable should have known shall be imputed to every Participant or Beneficiary who is or claims to be a beneficiary of the Participant or otherwise claims to derive a benefit or entitlement under this Plan by reference to that Participant.

9.12 Venue. Any legal actions, suits or proceedings pertaining to this Plan shall be brought in the courts of Ohio (whether federal or state) and the Participant, Beneficiary, persons claiming to be a beneficiary or any other persons who claim to derive a benefit or entitlement under this Plan by reference to the Participant irrevocably submit to the exclusive jurisdiction of Ohio courts. The Participant, Beneficiary, persons claiming to be a Beneficiary or any other person who claim to derive a benefit or

entitlement under this Plan by reference to the Participant waive, to the fullest extent permitted by law, any objection any such person may now or hereafter have to laying venue in any suit, action or proceeding hereunder in any court, as well as any right any such person may now or hereafter have to remove any such suit, action or proceeding once commenced to another court in any jurisdiction on the grounds of forum non-convenience or otherwise. In the event that any such person resorts to an improper forum, such forum shall award the Company reasonable attorney's fees and costs incurred by the Company to enforce the provisions of this Plan, and such forum shall award the Company such other legal or equitable relief as the forum deems appropriate. In the event a legal action is filed in any court other than a federal or state court located in Ohio, the Participant's Accounts shall not be credited with any additional Employer Contributions on or after the date such legal action, suit, or proceeding is filed.

9.13 Use of Electronic Media and Written Communications. All Plan notices and all Participant or Beneficiary notices, designations, elections, consents or waivers must be in writing (which may include an electronic communication) and made in a form the Plan specifies or otherwise approves. Any person entitled to notice under the Plan may waive the notice or shorten the notice period unless such actions are contrary to applicable law. The Plan, using any electronic medium, may give or receive any Plan notice, communicate any Plan policy, conduct any written Plan communication, satisfy any Plan filing or other compliance requirement and conduct any other Plan transaction to the extent permissible under applicable law. A Participant, a Participant's spouse, or a Beneficiary, may use any electronic medium to provide any Beneficiary designation, election, notice, consent or waiver under the Plan, to the extent permissible under applicable law. Any reference in this Plan to a "form," a "notice," an "election," a "consent," a "waiver," a "designation," a "policy" or to any other Plan-related communication includes an electronic version thereof as permitted under applicable law.

CLEVELAND-CLIFFS INC.
SUPPLEMENTAL RETIREMENT BENEFIT PLAN

(as Amended and Restated Effective October 26, 2021)

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CLEVELAND-CLIFFS INC.

SUPPLEMENTAL RETIREMENT BENEFIT PLAN

(as Amended and Restated Effective October 26, 2021)

WHEREAS, Cleveland-Cliffs Inc. ("Cliffs") and its subsidiary corporations and affiliates have established, or may hereafter establish, one or more qualified retirement plans;

WHEREAS, the qualified retirement plans, pursuant to Sections 401(a) and 415 of the Internal Revenue Code of 1986, as amended, place certain limitations on the amount of contributions that would otherwise be made thereunder for certain participants;

WHEREAS, Cliffs now desires to provide for the contributions which would otherwise have been made for such participants under certain of its qualified retirement plans except for such limitations, in consideration of services performed and to be performed by each such participant for Cliffs and its subsidiaries and affiliates; and

WHEREAS, Cliffs has entered into, and Cliffs and its subsidiary corporations and affiliates may in the future enter into, agreements with certain executives providing for additional service credit and/or other features for purposes of computing retirement benefits, in consideration of services performed and to be performed by such executives for Cliffs and its subsidiaries and affiliates.

NOW, THEREFORE, Cliffs hereby amends and restates and publishes the Supplemental Retirement Benefit Plan heretofore established by it, which shall contain the following terms and conditions:

1. Definitions. A. The following words and phrases when used in this Plan with initial capital letters shall have the following respective meanings, unless the context clearly indicates otherwise. The masculine whenever used in this Plan shall include the feminine.

B. "Affiliate" shall mean any partnership or joint venture of which any member of the Controlled Group is a partner or venturer and which shall adopt this Plan pursuant to paragraph 5.

C. "Beneficiary" shall mean such person or persons (natural or otherwise) as may be designated by the Participant as his Beneficiary under this Plan. Such a designation may be made, and may be revoked or changed (without the consent of any previously designated Beneficiary), only by an instrument (in form acceptable to Cliffs) signed by the Participant and may be revoked or changed (without the consent of any previously designated Beneficiary), only by an instrument (in form acceptable to Cliffs) signed by the Participant and filed with Cliffs prior to the Participant's death. In the absence of such a designation and at any other time when there is no existing Beneficiary designated by the Participant to whom payment is to be made pursuant to his designation, his Beneficiary shall be his beneficiary under the Pension Plan. A person designated by a Participant as his Beneficiary who or which ceases to exist shall not be entitled to any part of any payment thereafter to be made to the Participant's Beneficiary unless the Participant's designation specifically provided to the contrary. If two or more persons designated as a Participant's Beneficiary are in existence, the amount of any payment to the Beneficiary under this Plan shall be divided equally among such persons unless the Participant's designation specifically provided to the contrary.

D. "Code" shall mean the Internal Revenue Code of 1986, as it has been and may be amended from time to time.

E. "Code Limitations" shall mean the limitations imposed by Sections 401(a) and 415 of the Code, or any successor thereto, on the amount of the benefits which may be payable to a Participant from the Pension Plan.

F. "Controlled Group" shall mean Cliffs and any corporation in an unbroken chain of corporations beginning with Cliffs, if each of the corporations other than the last corporation in the chain owns or controls, directly or indirectly, stock possessing not less than fifty percent of the total combined voting power of all classes of stock in one of the other corporations.

G. "Employer(s)" shall mean Cliffs and any other member of the Controlled Group and any Affiliate which shall adopt this Plan pursuant to paragraph 5.

H. "Participant" shall mean each person (i) who is a participant in the Pension Plan on or after December 1, 2006, (ii) who is a senior corporate officer of Cliffs or a full-time salaried employee of an Employer who has a Management Performance Incentive Plan Pay Band E or above, and (iii) who as a result of participation in this Plan is entitled to a Supplemental Benefit under this Plan. Each person who is as a Participant under this Plan shall be notified in writing of such fact by his Employer, which shall also cause a copy of the Plan to be delivered to such person.

I. "Pension Plan" shall mean, with respect to any Participant, the defined benefit plan specified on Exhibit A hereto in which he participates.

J. "Supplemental Agreement" shall mean, with respect to any Participant, an agreement between the Participant and an Employer, and approved by Cliffs if it is not the Employer, which provides for additional service credit and/or other features for purposes of computing retirement benefits.

K. "Supplemental Benefit" or "Supplemental Pension Plan Benefit" shall mean a retirement benefit determined as provided in paragraph 2.

L. "Supplemental Retirement Benefit Plan" or "Plan" shall mean this Plan, as the same may hereafter be amended or restated from time to time.

M. "Termination of Employment" shall mean the "separation from service" for purposes of Section 409A of the Code of any Participant or former Participant from his Employer, generally including the severance of such employee's employment relationship with his Employer for any reason, voluntarily or involuntarily, and with or without cause, including without limitation, quit, discharge, retirement, disability, death, failure to return to active employment at the end of a leave of absence (including military leave, sick leave, or other bona fide leave of absence) or permanent decrease in service to his Employer to a level that is no more than twenty percent (20%) of its prior level, as described below. For this purpose, whether a separation from service has occurred is determined based on whether it is reasonably anticipated that no further services will be performed by such employee after a certain date or that the level of bona fide services the employee will perform after such date (whether as an employee or as an independent contractor) would permanently decrease to no more than twenty percent (20%) of the average level of bona fide services performed (whether as an employee or an independent contractor) over the immediately preceding thirty-six (36) month period (or the full period of services if the employee has been providing services for less than thirty-six (36) months). For purposes of this definition, the term "Employer" shall mean the Employer of the Participant and any other entity that is treated as a single employer with such Employer under Section 414(b) and (c) of the Code, provided that in such Code Sections "50%" shall be used wherever "80%" appears. The preceding rule shall only apply during the periods any such corporation, business organization or member would be so considered under Section 414(b) or 414(c) of the Code. The transfer of an

employee from the Employer for whom he provides services to any entity that is an Employer within the meaning of the preceding two sentences (or vice versa) shall not constitute a Termination of Employment for purposes of this Plan.

2. Determination of the Supplemental Pension Plan Benefit. Each Participant or Beneficiary of a deceased Participant whose benefits under the Pension Plan payable or accrued on or after January 1, 1995 are reduced (a) due to the Code Limitations, or (b) due to deferrals of compensation by such Participant under the 2005 Cliffs Natural Resources Inc. Voluntary Non-Qualified Deferred Compensation Plan (the "Deferred Compensation Plan"), and each Participant who has entered into a Supplemental Agreement with his Employer (and, where applicable a Beneficiary of a deceased Participant), shall be entitled to a Supplemental Pension Plan Benefit if he should have a Termination of Employment at a time when he is vested in his benefit under the Pension Plan. The amount of the Supplemental Pension Plan Benefit at any time shall be a monthly retirement benefit equal to the difference between:

(i) the amount of the monthly benefit payable or accrued to the Participant or his Beneficiary under the Pension Plan, determined under the Pension Plan as in effect at such time, but calculated without regard to any reduction in the Participant's compensation pursuant to the Deferred Compensation Plan, and as if the Pension Plan did not contain a provision (including any phase-in or extended wear away provision) implementing the Code Limitations, and after giving effect to the provisions of any Supplemental Agreement, and

(ii) the sum of (X) the amount of the monthly benefit in fact payable or accrued to the Participant or his Beneficiary under the Pension Plan and (Y) the sum of the Supplemental Pension Plan Benefits previously paid out to the Participant.

3. Payment of the Supplemental Pension Plan Benefit.

A. A Participant's (or his Beneficiary's) vested Supplemental Pension Plan Benefit (calculated as provided in paragraph 2) shall be converted, six (6) months after Termination of Employment into a lump sum of equivalent actuarial value. The equivalent actuarial value shall be determined by the actuary selected by Cliffs based on the "Applicable Mortality Table" used from time to time under Section 417(e) of the Code and other factors then in effect for purposes of the Pension Plan.

B. A Participant's vested Supplemental Pension Plan Benefit shall be distributed to the Participant the first day of the month following six (6) months after Termination of Employment in the form of a lump sum payment. Plan Participants as of December 1, 2006 may elect prior to December 31, 2006 to receive payment of vested Plan benefits in ten (10) annual installments commencing the first day of the month following six (6) months after Termination of Employment by completing a Benefit Payment Election Form. A person who becomes a Participant of the Plan on or after December 1, 2006 has the right to elect payment of his or her vested Supplemental Pension Plan Benefit in ten (10) annual installments commencing the first day of the month following six (6) months after Termination of Employment by completing a Benefit Payment Election Form within thirty (30) days from the day in which the person became eligible to participate in the Plan. The ten (10) annual installments shall be actuarially equivalent to the lump sum payment using the same actuarial assumptions as used in subparagraph A of this paragraph and shall be considered to be a single form of payment.

C. Notwithstanding subparagraph B of this paragraph, a Participant may elect after the timeframes set forth above to change the form of payment in effect with respect to the Participant's Supplemental Pension Plan Benefit, provided that such new election is made no later than six (6) months prior to his Termination of Employment, may not take effect for twelve (12) months

after the election is made and shall result in the deferral of Supplemental Pension Plan Benefit payments for five (5) years from the previously applicable time or commencement date of payment.

D. A Beneficiary of a Participant shall receive the vested Supplemental Pension Plan Benefit provided in paragraph 2 if the Participant dies prior to his or her Termination of Employment but after he is vested in his accrued benefit under the Pension Plan. Such vested benefit shall be paid in a single lump sum within 60 days following the date of death. If the Participant dies after his or her Termination of Employment, the Beneficiary shall receive any remaining vested Supplemental Pension Plan Benefit not paid to the Participant at the time of death, which shall be paid within 60 days of death.

4. General.

A. (1) The entire cost of this Supplemental Retirement Benefit Plan shall be paid from the general assets of one or more of the Employers. It is the intent of the Employers to so pay benefits under the Plan as they become due; provided, however, that Cliffs may, in its sole discretion, establish or cause to be established a trust account for any or each Participant pursuant to an agreement, or agreements, with a bank and direct that some or all of a Participant's benefits under the Plan be paid from the general assets of his Employer which are transferred to the custody of such bank to be held by it in such trust account as property of the Employer subject to the claims of the Employer's creditors until such time as benefit payments pursuant to the Plan are made from such assets in accordance with such agreement; and until any such payment is made, neither the Plan nor any Participant or Beneficiary shall have any preferred claim on, or any beneficial ownership interest in, such assets. No liability for the payment of benefits under the Plan shall be imposed upon any officer, director, employee, or stockholder of Cliffs or other Employer.

(2) Notwithstanding the provisions of paragraph 4.A.(1), upon the earlier to occur of (a) a Change in Control of Cliffs (for purposes of the Plan the term "Change in Control" shall have the meaning set forth in the Deferred Compensation Plan or any successor thereto) or (b) a declaration by the Board of Directors of Cliffs (the "Board") that a Change in Control is imminent, Cliffs shall promptly, to the extent it has not previously done so, and in any event within five (5) business days, transfer to KeyTrust Company of Ohio, N.A., as trustee ("Trustee") of Trust Agreement No. 7 ("Trust Agreement No. 7") dated April 9, 1991, as amended, between the Trustee and Cliffs, a sum equal to (aa) the present value on the date of the Change in Control (or on such fifth (5th) business day if the Board has declared a Change in Control to be imminent) of the payments to be made to the Participants under this Plan, such present value to be computed using the assumptions and factors used in the Plan, less (bb) the (balance in the Participant's account provided for in Section 7(b) of Trust Agreement No. 7) as of the most recent completed valuation thereof, as certified by the Trustee under Trust Agreement No. 7; provided, however, that if the Trustee does not so certify by the end of the fourth (4th) business day after the earlier of such Change in Control or declaration, then the balance of such account shall be deemed to be zero. Any payments of benefits by the Trustee pursuant to Trust Agreement No. 7 shall, to the extent thereof, satisfy Cliffs' obligation to pay benefits hereunder, it being the intent of Cliffs that assets in such Trust be held, subject to the claims of Cliffs' creditors, to assist Cliffs in meeting its obligation to pay benefits under this Plan. Notwithstanding the foregoing, no transfer of assets to Trust Agreement No. 7 or any other such trust or funding vehicle shall be made if such transfer would violate the terms of Section 409A(b)(2) or (b)(3) of the Code.

B. No right or interest of a Participant or his Beneficiary under this Supplemental Retirement Benefit Plan shall be anticipated, assigned (either at law or in equity) or alienated by the Participant or his Beneficiary, nor shall any such right or interest be subject to attachment, garnishment, levy, execution or other legal or equitable process or in any manner be liable for or subject to the debts of any Participant or Beneficiary. If any Participant or Beneficiary shall attempt to or shall alienate, sell, transfer, assign, pledge or otherwise encumber his benefits under the Plan or any part thereof, or if by reason of his bankruptcy or other event happening at any time such benefits

would devolve upon anyone else or would not be enjoyed by him, then Cliffs may terminate his interest in any such benefit and hold or apply it to or for his benefit or the benefit of his spouse, children or other person or persons in fact dependent upon him, or any of them, in the manner and at the time it otherwise would have been paid under the Plan.

C. Employment rights shall not be enlarged or affected hereby. The Employers shall continue to have the right to discharge or retire a Participant, with or without cause.

D. Notwithstanding any other provisions of this Plan to the contrary, if Cliffs determines that any Participant may not qualify as a "management or highly compensated employee" within the meaning of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), or regulations thereunder, Cliffs may determine, in its sole discretion, that such Participant shall cease to be eligible to accrue further benefits under this Plan. The Participant's then accrued Supplemental Benefit shall be held under the Plan to be paid in accordance with Section 3 hereof.

5. Adoption of Supplemental Retirement Benefit Plan. Any member of the Controlled Group or any Affiliate which is an employer under the Pension Plan may become an Employer hereunder with the written consent of Cliffs if such member or such Affiliate executes an instrument evidencing its adoption of the Supplemental Retirement Benefit Plan and files a copy thereof with Cliffs. Such instrument of adoption may be subject to such terms and conditions as Cliffs requires or approves.

6. Miscellaneous. A. The Plan shall be administered by the plan administrator (the "Administrator"). The Administrator shall have the sole and absolute discretion to interpret the provisions of the Plan (including, without limitation, by supplying omissions from, correcting deficiencies in, or resolving inconsistencies or ambiguities in, the language of the Plan), to make factual findings with respect to any issue arising under the Plan, to determine the rights and status under the Plan of Participants and other persons, to decide disputes arising under the Plan and to make any determinations and findings (including factual findings) with respect to the benefits payable thereunder and the persons entitled thereto as may be required for the purposes of the Plan. In furtherance thereof, but without limiting the foregoing, the Administrator is hereby granted the following specific authorities, which it shall discharge in its sole and absolute discretion in accordance with the terms of the Plan (as interpreted, to the extent necessary, by the Administrator):

(i) To resolve all questions (including factual questions) arising under the provisions of the Plan as to any individual's entitlement to become a Participant;

(ii) to determine the amount of benefits, if any, payable to any person under the Plan (including to the extent necessary, making factual findings with respect thereto); and

(iii) to conduct the review procedures specified in paragraph 6.D.

All decisions of the Administrator as to the facts of any case, and the application thereof to any case, as to the interpretation of any provision of the Plan or its application to any case, and as to any other interpretative matter or other determination or question under the Plan shall be final and binding on all parties affected thereby. The Administrator may, from time to time, employ agents and delegate to them such administrative duties as it sees fit, and may from time to time consult with legal counsel who may be counsel to Cliffs. All elections, notices and directions under the Plan by a Participant shall be made on such forms as the Administrator shall prescribe.

B. Cliffs shall be the "Administrator" and the "Plan Sponsor" under the Plan for purposes of ERISA.

C. Except to the extent federal law controls, all questions pertaining to the construction, validity and effect of the provisions hereof shall be determined in accordance with the laws of the State of Ohio.

D. Whenever there is denied, whether in whole or in part, a claim for benefits under the Plan filed by any person (herein referred to as the "Claimant"), the Administrator shall transmit a written notice of such decision to the Claimant, which notice shall be written in a manner calculated to be understood by the Claimant and shall contain a statement of the specific reasons for the denial of the claim and a statement advising the Claimant that, within 60 days of the date on which he receives such notice, he may obtain review of such decision in accordance with the procedures hereinafter set forth. Within such 60-day period, the Claimant or his authorized representative may request that the claim denial be reviewed by filing with the Administrator a written request therefor, which request shall contain the following information:

(i) the date on which the Claimant's request was filed with the Administrator; provided, however, that the date on which the Claimant's request for review was in fact filed with the Administrator shall control in the event that the date of the actual filing is later than the date stated by the Claimant pursuant to this paragraph;

(ii) the specific portions of the denial of his claim which the Claimant requests the Administrator to review;

(iii) a statement by the Claimant setting forth the basis upon which he believes the Administrator should reverse the previous denial of his claim for benefits and accept his claim as made; and

(iv) any written material (offered as exhibits) which the Claimant desires the Administrator to examine in its consideration of his position as stated pursuant to clause (iii) above.

Within 60 days of the date determined pursuant to clause (i) above, the Administrator shall conduct a full and fair review of the decision denying the Claimant's claim for benefits, and shall render a written decision with respect to the claim, written in a manner calculated to be understood by the Claimant, specifying the reasons for its decision and the Plan provisions upon which its decision was based.

E. Supplemental Pension Plan Benefits shall be subject to applicable withholding and such other deductions as shall at the time of payment be required or appropriate under any Federal, State or Local law.

7. Amendment and Termination. A. Cliffs has reserved and does hereby reserve the right to amend, at any time, any or all of the provisions of the Supplemental Retirement Benefit Plan for all Employers, without the consent of any other Employer or any Participant, Beneficiary or any other person. Any such amendment shall be expressed in an instrument executed by Cliffs and shall become effective as of the date designated in such instrument or, if no such date is specified, on the date of its execution.

B. Cliffs, on behalf of itself and of each Employer, in its sole discretion, may terminate this Plan at any time and for any reason whatsoever. In the event Cliffs elects to terminate the Plan as provided in this Section, no distribution of Supplemental Pension Plan Benefits or payment of benefits shall occur as a result, except as otherwise provided in an amendment to this Plan, including without limitation an amendment to the Plan for the liquidation and termination of the Plan where:

- (i) the termination and liquidation does not occur proximate to a downturn in the financial health of the Company and Affiliates;
- (ii) the Plan and all arrangements required to be aggregated with the Plan under Section 409A of the Code are terminated and liquidated;
- (iii) no payments, other than those that would be payable under the terms of the Plan and the aggregated arrangements if the termination and liquidation had not occurred, are made within twelve (12) months of the date the Company takes all necessary action to irrevocably terminate and liquidate the Plan;
- (iv) all payments are made within twenty-four (24) months of the date the Company takes all necessary action to irrevocably terminate and liquidate the Plan; and
- (v) the Company or Subsidiaries do not adopt a new arrangement that would be aggregated with any terminated arrangement under Section 409A of the Code, at any time within three (3) years following the date of the date the Company takes all necessary action to irrevocably terminate and liquidate the Plan.

C. Notwithstanding the foregoing provisions hereof, no amendment or termination of the Supplemental Retirement Benefit Plan shall, without the consent of the Participant, adversely affect the accrued benefit under the Plan of such Participant.

D. Any other Employer which shall have adopted the Plan may, with the written consent of Cliffs, elect separately to withdraw from the Plan and, subject to subparagraph B above, such withdrawal shall constitute a termination of the Plan as to it, but it shall continue to be an Employer for the purposes hereof as to Participants and Beneficiaries to whom it owes obligations hereunder. Any such withdrawal and termination shall be expressed in an instrument executed by the terminating Employer and shall become effective as of the date designated in such instrument, or if no date is specified, on the date of its execution.

8. Effective Date. The amended and restated Supplemental Retirement Benefit Plan shall be effective as of October 26, 2021.

Exhibit A

Pension Plans

Pension Plan for Salaried Employees of the Cleveland-Cliffs Inc and its Associated Employers

Ore Mining Companies Pension Plan

CLEVELAND-CLIFFS INC.
SUBSIDIARIES
AS OF DECEMBER 31, 2021

Name	Place of Incorporation or Organization
Cannon Automotive Solutions - Bowling Green, Inc.	Delaware
Cleveland-Cliffs Burns Harbor LLC	Delaware
Cleveland-Cliffs Cleveland Works LLC	Delaware
Cleveland-Cliffs Columbus LLC	Delaware
Cleveland-Cliffs FPT Services Company	Ohio
Cleveland-Cliffs Investments Inc.	Ohio
Cleveland-Cliffs Kote Inc.	Delaware
Cleveland-Cliffs Kote L.P.	Delaware
Cleveland-Cliffs Minorca Mine Inc.	Delaware
Cleveland-Cliffs Monessen Coke LLC	Delaware
Cleveland-Cliffs Plate LLC	Delaware
Cleveland-Cliffs Railways Inc.	Delaware
Cleveland-Cliffs Riverdale LLC	Delaware
Cleveland-Cliffs Services Holding Company	Ohio
Cleveland-Cliffs South Chicago & Indiana Harbor Railway Inc.	Delaware
Cleveland-Cliffs Steel Corporation	Delaware
Cleveland-Cliffs Steel Holding Corporation	Delaware
Cleveland-Cliffs Steel Holdings Inc.	Ohio
Cleveland-Cliffs Steel LLC	Delaware
Cleveland-Cliffs Steel Management Inc.	Delaware
Cleveland-Cliffs Steel Properties Inc.	Delaware
Cleveland-Cliffs Steelton LLC	Delaware
Cleveland-Cliffs Steelworks Railway Inc.	Delaware
Cleveland-Cliffs Tek Inc.	Delaware
Cleveland-Cliffs Tek Kote Acquisition Corporation	Ohio
Cleveland-Cliffs Tek L.P.	Delaware
Cleveland-Cliffs Tooling and Stamping Company	Delaware
Cleveland-Cliffs Tooling and Stamping Holdings LLC	Delaware
Cleveland-Cliffs Tubular Components LLC	Delaware
Cleveland-Cliffs Weirton LLC	Delaware
Cliffs Mining Company	Delaware
Cliffs Minnesota Mining Company	Delaware
Cliffs Steel Inc.	Ohio
Cliffs TIOP Holding, LLC	Delaware
Cliffs TIOP, Inc.	Michigan
Cliffs TIOP II, LLC	Delaware
Cliffs UTAC Holding LLC	Delaware

Name	Place of Incorporation or Organization
Ferrous Processing and Trading Company	Michigan
Fleetwood Metal Industries, LLC	Delaware
FPT Cleveland, LLC	Michigan
IronUnits LLC	Delaware
Lake Superior & Ishpeming Railroad Company	Michigan
Metallics Sales Company	Delaware
Mid-Vol Coal Sales, Inc.	West Virginia
Mountain State Carbon, LLC	Delaware
Northshore Mining Company	Delaware
Silver Bay Power Company	Delaware
SNA Carbon, LLC	Delaware
The Cleveland-Cliffs Iron Company	Ohio
Tilden Mining Company L.C.	Michigan
United Taconite LLC	Delaware

The following entities are included in the obligated group as of December 31, 2021, as defined in the Annual Report on Form 10-K of Cleveland Cliffs Inc. to which this document is being filed as an exhibit, including Cleveland-Cliffs Inc., as the parent and issuer, and the subsidiary guarantors that have guaranteed the obligations under the 6.750% 2026 Senior Secured Notes, the 5.875% 2027 Senior Notes, the 7.000% 2027 Senior Notes, the 9.875% 2025 Senior Secured Notes, the 4.625% 2029 Senior Notes and the 4.875% 2031 Senior Notes issued by Cleveland-Cliffs Inc.

Exact Name of Issuer or Guarantor Subsidiary (1) (2)	State of Incorporation or Organization	IRS Employer Identification Number
Cleveland-Cliffs Inc.	Ohio	34-1464672
Cannon Automotive Solutions - Bowling Green, Inc.	Delaware	26-0766559
Cleveland-Cliffs Burns Harbor LLC	Delaware	20-0653414
Cleveland-Cliffs Cleveland Works LLC	Delaware	04-3634649
Cleveland-Cliffs Columbus LLC	Delaware	01-0807137
Cleveland-Cliffs Investments Inc.	Ohio	31-1283531
Cleveland-Cliffs Kote Inc.	Delaware	36-3665216
Cleveland-Cliffs Kote L.P.	Delaware	36-3665288
Cleveland-Cliffs Minorca Mine Inc.	Delaware	36-2814042
Cleveland-Cliffs Monessen Coke LLC	Delaware	25-1850170
Cleveland-Cliffs Plate LLC	Delaware	20-0653500
Cleveland-Cliffs Railways Inc.	Delaware	56-2348283
Cleveland-Cliffs Riverdale LLC	Delaware	74-3062732
Cleveland-Cliffs South Chicago & Indiana Harbor Railway Inc.	Delaware	04-3634638
Cleveland-Cliffs Steel Corporation	Delaware	31-1267098
Cleveland-Cliffs Steel Holding Corporation	Delaware	31-1401455
Cleveland-Cliffs Steel Holdings Inc.	Ohio	85-4084783
Cleveland-Cliffs Steel LLC	Delaware	71-0871875
Cleveland-Cliffs Steel Management Inc.	Delaware	51-0390893
Cleveland-Cliffs Steel Properties Inc.	Delaware	51-0390894
Cleveland-Cliffs Steelton LLC	Delaware	20-0653772
Cleveland-Cliffs Steelworks Railway Inc.	Delaware	04-3634622
Cleveland-Cliffs Tek Inc.	Delaware	36-3519946
Cleveland-Cliffs Tek Kote Acquisition Corporation	Ohio	85-4304182
Cleveland-Cliffs Tek L.P.	Delaware	363525438
Cleveland-Cliffs Tooling and Stamping Company	Delaware	22-3639336
Cleveland-Cliffs Tooling and Stamping Holdings LLC	Delaware	31-1283531
Cleveland-Cliffs Tubular Components LLC	Delaware	31-1283531
Cleveland-Cliffs Weirton LLC	Delaware	56-2435202
Cliffs Mining Company	Delaware	34-1120353
Cliffs Minnesota Mining Company	Delaware	42-1609117
Cliffs Steel Inc.	Ohio	87-3972693
Cliffs TIOP Holding, LLC	Delaware	47-2182060
Cliffs TIOP, Inc.	Michigan	34-1371049
Cliffs TIOP II, LLC	Delaware	61-1857848
Cliffs UTAC Holding LLC	Delaware	26-2895214
Fleetwood Metal Industries, LLC	Delaware	98-0508950
IronUnits LLC	Delaware	34-1920747
Lake Superior & Ishpeming Railroad Company	Michigan	38-6005761
Metallics Sales Company	Delaware	84-2076079
Mid-Vol Coal Sales, Inc.	West Virginia	55-0761501
Mountain State Carbon, LLC	Delaware	31-1267098

Exact Name of Issuer or Guarantor Subsidiary (1) (2)	State of Incorporation or Organization	IRS Employer Identification Number
Northshore Mining Company	Delaware	84-1116857
Silver Bay Power Company	Delaware	84-1126359
SNA Carbon, LLC	Delaware	31-1267098
The Cleveland-Cliffs Iron Company	Ohio	34-0677332
Tilden Mining Company L.C.	Michigan	34-1804848
United Taconite LLC	Delaware	42-1609118

(1) The address and phone number of each issuer and guarantor subsidiary is c/o Cleveland-Cliffs Inc., 200 Public Square, Suite 3300, Cleveland, Ohio 44114, (216) 694-5700.

(2) Cleveland-Cliffs Inc. is the issuer, all other entities listed are guarantor subsidiaries.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in:

Registration Statement No. 333-237324 on Form S-3;

Registration Statement No. 333-184620 on Form S-8 pertaining to the Cliffs Natural Resources Inc. 2012 Incentive Equity Plan;

Registration Statement No. 333-197687 on Form S-8 pertaining to the Cliffs Natural Resources Inc. Amended and Restated 2012 Incentive Equity Plan;

Registration Statement No. 333-197688 on Form S-8 pertaining to the Cliffs Natural Resources Inc. 2014 Nonemployee Directors' Compensation Plan;

Registration Statement No. 333-204369 on Form S-8 pertaining to the Cliffs Natural Resources Inc. 2015 Equity and Incentive Compensation Plan;

Registration Statement No. 333-210954 on Form S-8 pertaining to the Cliffs Natural Resources Inc. Amended and Restated 2014 Nonemployee Directors' Compensation Plan;

Registration Statement No. 333-217506 on Form S-8 pertaining to the Cliffs Natural Resources Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan;

Registration Statement No. 333-237144 on Form S-8 pertaining to the Cliffs Natural Resources Inc. Amended and Restated 2015 Equity and Incentive Compensation Plan;

Registration Statement No. 333-255571 on Form S-8 pertaining to the Cleveland-Cliffs Inc. 2021 Nonemployee Directors' Compensation Plan; and

Registration Statement No. 333-255572 on Form S-8 pertaining to the Cleveland-Cliffs Inc. 2021 Equity and Incentive Compensation Plan

of our reports dated February 11, 2022, relating to the financial statements of Cleveland-Cliffs Inc. and the effectiveness of Cleveland-Cliffs Inc.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ DELOITTE & TOUCHE LLP

Cleveland, Ohio

February 11, 2022



February 10, 2022

CONSENT OF QUALIFIED PERSON

Re: Form 10-K of Cleveland-Cliffs Inc. (the “Company”)

SLR International Corporation (“SLR”), in connection with the Company’s Annual Report on Form 10-K for the year ended December 31, 2021 (the “Form 10-K”), consents to:

- the public filing by the Company and use of the technical report titled “Technical Report Summary on the Tilden Property, Michigan, USA” (the “**Technical Report Summary**”), with an effective date of December 31, 2021 and dated February 7, 2022, that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission, as an exhibit to and referenced in the Form 10-K;
- the incorporation by reference of the Technical Report Summary into the Company’s Registration Statement on Form S-3 (Registration No. 333-237324) and Registration Statements on Form S-8 (Registration Nos. 333-255571, 333-255572, 333-237144, 333-217506, 333-210954, 333-204369, 333-197687, 333-197688 and 333-184620) (collectively, the “**Registration Statements**”);
- the use of and references to our name, including our status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the U.S. Securities and Exchange Commission), in connection with the Form 10-K, the Registration Statements and the Technical Report Summary; and
- any extracts from or a summary of the Technical Report Summary in the Form 10-K and incorporated by reference in the Registration Statements and the use of any information derived, summarized, quoted, or referenced from the Technical Report Summary, or portions thereof, that was prepared by us, that we supervised the preparation of, and/or that was reviewed and approved by us, that is included or incorporated by reference in the Form 10-K and the Registration Statements.

SLR is responsible for authoring, and this consent pertains to, the Technical Report Summary. SLR certifies that it has read the Form 10-K and that it fairly and accurately represents the information in the Technical Report Summary for which it is responsible.

SLR International Corporation

Per:

(Signed) *Richard J. Lambert*

Richard J. Lambert, P.E., P.Eng.
Global Technical Director
Technical Director, Mining Advisory US

POWER OF ATTORNEY

KNOW ALL PEOPLE BY THESE PRESENTS, that the undersigned Directors and officers of Cleveland-Cliffs Inc., an Ohio corporation ("Company"), hereby constitute and appoint C. Lourenco Goncalves, Celso L. Goncalves Jr., James D. Graham and Kimberly A. Floriani, and each of them, their true and lawful attorney or attorneys-in-fact, with full power of substitution and revocation, for them and in their name, place and stead, to sign on their behalf as a Director or officer of the Company, or both, as the case may be, an Annual Report on Form 10-K pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2021, and to sign any and all amendments to such Annual Report, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney or attorneys-in-fact, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as they might or could do in person, hereby ratifying and confirming all that said attorney or attorneys-in-fact or any of them or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Executed as of the 10th day of February, 2022.

/s/ C. L. Goncalves
C. L. Goncalves,
Chairman, President and Chief Executive Officer
/s/ K. A. Floriani
K. A. Floriani,
Senior Vice President, Controller & Chief Accounting Officer
/s/ R. P. Fisher, Jr.
R. P. Fisher, Jr., Director
/s/ S. M. Green
S. M. Green, Director
/s/ J. L. Miller
J. L. Miller, Director
/s/ D. C. Taylor
D. C. Taylor, Director

/s/ C. L. Goncalves Jr.
C. L. Goncalves Jr.,
Executive Vice President, Chief Financial Officer
/s/ J. T. Baldwin
J. T. Baldwin, Director
/s/ W. K. Gerber
W. K. Gerber, Director
/s/ R. S. Michael, III
R. S. Michael, III, Director
/s/ G. Stoliar
G. Stoliar, Director
/s/ A. M. Yocum
A. M. Yocum, Director

CERTIFICATION

I, Lourenco Goncalves, certify that:

1. I have reviewed this annual report on Form 10-K of Cleveland-Cliffs Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 11, 2022

By: /s/ Lourenco Goncalves
Lourenco Goncalves
Chairman, President and Chief Executive Officer

CERTIFICATION

I, Celso L. Goncalves Jr., certify that:

1. I have reviewed this annual report on Form 10-K of Cleveland-Cliffs Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)), for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 11, 2022

By: /s/ Celso L. Goncalves Jr.

Celso L. Goncalves Jr.

Executive Vice President, Chief Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Cleveland-Cliffs Inc. (the "Company") on Form 10-K for the period ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Form 10-K"), I, Lourenco Goncalves, Chairman, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to such officer's knowledge:

- (1) The Form 10-K fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and
- (2) The information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Form 10-K.

Date: February 11, 2022

By: /s/ Lourenco Goncalves
Lourenco Goncalves
Chairman, President and Chief Executive Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Cleveland-Cliffs Inc. (the "Company") on Form 10-K for the period ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Form 10-K"), I, Celso L. Goncalves Jr., Executive Vice President, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to such officer's knowledge:

- (1) The Form 10-K fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and
- (2) The information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Form 10-K.

Date: February 11, 2022

By: /s/ Celso L. Goncalves Jr.
Celso L. Goncalves Jr.
Executive Vice President, Chief Financial Officer

Mine Safety Disclosures

The operation of our mines located in the United States is subject to regulation by MSHA under the FMSH Act. MSHA inspects these mines on a regular basis and issues various citations and orders when it believes a violation has occurred under the FMSH Act. We present information below regarding certain mining safety and health citations that MSHA has issued with respect to our mining operations. In evaluating this information, consideration should be given to factors such as: (i) the number of citations and orders will vary depending on the size of the mine; (ii) the number of citations issued will vary from inspector to inspector and mine to mine, and (iii) citations and orders can be contested and appealed and, in that process, are often reduced in severity and amount, and are sometimes dismissed.

Under the Dodd-Frank Act, each operator of a coal or other mine is required to include certain mine safety results within its periodic reports filed with the SEC. As required by the reporting requirements included in §1503(a) of the Dodd-Frank Act, we present the following items regarding certain mining safety and health matters, for the period presented, for each of our mine locations that are covered under the scope of the Dodd-Frank Act:

- (A) The total number of violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a coal or other mine safety or health hazard under section 104 of the FMSH Act (30 U.S.C. 814) for which the operator received a citation from MSHA;
- (B) The total number of orders issued under section 104(b) of the FMSH Act (30 U.S.C. 814(b));
- (C) The total number of citations and orders for unwarrantable failure of the mine operator to comply with mandatory health or safety standards under section 104(d) of the FMSH Act (30 U.S.C. 814(d));
- (D) The total number of imminent danger orders issued under section 107(a) of the FMSH Act (30 U.S.C. 817(a));
- (E) The total dollar value of proposed assessments from MSHA under the FMSH Act (30 U.S.C. 801 et seq.);
- (F) Legal actions pending before the Federal Mine Safety and Health Review Commission involving such coal or other mine as of the last day of the period;
- (G) Legal actions instituted before the Federal Mine Safety and Health Review Commission involving such coal or other mine during the period; and
- (H) Legal actions resolved before the Federal Mine Safety and Health Review Commission involving such coal or other mine during the period.

During the year ended December 31, 2021, our mine locations did not receive any flagrant violations under Section 110(b)(2) of the FMSH Act (30 U.S.C. 820(b)(2)) and did not receive any written notices of a pattern of violations, or the potential to have a pattern of such violations, under section 104(e) of the FMSH Act (30 U.S.C. 814(e)). In addition, there were no mining-related fatalities at any of our mine locations during this same period.

Following is a summary of the information described above for the year ended December 31, 2021:

		Year Ended December 31, 2021							
		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Mine Name/ MSHA ID No.	Operation	Section 104 S&S Citations	Section 104(b) Orders	Section 104(d) Orders	Section 107(a) Citations & Orders	Total Dollar Value of MSHA Proposed Assessments (1)	Legal Actions Pending as of Last Day of Period	Legal Actions Instituted During Period	Legal Actions Resolved During Period
Tilden / 2000422	Iron Ore	23	—	—	—	\$ 680,113	1 (2)	3	2
Empire / 2001012	Iron Ore	—	—	—	—	\$ —	—	—	—
Northshore Plant / 2100831	Iron Ore	17	—	—	—	\$ 51,193	5 (3)	4	3
Northshore Mine / 2100209	Iron Ore	3	—	—	—	\$ 2,352	—	1	1
United Taconite Plant / 2103404	Iron Ore	29	—	—	—	\$ 192,631	4 (4)	5	2
United Taconite Mine / 2103403	Iron Ore	3	—	—	—	\$ 5,736	2 (5)	2	—
Hibbing / 2101600	Iron Ore	15	—	—	—	\$ 25,445	1 (6)	5	7
Minorca Mine / 2102449	Iron Ore	16	—	—	—	\$ 194,792	1 (7)	6	5
AK Coal / North Fork / 3610041	Coal	—	—	—	—	\$ —	—	—	2
Coal Innovations #1 / 3609406	Coal	—	—	—	—	\$ —	—	—	—
Virginia Point No. 1 Surface Mine / 4407172	Coal	—	—	—	—	\$ —	—	—	—
Low Gap Surface Mine / 4605741	Coal	—	—	—	—	\$ —	—	—	—
Eckman Surface Mine / 4608647	Coal	1	—	—	—	\$ 5,879	—	—	—
Redhawk Surface Mine / 4609300	Coal	—	—	—	—	\$ —	—	—	—
Dry Branch Surface Mine / 4609395	Coal	4	—	—	—	\$ 21,425	—	—	—
Dans Branch Surface Mine / 4609517	Coal	—	—	—	—	\$ —	—	—	—
Eckman Loadout / 4603341	Coal	1	—	—	—	\$ 875	—	—	—
Roadfork Loadout / 4608278	Coal	1	—	—	—	\$ 654	—	—	—
Eckman Plant / 4609357	Coal	2	—	—	—	\$ 2,565	—	—	1
Mine No. 35 / 4608131	Coal	—	—	—	—	\$ —	—	—	—
Mine No. 39 / 4609261	Coal	76	—	—	—	\$ 693,087	4 (8)	21	17
Mine No. 43 / 4609496	Coal	20	—	—	—	\$ 108,491	2 (9)	6	5

- (1) Amounts included under the heading "Total Dollar Value of MSHA Proposed Assessments" are the total dollar amounts for proposed assessments received from MSHA on or before December 31, 2021.
- (2) This number consists of 1 pending legal action related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.
- (3) This number consists of 1 pending legal action related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules and 4 pending legal actions related to appeals of judges' decisions or orders to the Federal Mine Safety and Health Review Commission referenced in Subpart H of FMSH Act's procedural rules.
- (4) This number consists of 4 pending legal actions related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.
- (5) This number consists of 2 pending legal actions related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.
- (6) This number consists of 1 pending legal action related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.
- (7) This number consists of 1 pending legal action related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.
- (8) This number consists of 3 pending legal actions related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules and 1 pending legal action related to complaints of discharge, discrimination, or interference referenced in Subpart E of FMSH Act's procedural rules.
- (9) This number consists of 2 pending legal actions related to contests of proposed penalties referenced in Subpart C of FMSH Act's procedural rules.



SLR 





Technical Report Summary on the Tilden Property, Michigan, USA S-K 1300 Report

Cleveland-Cliffs Inc.

SLR Project No: 138.02467.00001

February 7, 2022

Effective Date: December 31, 2021

Technical Report Summary on the Tilden Property, Michigan, USA

SLR Project No: 138.02467.00001

Prepared by
SLR International Corporation
1658 Cole Blvd, Suite 100
Lakewood, CO 80401
for

Cleveland-Cliffs Inc.
200 Public Square, Suite 3300
Cleveland, OH 44114-2544
USA

Effective Date – December 31, 2021
Signature Date - February 7, 2022

FINAL

Distribution: 1 copy – Cleveland-Cliffs Inc.
1 copy – SLR International Corporation

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1.0 EXECUTIVE SUMMARY

1.1 Summary

SLR International Corporation (SLR) was retained by Cleveland-Cliffs Inc. (Cliffs) to prepare an independent Technical Report Summary (TRS) for the Tilden Property (Tilden or the Property), located in Northern Michigan, USA. The owner of the Property, Tilden Mining Company L.C. (Tilden L.C.), is a wholly owned subsidiary of Cliffs.

The purpose of this TRS is to disclose year-end (YE) 2021 Mineral Resource and Mineral Reserve estimates for Tilden.

Cliffs is listed on the New York Stock Exchange (NYSE) and currently reports Mineral Reserves of pelletized ore in SEC filings. This TRS conforms to the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary. SLR visited the Property on October 24, 2019 and January 20 to 24, 2020.

The Property includes the Tilden Mine (the Mine) and processing facility (the Plant) located approximately five miles south of the city of Ishpeming, Michigan. The Property is also immediately west of Cliffs' Empire Property, which was indefinitely idled in 2016. The Mine is a large, operating, open-pit iron mine and is unique among Cliffs' US-owned operations because the primary ore mineral at Tilden is hematite, with other minerals being martite (oxidized pseudomorph of magnetite), goethite, and siderite (iron carbonate mineral), as opposed to strictly magnetite. The Property is also unique in the world in that the hematite-dominant ore is mined at a low grade, concentrated using a selective-flocculation desliming and flotation process, and pelletized.

The Property commenced operations in 1974 under a partnership of Algoma Steel, Stelco, J&L Steel, Wheeling-Pittsburgh Steel, Sharon Steel, and The Cleveland-Cliffs Iron Company (CCIC). The property has since been at least partially in the possession of a subsidiary of Cliffs. In 2001, Cliffs acquired Algoma Steel's 45% interest in Tilden L.C. In 2017, Cliffs became the sole owner of Tilden L.C.

The open-pit operation has a mining rate of approximately 21 million long tons (MLT) of ore per year and produces 7.7 MLT of iron ore pellets per year, which are mostly shipped by freighter via the Great Lakes to Cliffs' steel mill facilities in the Midwestern USA, with some quantities shipped by rail to external customers.

1.1.1 Conclusions

Tilden has successfully produced iron ore pellets for over 47 years. The update to the Mineral Resource and Mineral Reserve does not materially change any of the assumptions from previous operations. An economic analysis was performed using the estimates presented in this TRS and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves for a 25-year mine life.

SLR offers the following conclusions by area.

1.1.1.1 Geology and Mineral Resources

- Indicated Mineral Resources at Tilden, exclusive of Mineral Reserves, are estimated to total 135.4 MLT at a grade of 34.7% crude Fe. Inferred Mineral Resources are estimated to total 350.4 MLT at a grade of 34.7% crude Fe.
- The 2019 quality assurance and quality control (QA/QC) program as designed and implemented by Cliffs has been helpful to understand the precision and accuracy of sample analysis at the Tilden laboratory, which is used to support the assay results within the database and confirm that the database is suitable for use in estimating Indicated and Inferred Mineral Resources.
- The Tilden database is adequate for the purposes of estimating Indicated and Inferred Mineral Resources. The lack of regular QA/QC sample submissions alongside samples used to support Mineral Resources is outside of industry-standard practice, and there are several database integrity issues that require attention.
- There is a moderate to good correlation of all variables between drill and blast hole twinned samples. Correlation of iron content values decreases for samples with high silica in concentrate values. There is a potential high bias of phosphorus in concentrate values in favor of blast holes. The known bias of weight recovery (wtrec) in favor of blast hole data is not observable in the paired dataset.
- The estimated block grades reflect the local blast hole or drill hole composite value, and the trends of the different variables are as intended.

1.1.1.2 Mining and Mineral Reserves

- The Property has been in production since 1974, and specifically under 100% Cliffs operating management since 2017. Cliffs conducts its own Mineral Reserve estimations.
- Total Proven and Probable Mineral Reserves are estimated at 520.0 MLT of crude ore at a grade of 34.7% crude Fe.
- Mineral Reserve estimation practices follow industry standards.
- The Mineral Reserve estimate indicates a sustainable project over a 25-year life of mine (LOM).
- The geotechnical design parameters used for pit design are reasonable and support previous operations. Slope depressurization may be required as part of the development of the final pit walls.
- The LOM production schedule is reasonable and incorporates large mining areas and open benches.
- An appropriate mining equipment fleet, maintenance facilities, and manpower are in place, with additions and replacements estimated, to meet the LOM production schedule requirements.
- Sufficient storage capacity for waste stockpiles and tailings has been identified to support the production of the Mineral Reserve.

1.1.1.3 Mineral Processing

- The Tilden deposit is complex and requires metallurgical testing to classify materials as ore and waste. A standard flotation testing procedure has been developed for material classification, resource modeling, and concentrator feed blending.

- The capacity of the Tilden concentrator and pellet plant is 7.7 MLT per year (MLT/y) of fluxed pellets (hemflux) from hematite-dominant crude ore sources.
- The ore is amenable to autogenous grinding (AG), and the concentrator consists of eleven lines of primary autogenous mills for coarse grinding and pebble mills for fine grinding, eliminating the requirement for steel grinding media.
- Pellets are indurated using a gas- and coal-fired grate drying and preheating furnace, followed by gas- and coal-fired rotary kilns for fusing and hardening, and rotary coolers for cooling. Heat must be supplied by fuel for low-magnetite concentrates, without the benefit of the exothermic heat of reaction from magnetite oxidation to hematite during heating.
- Crude iron ore head grades feeding the Plant during 2014 to 2020 ranged from 34.4% Fe to 35.5% Fe. Iron recovery to flotation concentrates ranged from 69.6% to 74.8%, with concentrate grades averaging 62.2% to 63.7% during this period. Approximately 20.5 MLT of crude ore is processed through the concentrator annually to produce 8.9 MLT of fluxed concentrate and 7.7 MLT of fluxed pellets (hemflux).

1.1.1.4 Infrastructure

- The Property is in a historically important, iron-producing region of Northern Michigan. All the infrastructure necessary to mine and process commercial quantities of iron ore and produce and ship pellets is in place, including the Mine, concentrator, and support facilities, line power supplies, natural gas sourced from an interstate pipeline system, local supply of coal, and diesel fuel supply from Green Bay, Wisconsin.
- The Gribben Tailings Basin (GTB) is located approximately five miles southeast of the Tilden concentrator plant and nine miles from Lake Superior. The GTB is comprised of two, ring dike-type impoundments: the Gribben North Tailings Basin (GNTB), which encompasses approximately 1,350 acres, and the Gribben South Tailings Basin (GSTB), which encompasses approximately 1,100 acres.

1.1.1.5 Environment

- Tilden indicated that it maintains the requisite state and federal permits and is in compliance with all permits. Various permitting applications have been submitted to authorities and are pending authorization. Environmental liabilities and permitting are further discussed in Section 17.0.

1.1.2 Recommendations

1.1.2.1 Geology and Mineral Resources

1. Complete a reconciliation study to support the inclusion of Measured Mineral Resources at Tilden.
2. Complete additional drilling to improve the understanding of the deposit at its periphery and at depth, with a focus on low drill density areas within the 2019 LOM plan, as well as in areas with increased variability, such as the high-silica zones in the east of the Main Pit. Integrate the downhole information from the Empire and Tilden mines into a single, valid database.

3. Develop a standard operating procedure for detailed logging of drill core that captures iron speciation, alteration, mineralogy, structure, and lithology. Retain initial geological observations in drill core separately from subsequent re-interpretations based on metallurgical results or results of neighboring drill holes.
4. Undertake a study where samples are consistently taken at shorter intervals, broken by geology, to examine how the variance of the assays is affected and how the material-type designation, based on a calculation of those variables, compares against the material-type designation of longer samples. Sample intrusive material (dilution) too small to be segregated when modeling or mining as part of iron formation unit samples.
5. Continue work to define fault orientations and related alteration in the east of the Main Pit to confirm the syn-bedding and cross-cutting directions of the modeled, high-silica alteration units and investigate alternative tools to capture drill hole information, including a magnetometer and hyperspectral and x-ray fluorescence handheld devices to allow empirical measurements of magnetism (where relevant), alteration, such as clay, and iron speciation.
6. Develop and implement a robust QA/QC program at Tilden for both exploration drill hole and blast hole samples and incorporate analytical attribute data, such as grind time, starch type, and dates into the assay database, to be able to analyze results in context of changing test protocols for performance and bias.
7. Address capacity issues at the Tilden laboratory to allow the sample analysis to be completed in a timely manner and to facilitate the inclusion of QA/QC samples.

1.1.2.2 Mining and Mineral Reserves

1. Assess groundwater conditions in the immediate vicinity of the final pit through a more focused groundwater model. The results of this assessment should be input into an update of the pit slope stability analysis on sections cut through the current final pit design.

1.1.2.3 Mineral Processing

1. Continue specialized metallurgical testing to support resource modeling and mine planning and blending for the concentrator.
2. Plant operational performance including concentrate and pellet production and pellet quality continues to be consistent year over year. It is important to maintain diligence in process-oriented metallurgical testing and in plant maintenance.

1.1.2.4 Infrastructure

1. Prioritize the completion of an Operations, Maintenance, and Surveillance (OMS) Manual for the tailings storage facility (TSF) with the Engineer of Record (EOR) in accordance with Mining Association of Canada (MAC) guidelines and other industry-recognized standard guidance for tailings facilities.
2. Document, prioritize, track, and close out in a timely manner the remediation, or resolution, of items of concern noted in TSF audits or inspection reports.
3. Assess the impacts of depositing tailings in the Empire facility, and prepare the necessary design and permitting documents.

1.2 Economic Analysis

1.2.1 Economic Criteria

An un-escalated technical-economic model was prepared on an after-tax, discounted cash flow (DCF) basis, the results of which are presented in this subsection. Key criteria used in the analysis are discussed in detail throughout this TRS. General assumptions used are summarized in Table 1-1, with all pellets reported per wet long ton (WLT) pellet.

**Table 1-1: Technical-Economic Assumptions
Cleveland-Cliffs Inc. – Tilden Property**

Description	Value
Start Date	December 31, 2021
Mine Life	25 years
Three-Year Trailing Average Revenue	\$98/WLT Pellet
Operating Costs	\$66.00/WLT Pellet
Sustaining Capital Costs (after five years)	\$4/WLT Pellet
Discount Rate	10%
Discounting Basis	End of Period
Inflation	0.0%
Federal Tax Rate	20%
State Tax Rate	None – Sales made out of state

Table 1-2 presents a summary of the estimated mine production over the 25-year LOM.

**Table 1-2: LOM Production Summary
Cleveland-Cliffs Inc. – Tilden Property**

Description	Units	Value
Run of Mine (ROM) Ore	MLT	520.0
Total Material	MLT	1,116.9
Fe Grade	%	34.7
Average Annualized Mining Rate	MLT/y	44
Maximum Annualized Mining Rate	MLT/y	62

Table 1-3 presents a summary of the estimated plant production over the 25-year LOM.

**Table 1-3: LOM Plant Production Summary
Cleveland-Cliffs Inc. – Tilden Property**

Description	Units	Value
ROM Material Milled	MLT	520.0
Average Annualized Processing Rate	MLT/y	20.8
Process Recovery	%	37.0
Total Hemflux Pellet	MLT	192.4
Annual Hemflux Pellet Production	MLT/y	7.7

1.2.2 Cash Flow Analysis

The indicative economic analysis results, presented in Table 1-4, indicate an after-tax Net Present Value (NPV), using a 10% discount rate, of \$1,325 million at an average blended wet pellet price of \$98/WLT. SLR notes that Internal Rate of Return (IRR) is not applicable, as the Property has been in operation for a number of years. Capital identified in the economics is for sustaining operations and plant rebuilds as necessary.

The economic analysis was performed using the estimates presented in this TRS and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

**Table 1-4: LOM Indicative Economic Results
Cleveland-Cliffs Inc. – Tilden Property**

Description	US\$ Millions	US\$/WLT Pellet
Three-Year Trailing Revenue (\$/WLT Pellet)		98
Pellet Production (MWLT)	192.4	
Gross Revenue	18,854	
Mining	(2,944)	15.30
Processing	(8,233)	42.79
Site Administration	(547)	2.84
General / Other Costs	(975)	5.07
Total Operating Costs	12,698	66.00
Operating Income (excl. D&A)	6,156	32.00
Federal Income Tax	(1,231)	(6.40)
Depreciation Tax Savings	209	1.09
Accretion Tax Savings	13	0.07
Net Income after Taxes	5,146	26.75
Capital	(894)	(4.65)
Closure Costs	(57)	(0.30)
Cash Flow	4,196	21.81
NPV 10%	1,322	

1.2.3 Sensitivity Analysis

The Tilden operation is nominally most sensitive to market prices (revenues) followed by operating cost. For each dollar movement in sales price or operating cost, respectively, the after-tax NPV changes by approximately \$56 million.

1.3 Technical Summary

1.3.1 Property Description

The Property is located in Marquette County in Michigan's Upper Peninsula, USA, on the Marquette Iron Range, approximately five miles south of the city of Ishpeming, Michigan at latitude 46° 29' N and longitude 87° 40' W. The Property is also immediately adjacent to Cliffs' indefinitely idled Empire Mine and processing facility. The Mine and Plant have the capacity to produce approximately 7.7 MLT of iron ore pellets annually.

Land ownership and mineral leases are held by Tilden L.C. Cliffs, through its subsidiary CCIC, owns 100% of the surface and mining rights. In addition, Cliffs owns 100% of Tilden L.C. Tilden L.C. owns 21,100 acres of surface rights and 2,470 acres of mineral leases in Marquette County.

1.3.2 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

The Property can be accessed from the west through the Tilden entrance gate near the community of National Mine, located two miles south of Ishpeming on County Road 476. Alternatively, the Property can be accessed from the east through the adjacent Empire Mine. The Empire entrance gate is located on M-35, nine miles south of US Highway 41 between Marquette and Negaunee.

Michigan's Upper Peninsula has a humid continental climate, typified by large seasonal temperature differences. Summers are generally warm and humid; winters are cold and long. Precipitation in the area averages approximately 31 in. of rain and 102 in. of snow in the winter. Snowfall in the region is greatly influenced by the "lake effect" due to proximity to the Great Lakes. Many towns in the Upper Peninsula have recorded annual snowfalls in excess of 350 in., and storms can quickly reach whiteout conditions and last for days.

The operation employs a total of 967 salaried and hourly employees (including LS&I railroad staff) as of Q4 2021. The majority of the employees live within a 50 mi radius of the Property. Marquette County has an estimated population of 66,000 people.

The Property is located in a historically important, iron-producing region in Northern Michigan. All infrastructure necessary to mine and process significant commercial quantities of iron ore exist at the current time. Infrastructure items include administration buildings and offices, maintenance shops, high-voltage electrical supplies, natural gas pipelines that connect into the North American distribution system, concentrating plant, pelletizing plant, water sources, paved roads and highways, railroads for transporting raw materials and final product, port facilities that connect into the Great Lakes and towns where employees live.

The Property is within the limits of a topographic region known as the Superior Uplands, a part of the Canadian Shield. The Property features elevations ranging from approximately 1300 to 1800 ft above sea level (fasl). Topography is hilly and is dominated by glacially influenced landforms. The Property is located in the Western Upper Peninsula Ecoregion (Section IX) and characterized by a landscape

featuring moraines, drumlins, lake plains, outwash channels, outwash plains, and glacially eroded bedrock ridges (Albert, 1995). Vegetation in the vicinity of Tilden is described as northern hardwood forest dominated by sugar maple, eastern hemlock, basswood, yellow birch, and sparse white pine.

1.3.3 History

Iron deposits in Northern Michigan were originally described in the early 1840s by Douglass Houghton, Michigan's first State Geologist. Exploration and mining of high-grade iron oxides began in the mid to late 1840s, including Cliffs' predecessors Cleveland Iron Company and Iron Cliffs Company, which merged in 1891 to form the CCIC. Mining was mainly focused on underground, high-grade iron deposits through the end of the Second World War, when they were almost depleted.

Extensive development of beneficiation-grade, open pit mining began, and the first commercial agglomeration (pellet) plant in the Lake Superior region started operations in 1952. Agglomeration was a relatively new process that took the concentrate from lower-grade deposits and produced pelletized product containing approximately 65% Fe.

After years of favorable experimental testing for processing of fine-grained hematite ores, the Property commenced operations in 1974 under a partnership of Algoma Steel, Stelco, and CCIC. The Property has since been at least partially in the possession of a subsidiary of Cliffs. In 2001, Cliffs acquired Algoma Steel's 45% interest in Tilden L.C. In 2017, Cliffs became the sole owner of the Tilden L.C. entity.

1.3.4 Geological Setting, Mineralization, and Deposit

The Tilden deposit is a classic example of a banded iron formation (BIF) deposit of the Superior type and is located near the base of the Negaunee Iron Formation (Negaunee IF) of the Menominee Group, within the Marquette Range Super Group. The Negaunee IF and equivalents host most of the iron deposits in Michigan. It is Proterozoic in age and sits on the southern margin of the Marquette trough.

The deposit is modeled to extend from surface to up to 2,300 ft vertical depth below and is comprised of alternating layers of iron oxides and iron-poor chert in a northwest-plunging anticline; the axial surface dips steeply north, and the hinge line plunges 30° west-northwest down the center of the Main Pit. It is fault-bounded to the south by Archean gneiss terrane; the fault contact dips steeply north and aligns with the south wall of the Main Pit at Tilden. To the east of the Tilden deposit lies the Empire deposit (a stratigraphically deeper extension of the Tilden deposit) and its historical pit. Tilden is impacted by a higher frequency and volume of intrusions and sills northward, but is open to the west, at depth, and in some areas to the north.

The iron formation facies at Tilden were locally modified by clay-silica alteration associated with faulting and intrusions, as well as by varying degrees of oxidation throughout. Some BIF units in the south were disrupted by turbidite flows, typified by lensoidal inclusions of clastic material.

The Tilden Mine is unique among Cliffs-owned operations because the primary ore mineral at Tilden is hematite, with other minerals being martite (oxidized pseudomorph of magnetite), goethite, and siderite (iron carbonate mineral), as opposed to strictly magnetite. Tilden is also unique in the world in that the hematite-dominant ore is mined at a low grade, concentrated using a selective-flocculation desliming and flotation process, and pelletized. Although some now-expended areas at Tilden did mine and magnetically recover magnetite-dominant ore prior to 2009, remaining Mineral Resources at Tilden

are hematite-dominant. The adjacent (now indefinitely idled) Empire deposit hosted primarily magnetite ore, and unoxidized magnetite is variably present at Tilden.

1.3.5 Exploration

Cliffs and Tilden Mine do not maintain detailed records or results of non-drilling prospecting methods used during initial exploration activities, such as geophysical surveys, mapping, trenching, and test pits, conducted prior to Cliffs' development of the operation. No exploration work or investigations other than drilling and limited pit mapping have been conducted by Cliffs at Tilden.

The Tilden drill hole database consists of 382,605 ft of drill hole information in 578 drill holes, completed from the 1950s to 2020. Annual exploration drilling programs at Tilden have completed zero to 42 drill holes. Of the last 10 years, nine have included drill hole programs and have averaged 10 drill holes per year. Diamond, hammer, and churn drilling have all been employed at Tilden, with diamond drilling having been exclusively used since 2008.

1.3.6 Mineral Resource Estimates

A geological model was constructed by SLR considering regional mapping, drill hole logging, and blast hole analytical results, in addition to grade control modeling and flotation ore coding. Data verification included standard database verification, a review of QA/QC protocols and results, and a comparison of blast hole and exploration drill hole results.

The Tilden Mineral Resource estimate was completed by SLR using a conventional block modeling approach, defining estimation domains from wireframes built in Seequent's Leapfrog Geo (Leapfrog Geo) software and using a regular block model built and interpolated in Seequent's Leapfrog Edge (Leapfrog Edge) software. The general workflow included the creation of a geological model from mapping, drill and blast hole logging, and sampling, which were used to define discrete domains of non-iron formation and iron formation sub-units. Iron formation drill hole samples were composited, and the estimation of six variables (crude iron and magnetic iron, wtrec, and iron, phosphorus, and silica in concentrate) was completed using ordinary kriging (OK) over five passes in iron formation units, the first of which incorporated blast hole samples. Distance restriction of outlier grades was applied to selected domains and variables. Blocks were classified as Indicated or Inferred using distance-based and qualitative criterion. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions) were used for Mineral Resource classification. Models were depleted to December 31, 2021. Estimates were validated using standard industry techniques and were peer reviewed prior to finalization.

A detailed breakdown of the Mineral Resources exclusive of Mineral Reserves is presented in Table 1-5. Mineral Resources were defined and constrained within an open-pit shell, prepared by Cliffs and based on a US\$90/LT pellet price, and meet the following cut-off grade criteria, based on existing pellet specifications and price contracts:

- $\geq 25\%$ wtrec
- $\geq 25\%$ crude iron content (crudefe)
- $\leq 0.07\%$ phosphorus in concentrate (conphos)
- $\leq 6\%$ to 8.5% silica in concentrate (consio2) (domain dependent)

The pellet cost basis for the Lerchs-Grossmann (LG) optimization is based on a dry 61.5% Fe fluxed pellet.

Table 1-5: Summary of Tilden Mineral Resources - December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property

Category	Long Tons (MLT)	Crude Fe (%)	Process Recovery (%)	Wet Pellets (MLT)
Measured	-	-	-	-
Indicated	135.4	35.5	35.9	48.6
Total Measured + Indicated	135.4	35.5	35.9	48.6
Inferred	350.4	34.7	36.4	127.4

Notes:

1. Tonnage is reported in long tons equivalent to 2,240 lb.
2. Tonnage is reported exclusive of Mineral Reserves and has been rounded to the nearest 100,000.
3. Mineral Resources are estimated at cut-off grades of 25% crude Fe, 25% wtrec, 0.07% conphos, and 6% consio2 to 8.5% consio2, domain dependent.
4. Mineral Resources are estimated using a pellet value of US\$90/LT.
5. Pellets are reported as fluxed and wet, containing 61.5% Fe; shipped pellets contain 1.5% moisture.
6. Tonnage estimate based on estimated depletion from a surveyed topography on December 31, 2021.
7. Resources are crude ore tons as delivered to the primary crusher; pellets are as loaded onto rail cars.
8. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
9. Bulk density is assigned based on a regression equation related to crude Fe.
10. Mineral Resources are 100% attributable to Cliffs.
11. Mineral Resources are constrained within an optimized pit shell.
12. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
13. Numbers may not add due to rounding.

The Tilden operation is currently active and in full production. The SLR QP is of the opinion that with consideration of the recommendations summarized in this section, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

1.3.7 Mineral Reserve Estimate

Mineral Reserves in this TRS are derived from the current Mineral Resources. The Mineral Reserves are reported as crude ore and are based on open pit mining. Crude ore is the unconcentrated ore as it leaves the Mine at its natural *in situ* moisture content. The Proven and Probable Mineral Reserves for Tilden are estimated as of December 31, 2021 and summarized in Table 1-6.

Table 1-6: Summary of Tilden Mineral Reserves - December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property

Category	Crude Ore Mineral Reserves (MLT)	Crude Ore Fe (%)	Process Recovery (%)	Wet Pellets (MLT)
Proven	3.6	35.3	36.1	1.3
Probable	516.4	34.7	37.0	191.1
Proven & Probable	520.0	34.7	37.0	192.4

Notes:

1. Tonnage is reported in long tons equivalent to 2,240 lb and has been rounded to the nearest 100,000.
2. Mineral Reserves are reported at a \$90/LT wet hemflux pellet price freight-on-board (FOB) Lake Superior, based on the three-year trailing average of the realized product revenue rate.
3. Mineral Reserves are estimated at a crude ore cut-off grade of 25.0% Fe along with additional metallurgical constraints.
4. Mineral Reserves include mining dilution built into the Mineral Resource model and mining extraction losses by geometallurgical domain, which range from 4% to 30%.
5. The Mineral Reserve mining stripping ratio (waste units to crude ore units) is at 1.2.
6. Proven Mineral Reserves are crude ore that has been mined and stockpiled for processing during the LOM.
7. Process recovery is reported as the percent mass recovery to produce a wet hemflux pellet containing 61.5% Fe; shipped hemflux pellets average approximately 1.5% moisture.
8. Tonnage estimate is based on the end of year, December 31, 2021 topographic survey.
9. Mineral Reserve tons are as delivered to the primary crusher; wet hemflux pellets are as loaded onto lake freighters at Marquette, Michigan.
10. Classification of Mineral Reserves is in accordance with the S-K 1300 classification system.
11. Mineral Reserves are 100% attributable to Cliffs.
12. Numbers may not add due to rounding.

The pellet price used to perform the evaluation of the Mineral Reserves in the current mining model is US\$90/LT wet hemflux pellet. This price is consistent with the Mineral Reserve price used at Cliffs' Northshore and UTAC operations and is supported by the current three-year trailing average of the realized product revenue rate of US\$98/LT wet hemflux pellet. Proven Mineral Reserves consist exclusively of crude ore that has been mined and stockpiled for future processing in the LOM plan. The costs used in this study represent all mining, processing, transportation, and administrative costs including the loading of pellets into lake freighters at Marquette, Michigan.

SLR is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.3.8 Mining Methods

The Tilden deposit is mined using conventional surface mining methods. The surface operations include:

- Overburden (glacial till) removal
- Drilling and blasting (excluding overburden)
- Loading and haulage
- Crushing and rail loading

The Mineral Reserve is based on the ongoing annual crude ore production of 20 MLT to 22 MLT producing approximately 7.7 MLT of wet hemflux pellets for domestic consumption.

Mining and processing operations are scheduled 24 hours per day, and the mine production is scheduled to directly feed the processing operations.

The current LOM plan has mining scheduled for 25 years and mines the known Mineral Reserve. The average stripping ratio is approximately 1.2 waste units to 1 crude ore unit (1.2 stripping ratio).

The final Tilden pit is a single pit approximately 2.5 mi along strike, up to 0.9 mi wide, and up to 1,980 ft deep.

The Mine's operation has a strict crude ore blending requirement to ensure the Plant receives a consistent crude ore feed. The most important characteristics of the crude ore are the crude ore iron grade and the predicted concentrate mass recovery and concentrate iron, silica, and phosphorus content. Operationally, blending is done on a shift-by-shift basis. Generally, three to four crude ore

loading points are mined at one time with dispatch operators issuing real-time adjustments to meet specified crude ore blends for the Plant.

Crude ore is hauled to the crushing facility and either direct tipped to the primary crusher or stockpiled. Haul trucks are alternated to blend delivery from the multiple crude ore loading points. The crude ore stockpiles are used as an additional source for blending and production efficiency. Crushed crude ore is conveyed to a covered storage building for stockpiling prior to being fed to the concentrator. Waste rock and overburden are hauled to one of the many waste stockpiles peripheral to the pit or to the in-pit backfill.

The major pieces of pit equipment include electric drills, electric rope shovels, haul trucks, front-end loaders (FELs), bulldozers, and graders. Extensive maintenance facilities are available at the mine site to service the mine equipment.

1.3.9 Processing and Recovery Methods

The mix of magnetite and primarily hematite ores at Tilden is unique to US iron ore mines. Typical flowsheets developed for beneficiation-grade magnetite ores of the Lake Superior region were not applicable, as most of the iron oxide occurs as non-magnetic hematite, which requires fine grinding for liberation. Metallurgical research conducted in the 1960s focused on creating a process that included selective flocculation and desliming followed by cationic silica (SiO₂) flotation.

A standardized bench-scale flotation test was designed to simulate the Tilden hematite grinding and concentrating circuit. Results from the standardized bench flotation test are used to characterize rock samples as either crude iron ore or waste rock. The data are used to build a resource model and mine plan to supply a consistent blend of ore to the concentrator. Deleterious materials impacting economic extraction are observed in the flotation bench test, which may include clay minerals, quartz inclusions within iron oxide bands, fine goethite, and carbonates.

The capacity of the Tilden concentrator and pellet plant is 7.7 MLT/y of fluxed pellets from both hematite and magnetite crude ore sources. The Plant includes primary crushing, autogenous primary and secondary grinding, selective flocculation and desliming, flotation, filtration, drying, balling (agglomeration), and induration. The concentrator is designed to campaign either hematite ores or magnetite ores but not in combination.

The processing of magnetite-dominant ores at the Tilden concentrator ceased in 2009. Magnetite ore from the Tilden was delivered and processed at the Empire Mine from 2010 through 2016 when the Empire was indefinitely idled. Remaining Mineral Resources and Mineral Reserves at Tilden are processed in hematite-based flotation circuits.

Mined ore is directly dumped from haul trucks into a gyratory crusher to produce a nominal nine-inch crushed product, which is conveyed to the ore storage building ahead of the grinding circuit. Primary grinding is accomplished with eleven primary AG mills, each driven by two, 2,860 hp synchronous motors. Each primary AG mill discharges to a triple-deck screen, producing coarse pebble for pebble mill grinding media, an intermediate product that is recycled to the AG mill, and a 100% passing 2 mm product that feeds the pebble mills. The pebble mills are operated in closed circuit with cyclones to produce a final grind of 80% to 85% passing 25 microns. Caustic soda and slaked lime are added to the water circuit to control pH prior to desliming and flotation.

Starch and a dispersant are added to the slurry to selectively flocculate and depress the iron oxides while dispersing the fine silica gangue in advance of the deslime thickeners. The deslime thickener overflow, containing the waste products, is fed to the tailings thickeners, and the deslime thickener underflow is conditioned with additional starch and advanced to the flotation circuit.

The reverse flotation circuit is divided into twelve lines, which float silica from the iron minerals with an amine collector. The rougher flotation concentrate represents final upgraded iron concentrate and is advanced to the concentrate thickener. The rougher tail is scavenged in four flotation stages to remove entrained iron values. The scavenger flotation concentrates are recycled to the rougher feed, and scavenger tails are pumped to the tailings thickeners.

The iron concentrate is thickened to approximately 65% to 70% solids in the concentrate thickeners, neutralized to a pH of 7.0 using carbon dioxide, and then filtered in a series of vacuum disc filters to approximately 11.5% weight by weight (w/w) moisture content. Filtered concentrates are either sent directly to the pelletizing plant, a thermal drying circuit, or to a concentrate storage stockpile.

Fluxstone consisting of dolomite and calcite is delivered to site via truck and stored in stockpiles. The material is fed from a stockpile via apron feeders and processed in two, 15.5 ft-diameter x 30 ft-long ball mills. The fluxstone slurry is added to the iron concentrate prior to filtering to ensure homogenous mixing.

The unit processes of the pelletizing plant include concentrate drying, agglomeration or balling, sizing, and induration in a grate kiln and cooler to produce final pellets, and pellet storage and loadout.

Concentrate is conveyed from filtration or the concentrate stockpile to the balling section of the pelletizing plant. A portion of the concentrate is dried in a rotary dryer and then recombined with the concentrate feed to achieve 9.5% w/w moisture for balling. Green balls are produced in fourteen rotating balling drums operating in parallel. Bentonite clay binder is added to the balling drum feed, and green balls are discharged onto a vibrating seed screen with a two-foot-long grizzly extension for oversize removal. The screen undersize is returned to the balling drum, and the grizzly oversize is returned to the concentrate bin or diverted to outdoor storage. The seed screen product is conveyed by a reciprocating conveyor, which distributes the green balls over a grate feed belt.

The green balls enter a moving grate, which passes through 3.5 bays of updraft drying, 7.5 bays of downdraft drying, and eight bays of downdraft pre-heating and are then discharged into one of two rotary kilns. Heat for the kilns is produced with a combination of pulverized coal and/or natural gas. Product from the kiln is discharged into two rotary coolers, sufficiently cooling the pellets to be transported by conveyor.

Cooled pellets are conveyed directly to either a railroad load-out bin or to an outdoor stockpile with nominal capacity of 2 MLT. Pellets are loaded into rail cars and transported to the dock facility in Marquette, Michigan or shipped directly to customers by rail. Pellet stockpiles are screened to reduce fines using loaders feeding a portable screening plant. Pellet chips and fines from this process are sold as a secondary product.

1.3.10 Infrastructure

The Property is in a historically important, iron-producing region in the Upper Peninsula of Northern Michigan. All the infrastructure necessary to mine and process commercial quantities of iron ore is in place.

Infrastructure items include:

- The Mine, concentrator, and concentrate pelletizing facilities near Marquette, Michigan.
- The main processing facility is contained in a conventional, multi-level, insulated steel building. Mining offices and mobile equipment maintenance shops are separated from the main facility and are located on the Empire Mine property.
- Power is supplied by Upper Michigan Energy Resources (UMERC) that supplies power through the existing power grid, which is interconnected to neighboring states and is received at its substation on transmission lines owned by American Transmission Company.
- Backup diesel-powered generators are installed at several locations to operate critical equipment should main power be lost.
- Natural gas is primarily used for firing the rotary kilns at the pelletizing plant and water boilers in the concentrator. Natural gas is purchased from Encore Energy and supplied to the site via a gas pipeline owned and operated by Northern Natural Gas (NNG), which has an extensive interstate pipeline system.
- The Tilden pellet plant kilns are a dual fuel system with the ability to operate on pulverized coal, natural gas, or a combination of both.
- U.S. Oil supplies the Tilden Mine from its terminal in Green Bay, Wisconsin. The Mine has one 20,000 gal, above-ground diesel fuel tank and one 10,000 gal, underground gasoline storage tank.
- Fresh make-up water for the process is supplied from the Greenwood Reservoir, which is located approximately seven miles southwest of Ishpeming and is on the Middle Branch Escanaba River.
- Process water is primarily supplied by tailings reclaim.
- Potable water is supplied by two deep well pumps located on site.
- Paved roads and highways.
- Pellets produced at the site are shipped in rail cars by the Lake Superior & Ishpeming Railroad (LS&I), a wholly owned subsidiary of Cliffs, 22 mi to the LS&I dock in Marquette, Michigan.
- Tailings are stored in the GTB located approximately five miles southeast of the Tilden concentrator plant and nine miles from Lake Superior. The GTB is comprised of two ring dike-type impoundments: the GNTB, which encompasses approximately 1,350 acres, and the GSTB, which encompasses approximately 1,100 acres.
- Dock facilities in Marquette include 50,000 LT of pellet storage and ship loaders for loading 60,000 LT-capacity lakers that transport pellets to steel mills on the Great Lakes.
- Pellets can also be shipped using the Canadian National (CN) railroad. The CN owns and operates its own rail fleet. Currently, one customer receives direct rail deliveries by CN to Sault Ste. Marie, Ontario, Canada, a distance of 120 mi from the Property.
- Accommodations for employees.
- Local and State infrastructure also includes hospitals, schools, airports, equipment suppliers, fuel suppliers, commercial laboratories, and communication systems.

1.3.11 Market Studies

Cliffs is the largest producer of iron ore pellets in North America. It is also the largest flat-rolled steel producer in North America. In 2020, Cliffs acquired two major steelmakers, ArcelorMittal USA (AMUSA), and AK Steel (AK), vertically integrating its legacy iron ore business with steel production and emphasis on the automotive end market.

Cliffs owns or co-owns five active iron ore mines in Minnesota and Michigan. Through the two acquisitions and transformation into a vertically integrated business, the iron ore mines are primarily now a critical source of feedstock for Cliffs' downstream primary steelmaking operations. Based on its ownership in these mines, Cliffs' share of annual rated iron ore production capacity is approximately 28.0 million LT, enough to supply its steelmaking operations and not have to rely on outside supply.

The importance of the steel industry in North America and specifically the USA is apparent by the actions of the US federal government in implementing and keeping import restrictions in place. It is important for middle-class job generation and the efficiency of the national supply chain. It is also an industry that supports the country's national security by providing products used for US military forces and national infrastructure. Cliffs expects the US government to continue recognizing the importance of this industry and does not see major declines in the production of steel in North America.

Tilden L.C. ships flux pellets annually to Cliffs' steelmaking facilities in the Midwestern USA, with some quantities shipped by rail to external customers.

For cash flow projections, Cliffs uses a blended pellet revenue rate of \$98/WLT Free on Board (FOB) Mine based on a three-year trailing average for 2017 to 2019. Based on macroeconomic trends, SLR is of the opinion that Cliffs' pellet prices will remain at least at the current three-year trailing average of \$98/WLT or above for the next five years.

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

Tilden L.C. indicated that it presently has the requisite operating permits for the Mine and Plant and estimates that the mine life will be 25 years. Environmental monitoring during operations includes water and air quality monitoring. Closure plans and other post-mining plans are required to be prepared within two years of anticipated closure. Cliffs indicated that it conducts an in-depth review every three years to ensure that the Asset Retirement Obligation (ARO) legal liabilities are accurately estimated based on current laws, regulations, facility conditions, and cost to perform services. These cost estimates are conducted in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 410. SLR is not aware of any formal commitments to local procurement and hiring; however, Cliffs indicated that it has a long-standing relationship with local vendors.

1.3.13 Capital and Operating Cost Estimates

Productive and sustaining capital expenditure estimates for the remaining life of the operation are presented in Table 1-7. The LOM capital cost forecast is shown for the next five-year period from 2022 to 2026, which totals \$314.2 million and an additional \$579.9 million from 2027 to the last year of mining in 2046. Total capital expenditures are estimated at \$894.2 million.

**Table 1-7: LOM Capital Costs
Cleveland-Cliffs Inc. – Tilden Property**

Type	Values	Total	2022	2023	2024	2025	2026	2027-2046
Total	\$ millions	894.2	63.5	82.9	45.7	43.8	78.3	579.9

Operating costs are based on a full run rate of flux pellets consistent with what is expected for the life of the mine. A LOM average operating cost of \$66.00/WLT pellet is estimated over the remaining 25 years of the mine life and is presented by area in Table 1-8.

**Table 1-8: LOM Operating Costs
Cleveland-Cliffs Inc. – Tilden Property**

Description	LOM (\$/WLT Pellet)
Mining	15.30
Processing	42.79
Site Administration	2.84
General/Other	5.07
Operating Cash Cost	66.00

Cliffs' capital and operating costs estimates are derived from annual budgets and historical actuals over the long life of the current operation. According to the American Association of Cost Engineers (AACE) International, these estimates would be classified as Class 1 with an accuracy range of -3% to -10% to +3% to +15%.

2.0 INTRODUCTION

SLR International Corporation (SLR) was retained by Cleveland-Cliffs Inc. (Cliffs) to prepare an independent Technical Report Summary (TRS) for the Tilden Property (Tilden or the Property), located in Northern Michigan, USA. The owner of the Property, Tilden Mining Company L.C. (Tilden L.C.), is a wholly owned subsidiary of Cliffs.

The purpose of this TRS is to disclose year end (YE) 2021 Mineral Resource and Mineral Reserve estimates for Tilden.

Cliffs is listed on the New York Stock Exchange (NYSE) and currently reports Mineral Reserves of pelletized ore in SEC filings. This TRS conforms to the United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601 (b)(96) Technical Report Summary.

The Property includes the Tilden Mine (the Mine) and processing facility (the Plant) located approximately five miles south of the city of Ishpeming, Michigan. The Property is also immediately west of Cliffs' Empire Property, which was indefinitely idled in 2016. The Mine is a large, operating, open-pit iron mine and is unique among Cliffs' US-owned operations because the primary ore mineral at Tilden is hematite, with other minerals being martite (oxidized pseudomorph of magnetite), goethite, and siderite (iron carbonate mineral), as opposed to strictly magnetite. The Property is also unique in the world in that the hematite-dominant ore is mined at a low grade, concentrated using a selective-flocculation desliming and flotation process, and pelletized.

The Property commenced operations in 1974 under a partnership of Algoma Steel, Stelco, J&L Steel, Wheeling-Pittsburgh Steel, Sharon Steel, and The Cleveland-Cliffs Iron Company (CCIC). The property has since been at least partially in the possession of a subsidiary of Cliffs. In 2001, Cliffs acquired Algoma Steel's 45% interest in Tilden L.C. In 2017, Cliffs became the sole owner of Tilden L.C.

The open-pit operation has a mining rate of approximately 21 million long tons (MLT) of ore per year and produces 7.7 MLT of iron ore pellets per year, which are mostly shipped by freighter via the Great Lakes to Cliffs' steel mill facilities in the Midwestern USA, with some quantities shipped by rail to external customers.

2.1 Site Visits

SLR Qualified Persons (QPs) visited the Property on October 24, 2019 and January 20 to 24, 2020. During the 2019 site visit, the SLR team all toured the tailings basin, plant laboratory, concentrator and pelletizing facilities plus rail pellet loadout site, and the mine offices and operational areas.

During the 2020 site visit, the SLR geologist visited the mine offices and worked with the mine geologists to update the geological and Mineral Resource block model.

2.2 Sources of Information

Technical documents and reports on the Property were obtained from Cliffs' personnel. During the preparation of this TRS, discussions were held with personnel from Cliffs:

- Kurt Gitzlaff, Director - Mine Engineering, Cliffs Technical Group (CTG)
- Michael Orobona, Principal Geologist, CTG

- Michael Koop, Lead Mine Engineer, CTG
- Scott Gischia, Director - Environmental Compliance
- Dean Korri, Director - Basin & Civil Engineering
- Sandy Karnowski, District Manager - Public Affairs
- John Elton, Senior Director - Corporate Accounting & Assistant Controller
- Tushar Mondhe, Senior Manager – Operations and Capital Finance
- Al Strandlie, Mine Geologist
- Tyson Murphy, Section Manager - Mine Engineering
- Todd Davis, Area Manager – Plant
- Kris Scherer, Tailings Engineer
- Brent Ketzenberger, Environmental Manager

This TRS was prepared by SLR QPs. The documentation reviewed, and other sources of information, are listed at the end of this TRS in Section 24.0, References.

2.3 List of Abbreviations

The U.S. System for weights and units has been used throughout this report. Tons are reported in long tons (LT) of 2,240 lb unless otherwise noted. All currency in this report is US dollars (US\$ or \$) unless otherwise noted. Abbreviations and acronyms used in this TRS are listed below.

Unit Abbreviation	Definition	Unit Abbreviation	Definition
a	annum	LT/h	long tons per hour
A	ampere	μL	microliter
acfm	actual cubic feet per minute	M	mega (million); molar
bbl	barrels	Ma	one million years
Btu	British thermal units	MBtu	thousand British thermal units
d	day	MCF	million cubic feet
°F	degree Fahrenheit	MCF/h	million cubic feet per hour
fasl	feet above sea level	mi	mile
ft	foot	min	minute
ft ²	square foot	MLT/y	million long tons per year
ft ³	cubic foot	MPa	megapascal
ft/s	foot per second	mph	miles per hour
g	gram	MVA	megavolt-amperes
G	giga (billion)	MW	megawatt
Ga	one billion years	MWh	megawatt-hour
gal	gallon	MWLT	million wet long tons
gal/d	gallon per day	oz	Troy ounce (31.1035g)
g/L	gram per liter	oz/ton	ounce per short ton
g/y	gallon per year	ppb	part per billion
gpm	gallons per minute	ppm	part per million
hp	horsepower	psia	pound per square inch absolute
h	hour	psig	pound per square inch gauge
Hz	hertz	rpm	revolutions per minute
in.	inch	RL	relative elevation
in ²	square inch	s	second
J	joule	ton	short ton
kLT	thousand long tons	stp	short ton per year
k	kilo (thousand)	stpd	short ton per day
kg/m ³	Kilogram per cubic meter	t	metric tonne
kVA	kilovolt-amperes	US\$	United States dollar
kW	kilowatt	V	volt
kWh	kilowatt-hour	W	watt
kWLT	thousand wet long tons	wt%	weight percent
L	liter	WLT	wet long ton
lb	pound	w/w	weight by weight
LT	long or gross ton equivalent to 2,240 pounds	y	year
LT/d	long tons per day	yd ³	cubic yard

Acronym	Definition
AACE	American Association of Cost Engineers
AK	AK Steel
AMUSA	ArcelorMittal USA
ANSI	American National Standards Institute
ARO	asset retirement obligation
ASC	Accounting Standards Codification
ASQ	American Society for Quality
ASTM	American Society for Testing and Materials
BF	blast furnace
BFA	bench face angle
BH	bench height
BIF	banded iron formation
BLS	United States Bureau of Labor Statistics
CCD	counter-current decantation
CCIC	Cleveland-Cliffs Iron Company
CCP	Conceptual Closure Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Cost and Freight
CN	Canadian National Railroad
COA	certificates of analysis
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
D&A	depreciation and amortization
DDH	diamond drill hole
DMO	Department Maintenance Office
DOSS	Diocetyl Sulfosuccinate
DRI	direct reduced iron
DSO	direct-shipping iron ore
EAF	electric arc furnace
EAP	Emergency Action Plan
EGLE	Michigan Department of Environment, Great Lakes and Energy
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	environmental management system
EPA	United States Environmental Protection Agency
ESOP	Environmental Standard Operating Procedures
EOR	Engineer of Record
FASB	Financial Accounting Standards Board
FDCP	Fugitive Dust Control Plan
FOB	Free on Board
GHG	greenhouse gas
GIM	Geoscientific Information Management
GNTB	Gribben North Tailings Basin
GPS	global positioning system

Acronym	Definition
GSI	Geological Strength Index
GSSI	General Security Services Corporation
GSTB	Gribben South Tailings Basin
GTB	Gribben Tailings Basin
HBI	hot briquetted iron
HRC	hot-rolled coil
ID ²	Inverse distance squared
ID ³	Inverse distance cubed
IF	iron formation
IRA	Inter-ramp angle
IRR	internal rate of return
ISO	International Standards Organization
KEV	key economic variables
LG	Lerchs-Grossmann
LiDAR	light imaging, detection, and ranging
LMF	Laurentian Mixed Forest
LOM	life of mine
LS&I	Lake Superior & Ishpeming Railroad
MAC	Mining Association of Canada
MLT	million long tons
MR	moving range
MRCC	Midwestern Regional Climate Center
NAAQS	National Ambient Air Quality Standards
NAD	North American Datum
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGO	non-governmental organization
NN	nearest neighbor
NNG	Northern Natural Gas
NOAA	National Oceanic and Atmospheric Administration
NOLA	Nuclear On-Line Analyzer
NPDES	National Pollution Discharge Elimination System
NPV	net present value
OMS	Operations, Maintenance, and Surveillance
OSA	overall slope angle
QA/QC	quality assurance/quality control
QP	Qualified Person
RC	rotary circulation drilling
RCRA	Resource Conservation and Recovery Act
ROM	run of mine
RQD	rock quality designation
RTR	risk and technology review
SDS	State Disposal System Permit
SEC	United States Securities and Exchange Commission

Acronym	Definition
SG	specific gravity
SMU	selective mining unit
SQL	Structured Query Language
SPC	Statistical Process Control
SPT	standard penetration testing
TMDL	total maximum daily load
TRS	Technical Report Summary
TSF	tailings storage facility
TSP	total suspended particulates
UCS	uniaxial compressive strength
UMERC	Upper Michigan Energy Resources
USGAAP	United States General Accepted Accounting Principles
USGS	United States Geological Survey
USNRC	United States Nuclear Regulatory Commission
WTF	water treatment facility
XRF	x-ray fluorescence

3.0 PROPERTY DESCRIPTION

3.1 Property Location

The Property is located in Marquette County, in Michigan's Upper Peninsula, USA, on the Marquette Iron Range, approximately five miles south of the city of Ishpeming at latitude 46° 27' N and longitude 87° 39' W. The Property is also immediately adjacent to Cliffs' indefinitely idled Empire Mine and processing facility. Figure 3-1 shows the location of the Property.

3.2 Land Tenure

3.2.1 Mineral Titles

Land ownership and mineral leases are held by Tilden L.C., which is a wholly owned subsidiary of Cliffs. Initial acquisitions from outside parties were accomplished by CCIC over 150 years ago and moved to the various partnerships before Tilden L.C. was established.

The Property consists of approximately 2,470 acres of mineral leases from three parties. Tilden leases approximately 2,210 acres directly from its affiliate, CCIC. Tilden subleases approximately 140 acres from Empire Iron Mining Partnership, another affiliate which leases the Property from CCIC. Tilden subleases the remaining, approximately 120 acres from CCIC, which leases the Property from the Chester Company (2/3 undivided interest) and CCIC (1/3 undivided interest), as illustrated in Figure 3-2. Mineral leases include surface mining rights. Land tenure is summarized in Table 3-1.

Both Tilden subleases expire in 2061; the CCIC lease is through the life of mine (LOM). In order to maintain the mineral leases until their expiration, Tilden L.C. must continue to make minimum prepaid royalty payments each quarter and pay property taxes. When mining occurs, a royalty is due per long ton of crude ore mined or long ton of pellets produced from the crude ore mined, and payable to the respective lessors quarterly. Royalty rates per long ton fluctuate based on industry and economic indexes. Minimum prepaid royalty payments may be credited against royalties due when mining occurs. Specific terms and provisions of the mineral leases are confidential.



Figure 3-1: Location Map

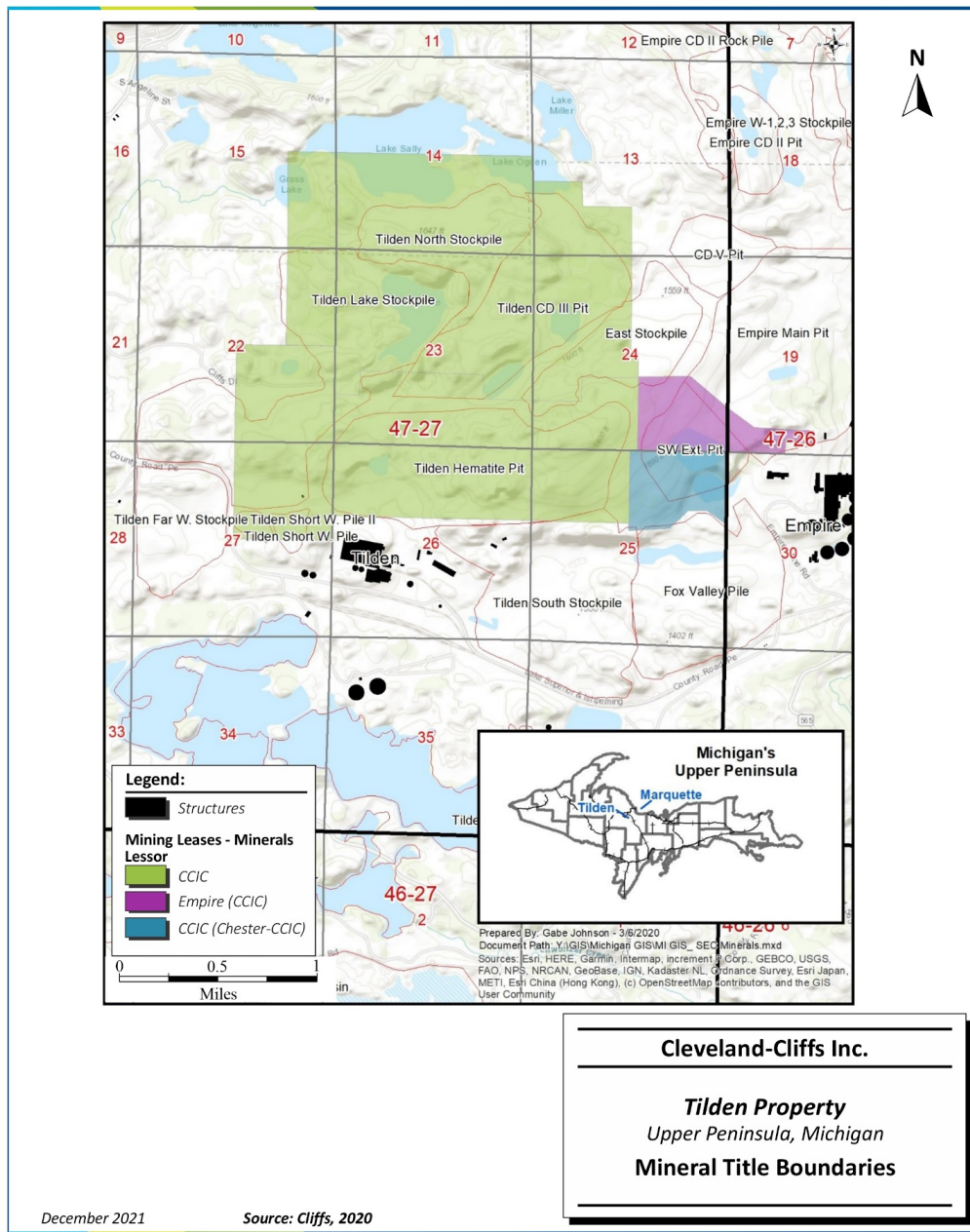


Figure 3-2: Mineral Title Boundaries

**Table 3-1: Land Tenure
Cleveland-Cliffs Inc. – Tilden Property**

Lease Name	Expiration Date
Empire Mining Sublease	6/1/2061
CCIC Mining Sublease	6/1/2061
CCIC Supplemental Lease	12/31/2070

3.2.2 Surface Rights

Surface rights consist of approximately 21,100 acres of owned property in and around the Mine, Plant, Greenwood Reservoir, and the Gribben Basin, as illustrated in Figure 3-3. To maintain ownership, property taxes must be paid to the local government units in Marquette County.

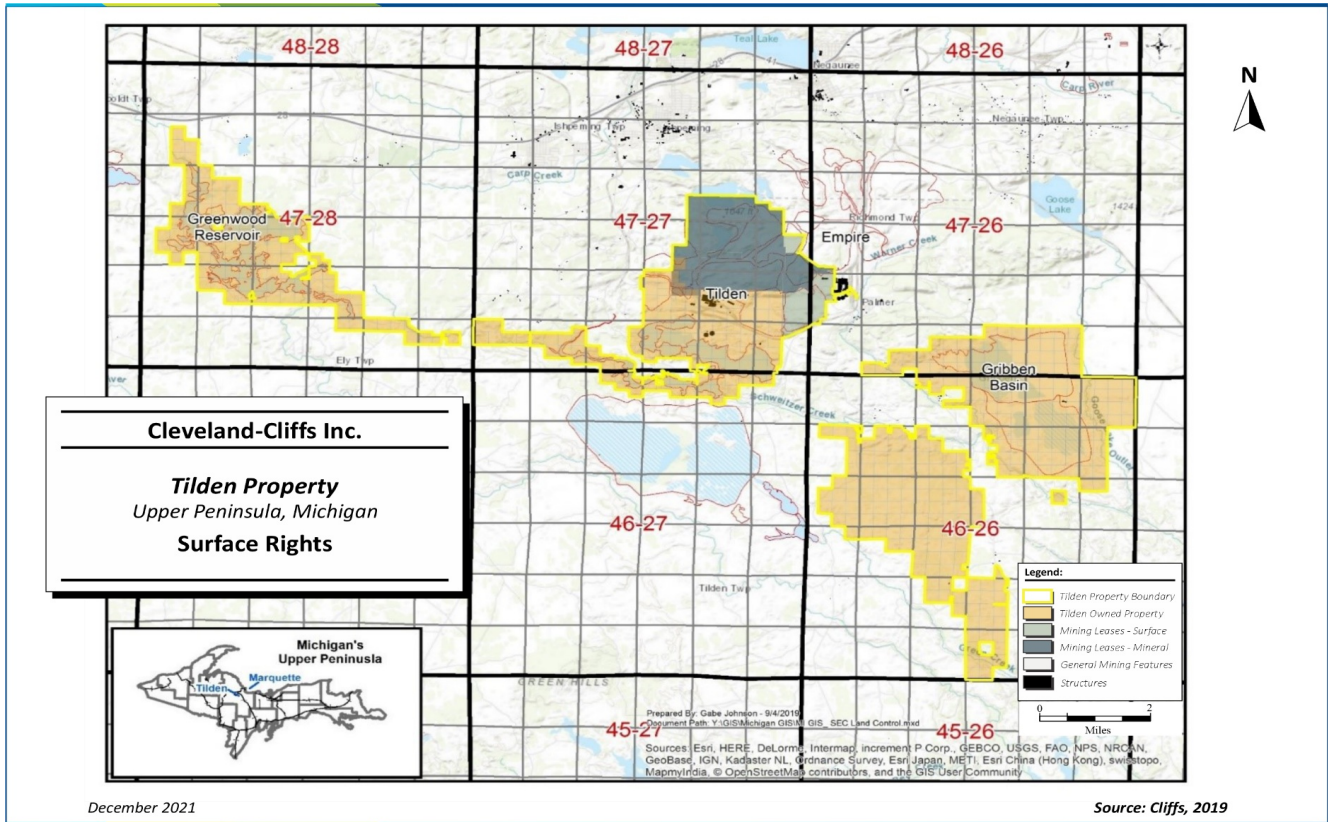


Figure 3-3: Surface Rights

3.3 Encumbrances

Tilden grants leases, licenses, and easements for various purposes including miscellaneous community land uses, utility infrastructure, and other third-party uses that encumber the Property but do not materially inhibit operations. Certain assets of Tilden L.C. serve as collateral as part of Cliffs' asset-based lending (ABL) facility. Cliffs has outstanding standby letters of credit, which were issued to back certain obligations of Tilden L.C., including certain permits and tailings basin projects. Additionally, Tilden has and may continue to enter into lease agreements for necessary equipment used in the operations of the mine.

3.4 Royalties

Reference section 3.2 for royalty information. No overriding royalty agreements are in place.

3.5 Other Significant Factors and Risks

No additional significant factors or risks are known.

SLR is not aware of any environmental liabilities on the Property. Cleveland-Cliffs Inc. has all required permits to conduct the proposed work on the Property. SLR is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the Property.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The Property is located close to the cities of Marquette, Negaunee, and Ishpeming, Michigan. The Mine can be accessed by the Tilden entrance gate near the community of National Mine, located two miles south of Ishpeming on County Road 476. Alternatively, the Property can be accessed from the east through the adjacent Empire Mine. The Empire entrance gate is located on M-35, nine miles south of US Highway 41 between Marquette and Negaunee. Sawyer International Airport, the closest public airport, is located 17 mi south of Marquette and serves the region with several flights daily to major hubs in Minneapolis, Chicago, and Detroit.

4.2 Climate

Michigan's Upper Peninsula has a humid continental climate, typified by large seasonal temperature differences. Summers are generally warm and humid; winters are cold and long. Precipitation in the area averages approximately 31 in. of rain and 102 in. of snow in the winter (Western Regional Climate Center, 2015). The average maximum and minimum temperatures are shown in Table 4-1, along with the average precipitation and snowfall. Snowfall in the region is greatly influenced by the "lake effect" due to proximity to the Great Lakes. Many towns in the Upper Peninsula have recorded annual snowfalls in excess of 350 in., and storms can quickly reach whiteout conditions and last for days (Albert, 1995).

The Property is a year-round operation and is not generally curtailed due to seasonal temperature changes or weather conditions.

**Table 4-1: Ishpeming, MI Temperature and Precipitation
Cleveland-Cliffs Inc. – Tilden Property**

Station 204127	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	23.2	29.6	38.5	52.9	66.0	73.8	79.6	76.1	65.8	53.9	38.0	26.6	52.2
Average Min. Temperature (°F)	5.2	10.5	17.7	29.2	40.0	48.0	54.4	52.8	44.8	35.3	23.2	11.4	31.1
Average Total Precipitation (in.)	1.5	1.3	2.0	2.7	2.7	3.0	3.4	3.5	3.7	3.7	2.3	1.9	31.4
Average Total Snow Fall (in.)	20.0	17.6	16.6	8.2	1.2	0.1	0.0	0.0	0.2	3.8	15.4	19.1	102.1
Average Snow Depth (in.)	15.0	21.0	16.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	8.0	5.0

4.3 Local Resources

Local and State infrastructure includes hospitals, schools, airports, equipment suppliers, fuel suppliers, and communication systems. The Property is located approximately five miles south of the city of Ishpeming, Michigan, nine miles southwest of Negaunee, Michigan, and 20 mi west-southwest of

Marquette, Michigan. Medical facilities with trauma centers are located in the cities of Marquette and Green Bay. Table 4-2 is a list of the major population centers and the distance by road to the Property.

**Table 4-2: Nearby Population Centers
Cleveland-Cliffs Inc. – Tilden Property**

City/Town	Medical Center	Population 2010 Census	Mileage to Mine
Palmer, MI	n/a	449	3.5
Ishpeming, MI	ER	6,470	5.0
Negaunee, MI	n/a	4,568	9.0
Marquette, MI	Level II	21,355	20.0
Green Bay, WI	Level II and III	104,057	167

Source: U.S. Census Bureau, Google Maps

The Tilden operation employs a total of 967 salaried and hourly employees, including Lake Superior & Ishpeming Railroad (LS&I) railroad staff, as of Q4 2021. The majority of the employees live within a 50 mi radius of the Property.

4.4 Infrastructure

The Property is located in a historically important, iron-producing region in Northern Michigan. All infrastructure necessary to mine and process significant commercial quantities of iron ore exist at the current time. Infrastructure items include administration buildings and offices, maintenance shops, high-voltage electrical supplies, natural gas pipelines that connect into the North American distribution system, concentrator, pelletizing plant, water sources, paved roads and highways, railroads for transporting raw materials and final product, port facilities that connect into the Great Lakes, and towns where employees live. Additional details regarding Tilden infrastructure are provided in Section 15.0 of this TRS.

4.5 Physiography

The Property is within the limits of a topographic region known as the Superior Uplands, a part of the Canadian Shield. This region is more rugged than the eastern portion of the Upper Peninsula, as it is dominated by Precambrian volcanic rocks and Archean basement rocks that were eroded down over many glaciation events. The Tilden Mine property features elevations ranging from approximately 1,300 feet to 1,800 feet. Topography is hilly and is dominated by glacially influenced landforms. Tilden is located in the Western Upper Peninsula Ecoregion (Section IX) and characterized by a landscape featuring moraines, drumlins, lake plains, outwash channels, outwash plains, and glacially eroded bedrock ridges (Albert, 1995).

Vegetation in the vicinity of Tilden is described as northern hardwood forest dominated by sugar maple, eastern hemlock, basswood, yellow birch, and sparse white pine. The Western Upper Peninsula Ecoregion also contains numerous bogs, tamarack-black spruce swamps, and hardwood-conifer swamps. The bogs and wetlands include elm, green and black ash, and red and sugar maple. Upland wetlands (remnants of glacial lakebeds) support ash, red maple, pin oak, and swamp white oak, whereas acidic,

boggy sites may contain boreal flora that persist in this area as outliers of the Canadian forest, including black spruce, larch (tamarack), red maple, several evergreen shrubs, and locally rare herbaceous plants that may grow on a mat of partially decomposed sphagnum moss (Sommers, 1984).

The soil profile in this part of Michigan's Upper Peninsula is dominated by spodosols and histosols. Spodosols are formed in sandy material where precipitation is sufficient to allow large amounts of water to infiltrate the soil multiple times per year. In Michigan, the spring snowmelt season produces these types of conditions. Spodosols in Northern Michigan typically form under mixed forests of maple, pine, hemlock, and birch. Because of the sandy nature of the soil, they have limited water storage capacity and are generally poor for farming. They also locally have varying horizons that may feature abundant organic matter, and aluminum and iron concentrations. Histosols are comprised mainly of organic materials and form in low wetlands or bogs with reducing conditions that allow organic material to accumulate over a longer time period as compared to spodosols (Schaeztl and Anderson, 2005).

5.0 HISTORY

5.1 Prior Ownership

The Tilden Mine officially began operation in 1974 under a partnership of Algoma Steel, Stelco, J&L Steel, Wheeling-Pittsburgh Steel, Sharon Steel, and CCIC. The Property has since been at least partially in the possession of a subsidiary of Cliffs. Notable predecessors to the current evolution of the company were the Cleveland Iron Mining Company and the Iron Cliffs Company. The latter was formed in 1865 by Samuel J. Tilden, a financier who would become the governor of New York and a contender in the 1876 presidential election.

In November 2001, Cliffs announced the planned acquisition of Algoma Steel's 45% interest in the Tilden Mine. In January 2003, Cliffs increased its ownership of the adjacent Empire Mine to 79%, which led to the combination of the Empire and Tilden mining operations before the end of that year.

On August 27, 2007, U.S. Steel purchased Stelco and with it a 15% interest in Tilden L.C. In 2017, Cliffs purchased U.S. Steel's interest, making Cliffs the sole owner of Tilden L.C.

5.2 Exploration and Development History

Iron deposits in Northern Michigan were originally described in the early 1840s by Douglass Houghton, Michigan's first State Geologist. Houghton stated that iron deposits of unknown extent were to be found near the south shore of Lake Superior. In 1844, United States Deputy Surveyor William Austin Burt observed unusual variations in his compass, which tended to behave strangely in the vicinity of certain outcrops that would later be identified as a hematite-rich banded iron formation (BIF). The first major discovery of high-grade iron oxides was in early 1845 near the present site of Negaunee, Michigan (Stiffler, 2010). The Jackson Mining Company was formed shortly thereafter in July 1845, and iron mining in Michigan officially began. The Cleveland Iron Company was formed in 1847 and began exploration for iron ores just east of Ishpeming, Michigan. In 1850, the company changed its name to the Cleveland Iron Mining Company and was granted a charter for mining, smelting, and manufacturing ores, minerals, and metals. The Iron Cliffs Company formed in 1865 and began operations at the Barnum Mine in 1867. By 1871, the Iron Cliffs Company owned a number of small, direct-ship iron mines, including a mine referred to as the Tilden. There is little information regarding the original Tilden Mine, which was focused on direct-ship ores.

Ores were shipped via the Sault Ste. Marie Ship Canal to furnaces on the lower Great Lakes starting in 1855, and tonnages gradually increased into the latter part of the 19th century. In 1891, the Cleveland-Cliffs Iron Company was founded through a merger of the Cleveland Iron Mining Company and the Iron Cliffs Company. After World War II, the underground, high-grade iron mines were almost depleted. Extensive development of low-grade, open pit mining began, and the first commercial agglomeration (pellet) plant in the Lake Superior region started operations in 1952. Agglomeration was a relatively new process that took the concentrate from lower-grade deposits and produced pelletized product containing approximately 65% Fe. The Tilden Mine opened in 1974 after years of favorable experimental testing for processing of fine-grained hematite ores.

Site-standard analytical procedures of bench-scale flotation and magnetic iron determination by a saturation magnetization analyzer (Satmagan) applied to drill core were developed prior to mining and continue to the present as described in section 8.1 of this TRS.

Early regional geologic mapping was compiled by the United States Geological Survey (USGS) (Van Hise and Leith, 1911), and more detailed quadrangle geologic mapping was completed in the mid-20th century (Gair, 1975; Simmons, 1974). Aeromagnetic surveys were first completed in the region in the 1960s and documented by the USGS (Case and Gair, 1965). Cliffs and Tilden Mine do not maintain detailed records or results of early, non-drilling prospecting methods used during initial exploration activities (ground geophysical surveys, trenching, test pits, etc.) conducted prior to Cliffs' development of the operation in the early 1970s.

5.3 Historical Mineral Reserve Estimates

As the Property has since been at least partially in the possession of a subsidiary of Cliffs, there are no historical Mineral Resource or Mineral Reserve estimates.

5.4 Past Production

The Property has produced pellets since 1974 and currently operates with a plant capacity of 7.7 MLT/y. Production has been hematite flux pellets or hematite/magnetite flux since 1994. Magnetite ores were processed from 1989 to 2009, and after 2009, remaining magnetite ores were processed at the Empire Mine prior to its indefinite idling in 2016. Table 5-1 shows the historical pellet production from the Mine and Plant since 1974.

**Table 5-1: Historical Production
Cleveland-Cliffs Inc. – Tilden Property**

Year	Stripping (kWLT)	Crude Ore (kWLT)			Concentrate (kWLT)			Pellets (kWLT)		
		Hem.	Mag.	Total	Hem.	Mag.	Total	Hem.	Mag.	Total
1974- 1989	0	198,998	6,305	205,303	81,688	1,991	83,679	72,442	1,796	74,238
1990- 1999	0	97,466	59,519	156,985	40,969	20,241	61,209	36,632	21,060	57,693
2000- 2009	0	139,884	40,371	180,255	59,636	15,560	75,196	55,268	15,149	70,417
2010	0	19,194	0	19,194	7,980	0	7,980	7,468	0	7,468
2011	0	20,850	0	20,850	8,374	0	8,374	7,794	0	7,794
2012	0	21,380	0	21,380	8,567	0	8,567	7,618	0	7,618
2013	0	20,114	0	20,114	7,922	0	7,922	7,485	0	7,485
2014	0	20,298	0	20,298	8,130	0	8,130	7,581	0	7,581
2015	0	19,661	0	19,661	7,998	0	7,998	7,631	0	7,631
2016	0	20,672	0	20,672	8,295	0	8,295	7,632	0	7,632
2017	0	21,007	0	21,007	8,157	0	8,157	7,650	0	7,650
2018	0	21,016	0	21,016	8,320	0	8,320	7,679	0	7,679
2019	0	21,500	0	21,500	8,312	0	8,312	7,708	0	7,708
2020	0	18,006	0	18,006	6,968	0	6,968	6,323	0	6,323
2021	0	21,482	0	21,482	8,238	0	8,238	7,365	0	7,365
TOTAL	0	681,528	106,195	787,723	279,554	37,792	317,345	254,276	38,005	292,282

6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

Essential aspects of the regional geology in the Lake Superior region have been understood since the early 1900s, and the geologic understanding of the area has remained relatively unchanged over the years.

Iron ores produced within the region range from high-grade, structurally controlled “natural” or direct-shipping iron ore (DSO) bodies to more disseminated, stratigraphically controlled, low-grade iron ores that require beneficiation. The beneficiation-grade deposits are found in a sequence of Paleoproterozoic metasedimentary rocks overlying Archean granitic basement in the Lake Superior region.

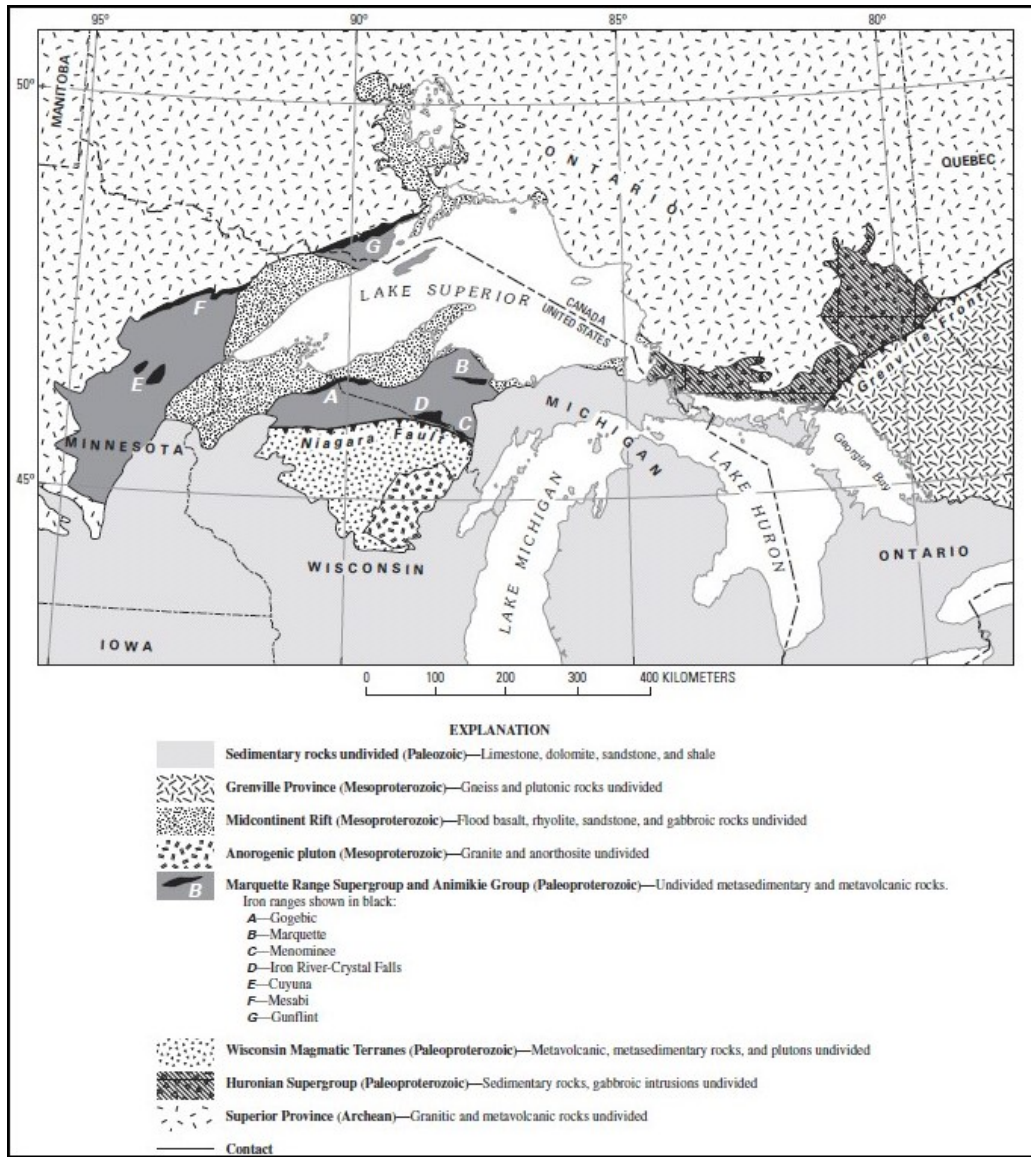
The Palmer Gneiss represents the basement complex of Archean (2.6 Ga) granitic gneiss underlying a thick sequence of variably metamorphosed volcanic rocks and sedimentary rocks including iron formations hosted within several stratigraphic intervals. The principal iron formations in Northern Michigan are within the 1.9 Ga to 2.7 Ga Marquette Range Supergroup (Figure 6-1).

Paleoproterozoic rocks in the vicinity of Tilden consist of three subgroups: the Chocolay Group, the Menominee Group, and the Baraga Group. The stratigraphic sequence features shelf facies of quartzite and dolomite of the Chocolay Group underlying the Menominee Group of argillaceous rocks and the major iron formations. The Baraga Group is generally described as a volcanogenic unit of considerable thickness and complexity (Bayley and James, 1973). In the area of the Marquette Range, it comprises sequences of turbidite, graywacke, and shale along with minor iron formations. The Baraga Group is roughly equivalent to the upper stratigraphy of the Animikie Group in Minnesota. The Menominee Group is comprised of the basal Ajibik Quartzite, the Siamo Slate, the Negaunee Iron Formation (Negaunee IF), and rift-related mafic intrusive rocks. The Menominee Group contains the 1.875 Ga iron formations of economic significance and is correlative with the Animikie Group on the Mesabi Range of Minnesota (Figure 6-1), which hosts several beneficiation-grade (magnetite “taconite”) mining operations.

The Menominee Group was determined to have been deposited between 1.9 Ga and 2.2 Ga by radiometric age dating (Van Schmus and Woolsey, 1975). Although the Menominee Group is stratigraphically equivalent to the Animikie Group in Minnesota, units differ dramatically from one range to the other in thickness, stratigraphic details, and facies type. Sedimentary rocks were deformed and metamorphosed during the Penokean orogeny, resulting in a wide range of metamorphic mineral assemblages and grades. The Marquette district, including the Tilden Mine, is one of the more geologically complex iron mining districts in the Lake Superior region. Orogenic transpression resulted in a relatively tight, west-plunging syncline of strata in the Chocolay and Menominee Groups (Figure 6-3). To the north, the syncline is bounded by unconformably underlying rocks older than 2.5 Ga. To the west, the syncline opens to a thick sequence of graywacke and slate within the Baraga Group (Bayley and James, 1973). In the eastern part of the syncline, the Negaunee IF can reach a thickness of 2,500 ft. The region along the fold axis of this syncline is referred to as the Marquette trough.

Regional structures include the Niagara Fault Zone, the collision zone between the Wisconsin Magmatic Terrane, the Superior craton, and the Great Lakes Tectonic Zone, which forms the boundary between Archean granite-greenstone and gneissic terranes (Sims et al., 1992). In the Marquette Range area, deformation along the Great Lakes Tectonic Zone evolved from extension and deposition (Schneider et

al., 2002). The resulting fault-bounded, shallowly west-plunging, asymmetric syncline contains a series of second-order growth fault basins that define the detailed stratigraphic variations.



Source: Cannon, et al., 2007

Figure 6-1: Fe Formation Locations and Relevant Stratigraphy in the Lake Superior Region

6.2 Local Geology

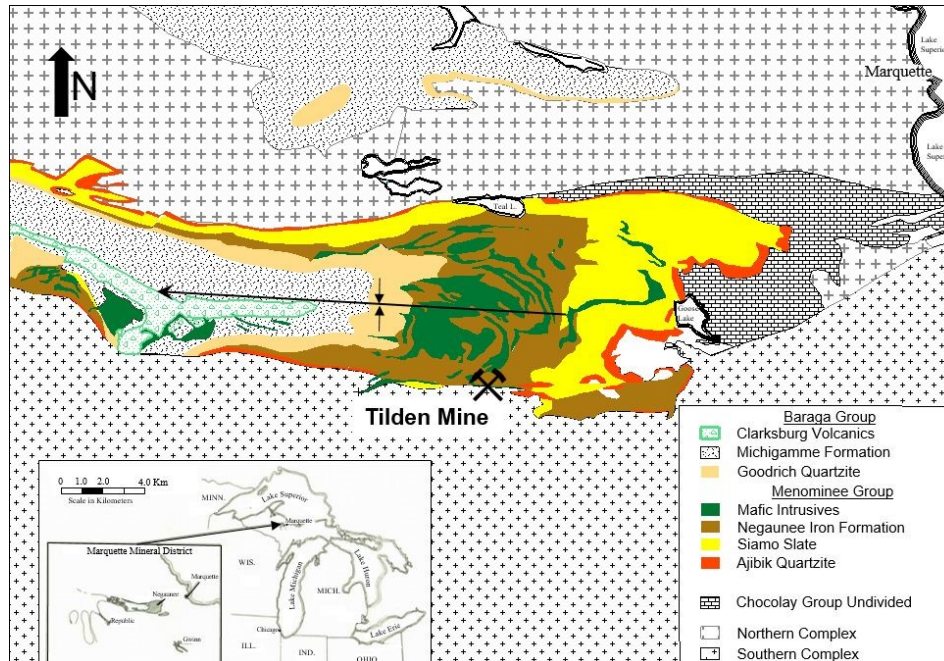
The Negaunee IF and its equivalents (Figure 6-3) host the majority of the iron deposits in Michigan. In the Marquette Range, the Negaunee IF reaches a thickness of approximately 1,300 ft. The Tilden Mine sits on the southern margin of the Marquette trough and is fault-bounded to the south by Archean gneiss terrane, alternatively referred to as the Palmer Gneiss (Figure 6-2) or the Southern Complex (Figure 6-3). There is no formal subdivision of the Negaunee IF, and stratigraphy is generally discussed in relative terms from the bottom to the top of the unit (Figure 6-2). The majority of the Negaunee IF consists of iron-rich carbonate, carbonate-silicate, or carbonate-oxide facies iron formation (James, 1954; Gair, 1975) roughly described in three zones from lowest to uppermost (Cannon, 1976). The lowest portion is interbedded at its base with the underlying Siamo Slate and consists primarily of laminated chert and siderite. The middle portion is dominated by alternating thin layers of magnetite, iron silicate minerals, and chert. Silicate minerals are dominated by minnesotaite ($(\text{Fe}^{2+}, \text{Mg})_3\text{Si}_4\text{O}_{10}(\text{OH})_2$), stilpnomelane ($\text{K}(\text{Fe}^{2+}, \text{Mg}, \text{Fe}^{3+})_8(\text{Si}, \text{Al})_{12}(\text{O}, \text{OH})_{27}n(\text{H}_2\text{O})$), and quartz (SiO_2). The upper Negaunee IF is dominated by increasingly oxidized, hematite-jasper facies (jaspilite) iron formation. It exhibits a texture of thinly interbedded, reddish chert and hematite (Fe_2O_3) and martite, which is a pseudomorph of hematite occurring after magnetite (Bayley and James, 1973).

Two ages of mafic igneous rocks occur in the Mine: syn-sedimentary sills and associated dikes and a younger dike series of Keweenaw age (approximately 1.0 Ga) that is related to the Midcontinent Rift. The older intrusions vary from fine porphyritic to diabasic or ophitic in composition and texture and typically display chlorite-carbonate alteration assemblages, particularly in deformation zones. The iron formation is variably altered along all intrusive contacts, with the type and extent of alteration dependent on the thickness of the intrusive and the composition of the iron formation (Lukey et al., 2007).

Local structure is characterized by second-order, steeply inclined anticlines and synclines with shallow northwest and southwest plunges. Major structures include the large-scale (hundreds of feet) Main Pit anticline and a fault that marks the contact between Archean gneiss terrane and the iron formation. The fold is asymmetric, with the southern limb steeper than the northern limb, with an axial plane that dips steeply north and a hinge line that plunges 30° northwest. The fault, initially a basin-margin, listric normal fault, was reactivated and is now a reverse fault that dips approximately 65° north (Cambray, 2002). Smaller faults and folds, on a scale of one meter to 20 m, are observed in the pit to follow trends of larger, regional-scale structures. These structures tend to reflect ductile deformation in the Tilden Main Pit, where folds with sheared limbs are common (Lukey et al., 2007).

Eon	Group-Series-Period	Formation	Tilden Mine Chronostratigraphy
Phanerozoic	Quaternary	Glacial Sediments	Overburden
	Unconformity		
Proterozoic	Keweenaw Series	Dikes	
	Metadiabase	200 Series Diabase Dikes and Sills	
	Marquette Range Supergroup – Menominee Group	Negaunee Iron Formation	500 Series
			400 Series
			300 Series
			100 (Empire) Series
			Empire Series
	Siamo Slate		
Palmer Fault / Unconformity			
Archean	Palmer Gneiss		

Figure 6-2: Chronostratigraphic Column for the Tilden Mine



Source: Modified from Lukey, 2007

Figure 6-3: General Geology of the Marquette Range Supergroup and Tilden Mine Location

6.3 Property Geology

The Tilden BIF deposit forms the base of the Negaunee IF of the Menominee Group within the Marquette Range Super Group. The Tilden BIF is Proterozoic in age and sits on the southern margin of the Marquette trough. It is fault-bounded to the south by Archean gneiss terrane, with the fault contact dipping steeply north and aligning with the south wall of the Main Pit at Tilden.

The Tilden BIF is interbedded with three distinct, syn-sedimentary, mafic intrusive sills: The Summit Mountain Sill, the Suicide Sill, and the Tilden Lake Sill, as well as associated smaller dikes and sills. There is a younger dike series of Keweenawan age (approximately 1.0 Ga) that crosscuts bedding. Alteration is present along all intrusive contacts, with the type and extent of alteration dependent on the thickness of the intrusive and the composition of the iron formation (Lukey et al., 2007). Brittle fractures and late quartz veins cut all units.

Tilden is dominated by a 100 m-scale, northwest-plunging anticline. The hinge line of the anticline dips steeply north, plunges 30° NW, and runs down the center of the Main Pit. The hinge line of the anticline is mapped locally coincident with the Keweenawan Dike. The Summit Mountain Sill, locally termed the Pillar Intrusive, defines the asymmetry and orientation of the anticline. Smaller faults and folds, on a scale of one meter to 20 m, are observed in the Main Pit to follow trends of larger, regional-scale structures. These structures tend to reflect ductile deformation in the Main Pit, where folds with

sheared limbs are common (Lukey et al., 2007). The orientation and geometry of bedding at Tilden is presented in Figure 6-4.

To date, there has been no formal subdivision of the Negaunee IF at Tilden, and stratigraphy is discussed in relative terms from bottom to top. A stratigraphic section, without formal names or dates, was prepared by SLR and is presented in Figure 6-5. Stratigraphically, the upward mineralogical variation is from (martite)-magnetite-carbonate-chlorite ("*Carbonate*") to (magnetite)-martite ("*Martite*") to (martite)-microplaty hematite-goethite ("*Hematite*") and represents a transition upwards from dominantly ferrous iron (Fe^{2+}) mineralogy to dominantly ferric iron (Fe^{3+}) mineralogy (Lukey et al., 2007). Some BIF units were disrupted during turbidite flows that manifest as discontinuous lenses of clastic material. Clastic lithology is most prevalent along the bottom (southern) contact with the Archean gneiss. All BIF units are ferrous iron-dominant and increase in ferric iron content upward (generally northward and westward).

6.3.1 Mineralization

The Tilden Mine is unique among Cliffs' operations because the primary ore mineral at Tilden is hematite, with other minerals including martite (oxidized pseudomorph of magnetite), goethite, and siderite (iron carbonate mineral), as opposed to strictly magnetite. Tilden is also unique in the world in that the hematite-dominant ore is mined at a low grade, concentrated using a selective-flocculation desliming and flotation process, and pelletized. Although some now-expended areas at Tilden did mine and magnetically recover magnetite-dominant ore prior to 2009, remaining Mineral Resources at Tilden are hematite-dominant. The adjacent Empire deposit hosted primarily magnetite ore, and unoxidized magnetite is variably present at Tilden.

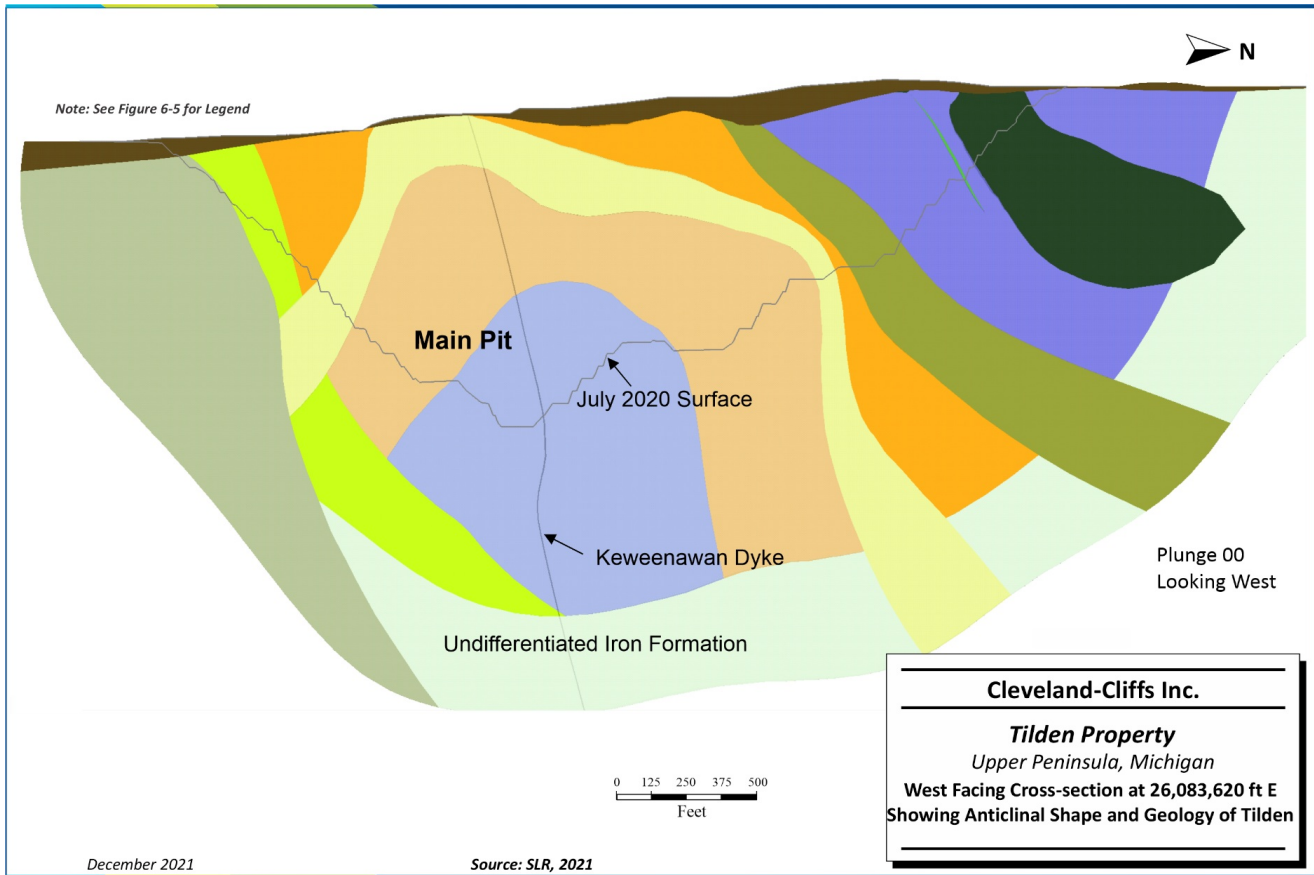


Figure 6-4: West-Facing Cross-section at 26,083,620 ft E Showing Anticlinal Shape and Geology of Tilden

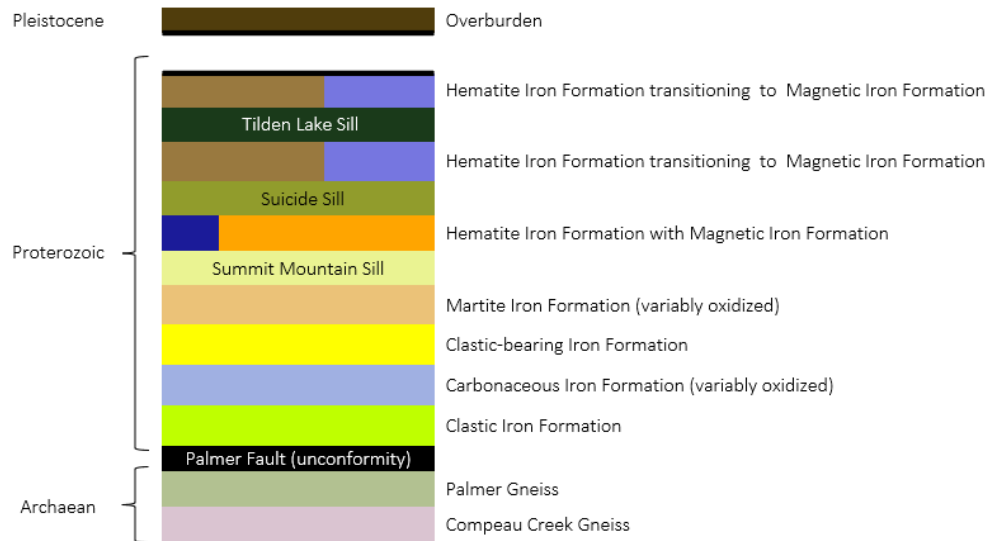


Figure 6-5: Basic Stratigraphic Section Local to Tilden

At Tilden, the Negaunee IF can be divided into five distinct facies:

- **Clastic Iron Formation (IFCL) Units** Varying thickness of interbedded slate with laminated chert, iron silicate, and siderite. Clastics have a lower weight recovery (wtrec) due to the presence of interbedded clastic material. They are highly oxidized in the east side of the Main Pit.
- **Carbonaceous Iron Formation (IFCB) Units** Alternating thin layers of magnetite, martite (oxidized pseudomorph of magnetite), iron silicate minerals, iron carbonate minerals and chert. Carbonate material is characterized by the presence of siderite (iron carbonate mineral), low phosphorus, and higher wtrec.
- **Martite Iron Formation (IFCH) Units** Thicker beds of hematite-martite-chert with intervals of magnetite-carbonate. The oxidation level increases in the east and where proximal to intrusive sills.
- **Magnetic Iron Formation Units** Magnetite domain consisting of magnetite-carbonate and magnetite-silicate-chert with variable oxidation. It is defined principally by magnetite content and is generally fresh, with some localized oxidation. At Tilden, it is found within and defines the (now expended) material of the CDIII Pit.
- **Hematite Iron Formation Units** The oxidized equivalent of the Magnetite Iron Formation prominent in both the Empire deposit and in the east side of the Main Pit, is located stratigraphically above the Summit Mountain Sill. It is dominantly composed of hematite and chert interbeds. At Tilden, this unit has locally very high levels of silica and phosphorus in concentrate (consio₂ and conphos, respectively).

The iron formation facies at Tilden have also been modified by clay-silicate alteration associated with Keweenawan faults in the east of the Main Pit, as well as varying levels of oxidation throughout.

SLR notes that these facies represent continuums of changing iron speciation and mineralogy due to both depositional environment conditions and later-stage alteration and oxidation. Clastic-bearing iron formation units are grouped by the presence of clastic material but have varying mineralogy resulting from the nature of formation – turbidite flows of varying energy levels occurring in different depositional environments and time periods that remobilized sediments characteristic of that position and incorporated transported exotic rock fragments. Drill hole logging at Tilden over time has also inconsistently represented mineralogy according to perceived importance as well as logged abundance, and the often fine-grained nature of the rock has made it difficult to define facies with confidence. SLR recommends carrying out a mineralogical study to better understand iron mineral speciation at Tilden as it relates to geology, stratigraphy, and (importantly) plant flotation, as well as continuing efforts to construct a stratigraphic section and develop a standard operating procedure for detailed logging of drill core going forward.

Tilden Mine geology is described on site using broad geological groupings as listed in Table 6-1. The primary ore-bearing and non-ore-bearing domains are further categorized based on a variety of lithological, alteration, and analytical (recoverable iron grade, deleterious element grades) parameters as well as spatial references that are used for ore control purposes. Selected geometallurgical (code1) subgroupings are shown in Figure 6-6. A full description of code1 subgroupings is included in Appendix section 27.1 Geometallurgical Domains.

**Table 6-1: Geometallurgical Groupings at Tilden
Cleveland-Cliffs Inc. – Tilden Property**

Group	Name	General Description
100	Lower Series	Archaean-aged, non-iron formation rocks which form the south wall of the Main Pit.
200	Intrusive Sills and Dikes	Mafic rocks which vary from diabasic to porphyritic to aphanitic. All units appear to thin to the west and south. Contacts tend to be sheared and locally oxidized. Contact metamorphism of the iron formation is minimal and, if present, results in finer-grained iron formation. Synclinal structures and intersections with dikes have focused oxidation of the iron formation
300	Main Pit Carbonate Iron Formation	Contains iron formation units stratigraphically below the CDIII footwall metadiabase and/or the East Pit hanging-wall metadiabase. Includes numerous small, mafic intrusive dikes and sills.
400	Northwest Iron Formation Domain	Stratigraphically between the CDIII/West Pit hanging-wall metadiabase and CDIII footwall. Includes numerous small dikes and sills.
500	West Iron Formation Domain	Stratigraphically above CDIII/West Pit hanging-wall metadiabase and below North Intrusive; it includes numerous dikes and one mappable intrusive body.

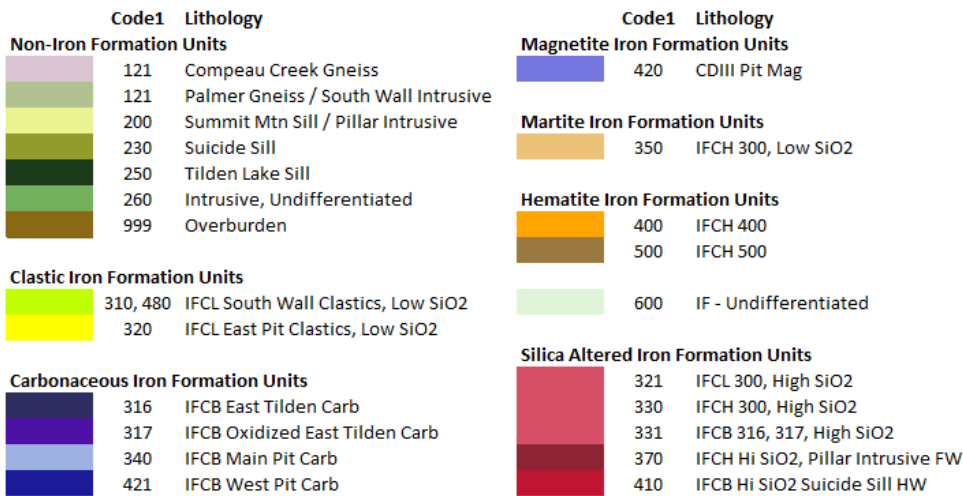


Figure 6-6: Selected Geometallurgical (code1) Groupings and Sub-groupings at Tilden

The structural control and stratigraphic upward changes in mineralogy imply a combination of original sedimentation and post-depositional fluid alteration as the likely cause of increasing oxidation and hydration up-sequence. The four primary types of iron ores are centered on the anticlinal axis and trend upwards from Fe²⁺ and elevated magnesium (Mg), calcium (Ca), manganese (Mn), and aluminum (Al) to Fe³⁺ and decreased trace elements, but increased phosphorus content due to weathering. Bedding changes from thick (centimeter scale) to thin (millimeter scale) are indicative of varying depositional conditions and silica (SiO₂) mobilization. The presence of microplaty hematite in relatively reduced (magnetite-carbonate-chlorite) and oxidized (martite-goethite) assemblages may be indicative of deposition and/or an evolving fluid system.

6.4 Deposit Types

6.4.1 Mineral Deposit

The Tilden iron deposit is an example of a Lake Superior-type BIF deposit. These types of deposits occur worldwide, represent the largest global source of iron ore, and were deposited between 2,700 Ma and 1,800 Ma, formed by chemical precipitation in shallow waters such as continental shelves. Precipitation of iron oxides was due to low atmospheric and ocean oxygen levels resulting in increased iron content in sea water. These deposits are typically characterized by alternating layers of iron oxides and SiO₂-rich material such as cherts or SiO₂-rich sediments.

The Tilden Mine is unique among Cliffs-owned operations because the primary ore mineral at Tilden is hematite, with other minerals being martite (oxidized pseudomorph of magnetite), goethite, and siderite (iron carbonate mineral), as opposed to strictly magnetite. Tilden is also unique in the world in that the hematite-dominant ore is mined at a low grade, concentrated using a selective-flocculation desliming and flotation process, and pelletized. Although some now-expended areas at Tilden did mine and magnetically recover magnetite-dominant ore prior to 2009, remaining Mineral Resources at Tilden

are hematite dominant. The adjacent (now indefinitely idled) Empire deposit hosted primarily magnetite ore, and unoxidized magnetite is variably present at Tilden.

6.4.2 Geological Model

Cliffs is using a Lake Superior-type BIF geologic model based on geologic interpretation of the Negaunee IF and its structure derived from peer-reviewed journal articles (Gair, 1975; Cannon, 1976; Lukey et al., 2007).

7.0 EXPLORATION

Cliffs and Tilden L.C. do not maintain detailed records or results of non-drilling prospecting methods used during initial exploration activities, such as geophysical surveys, mapping, trenching, and test pits, conducted prior to Cliffs' development of the operation. No materially significant exploration work or investigations other than drilling and limited pit mapping have been conducted by Cliffs at Tilden. Historical mapping compiled by the USGS prior to mining is detailed in section 5.2.

7.1 Exploration Drilling

7.1.1 Drilling Type and Extent

The Tilden drill hole database consists of 382,605 ft of drill hole information in 578 drill holes, completed from the 1950s to 2020. Annual exploration drilling programs at Tilden have completed zero to 42 drill holes. Of the last 10 years, nine have included drill hole programs and have averaged 10 drill holes per year. Diamond, hammer, and churn drilling have all been employed at Tilden, with diamond drilling having been exclusively used since 2008.

Completed drill hole collar locations are recorded by the mine surveyor using a Trimble R8 GNSS receiver and TSC3 data collector. Since the 1990s, downhole deviation surveys have been performed, initially using a crude clay impression procedure, followed by a non-magnetic reflex gyro once the technology was developed. Drill core at Tilden is generally competent and has good recovery.

A summary of the drill hole database is provided in Table 7-1 and collar locations are shown in Figure 7-1. Assay information for holes drilled in 2019 and 2020 east of the CD5 Pit area (northeast area in Figure 7-1) were not available and, as such, the CD5 area has not been included in SLR's drill hole summary. Downhole information from Empire drill holes was also not available, and the holes are excluded from the SLR Mineral Resource estimate as well as the summary in Table 7-1. SLR recommends integrating the downhole information from the Empire and Tilden mines into a single valid database.

**Table 7-1: Summary of the Tilden Mine Drill Hole Database
Cleveland-Cliffs Inc. – Tilden Property**

Drill Type	Unk.	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020	Total
Unknown										
No. Holes	14	-	-	-	-	-	-	-	-	14
Length (ft)	8,962	-	-	-	-	-	-	-	-	8,962
Hammer										
No. Holes	1	-	-	113	10	109	20	-	-	253
Length (ft)	790	-	-	56,508	4,179	60,991	16,360	-	-	138,828
Churn										
No. Holes	-	-	2	1	-	-	-	-	-	3

Drill Type	Unk.	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020	Total
Length (ft)	-	-	554	1,401	-	-	-	-	-	1,955
Diamond										
No. Holes	-	29	78	51	8	10	13	109	10	308
Length (ft)	-	17,471	62,948	30,352	6,430	7,120	8,589	94,987	4,964	232,860
Total No. Holes	15	29	80	165	18	119	33	109	10	578
Total Length (ft)	9,752	17,471	63,502	88,261	10,609	68,111	24,949	94,987	4,964	382,605

Notes:

1. Excludes Empire Mine drill holes.

Geology has been logged at Tilden considering five broad geologic groupings based on geological and metallurgical data, as well as approximately 30 highly specific geometallurgical domains based on geometallurgical test results, which are subsequently grouped for mine planning.

Drill core is photographed, and rock quality designation (RQD) is recorded for all drill core. Currently, Tilden drill hole logging procedures attempt to capture magnetic characteristics, alteration, mineralogy, textures, and structural information; however, the fine-grained nature of the lithologies can inhibit rock-type designation based on visual observation, and recent drill logs are generally brief. Final lithological coding is re-interpreted considering the results of metallurgical testing in the context of spatial and geometallurgical characteristics.

During 2020, Cliffs personnel digitized details of historical logs previously available in paper format only, and this information has been incorporated into the SLR modeling work. SLR recommends that detailed lithological logs that capture iron speciation, alteration, mineralogy, structure, and lithology be collected on all drill core, and recommends investigating alternative tools to capture information during initial logging, including a magnetometer and hyperspectral and X-ray fluorescence hand-held devices to allow empirical measurements of magnetism (where relevant), alteration such as clay, and iron speciation. SLR also recommends a formal separation between initial geological observations in drill core and subsequent re-interpretations based on metallurgical results or results of neighboring drill holes.

SLR notes that the density of drill hole information at Tilden decreases outside the current pit limits and recommends additional drilling within and adjacent to the LOM plan area with a focus on material at depth. SLR also recommends closer spaced drilling where the iron formation is impacted by silica alteration, or in and adjacent to areas understood to have high oxidation but defined by older drill holes with absent conphos values.

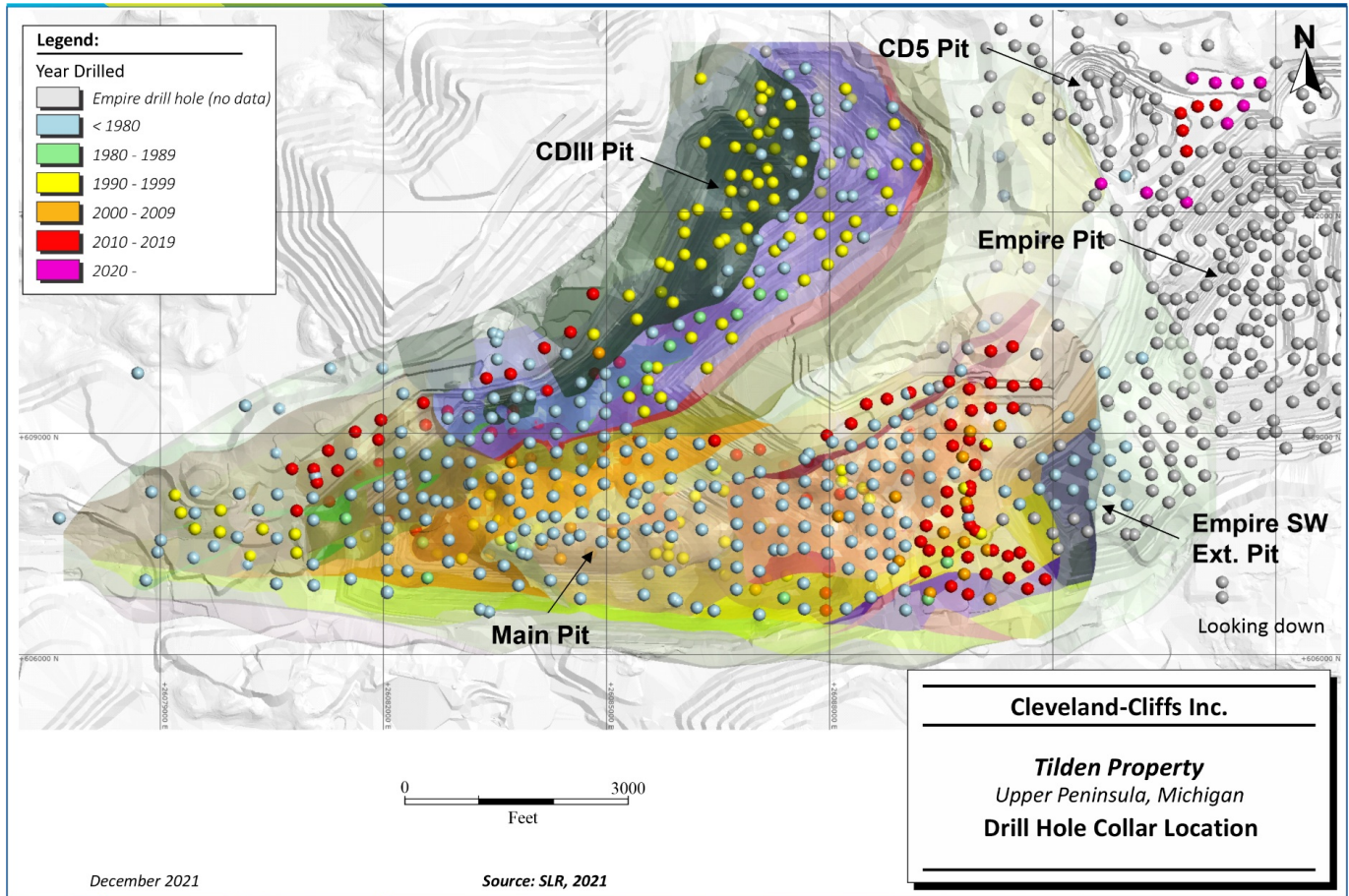


Figure 7-1: Drill Hole Collar Location

7.1.2. Procedures and Parameters

Prior to drilling, drill hole collars are located by a Cliffs geologist using a global positioning system (GPS) and marked with a wooden post.

The collar of each completed drill hole is surveyed by the mine surveyor using a Trimble R8 GNSS receiver and TSC3 data collector. The collar coordinates in Michigan State Plane for horizontal location and elevation above mean sea level are verified by the project geologist. Final collar coordinates are validated in the office by the project geologist and incorporated into Cliffs' acQuire drill hole database.

7.1.3. Downhole Survey

Downhole surveys are conducted with a REFLEX gyro MEMS tool. This downhole instrument is specifically designed for use in areas where magnetism may be an issue. Measurements are taken every 20 ft down the hole. The instrument is field calibrated using five rotations in the field stand prior to being used down a hole.

Prior to the gyroscopic technology being available, downhole deviations were determined by older techniques, primarily a clay impression procedure. Downhole surveys were not conducted on reverse circulation holes drilled up until the 1990s. Downhole surveys are not conducted on holes with depths less than 500 ft. Over 75% of the holes are vertical, with most others oriented to the south and angled from 30° to near vertical.

7.1.4. Core Handling and Security

Core is transported from the drill site to the logging facility by the project geologist or by the contracted drilling company. A Cliffs geologist ensures the following:

- The integrity of the core when taken from the core barrels to the gutter.
- Placement of core in clean, unused, waxed core boxes.
- The cores in the boxes were positioned in the correct direction and sequence when transferred from the core barrel or gutter to the core boxes, making sure there was no inversion during the transfer process.
- A wooden block in the core box at the end of each core run that has hole depth in feet at that specific point written on it in permanent marker.
- Identification on the boxes is made on the pre-printed templates located on core box tops and on the end panels of the core box tops and bottoms. This information includes the hole number, footage contained in the box (from-to), and the box number.
- Transportation of core to the onsite core storage facility for logging and sampling.

7.1.5 Sampling Methods and Sample Quality

The indicated depths on the blocks, marking core barrel runs in the boxes and the depths noted on the outside of the core boxes, are verified in contractor drill reports. Daily drill rod counts are performed by the drill contractor to verify drill depth. The final depth of the drill hole is confirmed and registered in the drill report. Hole size and final hole depth are authorized by the project geologist.

Core is photographed digitally, and photographs are archived on a local area network with a hole number and depth for future reference. These digital images are backed up daily as part of Cliffs' normal daily backup procedure described in section 8.2. Images are acquired in an environment that permits consistency in distance to core, lighting, and exposure. Core was not photographed before 2003.

Geotechnical core measurements include core recovery percentage and RQD. Data are recorded in an Excel spreadsheet for later upload into the acQuire database or directly into the acQuire database.

Geological logging of the core is done by a Cliffs geologist, digitally, using acQuire for database management. Logging includes rock type, magnetic characteristics, alteration, mineralogy, observed textures, structural information, geotechnical data, and a general geologic description. The interpreted metallurgical domain is included in the geological log. Hard copies of all completed drill logs are stored on site. Logging is completed before sampling.

The core sample intervals are marked by a Cliffs geologist, and the core is split lengthwise with a hydraulic splitter. Core has been split since 2003, with the exception of the 2017 drilling program, when core was fully consumed due to time constraints. Cliffs maintains a document listing historical core saves.

Samples are taken to represent the full height of a 45 ft mining bench, broken by geological contacts. Sample lengths are dependent on the angle of the hole, and sample beginning/end points are selected to coincide with the top and bottom of the 45 ft mining benches. The sample length is ideally the height of a mining bench at 45 ft but ranges from 5 ft to 70 ft within a defined geological domain. The average length of sample intervals at the Tilden is 40 ft. The large range in sample lengths is due to samples matching a bench width; in angled holes the distance between bench intersections is greater than 45 ft.

Core is stored within a locked warehouse at the mine site before processing and is transported to the Tilden laboratory, where it is kept within the laboratory building until processed. The Tilden Mine core storage facility is locked at all times in the absence of authorized Tilden personnel.

Each sample is labeled to include a unique identifier including the hole number, footage interval, and bag number sequence. A tag is put inside the bag, and a second tag is tied to the bag on a string. The sample number is a unique identification number (ID) that ties it to a specific drill hole and interval and which cannot be mistaken for other types of samples. Alphabetical characters identify the next sample in sequence for each hole. For example, the interval of 0 ft to 45 ft from drill hole 23679 would be sample 23679 0-45A; the next sample would be 23679 45-90B for the interval of 45 ft to 90 ft. All sample parts and splits are stored at Cliffs Technical Group (CTG) research laboratory facility.

7.1.6 Drilling, Sampling, or Recovery Factors

There are no known drilling, sampling, or recovery factors that would affect the reliability of the analytical results described in Section 9.0 of this report. Core recovery is generally very good with greater than 90% core recovered. There are localized areas where the iron formation is oxidized to varying degrees, which can impact core recovery and sample quality. Oxidized zones are associated with proximity to fault zones. Rock quality is generally very good per section 7.1.1. Localized zones of poorer rock quality exist adjacent to fault zones.

SLR understands that the practice of taking long drill core samples has been adopted to address laboratory processing constraints and recommends addressing those constraints at the Tilden

laboratory. SLR recommends that Cliffs undertake a study where samples are consistently taken at 15 ft intervals, broken by geology, to examine how the variance of the assays are affected, and how the material type designation, based on a calculation of those variables, compares against the material type designation of longer samples.

The Tilden BIF is well sampled (over 90%). Unsamplred intervals within the modeled BIF unit represent either BIF, intrusive, overburden, or backfill material. By length, approximately 80% of drill hole samples logged as intrusive material within the BIF (small dikes) is unsampled, and overall, drill hole intervals logged as intrusive represent approximately 3% of the total intervals within BIF units. SLR recommends sampling intrusive material too small to be modeled or segregated when mining (dilution).

7.1.7 Drilling Results and Interpretation

The drilling has taken place over more than 50 years and has defined a large iron ore deposit at Tilden. It is SLR's opinion that the drilling and sampling procedures at Tilden are adequate for use in the estimation of Mineral Resources. There are no known drilling, sampling, or recovery factors that would affect the reliability of the analytical results described in Section 8.0 of this TRS.

7.2 Geological Mapping

Geologic structures are locally digitized annually from light imaging, detection, and ranging (LiDAR) data that are draped with digital orthophotography. Fault zones are digitized on the screen and verified through field observations of bench faces. Data, including fault or joint orientations and bedding planes, are compiled and stored in Maptek Vulcan™ (Vulcan) mine planning software. The base purpose of the mapping is for monitoring of local geotechnical zones; however, the data were used where possible to inform the geologic model (see section 11.3).

7.3 Hydrogeology and Geotechnical Data

Refer to section 13.2 Pit Geotechnical and section 15.4 Tailings Disposal for this information.

8.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sample Preparation and Analysis

8.1.1 Sample Preparation

Sample preparation and analysis of diamond drill core and blast hole samples for use in resource estimation is conducted at the onsite Tilden laboratory. The Tilden-owned facility is accredited to International Organization for Standardization (ISO)-9001:2015 for its quality management system.

Upon receipt of samples to the Tilden laboratory, drill hole samples are oven dried, crushed to -3" in a jaw crusher and to -¼ in. in a cone crusher, then split using a Gilson SP-1 sample splitter.

A subsample from 15 lb to 50 lb is reduced to 100% passing -10 mesh with a roll crusher and then cone mixed on a five-stage, inverted cone mixer. A 50 g subsample is taken, pulverized to -100 mesh using a plate pulverizer, and further split to a 25 g sample, which is analyzed for crude iron content (crudefe); two 10 g subsamples of the crude material are used for x-ray fluorescence (XRF) and Satmagan analysis.

A second and a third 600 g subsample of material passing -10 mesh roll crusher are collected using a riffle splitter. One of the samples is archived, and the second is submitted for a bench flotation test. A procedural flow chart is shown in Figure 8-1.

8.1.2 Sample Assaying and Analytical Procedures

Samples are analyzed at the Tilden laboratory. The laboratory is not independent of Cliffs. Sample analysis includes the evaluation of head samples and the production of a flotation concentrate. The flotation concentrate fractions undergo further analysis for various properties.

The bench flotation test has been developed for and is unique to Tilden (procedure 0903Q0200, Figure 8-2). It has been customized to mimic Tilden's plant flotation cycle. It involves grinding material in a miniature rod mill for a specific time and producing a concentrate material from a mixture of sample, test water, caustic solution, and sodium hexametaphosphate (dispersant) within a Wemco flotation machine. The Tilden laboratory technician operating the machine produces six concentrate products (A to F) similar to the plant cycle, which are measured and recombined for grind analysis and to record the wtrec. Twenty-five gram subsamples of the concentrate material are submitted for analysis of iron content (confe) by titration method, magnetic iron content (magfe) using a Satmagan instrument, and SiO₂ (consio2), CaO, MgO, Mn, Al₂O₃, and P (conphos) by XRF.

The principal variables used in the determination of Mineral Resources at Tilden are confe, consio2, conphos, wtrec, and crudefe. The bench flotation test is described in more detail in Section 10.0 of this report.

Over time, several procedural changes have taken place at the Tilden laboratory, including the sample grind time, and type and amount of the starch additive during the bench flotation test. These changes have been initiated to align with changing plant procedures, incorporate new technology, and address processing delays and quality issues at the Tilden laboratory and in the mine. They have been applied to drill and blast hole samples differently, and at different times. In addition, at some point in the past, to better align wtrec results in blast hole assays with plant readings that reference natural moisture instead of the dried value from the laboratory, a standard +3% was added to the blast hole wtrec laboratory values. There is no record of the exact timing of implementation, or whether blast hole data prior to

implementation was affected. The impact of these procedural changes, as well as variation in the flotation test operation by different laboratory technicians (which has a large manual component that is difficult to standardize), has not been well documented or monitored despite being long suspected of contributing to bias between sample results. Cliffs is working to enhance the sample database attributes, which would allow the impact of these changes to be better understood and quantified, as well as decouple data manipulation from original assay results. SLR strongly supports these initiatives and presents some preliminary observations in Section 9.0.

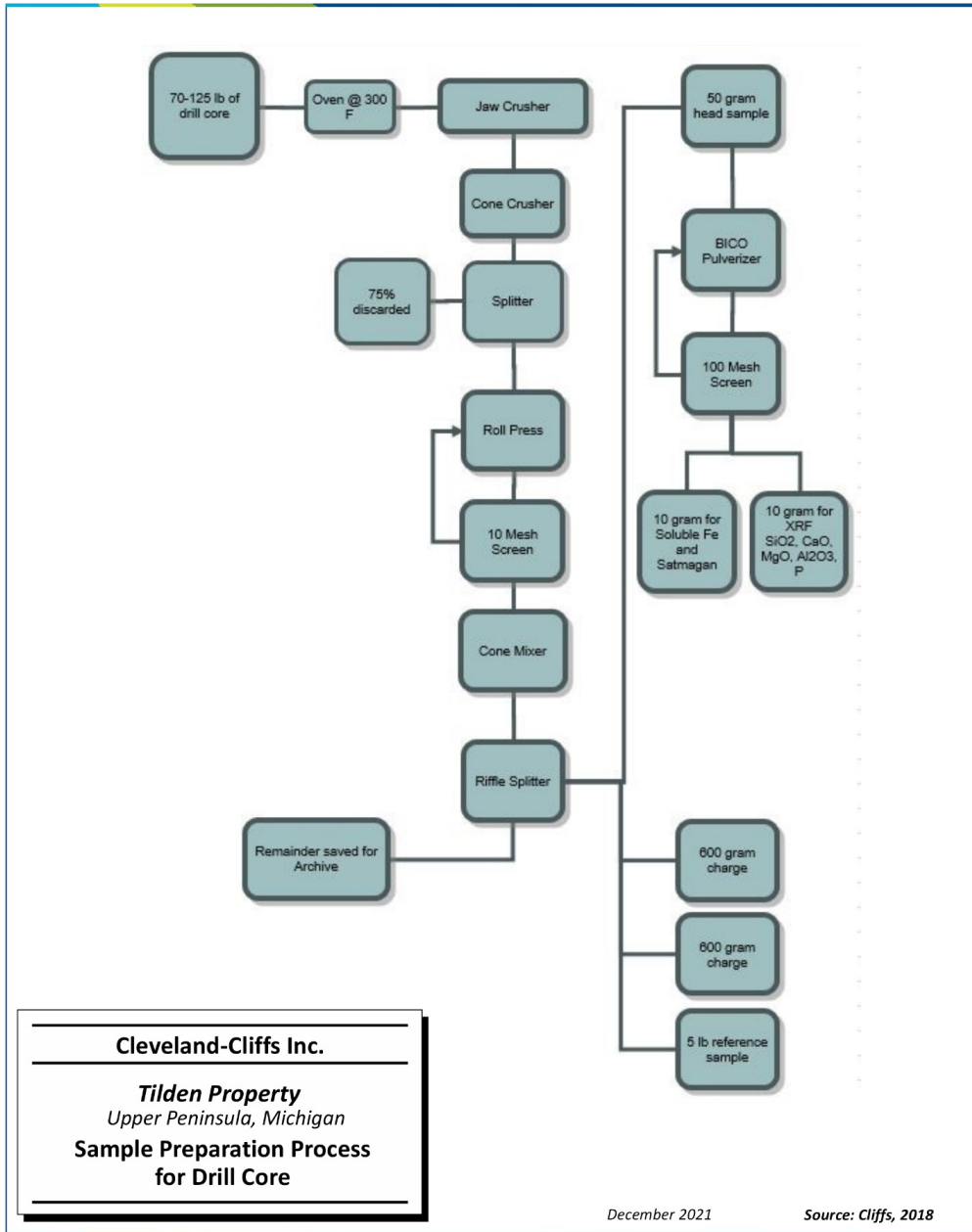


Figure 8-1: Drill Hole Sample Preparation Process

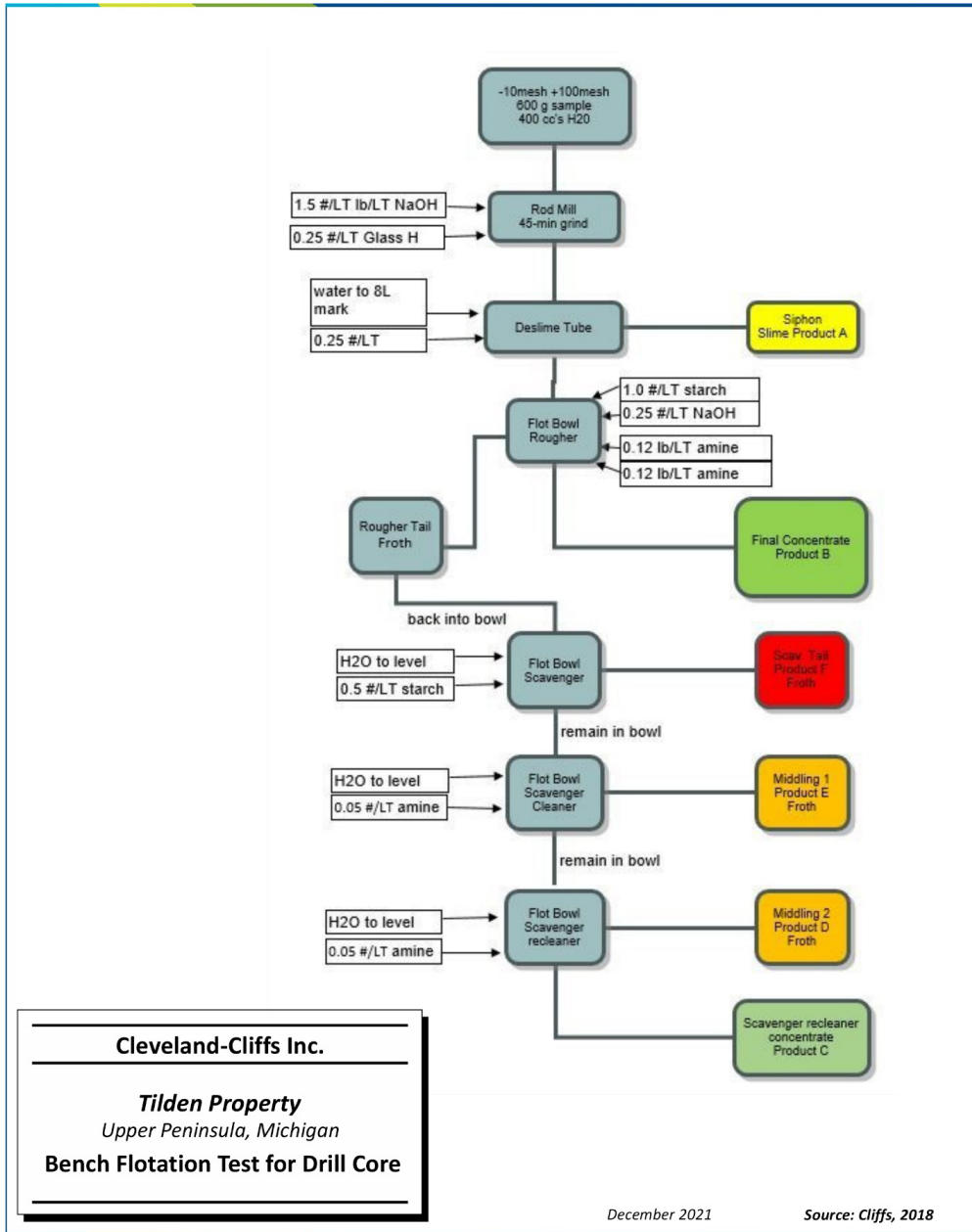


Figure 8-2: Drill Core Bench Flotation Test Process

8.1.3 Density Analysis

Tonnage factors applied at Tilden are based on density values from 116 samples tested by water immersion from four material types at the adjacent, on-strike Empire Mine (Nummela and Anderson, 1970). Bulk hand samples ranging from 10 lb to 23 lb were taken from blast patterns with a wide range in magnetic and soluble iron. These samples had a large variance in observed grain size, lithologic characteristics, and mineralogy that is found in the clastic, carbonate, and silicate facies of the Empire Mine. Samples were selected that were relatively homogeneous, visibly unfractured, and unweathered. SLR notes that no allowance was made for jointing and fracturing. While individual immersion results are tabulated on historical reports, exact spatial distribution of the samples has not been established.

The following regression calculation for iron formation was developed using crudefe:

$$\text{Tonnage Factor (cubic feet per long ton)} = 13.45 - (0.0792 * \text{crudefe})$$

Average tonnage factors for non-iron formation material were also determined.

8.1.3.1 Validation of Tonnage Factor Equation

In 2021, the Tilden Mine Engineering Department undertook to compare the different onsite tonnage measurements, in part, to assess the validity of the tonnage factor equation. Cliffs compared the following measurements representing 2019 and 2020 mined material:

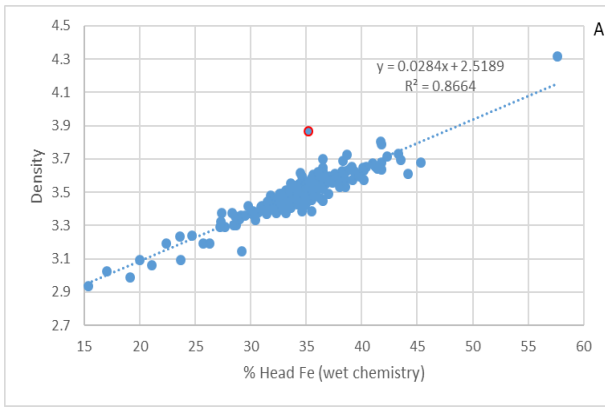
1. Reported tons from the belt scale.
2. Dispatch recorded truck tons measured by onboard payload scales.
3. Predicted tons measured from the volume of material mined multiplied by the estimated tonnage factor for each lithology.

Overall, reported tons were determined to be 1.5% higher than predicted tons, although local area differences ranged from -9% to +6%. Local variances in predicted to reported tons were explained by an overprediction of overburden in some areas, underprediction of *in situ* material (due to underreported presence of old fill ramps) in other areas, and small inaccuracies in the topography due to overflow from higher benches.

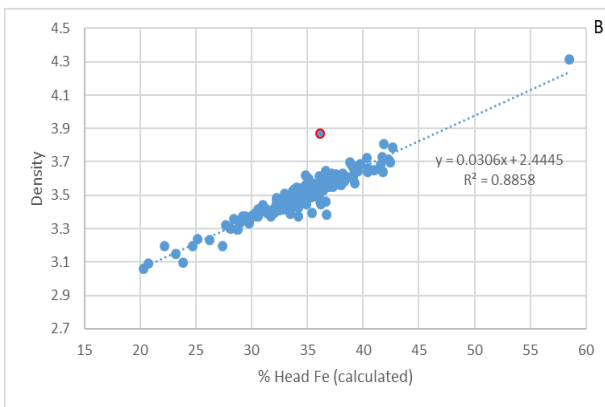
In parallel to this validation work, the geology department at Tilden and CTG undertook additional sampling work to further confirm that the regression equation developed using Empire samples, which are relatively unoxidized compared to Tilden material, is suitable for use at Tilden.

A total of 217 samples of crushed -10 mesh (coarse reject) material, representing a suite of material types, soluble iron content, and trace-element chemistry, and selected from 22 historical diamond drill holes across the Tilden pit were collected from storage for testing at CTG's laboratory. The laboratory, located in Ishpeming, Michigan, provides in-house analytical services for all of Cliffs' iron ore operations. The CTG laboratory is accredited with ASQ/ANSI ISO-9001:2015 for its system of quality management. The most recent certificate renewal was completed in 2021.

Results were plotted against crude soluble iron content (crudefe; determined using both wet chemistry and calculated methods), linear regression lines were plotted and are shown in Figure 8-3. Comparisons considering material type and trace element chemistry were also completed (not shown).



crudefe (%) by wet chemistry

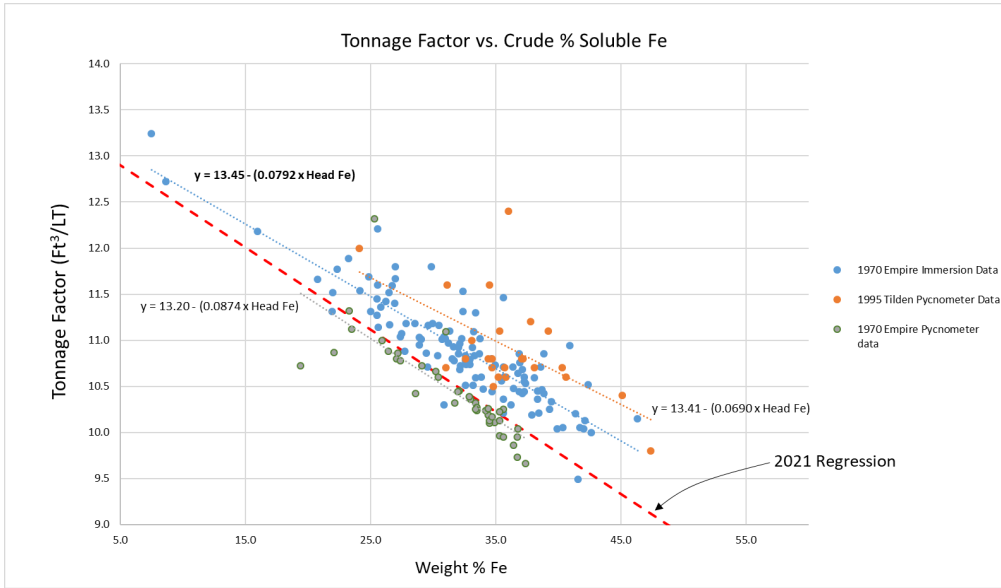


crudefe (%) calculated

Source: Orobona (2021)

Figure 8-3: Least Squares Regression Plots of (A) Soluble Fe by Wet Chemistry versus Density and (B) Soluble Fe Weight Calculated from Bench Flotation Products versus Density

The regression model determined using Tilden’s data is nearly identical to the tonnage calculation based on a similar pycnometer study conducted in 1970 for the nearby Empire Mine, and based on 41 pycnometer tests, and as expected, below the 1970 Empire immersion data defining the current tonnage factor equation (Figure 8-4).



Source: Orobona (2021)

Figure 8-4: Comparison of Empire Immersion Tonnage Factor Regression Used in Tilden Model and Other Density Studies

As the Empire and Tilden pycnometer sample regressions virtually overlap, Cliffs has presumed that a regression of Tilden sample immersion data should similarly overlap with that of Empire samples, where based on similar rock types and assuming a similar porosity. These results, alongside the volumetric analysis completed by Tilden Mine Engineering Department, support the continued use of the tonnage factor regression equation at Tilden.

8.2 Sample Security

Samples collected and submitted to the Tilden laboratory are accompanied by submission forms. There is no offsite laboratory, and samples do not leave the Tilden property.

Digital copies of drill core and blast hole analysis from the Tilden laboratory are stored in a Microsoft (MS) Access databases with restricted access and regular backups. There is a manual component in transferring data between different departments and users, and the system does not include automated checks of data validity or integrity and allows for authorized users to manipulate entries. SLR understands that Tilden is in the process of migrating to an acQuire system, which will integrate additional security and data integrity measures and is accompanied by a data verification process at the point of transition. SLR strongly supports this initiative.

8.3 Quality Assurance/Control Procedures

Quality assurance (QA) consists of evidence to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical method(s) used in order to have confidence in a Mineral Resource estimate. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of collecting, preparing, and assaying the exploration drilling samples. In general, QA/QC programs are designed to prevent or detect contamination and allow assaying (analytical), precision (repeatability), and accuracy to be quantified. In addition, a QA/QC program can disclose the overall sampling-assaying variability of the sampling method itself.

The standard operating procedure at Tilden does not prescribe the inclusion or analysis of field, coarse, or pulp duplicate samples, and no QA/QC samples are included with regularity alongside batches of exploration drill or blast hole samples. An in-house reference sample, the Martite Master Composite (the Standard), is analyzed by the Tilden laboratory monthly using the same protocols as applied to the blast holes. Results are graphed against the average grade of the dataset, evaluated considering the range of accepted values represented by three standard deviations (SD) of the entire population of data, and compared to accepted and historical values as part of the internal laboratory QA/QC program. The Standard was generated in the early 1980s and is based on a composite of material collected over different areas of the Main Pit at that time, crushed, mixed, and stored in 60 gal drums, which are split as needed into batches of approximately five hundred, 600 g samples. Due to the custom nature of the bench flotation test and associated custom equipment, check assays at external laboratories are not performed. Coarse blank reference samples are not relevant at Tilden and are not used. The Tilden laboratory internal QA/QC program includes equipment calibration and monitoring.

Two additional reference standards have been developed and are included as part of the ore control procedures. SLR understands that the associated datasets at present are quite small, and that the standards are of lower quality than the Martite Master Composite. SLR did not review the protocols or results of these reference materials.

Due to the relatively small exploration drilling and sampling programs undertaken annually at Tilden, it is difficult to include reference material alongside exploration samples at a rate that is both statistically significant, as well as representing no more than 5% of the total sample submission, which is important as the Tilden laboratory is currently operating at maximum capacity, and the bench flotation test is time consuming to complete and prioritizes grade control samples. As both drill and blast holes are analyzed at the same laboratory, and as blast holes are included in the Mineral Resource estimate in a limited capacity, SLR suggests including coarse duplicate tests at a rate of 1 in 50 with blast hole sample submissions. Although the preparation stage of these samples is not identical to exploration drill hole samples, general conclusions could likely be made by reviewing these results.

8.3.1 Metallurgical Reference Samples

Monthly Martite Master sample results are charted and tested for failures compared to previous results. An example of such control charts and test rules is illustrated in Figure 8-5.

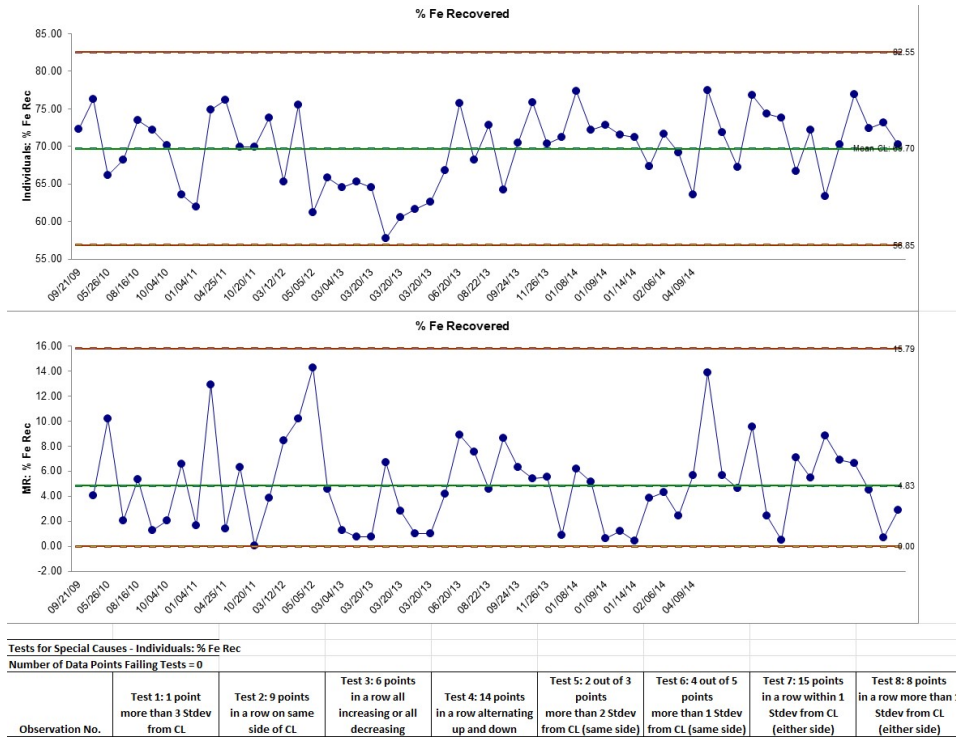


Figure 8-5: Example of Control Charting of the Monthly Martite Master Composite

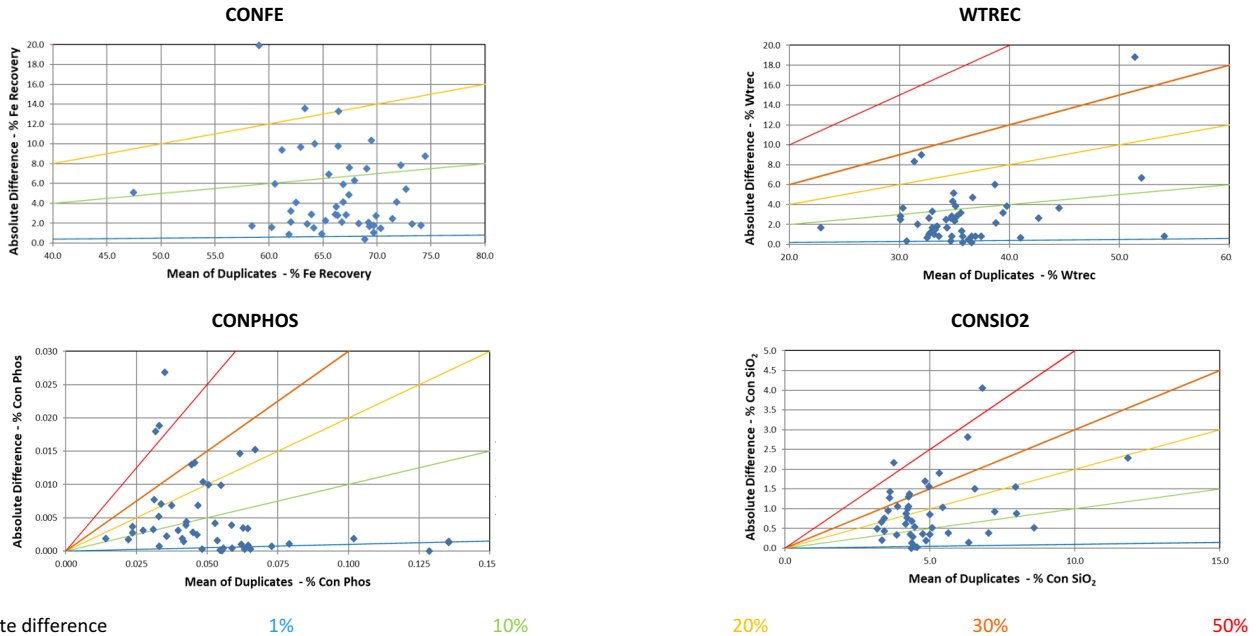
Control limits are based on the common approach for Shewhart control charts. For individual samples, control limits are $Mean_{\text{data}} \pm 2.66 * Mean_{\text{moving range}}$. For the moving range charts, control limits are $3.267 * Mean_{\text{moving range}}$. In both cases, 1σ and 2σ are $1/3$ and $2/3$ of the difference between the mean(s) and control limits, respectively. This approach is commonly used in statistical process control software and narrows control limits relative to three standard deviations (SD) from the mean of the data.

When a failure is reported for a Standard test, an investigation is initiated by the Laboratory Supervisor. The QC Technician who performed the test is interviewed. If nothing out of the ordinary was observed during the bench process or analysis, then associated equipment will be checked for malfunctions using available standards and test equipment. If no equipment is found to be in error or disrepair, the Martite Standard will be run again. This could be by the same QC Technician or by another, depending on the suspected cause and resource availability. The re-test may be monitored by the Laboratory Supervisor. If the re-test results remain outside of control limits, the Laboratory Supervisor will consult with process engineers and continue re-testing and equipment evaluation. In some cases, the Laboratory Supervisor and engineers may agree that the change is due to process water, a change in reagent supply, or other change outside of the laboratory's control.

8.3.2 2019 Duplicate Sample Program

During 2019, 50 blind coarse reject samples representing approximately 6% of exploration drill hole samples since 2014 were analyzed, and results were compared to the original assay data for the key economic variables of crudefe, wtrec, and consio2, confe, and conphos. The coarse reject samples were accompanied by 10 blind Standard samples, which were analyzed using the drill hole sample procedure. Results were compiled in an internal memorandum by Cliffs' Corporate Principal Geologist, Orobona (2020).

SLR reviewed the graphs, discussions, and conclusions outlined in Orobona (2020). Figure 8-6, compiled from the Orobona 2020 report, displays graphs of the absolute difference of the coarse duplicate pairs against the mean grades of each sample pair for selected variables. In reviewing these results, all sample pairs with an absolute difference greater than 10%, 20%, and 30% were considered to have moderate, poor, and very poor precision, respectively, and the duplicate campaign results were considered together when assessing the overall precision of the variable.



Source: Orobona, 2020

Figure 8-6: Absolute Difference of Coarse Duplicate Pairs

The results point toward a higher precision of crude sample pairs (crudefe and crudephos, not shown) than concentrate samples that have undergone the bench flotation test. Little bias was noted; however, a slight positive bias was observed in the 2019 consio2 and conphos results, as compared to the original

analysis. Orobona (2020) noted that a 5% positive bias was also observed in the grind of samples prior to flotation, postulating that the higher-grind results may have contributed to the bias in concentrate samples. Specific conclusions derived from this program, and recommendations for future work are listed at the end of the section.

Expected values of principal variables of the Standard submitted alongside coarse duplicate sampled during 2019 are presented in Table 8-1. The expected values were calculated from the average value and SD of the 10 submitted samples. For each variable, material was considered to have failed if the variable reported outside the confidence limits of $\pm 3SD$ from the expected value, or two consecutive values outside $\pm 2SD$.

**Table 8-1: Expected Values of and 2019 Performance of Principal Variables of Martite Master Composite Samples
Cleveland-Cliffs Inc. – Tilden Property**

Variable	Expected Value	($\pm 2SD$)	No. Failures	Observation
confe (%)	67.4	66.6 – 68.2	0	Good performance
consio2 (%)	3.8	2.7 – 4.9	0	Good performance
conphos (%)	0.0244	0.0230 – 0.0259	0	Good performance
wtrec (%)	37.5	34.2 – 40.8	0	Good performance
crudefe (%)	35.6	35.3 – 35.9	1	Inconclusive

Although all principal variable results from the Standards show acceptable agreement with the expected value, the sample size is too low for robust statistical analysis. Considering the small size of annual drilling programs at Cliffs, SLR recommends supporting the drill hole sample performance by reviewing performance of the blast hole QA/QC program. SLR recommends increasing the frequency of standard submission with blast holes at the laboratory to obtain a sample size of 25 annually.

SLR also recommends that Cliffs prepare a second reference standard, with expected values approximating the cut-off grades for deleterious variables consio2 and conphos, in order to measure the precision of results around ore delineation. SLR recommends that Cliffs target a submission rate of 25 annually (50 standards total) and submitting the Standards in random order and blind to the laboratory.

8.3.3 Conclusions and Recommendations

SLR presents the following conclusions and recommendations of the QA/QC program at Tilden:

8.3.3.1 Conclusions

- In the SLR QP's opinion, the sample preparation, analysis, and security procedures at Tilden are adequate for use in the estimation of Mineral Resources.
- The lack of regular submission of QA/QC samples alongside samples used to support Mineral Resources is outside of industry-standard practice, and improvements are warranted.
- The 2019 QA/QC program as designed and implemented by Cliffs has been helpful to understand the precision and accuracy of sample analysis at the Tilden laboratory, which is used to support the assay results within the database, and to confirm that the database is suitable for use in estimating Indicated and Inferred Mineral Resources.

- The following conclusions relate specifically to the 2019 QA/QC program results but can be applied to the assay program as a whole, with caution:
 - Good repeatability was observed between the coarse duplicates of crudefe, crudephos, and wtrec values at all grade ranges tested.
 - Very good repeatability was observed in confe duplicate pairs above 61%. Low-grade or waste samples had poor repeatability.
 - Poor repeatability of consio2 values was observed in all samples within the grade range tested (3% to 41%). Precision decreased with increasing consio2 values.
 - Moderate to poor repeatability of conphos values was observed, with 20% of samples returning an absolute difference greater than 20%. Precision was observed to improve with conphos values above 0.075%. The lowest precision was observed between sample pairs with a mean conphos value from 0.025% to 0.075%. A low bias was observed in the 2019 duplicate sample batch as compared to the original samples analyzed from 2014 to 2018.
 - Although precision of the timed grind in the rod mill is good, a high bias in the 2019 duplicate sample batch was observed, which may contribute to the bias observed in downstream concentrate sample variables.

8.3.3.2 Recommendations

1. Develop and implement a robust QA/QC program at Tilden for both exploration drill hole and blast hole samples.
2. Address the capacity issues at the Tilden laboratory to allow the sample analysis to be completed in a timely manner, and to facilitate the inclusion of QA/QC samples.
3. Include coarse duplicate samples in the drill hole and blast hole sample stream at a rate of 1 in 50, and monitor results regularly. Use the blast hole results to support small exploration drilling programs, while considering procedural differences. Create a standard operation procedure for the inclusion of field, coarse, and pulp duplicate samples and develop a set of actionable, performance-based criteria. Work closely with the laboratory to improve the precision of the bench flotation test.
4. Include field duplicate samples at a rate of 1 in 50 in the drill hole sample stream.
5. Increase the submission rate of the Standard to achieve an annual sample size of 25. Ensure submission is blind to the laboratory.
6. Develop a second reference standard with expected values approximating the cut-off grades for deleterious variables consio2 and conphos, in order to measure the precision of results around ore delineation. Submit at a rate of 25 samples annually, and ensure submission is blind to the laboratory.
7. Investigate the poor repeatability of conphos and consio2 values observed in the 2019 duplicate sample campaign, and work with the Tilden laboratory to improve precision, with focus on values within a grade range of 75% to 125% of the cut-off grades for these deleterious variables.
8. Investigate the low bias observed in the duplicate conphos data set, and review any long-term trends within the Tilden laboratory. Consider the impact of grinding.
9. Include magnetic samples in future duplicate programs that assess crude magfe content.

9.0 DATA VERIFICATION

9.1 Site Verification Work

During 2019, a data verification exercise was performed within the LOM plan area. Of the 528 drill holes in the Tilden (then) MS Access database, 25 historical and recent drill holes (4.7%) were selected for data verification.

Geologic logs from ledger books and assay results in MS Excel spreadsheets obtained directly from the Tilden laboratory were compared against the MS Access database for discrepancies in:

- Collar naming and coordinates, and downhole surveys (where available)
- Geological coding
- Analytical results

The MS Access database itself was also queried for irregular or impossible values, irregular survey deviation results, and from/to interval conformance.

Integrity issues were limited to isolated value discrepancies and minor survey differences and were corrected in the master database.

9.2 QP Verification Work

Personal inspections were carried out by SLR personnel during the site visits, including a visit to the core shack where SLR examined examples of drill core, inspected several examples of material types, and reviewed logging and sampling procedures. Visits were made to the operating Main Pit where the nature of the mineralization was observed, stockpiles of various iron formation material were inspected, and the blast hole mapping and sampling procedures were reviewed.

SLR also visited the onsite Tilden sample preparation and analysis laboratory, reviewed sample database security protocols, and participated in a tour of the Plant.

During the site visit, SLR had an opportunity to inspect the site, talk to mine and laboratory personnel, and collect relevant information for Mineral Resource estimation. In addition to personal inspections of core, SLR also spot-checked material-type designations against several drill core photos.

SLR completed the following data verification procedures on the provided drill hole database:

- A search for highly unlikely or impossible values in the drill and blast hole databases. These values were removed or adjusted in the database.
- A search for missing drill holes.
- A search for duplicate or overlapping samples or drill holes.
- A comparison of flotation ore coding against original logging.
- A search for odd or irregular drill and blast hole collars, and downhole survey positions.

Unsupported data was revised or removed from the drill and blast hole datasets prior to estimation.

SLR compared drill and blast hole composite samples to examine any bias present due to changing preparation and analysis procedures over time and between the data types. Comparisons by procedure or time were not possible due to the organization of attribute data. SLR has recommended that this information be collated within an attribute database, and Cliffs is currently undertaking to do so.

In order to pair blast hole samples and drill hole composites, SLR completed a nearest neighbor (NN) estimate using a search ellipse equal to the block size of 25 ft x 25 ft x 45 ft. Blocks estimated using both data types were considered as twin pairs. Paired data was compared using scatter plots and quantile-quantile (QQ) plots, both as a whole, and by individual domains. In general, the pairs demonstrate a high degree of scatter. Basic statistics of the paired data are summarized in Table 9-1, and small differences in mean value, in favor of either blast or drill hole data, are apparent. Blast hole data appears to under-represent confe and crudefe (very slightly) values when compared to drill hole data, while conphos values appear to be over-represented in blast hole data when compared to drill hole data.

Figure 9-1 presents paired drill and blast hole samples in a scatter plot, colored by consio2 values. The scatter shows reasonable correlation, with few outliers at consio2 values below 10%. Pairs high in consio2 tend to have low concentrate grades as well as poor correlation. A small bias, in favor of drill hole results, is observed in comparing mean values of the twin pairs (62.5% versus 63.2%) and in the QQ plot (not shown). SLR notes that the bias is still observable when values below 55% confe are removed.

**Table 9-1: Basic Statistics of Twinned Drill and Blast Hole Samples
Cleveland-Cliffs Inc. – Tilden Property**

Variable	Source	Count	Mean (%)	CV	Min. (%)	Max. (%)
confe	BH	1,543	62.5	0.1	34.3	74.4
confe	DH	1,543	63.2	0.1	17.7	68.5
conphos	BH	775	0.043	0.596	0.006	0.221
conphos	DH	775	0.038	1.072	0.002	0.659
consio2	BH	1,543	6.9	0.9	1.1	43.4
consio2	DH	1,543	6.9	0.9	1.6	65.8
crudefe	BH	1,539	35.6	0.1	3.5	64.8
crudefe	DH	1,539	36.2	0.1	19.9	55.6
wtrece	BH	1,542	38.2	0.2	16.1	79.5
wtrece	DH	1,542	38.1	0.2	7.1	75.5

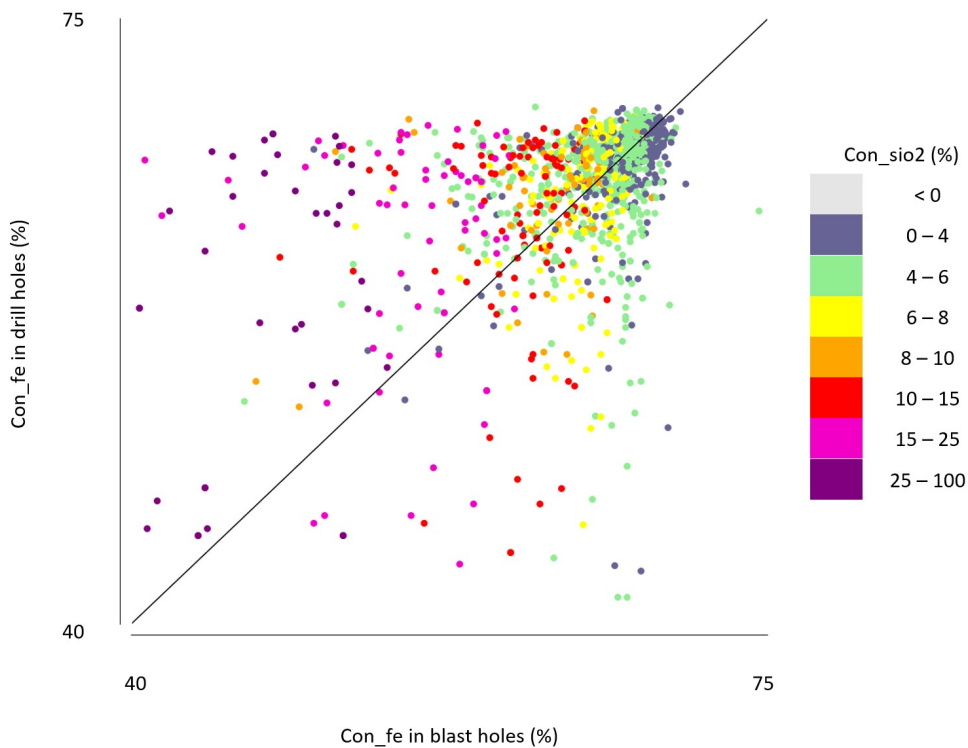


Figure 9-1: Scatter Plot of Twinned Drill and Blast Hole Sample Pairs on confe, Colored by consio2 Values

While a bias was expected in favor of blast hole data, as a standard +3% has been added to the blast hole wtrec values since an undetermined time in the past, to better align laboratory results (dried) and plant readings (natural moisture), no bias was observed. This is likely due to the linear application of the 3%, and the high degree of scatter shown overall.

The best correlation of all variables was shown between drill and blast hole crudefe (not shown). Good correlation of conphos values is also observed, despite a high bias in favor of blast hole data. A scatter plot is shown in Figure 9-2, where it is observable that pairs of conphos values in the Main Pit Carbonate domain showed poorer correlation than other domains and the highest overall bias. SLR notes that conphos variables represent the smallest sample set, due to absent conphos values from older drill holes. SLR recommends repeating this analysis once this attribute data is stored in the database, to allow filtering of older drill holes in other variables to determine if the correlation of the different variable pairs improves.

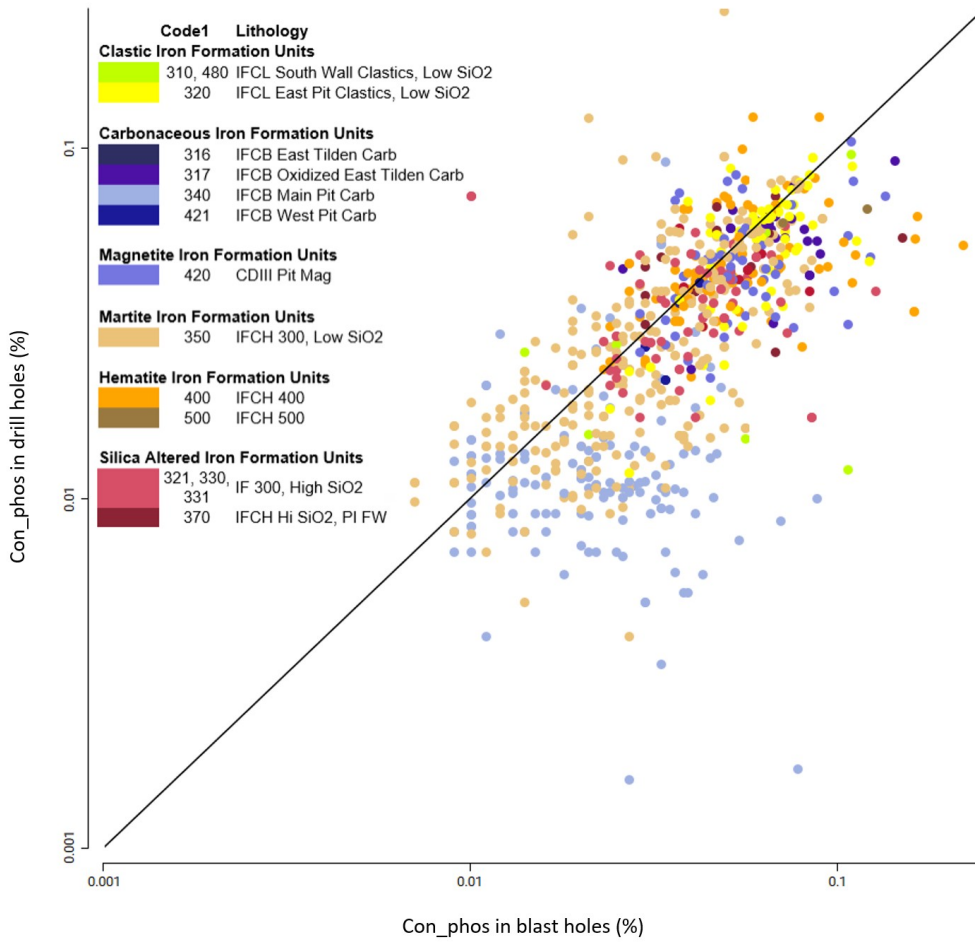


Figure 9-2: Scatter Plot of Twinned Drill Hole and Blast Hole Sample Pairs on conphos Colored by Domain

SLR offers the following conclusions regarding the drill hole and blast hole twin analysis:

- There is a moderate to good correlation of all variables between blast hole and drill hole twinned samples.
- Correlation of confe values decreases for samples with high consio2 values.
- The known bias of wtrec in favor of blast hole data is not observable in the paired dataset.
- A high bias, in favor of blast holes, is observable in the conphos variable; however, overall comparison is good.

SLR offers the following recommendations regarding the drill hole and blast hole twin analysis:

1. Repeat this analysis upon incorporation of attribute data such as year, starch type, and grind time, to determine if correlations in paired data can be improved following the removal of select data types.
2. Explore the bias observed in the conphos twinned data and continue to work with the laboratory to bring the datasets into alignment.

The QP is of the opinion that the Tilden database is adequate for the purposes of estimating Indicated and Inferred Mineral Resources.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Historical Metallurgical Testing and Process Design

The mix of magnetite and primarily hematite ores at Tilden is unique to US iron ore mines. Typical flowsheets developed for beneficiation-grade magnetite ores of the Lake Superior region were not applicable in that the preponderance of the iron oxide occurs as non-magnetic hematite. Ordinary methods of desliming and flotation were also unacceptable due to the fine grinding required for liberation, which would have resulted in either excessive iron unit losses or unsatisfactory concentrate grades. This necessitated the development of unique technologies for the successful processing of Tilden's iron ores.

Metallurgical research conducted in the 1960s eventually focused on creating a processing scheme that included selective flocculation and desliming followed by cationic SiO₂ flotation. During this period, a multitude of dispersants and flocculants were evaluated. Originally, sodium silicate was used, then sodium hexametaphosphate, (NaPO₃)₆, with corn starch as the flocculant. Currently, Tilden is using polyacrylic acid. This was followed by evaluation of various silicate flotation systems, with the ultimate selection of a cationic flotation system using amine-based silicate collectors to separate (float) the SiO₂ minerals from both hematite and magnetite.

A description of the current process and plant performance is provided in Section 14.0.

10.2 Sampling and Metallurgical Testing

10.2.1 Drill Sample Preparation and Testing

The standardized bench-scale flotation test was designed to simulate the Tilden hematite grinding and concentrating circuit. Data from the standardized bench flotation test are provided to the geologist and are used to characterize diamond drilling samples as either crude iron ore or waste rock. The data are then used to build a resource model and mine plan, with the purpose of supplying a consistent blend of ore to the concentrator. An illustration of the bench test flowsheet is provided in Figure 8-2.

10.2.2 Bench Flotation Test

The 600 g flotation test sample is ground using an 8 in. by 10 in. mild steel rod mill containing 26 rods of various diameters: two $1\frac{1}{4}$ in., eight $\frac{3}{4}$ in., four $\frac{1}{2}$ in., ten $\frac{3}{8}$ in., and two $\frac{1}{4}$ in. Total weight of the rods can range from 9,200 g to 9,500 g. Added to the mill with the flotation test sample are 400 mL of flotation test water, 0.25 lb/LT of glass H (6.4 mL of a 1 wt% solution of sodium hexametaphosphate powder), and 1.5 lb/LT caustic sodium hydroxide (1.8 mL solution, 18.7% specific gravity, 1.205 NaOH solids). The mill is placed on mill rolls designed to rotate at 54 rpm. Standard grind time is 45 min for a flotation test sample, and grinding continues uninterrupted.

Following grinding, the sample is immediately washed out of the mill and off of the rods with flotation test water. Without delay, the sample is transferred into an 8 L deslime tube, and water is added to fill the tube up to the 8 L mark. The ore slurry in the tube is mixed using 12 strokes with the plunger. pH of the slurry in the tube is measured with a pH meter; pH should be 10.0 or higher, which is typical of the normal plant circuit operating pH (generally 10.0 to 10.5). If the pH is lower than 10.0, additional NaOH solution is added in 0.25 lb/LT increments. Then the sample is re-mixed, and the pH is checked again. Additional caustic dosage(s) are recorded.

Starch is added at 0.25 lb/LT (3.0 mL solution) to the deslime tube, which is then mixed with the plunger for 30 sec. Starch type is recorded. The standard flotation test originally used Pearl starch. Since March 2015, the test now uses modified starch to match plant usage.

Sample settling time is measured. The standard settling time if Pearl starch is used is two minutes; standard settling time if modified starch is used is five minutes. If, after this time, settling is not complete, as much time as is necessary is allowed before siphoning, then actual settling time is recorded. The $\frac{1}{2}$ in. diameter siphon tube is inserted into the slurry. Siphoning occurs down to the 1 L mark on the deslime tube or one inch above the bed, whichever is higher.

Flocculant is added to the slime fraction and mixed vigorously to aid settling in a pressure filter. Slimes are pressure-filtered, then dried on a hot plate. This is the A product. To guard against contaminating a flotation test with the settling aid, the pail used to siphon the slimes is not the same pail used to empty the grinding mill.

The sample left in the tube is washed into the Pyrex glass flotation bowl of a Wemco Flot machine using flotation water. The water level is then raised up to just where the standpipe starts to change diameter. The following is added to the flotation bowl: 1.0 lb/LT starch (12.0 mL solution) and 0.25 lb/LT caustic (0.3 mL solution); the sample is left to condition with the air off for two minutes.

The first stage of rougher amine is added with a micro pipettor at the standard dosage of 0.12 lb/LT (38.2 μ L) for development drill hole samples. To avoid leaving any residual amine in the pipette, the outside of the pipette is wiped off with a paper towel, with care taken not to touch the end after drawing the amine into the pipette. The end of the amine pipette is then immersed into the slurry, and amine is dispensed. Following this, the pipette is withdrawn, and the outside is wiped off with a paper towel. Air is turned on the Wemco flotation machine (operated at 1,250 rpm), which agitates the slurry and generates a froth. Froth is immediately and continuously removed using a paddle until froth generation diminishes. Then the air is shut off. Flotation water is added to the flotation bowl, as required, to maintain a constant level. A second stage of rougher amine is added, froth is removed using the paddle until it diminishes again, and the air is turned off. Any abnormal froth volume is noted. Rougher amine dosage and any non-standard reagent dosage are recorded.

The product left in the bowl is the rougher concentrate and comprises the B product. This sample is washed into a pail and saved.

Froth product from the previous step is washed back into the flotation bowl. The level is raised up to where the standpipe begins to change diameter. To the flotation bowl is added 0.5 lb/LT starch (6.0 mL solution), and the sample is left to condition with the air off for two minutes. The froth should be completely repulped while conditioning. This flotation simulates the flotation scavenger circuit.

Following conditioning, the air is turned on, and froth is removed into a pan until froth generation diminishes. The product left in the pan is the F product (the final tailing product), which is then filtered and dried on a hot plate. Amine is added to the flotation bowl at 0.05 lb/LT amine (15.93 μ L solution), and the air is tuned on. Froth removed per the previous steps is Middling 1, the low-grade middling E product, which is then filtered and dried on a hot plate. Another 0.05 lb/LT amine (15.93 μ L solution) is added to the flotation bowl, and the air is turned on. Froth removed comprises Middling 2, the high-grade middling D product, which is then filtered and dried on a hot plate.

The material left in the flotation bowl is concentrate recovered from the scavenger circuit. The sample is washed into a pail and filtered. This product is the C product (the scavenger flotation concentrate product), which is then filtered and dried on a hot plate.

10.2.2.1 Flotation Test, Product Sample Preparation and Assay

Weights are recorded for each of the products. Products are separately pushed through a 30 mesh screen and forty cornered on a mixing cloth or passed three times through a cone mixer. Approximately 25 g of each product are dipped out into three labeled sample envelopes for archival, soluble wet iron, and XRF analysis for % SiO₂, CaO, MgO, Mn, Al₂O₃, and % phos. An additional envelope is made for Satmagan analysis of the B product.

Half of each product by weight is placed in a separate pan for wet screen analysis. Products are combined in the pan and mixed in a cone mixer. Approximately 10 g is split from this re-composited sample and analyzed by the Microtrac for particle size distribution. The -35 µm result is recorded. Remaining re-composited sample is then wet-screened until only clear water drains from the underflow, which is discarded down the drain. The +500 mesh solids are dried and weighed, and the % -500 mesh is calculated.

10.2.2.2 Flotation Test Results

The Tilden bench float test is an approximation of anticipated plant response for the specific ore type being tested. The bench test is unique to iron ore evaluation techniques, and the actual flotation of the ore is conducted manually by an operator. Automation of the procedure is not practical. Variability in the results can be impacted by the operator. There are occasionally re-tests requested to compare results and identify retraining requirements. Extremely high concentrate SiO₂ values are indicative of interfering minerals that are usually in the form of smectite clays. These clays absorb the amine, which does not allow the amine to adhere to SiO₂ particles (interferes). Re-testing of these samples shows similar results. Flotation concentrate SiO₂ values above cut-off grade, but lower than the extremely high values associated with interfering minerals, are usually indicative of SiO₂ grain inclusions within iron oxide grains. This phenomenon is geographically associated with the Eastern end of the deposit and is hypothesized to be associated with hydrothermal alteration of the iron formation. Re-tests yield similar results. On rare occasions, a sample may be re-run with a larger dose of amine or longer mill grind time to investigate the sensitivity of the particular ore type.

10.2.3 Recovery Estimate Assumptions

It has been empirically determined over time that the bench test wtrec requires an additional 1.8 percentage point addition to match actual plant results.

10.3 Material Characterization and Classification

The flotation bench test determines whether an iron formation sample is crude ore or waste if all cut-off grade criteria are met (see Section 13.0). Crude ore samples can be further delineated as material types based on magnetic iron content and total oxides (Table 10-1). The modeled geologic domain the samples fall within is also taken into consideration when characterizing ore types.

**Table 10-1: Material Type Specifications
Cleveland-Cliffs Inc. – Tilden Property**

Ore Type	Head Fe	Conc. SiO ₂	Total Oxides	Satmagan Head Magnetic Fe	Conc. Phos.	Davis Tube wtrec	Davis Tube Conc. SiO ₂	Calculated Magnetic Fe
Hematite	>25	<6	>94	<15	<0.07			
Main Pit Carbonate	>25	<6	<94.01	>15	<0.07			
Goethite	>25	<6	>87 and <94	<15	<0.07			
Magnetite	>25	<6				>24.99	<10	>20

10.4 Factors Affecting Economic Extraction and Plant Performance

Gangue minerals impacting economic extraction are identified in the flotation bench test. These include interfering minerals (clay) that adsorb amine, resulting in concentrate SiO₂ values above cut-off values. Quartz inclusions within the iron oxide bands generally also result in bench test concentrate SiO₂ values that are above cut-off grade. Very fine goethite ore can result in potential filtering, crushing, and flotation issues. Therefore, this material is mined at very low percentages when exposed. Carbonate ore and goethite ore can impact pellet quality due to calcination of carbonate in the former and dehydration in the latter. Therefore, these ore types are mined at low percentages when exposed.

11.0 MINERAL RESOURCE ESTIMATES

11.1 Summary

A geological model was constructed by SLR considering regional mapping, drill hole logging, and blast hole analytical results, in addition to grade control modeling and flotation ore coding. Data verification included standard database verification, a review of QA/QC protocols and results, and a comparison of blast hole and drill hole results.

The EY 2020 Tilden Mineral Resource estimate was completed by SLR using a conventional block modeling approach, defining estimation domains from wireframes built in Seequent's Leapfrog Geo (Leapfrog Geo) software and using a regular block model built and interpolated in Seequent's Leapfrog Edge (Leapfrog Edge) software. The general workflow included the creation of a geological model from mapping, drill and blast hole logging, and sampling, which were used to define discrete domains of non-iron formation and iron formation sub-units. Iron formation drill hole samples were composited, and the estimation of six variables (crude iron and magnetic iron, wtrec, and iron, phosphorus, and silica in concentrate) was completed using ordinary kriging (OK) over five passes in iron formation units, the first of which incorporated blast hole samples. Distance restriction of outlier grades was applied to selected domains and variables. Blocks were classified as Indicated or Inferred using distance-based and qualitative criterion. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions) were used for Mineral Resource classification. Models were depleted to December 31, 2021, with depletion predicted for September 1, 2020 to December 31, 2020. Estimates were validated using standard industry techniques and were peer reviewed prior to finalization.

A detailed breakdown of the Mineral Resources exclusive of Mineral Reserves is presented in Table 11-1. Mineral Resources were defined and constrained within an open-pit shell, prepared by Cliffs and based on a US\$90/long ton pellet price, and meeting the following cut-off grade criteria, based on existing pellet specifications and price contracts:

- $\geq 25\%$ wtrec
- $\geq 25\%$ crude iron content (crudefe)
- $\leq 0.07\%$ phosphorous in concentrate (conphos)
- $\leq 6\%$ to 8.5% silica in concentrate (consio2) (domain dependent)

The pellet cost basis for the Lerchs-Grossmann (LG) optimization is based on a dry 61.5% Fe fluxed pellet.

Table 11-1: Summary of Tilden Mineral Resources – December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property

Category	Long Tons (Mtons)	Crude Fe (%)	Process Recovery (%)	Pellets (Mtons)
Measured	-	-	-	-
Indicated	135.4	35.5	35.9	48.6
Total Measured + Indicated	135.4	35.5	35.9	48.6
Inferred	350.4	34.7	36.4	127.4

Notes:

1. Tonnage is reported in long tons equivalent to 2,240 lb.
2. Tonnage is reported exclusive of Mineral Reserves and has been rounded to the nearest 100,000.
3. Mineral Resources are estimated at cut-off grades of 25% crudefe, 25% wtrec, 0.07% conphos and 6% consio2 to 8.5% consio2, domain dependent.
4. Mineral Resources are estimated using a pellet value of US\$90/LT.
5. Pellets are reported as fluxed and dry, containing 61.5% Fe, shipped pellets contain 2% moisture.
6. Tonnage estimate based on estimated depletion from a surveyed topography on December 31, 2021.
7. Resources are crude ore tons as delivered to the primary crusher; pellets are as loaded onto rail cars.
8. Classification of Mineral Resources is in accordance with the S-K 1300 classification system.
9. Bulk density is assigned based on a regression equation related to crude Fe.
10. Mineral Resources are 100% attributable to Cliffs.
11. Mineral Resources are constrained within an optimized pit shell and are exclusive of Mineral Reserves.
12. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
13. Numbers may not add due to rounding.

The Tilden operation is currently active and in full production. The SLR QP is of the opinion that with consideration of the recommendations summarized in Sections 1.0 and 23.0 of this report, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

A summary of the key assumptions, parameters, and methods used for Mineral Resource estimates, including drilling database, geological model, compositing and capping, density, and variography are discussed below.

11.2 Resource Database

The Tilden drill hole database consists of 382,605 ft of drill hole information in 578 drill holes, completed from the 1950s to 2020. Assay information of holes drilled in 2019 and 2020 in the CD5 Pit area were not available and, as such, the CD5 area has not been included in SLR's Mineral Resource estimate. Down hole information from Empire drill holes were also not available and are excluded from the SLR Mineral Resource estimate. SLR recommends integrating the downhole information from the Empire and Tilden mines into a single valid database.

11.3 Geological Interpretation

Iron formation and intrusive units were modeled in Leapfrog Geo using surface mapping and drill hole logs, with consideration given to grade control modeling and flotation ore coding (code1), assay results, and noted or measured presences of magfe. Iron formation units were distinguished to a distance of 600 ft beyond drilling, beyond which were modeled as Undifferentiated Iron Formation.

Below the Summit Mountain Sill, silica alteration in BIF units was modeled to overprint the iron formation using a nominal cut-off grade of 10% Fe_2O_3 , and oxidation domains were modeled using a cut-off grade of 0.04% Fe_2O_3 , with reference to oxidation noted in drill hole logs, and code1 logging from both drill and blast holes. SLR recommends that Cliffs continue work to define fault orientation and related alteration in the east of the Main Pit to confirm the syn-bedding and cross-cutting directions of the modeled high-silica alteration domains.

Above the Summit Mountain Sill, the iron formation is highly oxidized in all areas (Hematite Iron Formation) apart from the Magnetic Iron Formation unit of the CDIII Pit, and has strong silica alteration along the more prevalent intrusive contacts. These alteration contacts were not distinguished with the exception of high-silica alteration along the hanging wall of the Suicide Sill in the CDIII Pit.

Following domain modeling, lithology units were back-coded with the most closely defined flotation ore coding. The geological model at Tilden is presented in plan and cross-section in Figure 11-1 and Figure 11-2, respectively.

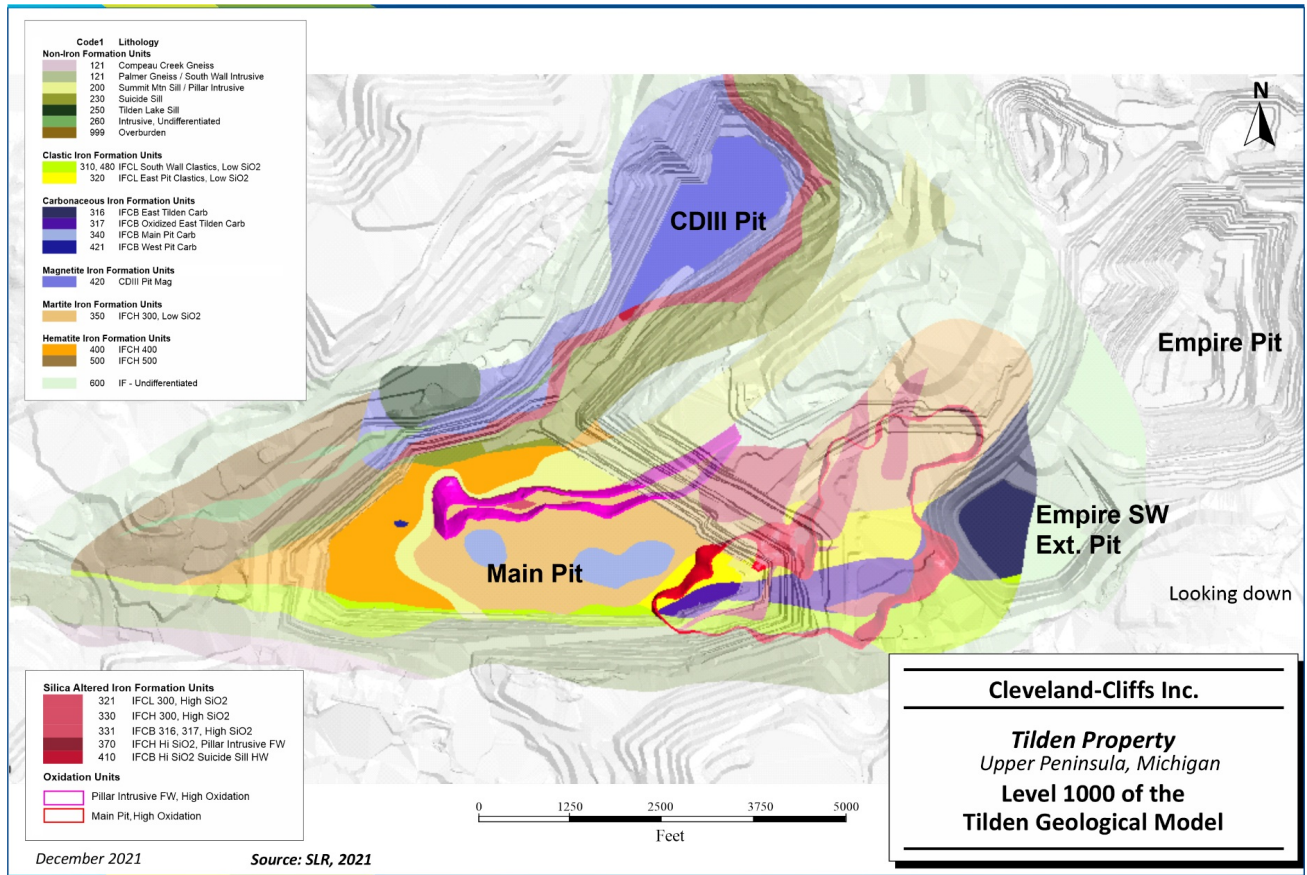


Figure 11-1: Level 1000 of the Tilden Geological Model

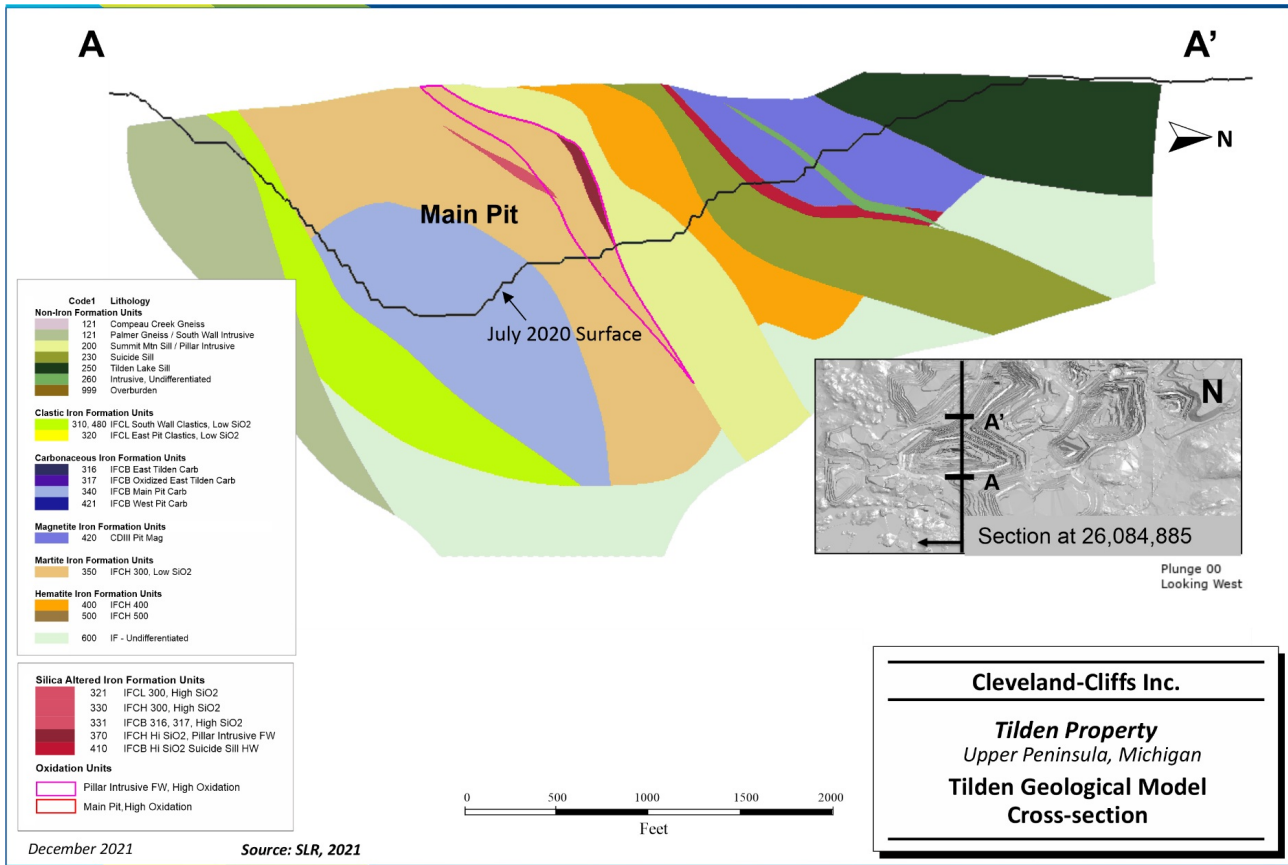


Figure 11-2: Tilden Geological Model Cross-section

11.4 Resource Assays

The length-weighted data presented in Table 11-2 is effective as of July 15, 2020, when the blast hole database was last exported and supplied to SLR. Note that within the drill hole database, there are limited samples of conphos, which was not historically included as a standard test. Samples of magfe in drill and blast holes are limited to magnetic units.

Impossible or irregular blast hole values were removed prior to estimation; SLR recommends a thorough database verification exercise to remove anomalous blast hole values from the master database.

**Table 11-2: Tilden Mine Mineral Resource Database
Cleveland-Cliffs Inc. – Tilden Property**

Name	Count	Length	Mean	CV	Min	Max
Drill Hole Samples						
confe	6,652	266,450	61.80	0.10	12.39	69.51
conphos	3,572	149,646	0.04	0.73	0.00	0.66
consio2	6,660	266,830	7.35	0.90	1.30	65.83
crudefe	6,634	264,663	35.56	0.13	6.11	63.70
magfe	3,139	127,409	11.34	1.04	0.10	38.00
wtrec	6,659	266,780	37.27	0.26	4.00	90.00
Blast Hole Samples						
confe	84,506	3,802,770	62.05	0.10	3.70	70
conphos	84,449	3,800,205	0.04	2.01	0.00	1.0
consio2	84,479	3,801,555	6.88	0.86	0.07	81.20
crudefe	86,698	3,901,410	35.30	0.51	2.00	70
magfe	15,616	702,720	26.08	0.20	0.20	45.30
wtrec	84,505	3,802,725	38.37	0.24	4.20	91.80

11.5 Compositing and Capping

No capping was applied prior to compositing.

11.5.1 Compositing

Drill hole data was composited to 45 ft, the most common sample interval length, and equal to the blast hole sample length. Unsampled intervals were ignored during compositing for the following reasons:

- To substitute null values for deleterious elements is incautious.
- To substitute null values where iron formation is unsampled is overly conservative.
- There is insufficient information to be able to assign proxy values in the assay database to small intrusive dike material within the iron formation during compositing, and the number of these

samples was sufficiently small to not be expected to cause significant bias in the overall database.

A histogram of sample lengths is shown in Figure 11-3.

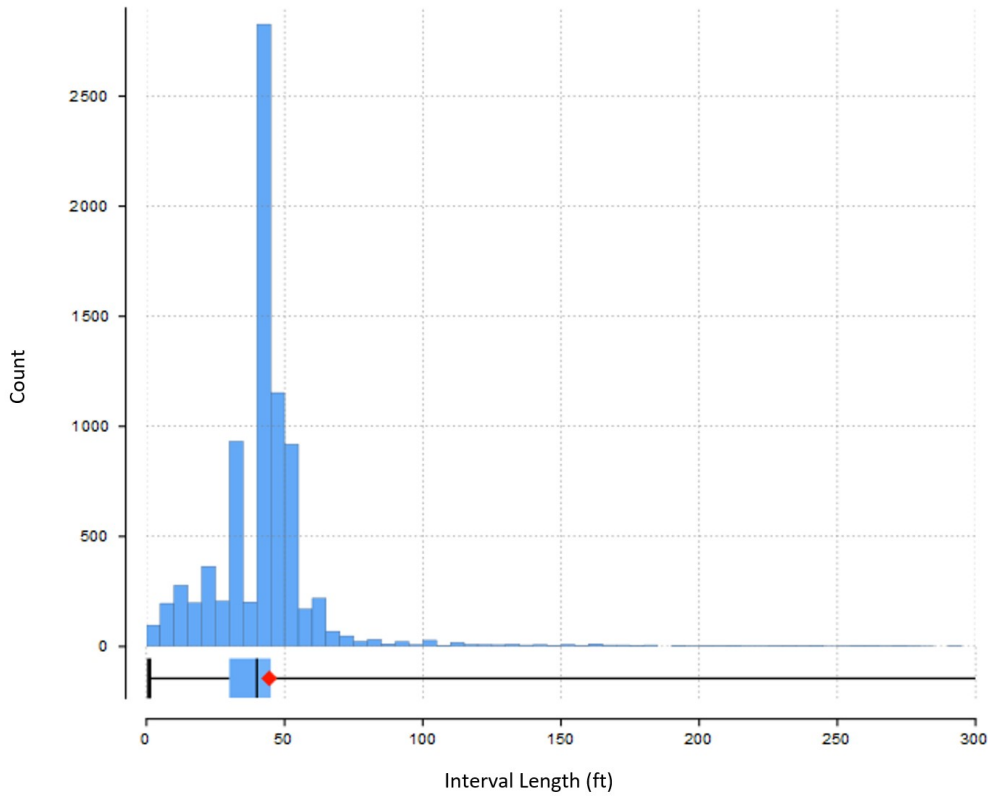


Figure 11-3: Histogram of Sample Length

Table 11-3 presents the drill and blast hole composite statistics by estimation domain. SLR notes that the blast hole samples are not composited.

**Table 11-3: Tilden Mine Composite Statistics
Cleveland-Cliffs Inc. – Tilden Property**

	Blast Holes					Drill Holes				
	Count	Mean (%)	CV	Min. (%)	Max. (%)	Count	Mean (%)	CV	Min. (%)	Max. (%)
IFCB Mag CDIII Pit (420)										
confe	9,779	58.86	0.12	3.70	69.90	868	60.20	0.10	29.51	68.74
conphos	9,740	0.05	0.70	0.00	1.00	436	0.05	0.46	0.01	0.34

	Blast Holes					Drill Holes				
	Count	Mean (%)	CV	Min. (%)	Max. (%)	Count	Mean (%)	CV	Min. (%)	Max. (%)
consio2	9,761	7.64	0.71	0.98	44.82	869	6.81	0.66	1.49	31.96
crudefe	9,905	37.60	0.12	3.50	69.00	871	38.21	0.10	18.84	63.20
magfe	13,708	26.14	0.19	0.20	39.10	847	22.78	0.34	0.60	37.40
wtrec	9,778	41.66	0.30	4.90	91.80	869	39.54	0.27	7.10	78.17
IFCB East Tilden Carb (316)										
confe	-	-	-	-	-	122	60.25	0.11	35.10	67.66
conphos	-	-	-	-	-	93	0.03	0.38	0.01	0.06
consio2	-	-	-	-	-	122	4.18	0.32	2.13	9.51
crudefe	-	-	-	-	-	122	32.95	0.08	24.40	42.74
magfe	-	-	-	-	-	66	7.37	1.08	0.42	25.10
wtrec	-	-	-	-	-	122	40.40	0.26	12.10	65.90
IFCB Main Pit Carb (340)										
confe	10,870	60.79	0.07	27.80	69.10	531	62.10	0.07	45.40	68.48
conphos	10,873	0.03	0.58	0.00	0.43	427	0.02	0.65	0.00	0.09
consio2	10,870	4.80	0.35	1.79	40.23	531	4.57	0.30	1.91	22.18
crudefe	11,033	34.03	0.09	7.00	62.00	531	33.73	0.09	16.60	41.37
magfe	-	-	-	-	-	423	18.40	0.40	0.30	31.87
wtrec	10,870	42.49	0.15	15.80	89.40	531	43.88	0.17	11.70	64.10
IFCB Oxidized East Tilden Carb (317)										
confe	1,348	62.70	0.06	22.10	68.70	242	64.22	0.05	39.63	68.30
conphos	1,348	0.06	0.32	0.01	0.27	210	0.06	0.65	0.02	0.40
consio2	1,348	5.25	0.77	0.07	44.12	242	4.58	0.47	2.22	22.13
crudefe	1,388	35.92	0.14	11.40	62.70	241	35.12	0.12	19.91	61.00
magfe	-	-	-	-	-	115	1.03	1.18	0.20	8.54
wtrec	1,348	37.18	0.19	14.90	77.90	242	35.86	0.20	14.97	64.40
IFCB West Pit Carb (421)										
confe	481	63.74	0.06	42.90	69.90	28	64.85	0.04	57.93	67.79
conphos	481	0.04	0.37	0.02	0.17	8	0.04	0.24	0.02	0.05
consio2	481	5.57	0.41	1.52	21.58	28	4.78	0.16	3.14	6.09
crudefe	481	39.85	0.07	30.00	55.80	28	40.86	0.05	36.17	45.10
magfe	181	28.24	0.18	6.60	35.50	20	29.11	0.13	21.95	33.60
wtrec	481	38.80	0.20	18.80	63.20	28	45.00	0.15	30.92	57.11
IFCB, Hi SiO₂, Suicide Sill HW (410)										

	Blast Holes					Drill Holes				
	Count	Mean (%)	CV	Min. (%)	Max. (%)	Count	Mean (%)	CV	Min. (%)	Max. (%)
confe	655	58.76	0.09	29.60	68.70	148	56.59	0.10	37.10	66.95
conphos	657	0.05	0.43	0.02	0.27	76	0.05	0.76	0.02	0.25
consio2	655	12.23	0.49	1.85	41.14	148	12.78	0.43	3.29	34.79
crudefe	667	38.99	0.11	8.70	48.10	148	38.10	0.08	25.90	49.68
magfe	448	28.63	0.11	15.70	35.50	162	25.50	0.30	1.10	35.10
wtrec	655	40.72	0.23	11.20	72.40	148	36.82	0.35	14.70	69.51
IFCH 300, Low SiO₂ (350)										
confe	29,277	63.76	0.08	13.70	69.70	1,781	64.91	0.05	23.29	69.48
conphos	29,252	0.03	0.60	0.00	0.71	937	0.04	0.68	0.00	0.35
consio2	29,266	6.31	0.94	0.19	65.40	1,781	5.15	0.66	1.49	42.83
crudefe	29,424	34.96	0.09	3.10	65.60	1,779	35.62	0.08	18.83	61.09
magfe	25	16.98	0.32	8.00	27.90	539	1.78	1.83	0.10	24.62
wtrec	29,277	38.64	0.19	6.20	88.00	1,780	36.73	0.19	8.04	67.17
IFCH 400										
confe	11,050	63.05	0.07	24.50	69.80	546	63.22	0.07	38.54	68.17
conphos	11,042	0.05	0.54	0.01	0.72	239	0.05	0.84	0.01	0.66
consio2	11,046	6.73	0.80	0.74	81.20	546	7.02	0.82	2.15	42.86
crudefe	11,187	37.82	0.11	3.00	66.70	546	37.94	0.08	20.21	52.69
magfe	73	26.32	0.28	6.30	35.70	133	2.25	1.78	0.10	30.00
wtrec	11,050	36.76	0.23	8.80	79.60	546	35.26	0.22	10.42	75.46
IFCH 500										
confe	2,382	59.55	0.10	17.80	68.40	626	59.80	0.10	35.44	68.40
conphos	2,378	0.09	0.51	0.01	0.89	346	0.08	0.48	0.01	0.26
consio2	2,382	8.16	0.69	0.87	45.75	626	8.42	0.73	2.00	40.76
crudefe	2,539	34.46	0.18	2.00	54.50	624	35.91	0.12	13.67	57.30
magfe	-	-	-	-	-	217	1.65	2.24	0.10	26.83
wtrec	2,382	31.13	0.31	4.20	74.10	626	34.10	0.28	5.58	63.81
IFCH, Hi SiO₂ SM Sill FW (370)										
confe	736	56.67	0.15	34.00	68.00	77	58.70	0.10	32.70	67.02
conphos	737	0.05	0.50	0.01	0.45	36	0.05	0.30	0.02	0.07
consio2	736	13.80	0.83	1.67	47.40	77	12.23	0.64	2.96	38.50
crudefe	745	35.09	0.11	11.60	58.00	77	35.51	0.10	22.50	41.54
magfe	-	-	-	-	-	27	0.89	0.75	0.20	2.23

	Blast Holes					Drill Holes				
	Count	Mean (%)	CV	Min. (%)	Max. (%)	Count	Mean (%)	CV	Min. (%)	Max. (%)
wtrec	736	41.73	0.27	16.80	87.50	77	34.54	0.26	10.50	53.27
IFCH/CL 300, Hi SiO₂ (330, 321)										
confe	6,137	59.79	0.12	15.60	68.50	710	55.46	0.14	27.64	67.60
conphos	6,131	0.04	0.52	0.01	0.90	386	0.05	0.51	0.01	0.32
consio2	6,137	11.40	0.80	0.09	54.36	716	16.68	0.60	2.61	65.83
crudefe	6,189	34.41	0.09	3.60	65.80	705	34.29	0.12	10.96	49.02
magfe	-	-	-	-	-	257	1.30	1.90	0.10	21.34
wtrec	6,137	37.21	0.27	7.00	86.30	716	39.10	0.26	8.60	75.80
IFCL East Pit Clastics (320), Low SiO₂										
confe	5,302	64.01	0.06	13.60	69.30	406	64.29	0.04	47.85	68.33
conphos	5,303	0.05	0.58	0.00	1.00	279	0.05	0.34	0.01	0.11
consio2	5,300	5.05	0.72	0.69	74.50	406	5.33	0.57	1.85	29.98
crudefe	6,041	31.74	0.20	6.80	63.20	401	33.30	0.15	19.24	57.34
magfe	-	-	-	-	-	161	1.16	1.19	0.10	12.30
wtrec	5,302	34.01	0.24	9.30	77.50	406	33.98	0.23	13.80	70.75
IFCL South Wall Clastics (480, 310), Low SiO₂										
confe	2,250	63.03	0.06	25.10	69.30	342	62.30	0.08	35.50	68.77
conphos	2,256	0.05	0.80	0.00	0.65	203	0.04	0.68	0.01	0.19
consio2	2,248	6.87	0.54	0.73	35.40	342	6.27	0.57	1.88	38.91
crudefe	2,502	33.33	0.22	9.50	65.20	304	30.45	0.23	12.21	59.80
magfe	-	-	-	-	-	110	4.18	1.11	0.20	25.80
wtrec	2,250	35.40	0.29	10.50	91.70	342	30.08	0.34	8.53	80.30

11.6 Trend Analysis

Trend analysis in the form of three-dimensional contouring was completed within the BIF units of the Tilden deposit to understand overall grade distributions by spatial location and material type, to assist in variography, estimation, and validation, and – in the case of consio2 and conphos – to assist in modeling.

Trend analysis of crudefe, wtrec, and confe assumed higher continuity along bedding, with the bedding following the general trend of the Summit Mountain Sill/Pillar Intrusive.

Trend analysis of consio2 identified several syn-bedding and cross-cutting structures with high continuity associated with faults and dikes in the east of the Main Pit. Trend analysis of conphos identified a broad zone of increased oxidation (elevated conphos values) in the East Pit as well as directly adjacent to the Pillar Intrusive footwall.

11.6.1 Variography

Variography was completed for all variables in all estimation domains. Variograms were oriented in line with the most prominent domain orientation and the lowest variability determined from radial plots. In general, variogram models resembled a flattened, or oblate sphere or ellipsoid. Model distances ranged from 650 ft to 1,200 ft in the major axis, 400 ft to 700 ft in the semi-major axis, and from 200 ft to 400 ft in the minor axis direction. Variogram quality varied from good to low/moderate where based on a low number of composites within a domain, within a domain with variable orientation, or characterized using widely spaced data. A sample radial plot and variogram is presented in Figure 11-4, with variogram models listed in Table 11-4.

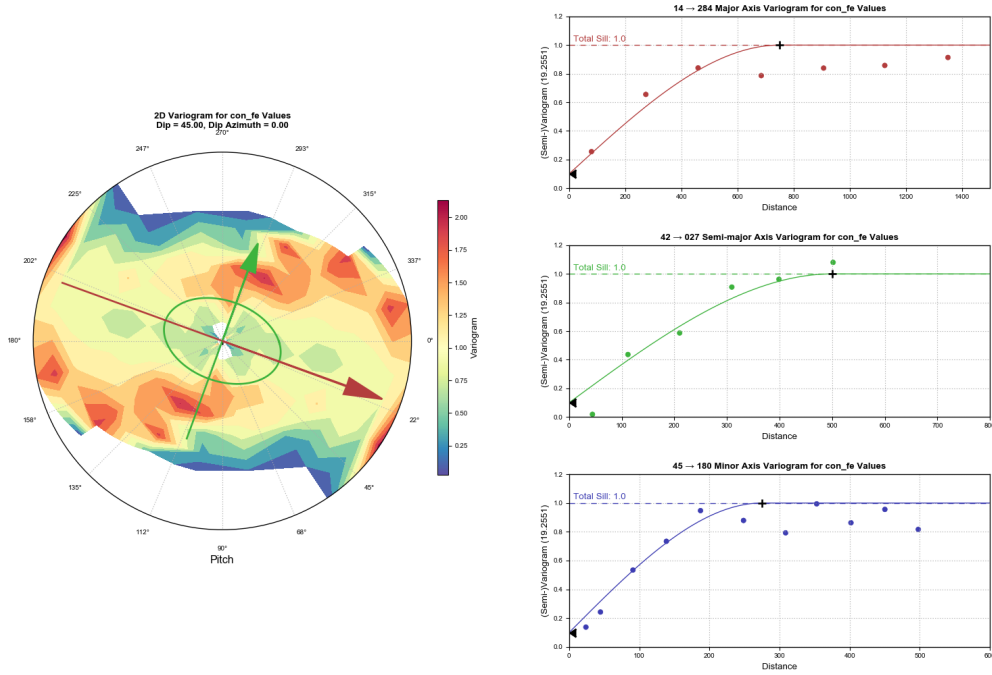


Figure 11-4: Radial Plot, Experimental Variogram and Model for conFe Within IFCB Main Pit Carb

**Table 11-4: Tilden Variogram Models
Cleveland-Cliffs Inc. – Tilden Property**

Domain	Variable	Nugget	Structure ½	Distance (ft) (Structure ½)			Trend (°)		
				Major	Semi Major	Minor	Dip	Dip Az.	Pitch
High SiO ₂ Contact AI (370)	all	0.1	0.9	750	400	400	45	340	45
IFCB 340 Main Pit Carb	all	0.1	0.9	750	500	275	45	0	20
IFCB CDIII Pit (420)	all	0.1	0.9	900	600	200	50	335	0
IFCB East Tilden Carb (316)	all	0.1	0.9	600	600	200	50	300	90
IFCB Hi SiO ₂ , Suicide Sill HW (410)	all	0.1	0.9	900	600	200	50	335	0
IFCB Oxidized East Tilden Carb (317)	all	0.1	0.9	600	600	200	50	300	90
IFCB West Pit Carb (421)	all	0.1	0.9	750	500	275	45	0	20
IFCH 300, Low SiO ₂ (350)	all	0.1	0.9	1000	700	400	45	0	50
IFCH 400	all	0.1	0.9	900	700	200	50	335	15
IFCH 500	all	0.1	0.9	900	700	200	50	335	15
IFCH/CL 300, Hi SiO ₂ South (330,321)	all	0.1	0.9	1,000	700	400	45	0	50
IFCL East Pit Clastics, Low SiO ₂ (320)	confe, crudefe, wtrec	0.1	0.4/0.5	350/650	250/600	200/200	35	345	65
IFCL East Pit Clastics, Low SiO ₂ (320)	conphos, consio2	0.1	0.9	650	600	200	35	345	65
IFCL South Wall Clastics, Low SiO ₂	all	0.1	0.9	1,000	800	200	60	0	110
300 High Oxi	conphos	0.1	0.9	1,200	800	200	60	0	180
Suicide Sill High Oxi	conphos	0.1	0.9	1,000	800	200	60	0	110

11.7 Block Model

A regularized, non-rotated block model was created in Leapfrog Edge. Block size was designed to be consistent with the Tilden site grade control model, historical models, and the mine BH (45 ft). SLR recommends exploring a larger block length in the X and Y dimensions, such as 50 ft, in subsequent updates to bring the model in line with mine selectivity. A summary of the block model setup and selected included variables is shown in Table 11-5.

**Table 11-5: Summary of Block Model Setup
Cleveland-Cliffs Inc. – Tilden Property**

Type	X	Y	Z
Min. Coord.	26,077,700	606,225	2,025
Max. Coord.	26,091,825	611,850	-720
Total Length	14,125	5,625	2,745
Block Size	25	25	45

Variable	Description
domain	Estimation domains
mine	Mine 2020JUL15 material flag: insitu, mined, fill, air
confe_ok	BH and DH First pass, DH subsequent
conphos_ok	BH and DH First pass, DH subsequent
consio2_ok	BH and DH First pass, DH subsequent
crudefe_ok	BH and DH First pass, DH subsequent
magfe_ok	BH and DH First pass, DH subsequent
wtrec_ok	BH and DH First pass, DH subsequent
dh_confe_ok	DH only OK est.
dh_conphos_ok	DH only OK est.
dh_consio2_ok	DH only OK est.
dh_crudefe_ok	DH only OK est.
dh_magfe_ok	DH only OK est.
dh_wtrec_ok	DH only OK est.
bh_confe_ok	BH only – estimated by crude IF domain (300, 400, 500)
bh_conphos_ok	BH only – estimated by crude IF domain (300, 400, 500)
bh_consio2_ok	BH only – estimated by crude IF domain (300, 400, 500)
bh_crudefe_ok	BH only – estimated by crude IF domain (300, 400, 500)
bh_magfe_ok	BH only – estimated by crude IF domain (300, 400, 500)
bh_wtrec_ok	BH only – estimated by crude IF domain (300, 400, 500)
tfc	$13.45 - (0.0792 * (\text{crudefe_ok}))$ for IF, Int=12.3, Ovb=17.3
tfc_inv	1/tfc
code1	best match code for reference to site grade control codes
class	2=Indicated; 3 = Inferred

11.8 Estimation Methodology

Grade interpolation at Tilden was conducted in Leapfrog Edge using OK and hard boundaries, with progressively larger search ellipses and relaxed criteria within BIF units. The first pass used both drill and blast hole data, subsequent passes used drill hole data only. The final conphos variable estimated within

the high-oxidation zones below the Summit Mountain Sill overprints the general domain-restricted conphos results. Inverse distance cubed (ID³) and NN estimates were run in parallel for comparison and validation purposes.

Search ellipses were oriented using dynamic anisotropy based on the hanging wall and footwall of the domain boundaries, except for the high-oxidation zone in the Main Pit, which used a flat search ellipse. The initial search ellipse, which used both drill and blast hole data, was designed to capture blast hole data from three benches. The dimensions of the search ellipses in passes 2 to 4 reference the general drill hole spacing across the deposit (300 ft x 300 ft), the composite length (45 ft), and the block size. The final pass was designed to populate a small number of interstitial blocks that remained unestimated. The search strategy is detailed in Table 11-6. Estimation runs using exclusively drill and blast holes were also performed for use in reconciliation studies using the same strategy.

Table 11-6: Search Strategy
Cleveland-Cliffs Inc. – Tilden Property

Pass	Source Composites ¹	Search Radius (ft)	Max. Samples/Hole	Minimum Samples	Maximum Samples
General Domains					
1	BH, DH	120/120/50	-	3	8
2	DH	450/450/100	3	4	8
3	DH	900/900/200	3	4	8
4	DH	1,500/1,500/300	-	3	8
5	DH	1,500/1,500/1,500	-	3	8
High-Oxidation Domains in Main Pit, conphos only					
1	BH, DH	120/120/50	-	3	8
2	DH	450/450/100	3	4	8
3	DH	600/600/150	3	4	8
4	DH	900/900/200	-	3	8

Notes:

1. BH = blast hole; DH = drill hole

11.8.1 High-Grade Restriction

The influence of conso₂ values above a threshold of 15% or 20% (domain dependent) in low-silica domains was restricted to a distance ellipse of 135 ft x 135 ft x 33 ft. At greater distances values were capped at the threshold, so as to restrict the influence of isolated high values due to small, localized faults and fractures.

11.8.2 Bulk Density

Consistent with previous models at Tilden, the following regression calculation was used to assign tonnage factors to the model:

$$\text{Tonnage Factor (ft}^3\text{/LT)} = 13.45 - (0.0792 * \text{crudefe})$$

For non-iron formation units, the following tonnage factors were assigned:

- Intrusive: 12.3
- Outlier or unestimated Iron Formation: 10.25
- Overburden: 17.3
- Backfill: 17.3

11.9 Cut-off Grade

A preliminary open-pit shell was generated using the Lerchs-Grossmann (LG) optimization method as a constraint in the preparation of the open-pit Mineral Resource estimate. The open-pit shell is based on a US\$90/long ton pellet price and meeting the following cut-off grade criteria, based on existing pellet specifications and price contracts:

- $\geq 25\%$ wtrec
- $\geq 25\%$ crudefe
- $\leq 0.07\%$ conphos
- $\leq 6\%$ to 8.5% consio2 (domain dependent)

The pellet cost basis for the LG optimization is based on a dry, 61.5% Fe fluxed pellet. The revenue and cost parameters for the LG optimization are presented in Table 11-7. Pit slopes applied to *in situ* material range from 33.7° to 43.8°, depending on the domain.

**Table 11-7: Whittle Pit Parameters
Cleveland-Cliffs Inc. – Tilden Property**

Parameter	Value
Pellet Sale Price	US\$90/t pellet
Mining Cost	US\$2.52/t mined
- Depth Adjustment Factor (per 45ft bench)	US\$0.02/t mined
Milling Cost	US\$9.50/t milled
Pelletizing Cost	US\$11.34/t pellet
General and Administration Cost	US\$2.72/t pellet
Sustaining Capital	US\$4.33/t pellet
Mineral Royalty	US\$1.80/t pellet

11.10 Classification

Definitions for resource categories used in this TRS are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Classification criteria considered the spatial continuity of the different variables, and the quality and density of the samples. Final classification was assigned from wireframes built to capture areas characterized by drill hole-spacing criteria as shown in Table 11-8. This work was supported by variography, as well as a drill hole-spacing study that assigned an average distance of the three closest composite samples from neighboring drill holes to each composite. The block model was post-processed to downgrade an area of clastic material west of the Main Pit that would have otherwise met

the criteria for a classification of Indicated but was missing conphos values due to historical practices that did not include conphos as a standard measurement in exploration drill hole sampling.

**Table 11-8: Classification Criteria
Cleveland-Cliffs Inc. – Tilden Property**

Classification Criteria	Indicated	Inferred
Drill hole Spacing (ft)	600	1,200
Extension Beyond Drilling (ft)	300	600
Extension Below Drilling (ft)	150	300

SLR recommends completing a reconciliation study to support the inclusion of Measured Mineral Resources at Tilden. SLR notes that, in general, the drill hole spacing is lower below the current topography than above, and that there is very little drilling outside of the 2019 LOM plan extents. SLR recommends additional drilling to improve the understanding of the Tilden deposit at the periphery and at depth, with a focus on low drill-density areas within the 2019 LOM plan, as well as in areas with increased variability, such as the high-silica areas in the east of the Main Pit. An overview of classification is presented in Figure 11-5.

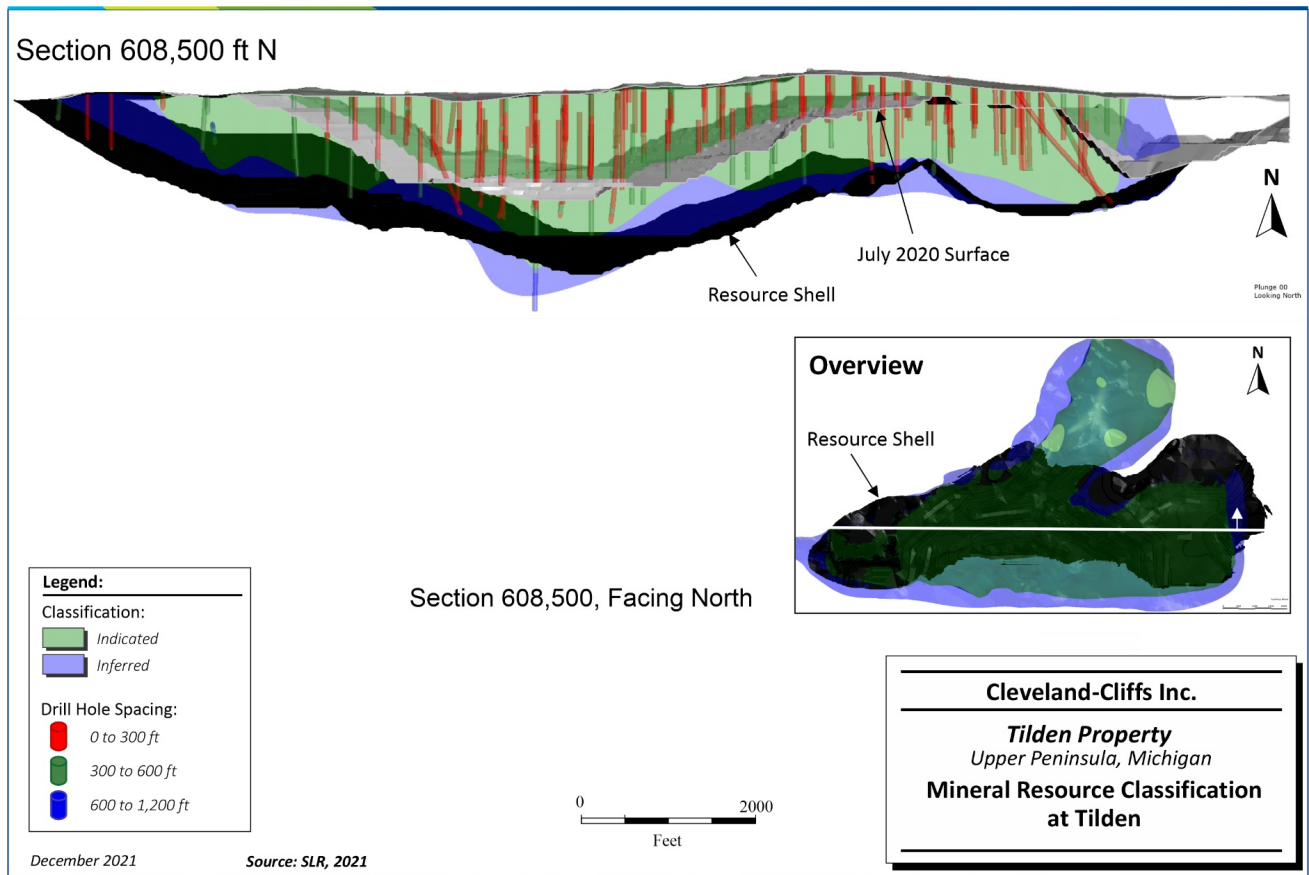


Figure 11-5: Mineral Resource Classification

11.11 Model Validation

Validation of the Mineral Resource estimate results included visual grade comparisons, reviews of block model coding, and statistical reviews of the global accuracy of the estimated variables and evaluation of the local accuracy through the preparation of swath plots (not shown) and comparative statistics (Figure 11-6). Comparative statistics between composite and block data was not reliable due to the clustered nature of the blast hole data. In place of this, the final estimated value was compared to a NN estimate, as a proxy of the declustered input data. No reconciliation with the short-term model was carried out; however, SLR understands that a comprehensive reconciliation study is currently underway.

Visual comparisons between the composites and estimated block grades were conducted on vertical sections and plan views. SLR is of the opinion that the estimated block grades reflect the local drill or blast hole composite value and that the trends displayed are as intended. Selected comparisons are shown in Figure 11-7 to Figure 11-9.

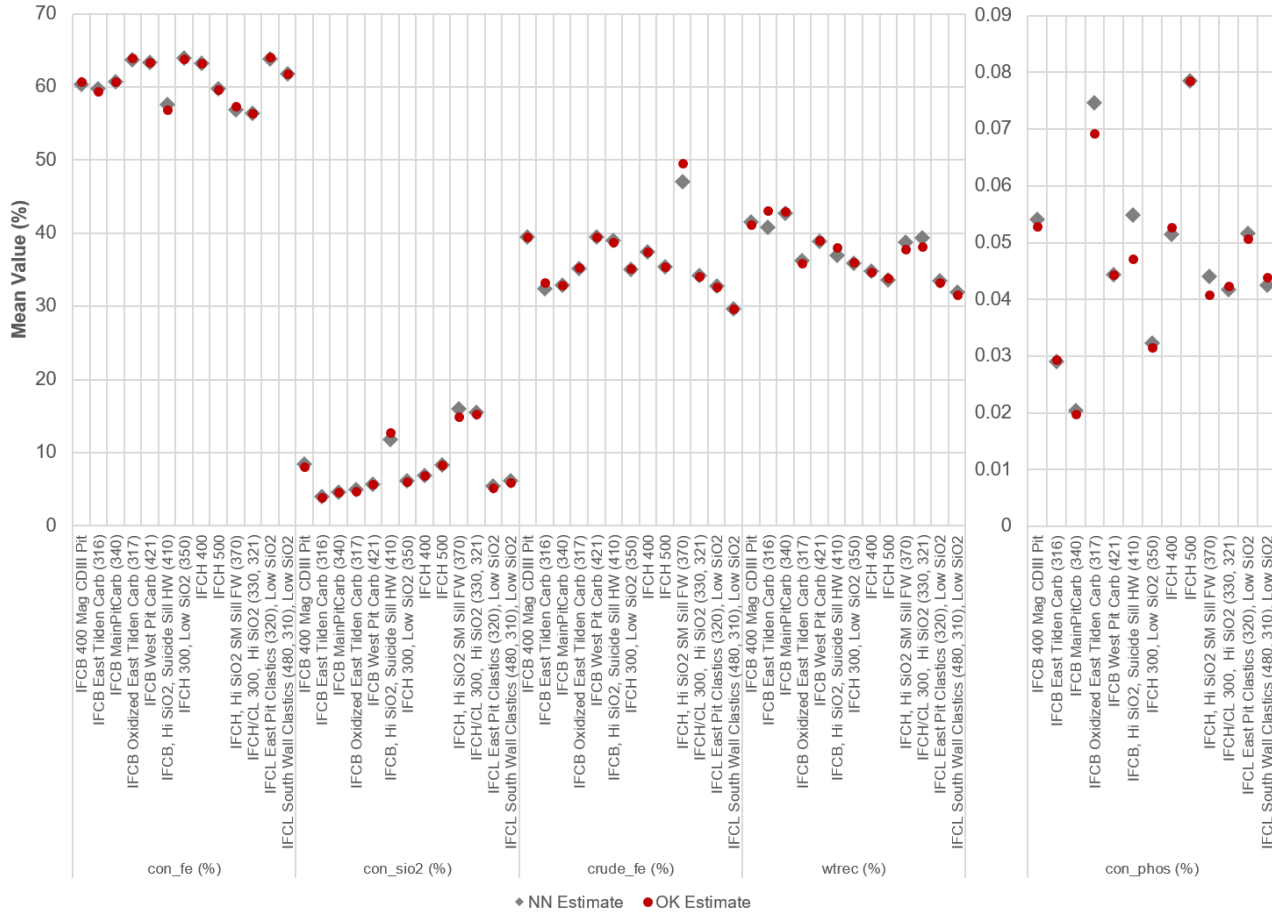


Figure 11-6: Comparison of OK and NN Estimates by Variable and Domain

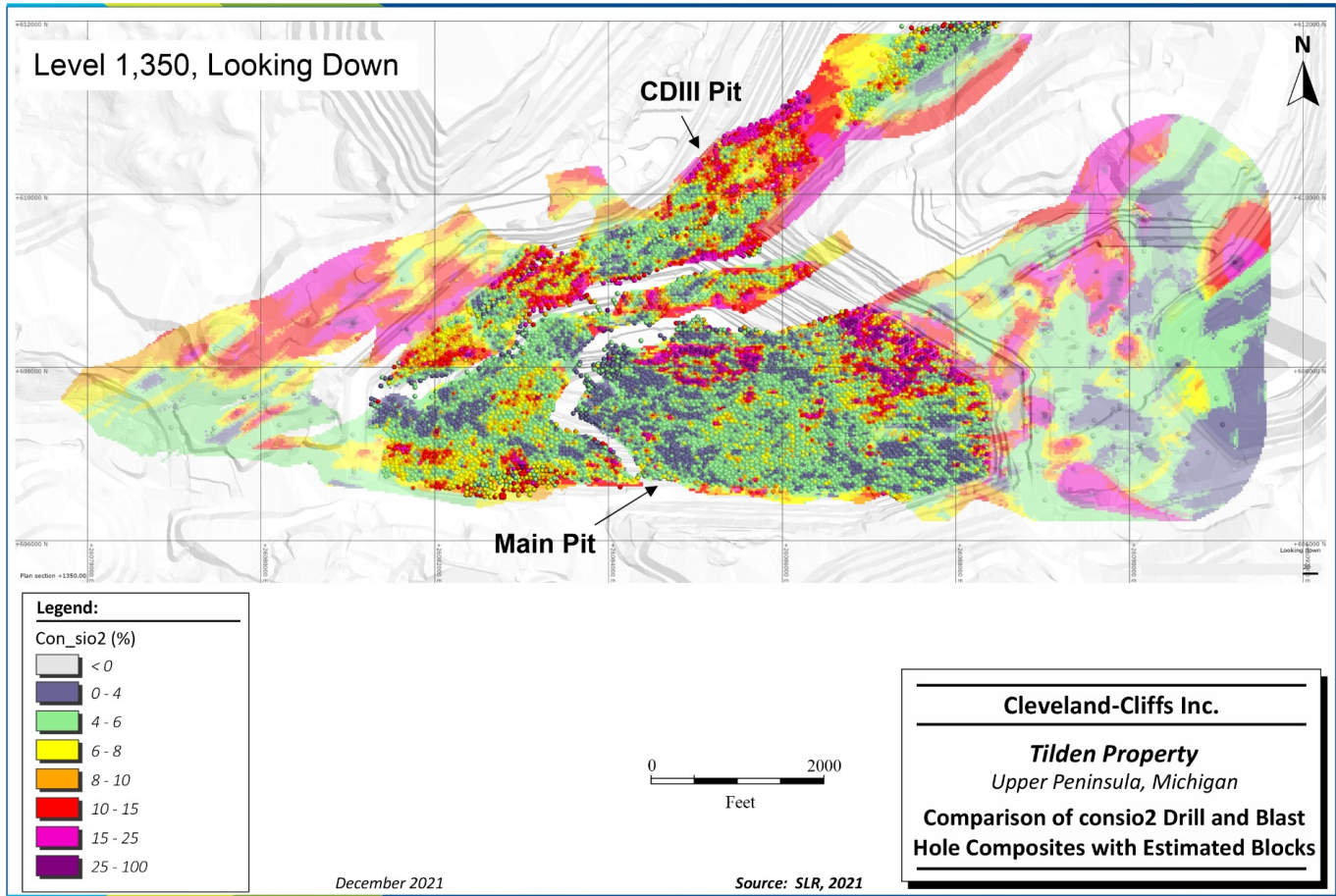


Figure 11-7: Comparison of consio2 Drill and Blast Hole Composites with Estimated Blocks

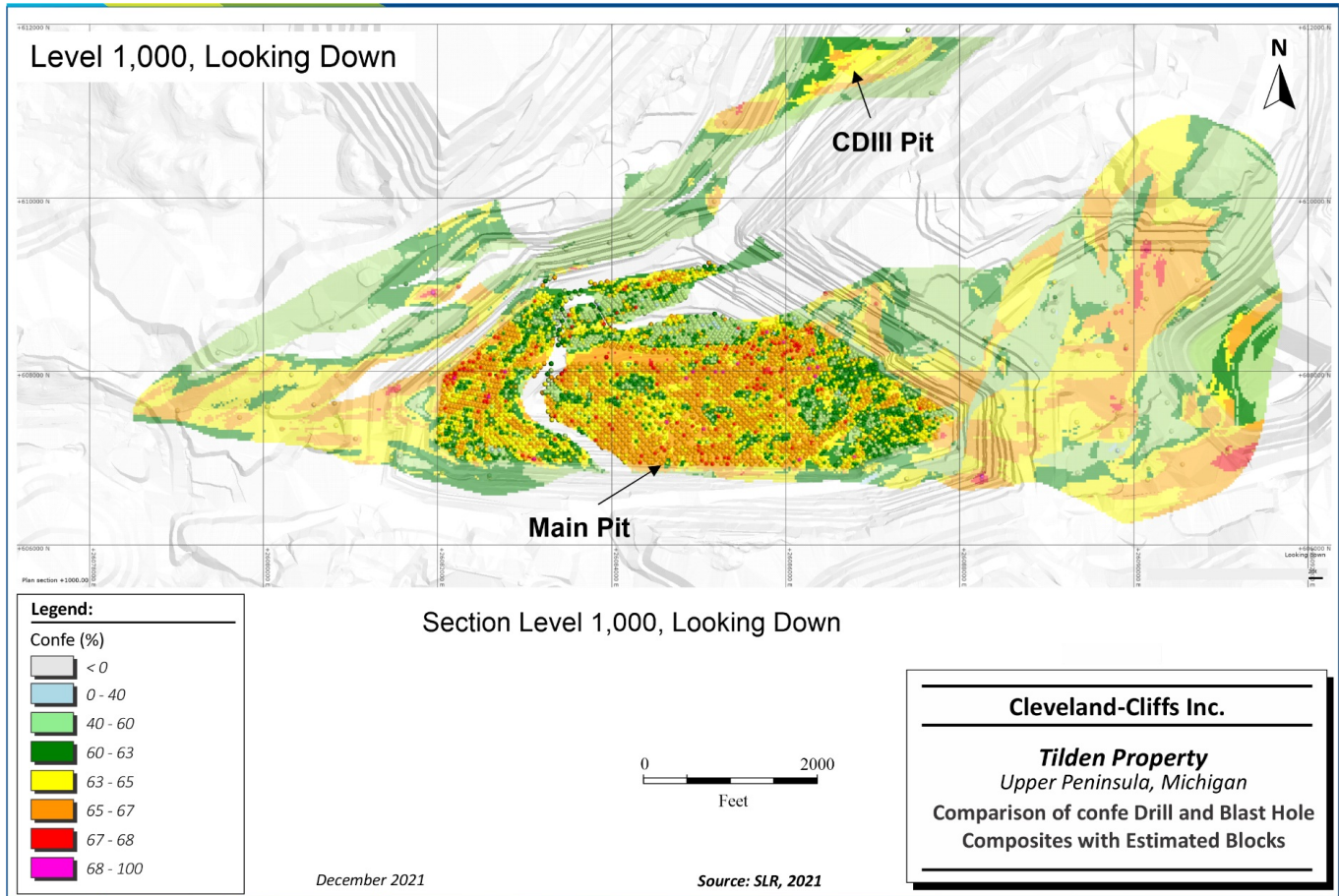


Figure 11-8: Comparison of confite Drill and Blast Hole Composites with Estimated Blocks

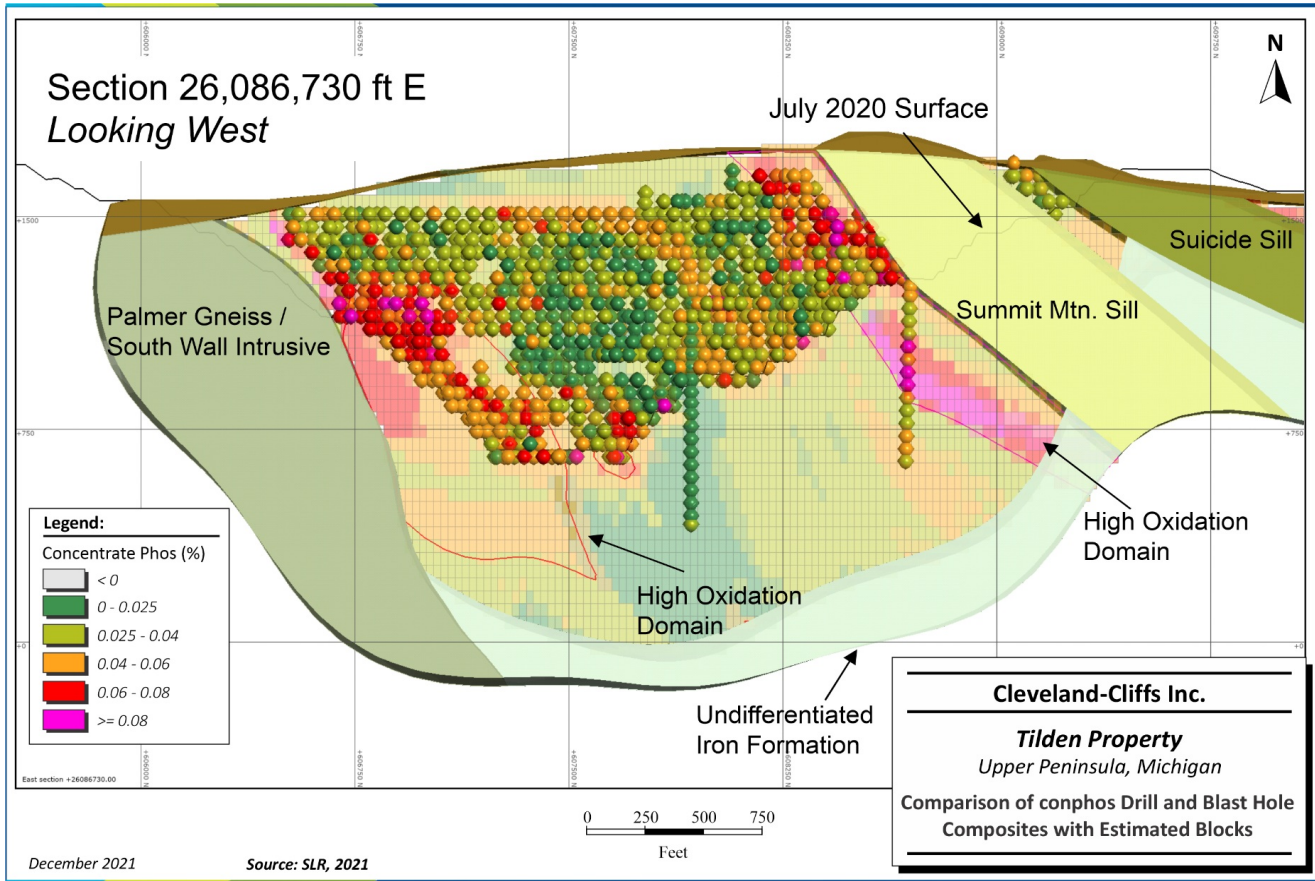


Figure 11-9: Comparison of conphos Drill and Blast Hole Composites with Estimated Blocks

11.12 Model Reconciliation

Reconciliation results comparing actual production results versus model-predicted values of crudefe confe, wtrec, consio2, and conphos for 2021 are presented in Table 11-9. Model values are represented by excavated full bench voids between quarterly topographies. A factor of 0.5 was applied to all ramp excavations, either developing them or removing them, to simulate volumetric differences. The Actual data in this reconciliation is dispatch-recorded material removed from the pit and placed directly in either the crusher or the stockpile.

The models used were the budget mine planning block models, which were modified from the geological model to account for crude ore loss and dilution.

**Table 11-9: 2021 Model Reconciliation
Cleveland-Cliffs Inc. – Tilden Property**

Period	Variable	Model	Actual	Variance
Q1	Crude Ore (kLT)	6,334	5,749	10.2%
	wtrec (%)	34.2	34.5	-0.8%
	crudefe (%)	38.0	37.7	0.6%
	confe (%)	63.8	64.2	-0.6%
	consio2 (%)	4.19	3.98	5.2%
	conphos (%)	0.030	0.030	0.6%
Q2	Crude Ore (kLT)	5,753	5,755	0.0%
	wtrec (%)	35.0	35.2	-0.5%
	crudefe (%)	37.8	36.8	2.9%
	confe (%)	63.8	64.5	-1.1%
	consio2 (%)	4.20	3.99	5.4%
	conphos (%)	0.036	0.031	14.9%
Q3	Crude Ore (kLT)	4,817	5,370	-10.3%
	wtrec (%)	35.2	34.7	1.6%
	crudefe (%)	38.6	36.4	6.0%
	confe (%)	63.5	63.5	0.1%
	consio2 (%)	4.44	4.15	7.1%
	conphos (%)	0.030	0.033	-6.6%

Period	Variable	Model	Actual	Variance
Q4	Crude Ore (kLT)	5,050	5,082	-0.6%
	wtrece (%)	35.4	34.6	2.2%
	crudefe (%)	39.2	37.6	4.3%
	confe (%)	62.8	62.7	0.2%
	consio2 (%)	4.59	4.38	4.9%
	conphos (%)	0.033	0.034	-3.8%
	Crude Ore (kLT)	21,953	21,955	0.0%
2021 Total	wtrece (%)	34.9	34.7	0.5%
	crudefe (%)	38.4	37.1	3.3%
	confe (%)	63.5	63.7	-0.4%
	consio2 (%)	4.34	4.12	5.5%
	conphos (%)	0.032	0.032	1.3%

The results indicate good overall reconciliation, with consistent slight over-prediction of consio2 values and variable conphos, as expected given the lower precision of these values as discussed in Section 8.0.

11.13 Mineral Resource Statement

A detailed breakdown of the Mineral Resources exclusive of Mineral Reserves is presented in Table 11-10. Mineral Resources defined were constrained within an optimized pit shell based on a \$90/long ton pellet price and meeting the following cut-off grade criteria, based on existing pellet specifications and price contracts:

- $\geq 25\%$ wtrece
- $\geq 25\%$ crudefe
- $\leq 0.07\%$ conphos
- $\leq 6\%$ to 8.5% consio2 (domain dependent)

**Table 11-10: Summary of Mineral Resources – December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property**

Category	Long Tons (Mtons)	Crude Fe (%)	Process Recovery (%)	Pellets (Mtons)
Measured	-	-	-	-
Indicated	135.4	35.5	35.9	48.6
Total Measured + Indicated	135.4	35.5	35.9	48.6
Inferred	350.4	34.7	36.4	127.4

Notes:

1. Tonnage is reported in long tons equivalent to 2,240 lb.
2. Tonnage is reported exclusive of Mineral Reserves and has been rounded to the nearest 100,000.
3. Mineral Resources are estimated at cut-off grades of 25% crudefe, 25% wtrece, 0.07% conphos, and 6% consio2 to 8.5% consio2, domain dependent.
4. Mineral Resources are estimated using a pellet value of US\$90/LT.
5. Pellets are reported as fluxed and dry, containing 61.5% Fe, shipped pellets contain 1.5% moisture.

6. Tonnage estimate based on predicted depletion from a surveyed topography on December 31, 2021.
7. Resources are crude ore tons as delivered to the primary crusher; pellets are as loaded onto rail cars.
8. Bulk density is assigned based on a regression equation related to crude Fe.
9. Mineral Resources are 100% attributable to Cliffs.
10. Mineral Resources are constrained within an optimized pit shell and are exclusive of Mineral Reserves.
11. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
12. Numbers may not add due to rounding.

12.0 MINERAL RESERVE ESTIMATE

Mineral Reserves in this TRS are derived from the current Mineral Resources. Mineral Reserves are reported as crude ore and are based on open pit mining. Crude ore is the unconcentrated ore as it leaves the Mine at its natural *in situ* moisture content. The Proven and Probable Mineral Reserves for Tilden are estimated as of December 31, 2021, and summarized in Table 12-1.

**Table 12-1: Summary of Tilden Mineral Reserves – December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property**

Category	Crude Ore Mineral Reserves (MLT)	Crude Ore Fe (%)	Process Recovery (%)	Wet Pellets (MLT)
Proven	3.6	35.3	36.1	1.3
Probable	516.4	34.7	37.0	191.1
Proven & Probable	520.0	34.7	37.0	192.4

Notes:

- Tonnage is reported in long tons equivalent to 2,240 lb and has been rounded to the nearest 100,000.
- Mineral Reserves are reported at a \$90/LT wet hemflux pellet price freight-on-board (FOB) Lake Superior, based on the three-year trailing average of the realized product revenue rate.
- Mineral Reserves are estimated at a crude ore cut-off grade of 25.0% Fe along with additional metallurgical constraints.
- Mineral Reserves include mining dilution built into the Mineral Resource model and mining extraction losses by geometallurgical domain, which range from 4% to 30%.
- The Mineral Reserve mining stripping ratio (waste units to crude ore units) is 1.2.
- Proven Mineral Reserves are crude ore that has been mined and stockpiled for processing during the LOM.
- Process recovery is reported as the percent mass recovery to produce a wet hemflux pellet containing 61.5% Fe; shipped pellets average approximately 1.5% moisture.
- Tonnage estimate is based on the end of year, December 31, 2021 topographic survey.
- Mineral Reserve tons are as delivered to the primary crusher; wet hemflux pellets are as loaded onto lake freighters at Marquette, Michigan.
- Classification of Mineral Reserves is in accordance with the S-K 1300 classification system.
- Mineral Reserves are 100% attributable to Cliffs.
- Numbers may not add due to rounding.

The pellet price of US\$90/LT wet hemflux pellet was used to perform the evaluation of Mineral Reserves in the current mining model. This price is consistent with the Mineral Reserve price used at Cliffs Northshore and United Taconite (UTAC) operations and is supported by the current three-year trailing average of the realized product revenue rate of US\$98/LT wet hemflux pellet. Proven Mineral Reserves consist exclusively of crude ore that has been mined and stockpiled for future processing in the LOM plan. The costs used in this TRS represent all mining, processing, transportation, and administrative costs including the loading of pellets into lake freighters at Marquette, Michigan.

SLR is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.1 Conversion Assumptions, Optimization Parameters, and Methods

Using the mine planning block model for Tilden, pit optimizations and pit designs were conducted to convert the Mineral Resources to Mineral Reserves.

In April 2021, a new mine planning block model, which forms the basis of the current Mineral Reserve estimate, was constructed for Tilden. The mine planning block model is based on the Mineral Resource block model from the January 26, 2021 geologic model (tilden_rpa_block_model_jan2021_ext_wtrec_mod.bmf) and a September 1, 2020 topographic survey projected to December 31, 2021 using actual and forecast depletion. The current Mineral Reserve estimate is reported from the mine planning block model and adjusted for the end of year, December 31, 2021 topographic survey.

Scripts executed within Vulcan add variables for economic evaluation and mine planning, assign mineral lease-holder information, and flag geotechnical zones and in-pit backfills in the mine planning block model. Scripts also assign restrictions to blocks that impact facilities areas or reside within specific geologic boundaries, assigning blocks as restricted or waste when appropriate. The resulting mine planning block model is evaluated using the pit optimization and Chronos scheduling packages in Vulcan.

Iron formations at Tilden are only initially considered as “candidate” crude ore if the stratigraphy comprises one of the following geometallurgical domains (as detailed in Sections 6.0 and 27.0 of this TRS):

- 300 Series Domains – 310, 316, 317, 320, 321, 330, 331, 340, 350, and 370.
- 400 Series Domains – 400, 410, 420, 421, and 480.
- 500 Series Domains – 500.

All other geometallurgical domains are considered to be waste.

In order to be amenable to the Tilden beneficiation process, candidate crude ore from the specified geometallurgical domains must also meet a number of metallurgical constraints as detailed in Sections 10.0 and 14.0 of this TRS and summarized in Table 12-2.

**Table 12-2: Tilden Metallurgical Constraints
Cleveland-Cliffs Inc. – Tilden Property**

Description	Main Pit ¹	East Pit ²
wtrec	≥ 25%	≥ 25%
Head Iron	≥ 25%	≥ 25%
Concentrate P	≤ 0.07%	≤ 0.07%
	Concentrate Silica	
330 Domain	≤ 7.0%	≤ 6.0%
340 Domain	≤ 8.5%	≤ 8.5%
350 Domain	≤ 7.0%	≤ 6.0%
500 Domain	≤ 6.0%	≤ 6.0%
All Other Domains	≤ 7.0%	≤ 7.0%

Notes:

1. Main Pit area defined as all material west of 26,087,000 E in the Mine site coordinate system.
2. East Pit area defined as all material east of 26,087,000 E in the Mine site coordinate system.

Candidate crude ore blocks must then meet the following additional criteria to be considered crude ore blocks:

- Be classified as a Measured or Indicated Resource; Inferred Mineral Resources are considered to be waste.
- Not occur within a mining-restricted area.
- Generate a net block value greater than the cost of the block as if it were mined as waste.

The mine planning block model is based on 25 ft by 25 ft by 45 ft (XYZ) blocks. SLR notes that the block height is consistent with the mined BH dimensions of 45 ft.

Tilden practices strict grade control procedures coupled with post-blast, in-field ore and waste zone delineations. The material type assignment of each block is based on geologic domains, drilling confidence, and metallurgical results from grade control sampling.

Grade control samples are collected from blast holes with the entire 45 ft BH composited into a single sample per blast hole. This accounts for mining conditions such as small scale (i.e., not modeled) intrusive dikes, interfering mineral zones (e.g., smectite clays), or silica inclusions. With the use of this controlled ore grading system, minimal dilution is expected. Ore loss is assigned systematically within the block model on a geometallurgical domain basis using one of the following two methods: assignment based on reconciliation of operational results while mining in a specific domain, or assignment based on observed variability from exploration drilling of a specific domain. Ore loss values specific to each domain are used to convert a percentage of crude ore in the domain to waste rock. The ore loss factors applied by geometallurgical domain are as follows:

- 4% Ore Loss Domains – 310, 320, 340, 350, 370, 410, 420, 421, and 480.
- 8% Ore Loss Domains – 316, 317, and 500.
- 20% Ore Loss Domains – 400.
- 30% Ore Loss Domains – 321, 330, and 331.

Tilden has a long history of plant recovery, which is used as part of the pit optimization. The following summarizes the empirical relationship for hemflux pellet production based on crude ore tons, wtrec, and concentrate iron (Conc_Fe) content:

$$\text{Wet Standard Concentrate tons} = \text{Crude Ore tons} \times (\text{wtrec} \times \text{DDH Discount} \times \text{Plant Discount})$$

$$\text{Wet Hemflux Pellet tons} = \text{Wet Standard Concentrate tons} \times ((\text{Conc_Fe} + 0.4) / \text{Hemflux Pellet Fe})$$

Where:

- DDH Discount = 94.0%
- Plant Discount = 97.5%
- Hemflux Pellet Fe = 61.5%

From 2015 through 2020 the equation has reconciled within 5% annually when comparing calculated wet hemflux pellet production to actual wet hemflux pellet production. Figure 12-1 presents the variance of calculated versus actual hemflux pellets.

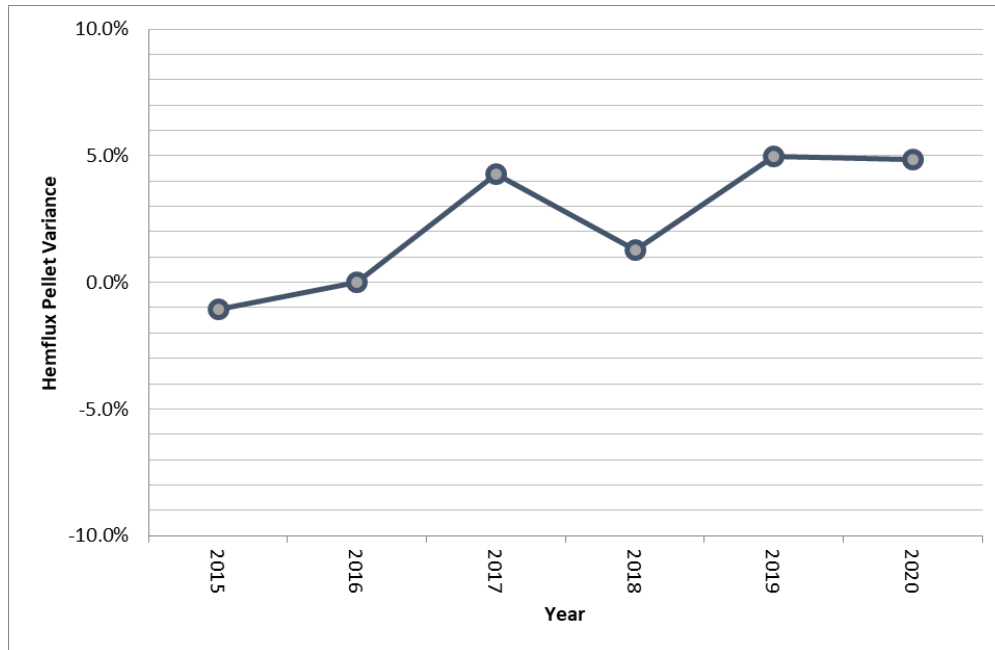


Figure 12-1: Wet Hemflux Pellet Calculated Versus Actual Production Variance

All Measured and Indicated Mineral Resources within the final designed pit that meet the above criteria are converted into Mineral Reserves. The only additional criteria for Measured Mineral Resources being converted into Proven Mineral Reserves is that the material must have already been mined and placed into stockpiles for future processing. Table 12-3 presents the criteria to convert Mineral Resource classifications to Mineral Reserve classifications.

**Table 12-3: Mineral Resource to Mineral Reserve Classification Criteria
Cleveland-Cliffs Inc. – Tilden Property**

Mineral Resources	Criteria for Conversion	Mineral Reserves
Measured	Mined and Stockpiled for Processing	Proven
Indicated	As Scheduled	Probable
Inferred	As Scheduled	Waste

12.2 Previous Mineral Reserve Estimates by Cliffs

Cliffs periodically updates the Tilden Mineral Reserve estimates as changes in Tilden pit development and market conditions occur. The SEC-reported Mineral Reserves for 2012 through 2020 are presented in Table 12-4. While these Mineral Reserves were not prepared under the recently adopted SEC guidelines they followed SEC Guide 7 requirements for public reporting of Mineral Reserves in the United States.

Prior to the current Mineral Reserve estimate, the most recent update to the LOM plan and Mineral Reserves was in 2019. Mineral Reserves in Cliffs' 10K filings have been updated net of depletion since.

**Table 12-4: Previous Cliffs Mineral Reserves
Cleveland-Cliffs Inc. – Tilden Property**

Year	Proven & Probable Crude Ore (MLT)	Process Recovery (%)	Dry Standard Equivalent Pellets (MLT)
2020 ⁽¹⁾	585	34.3	201
2019 ⁽²⁾	603	34.2	206
2018 ⁽³⁾	324	37.6	122
2017 ⁽⁴⁾	346	37.3	129
2016 ⁽⁵⁾	368	37.1	136
2015 ⁽⁶⁾	389	36.9	144
2014 ⁽⁷⁾	584	34.2	200
2013 ⁽⁸⁾	605	34.3	207
2012 ⁽⁹⁾	625	34.3	214

Notes:

1. As of December 31, 2020; Source: Cleveland-Cliffs, Inc. 10-K Filing
2. As of December 31, 2019; Source: Cleveland-Cliffs, Inc. 10-K Filing
3. As of December 31, 2018; Source: Cleveland-Cliffs, Inc. 10-K Filing
4. As of December 31, 2017; Source: Cleveland-Cliffs, Inc. 10-K Filing
5. As of December 31, 2016; Source: Cleveland-Cliffs, Inc. 10-K Filing
6. As of December 31, 2015; Source: Cleveland-Cliffs, Inc. 10-K Filing
7. As of December 31, 2014; Source: Cleveland-Cliffs, Inc. 10-K Filing
8. As of December 31, 2013; Source: Cleveland-Cliffs, Inc. 10-K Filing
9. As of December 31, 2012; Source: Cleveland-Cliffs, Inc. 10-K Filing

Year-to-year changes to crude ore tons in Table 12-4 are primarily attributable to mining depletion. SLR notes that in 2015, significant changes to the pellet market contributed to the decrease in crude ore tons from the previous year. This trend was reversed in 2019, with crude ore tons increasing to similar levels observed prior to 2015. In 2021, a new Mineral Resource block model was prepared, which, along with mining depletion, contributes to the current decrease from the end of year 2020.

12.3 Pit Optimization

Pit optimizations were carried out for Tilden in Vulcan using the current mine-planning block model. Inputs used for the optimization were derived from actual production metrics and first principles estimation for the LOM forecast.

12.3.1 Summary of Pit Optimization Parameters

Pit optimization parameters are summarized as follows:

- Wet hemflux pellet tons = crude ore tons x (wtrec x 0.9165) x ((Conc_Fe + 0.4)/61.5)
- Base-case product average price = \$90/LT wet hemflux pellets
- *In situ* rock mining cost = \$2.52/LT mined

- Incremental mining cost per bench above or below +1,575 ft elevation = \$0.02/LT/45 ft mined
- Crushing and concentrating cost = \$9.50/LT crude ore
- Pelletizing and site administration cost = \$14.06/LT wet hemflux pellets
- Replacement capital cost = \$4.33/LT wet hemflux pellets
- Royalty cost = variable based on *in situ* crude ore spatial location
- Maximum overall pit slope angle = variable by slope sector (34° to 44° *for in situ* rock, 30° in overburden)
- Pit restriction = surface infrastructure to the south (i.e., the processing facilities) with the existing southern footwall being a defined limit, existing large waste rock stockpiles to the north and northeast

12.3.2 Pit Optimization Results and Analysis

Pit optimization results are used as a guide for pit and stockpile designs. Pit optimizations were run by varying the base-case product price with a block revenue factor. The risk profile and revenue-generating potential of the deposit is evaluated by looking at the relationship between crude ore and waste rock and the associated relative discounted cash flows generated at each incremental pit (discount rate of 10% utilized for the optimization analysis).

The optimization results are summarized in Table 12-5, presenting the pit shell results from a price range of \$63.00/LT to \$90.00/LT of wet hemflux pellets. Pit shell 22 was selected as a guide for the Mineral Reserve final pit design, which is based on a wet hemflux pellet price of \$72.90/LT.

**Table 12-5: Pit Optimization Results
Cleveland-Cliffs Inc. – Tilden Property**

Pit Shell	Revenue Factor	Product Price (US\$/LT wet pellet)	Crude Ore (MLT)	Stripping (MLT)	Total Tons (MLT)	Stripping Ratio (W:O)	Process Recovery (%)	Wet Pellets (MLT)
11	0.70	63.00	380	187	567	0.5	37.2	141
12	0.71	63.90	390	201	592	0.5	37.1	145
13	0.72	64.80	397	210	607	0.5	37.1	147
14	0.73	65.70	409	229	638	0.6	37.1	151
15	0.74	66.60	418	242	660	0.6	37.0	155
16	0.75	67.50	444	277	721	0.6	36.7	163
17	0.76	68.40	463	303	765	0.7	36.5	169
18	0.77	69.30	478	330	807	0.7	36.5	174
19	0.78	70.20	488	350	837	0.7	36.4	178
20	0.79	71.10	495	364	859	0.7	36.4	180
21	0.80	72.00	525	449	973	0.9	36.5	191
22	0.81	72.90	530	460	990	0.9	36.4	193
23	0.82	73.80	538	476	1,014	0.9	36.4	196
24	0.83	74.70	547	494	1,041	0.9	36.3	199

Pit Shell	Revenue Factor	Product Price (US\$/LT wet pellet)	Crude Ore (MLT)	Stripping (MLT)	Total Tons (MLT)	Stripping Ratio (W:O)	Process Recovery (%)	Wet Pellets (MLT)
25	0.84	75.60	553	510	1,063	0.9	36.3	201
26	0.85	76.50	560	529	1,088	0.9	36.3	203
27	0.86	77.40	563	539	1,102	1.0	36.3	204
28	0.87	78.30	565	544	1,109	1.0	36.3	205
29	0.88	79.20	573	568	1,141	1.0	36.2	208
30	0.89	80.10	576	580	1,157	1.0	36.2	209
31	0.90	81.00	578	586	1,163	1.0	36.2	209
32	0.91	81.90	580	592	1,172	1.0	36.2	210
33	0.92	82.80	584	605	1,189	1.0	36.2	211
34	0.93	83.70	588	621	1,209	1.1	36.2	213
35	0.94	84.60	590	630	1,220	1.1	36.2	214
36	0.95	85.50	591	631	1,222	1.1	36.2	214
37	0.96	86.40	592	635	1,226	1.1	36.2	214
38	0.97	87.30	592	637	1,229	1.1	36.2	214
39	0.98	88.20	594	643	1,236	1.1	36.2	215
40	0.99	89.10	596	654	1,250	1.1	36.2	216
41	1.00	90.00	599	666	1,264	1.1	36.2	217

Note:

- Numbers may not add due to rounding.

Figure 12-2 presents an optimization pit-by-pit graph showing tonnages and relative discounted cash flow results, in addition to the selected final pit shell 22 highlighted (Revenue Factor of 0.81).

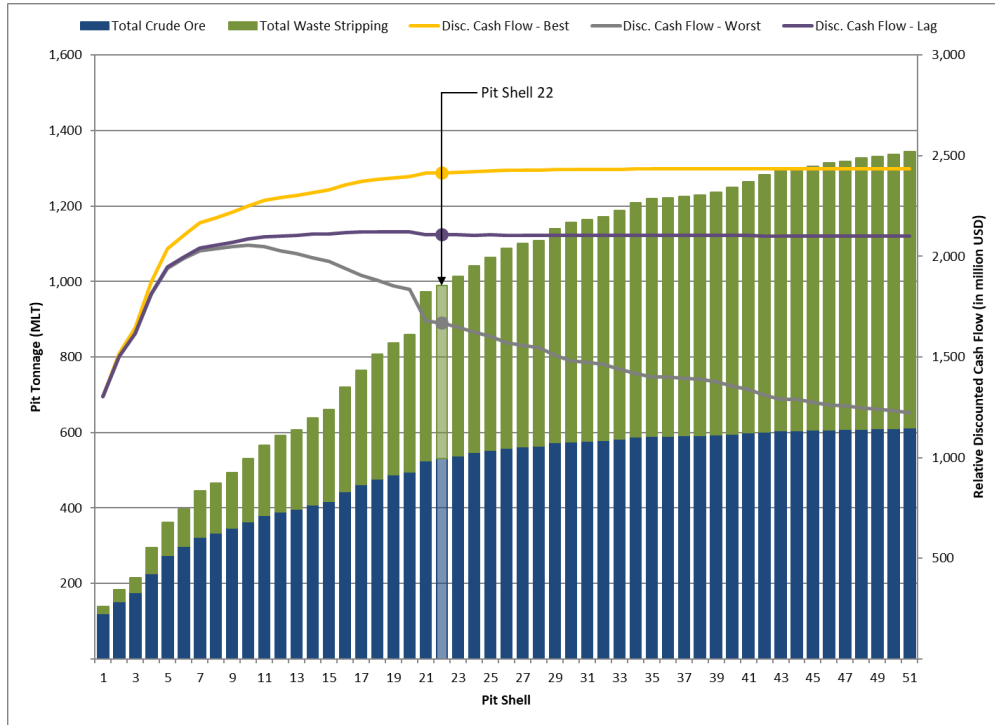


Figure 12-2: Tilden Mine Pit-by-Pit Graph

As observed in Figure 12-2, at higher pit shell numbers (i.e., higher product prices) there is limited opportunity for increased Mineral Reserves and the incremental stripping ratio increases significantly. This is a result of the overall pit size being restricted by the surface infrastructure to the south (i.e., the processing facilities) and waste rock stockpiles to the north and northeast.

Figure 12-3 superimposes the final pit shell selection (i.e., pit shell 22) footprint over top the current Tilden topography.

As observed in Figure 12-3, the final pit shell selection develops to the north and along strike of the existing pit, leaving the existing southern pit footwall slope unaltered.

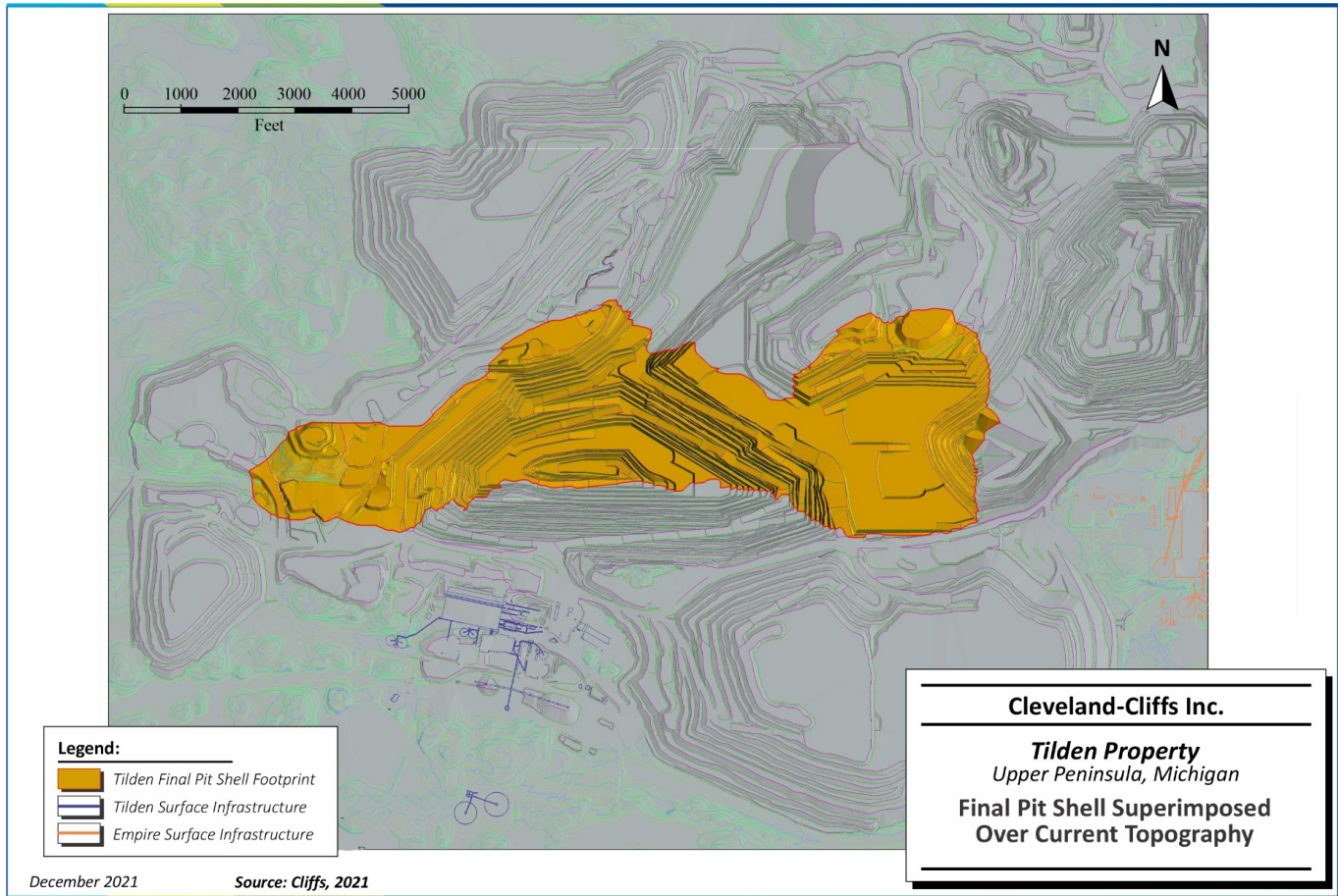


Figure 12-3: Final Pit Shell Superimposed Over Current Topography

12.4 Mineral Reserve Cut-off Grade

The Mineral Reserve cut-off grade is a combination of metallurgical constraints based on geometallurgical domains applied in order to produce a saleable product followed by verification through a break-even cut-off grade calculation. In summary, the Mineral Reserve cut-off requirements are:

- Crude ore Fe: all geometallurgical domains $\geq 25\%$
- Crude ore wtrec: all geometallurgical domains $\geq 25\%$
- Concentrate P: all geometallurgical domains $\leq 0.07\%$
- Concentrate SiO₂: variable by geometallurgical domain from $\leq 6.0\%$ to $\leq 8.5\%$

12.5 Mine Design

The Tilden final pit design incorporates several design variables including geotechnical parameters (e.g., wall angles and bench configurations), equipment size requirements (e.g., mining height and ramp configuration), and physical mining limits (e.g., property boundaries and existing infrastructure). The following summarizes the design variables and final pit results. Further detail is provided in the preceding subsections and in Section 13.0 of this TRS.

Six separate slope sectors have been identified in the *in situ* rock. The IRA of the slope sectors varies from approximately 38° to 47°. The bench design consists of 45 ft-high mining benches, double benched to a final 90 ft BH, with a 48.5° to 66.5° BFA and 35 ft to 45 ft catch benches (CB). The majority of the final pit's south wall is an existing final wall located above slope sector 5. It was developed along the footwall of the iron formation and acts as a limit to the new final pit design.

Pit slopes in glacial overburden are designed at an average slope angle of approximately 30°.

Haul roads are incorporated with widths of 120 ft to support two-way traffic and 90 ft for one-way traffic. Ramp gradients are limited to a maximum of 10% to stay within the safe working capabilities of the trucks.

The selected final pit shell compared to the final pit design is detailed in Table 12-6. Pit design results are reported using the same topographic surface projection as the pit optimization results (i.e., as per the mine planning block model).

**Table 12-6: Pit Optimization to Pit Design Comparison
Cleveland-Cliffs Inc. – Tilden Property**

Pit	Crude Ore (MLT)	Crude Ore Fe (%)	Stripping (MLT)	Total Material (MLT)	Stripping Ratio (W:O)
Pit Optimization Pit Shell 22	530	34.7	460	990	0.9
Final Pit Design	513	34.7	595	1,107	1.2

Notes:

1. Comparison totals are per the Mine planning model.
2. Crude ore is *in situ* tonnage; stockpiled inventory is excluded.
3. Numbers may not add due to rounding.

Overall, the final pit design is a reasonable representation of the final pit shell guide, with the exception of the north side of the pit proximal to the existing (previously mined) CD3 pit. Additional waste stripping is required in this area to allow access to the CD3 backfill area while not impacting current Mineral Resources and preserving the future Mineral Resources to Mineral Reserve conversion potential of the area.

13.0 MINING METHODS

13.1 Mining Methods Overview

The Tilden deposit is mined using conventional surface mining methods, with surface operations including:

- Overburden (glacial till) removal
- Drilling and blasting (excluding overburden)
- Loading and haulage
- Crushing and rail loading

Tilden Mineral Reserves are based on ongoing annual crude ore production of 20 MLT to 22 MLT producing approximately 7.7 MLT of wet hemflux pellets for domestic consumption.

Mining and processing operations are scheduled 24 hours per day, and mine production is scheduled to directly feed the processing operations.

The current LOM plan has mining scheduled for 25 years and mines the known Mineral Reserve. The average stripping ratio is approximately 1.2 waste units to 1 crude ore unit (1.2 stripping ratio).

The final Tilden pit is a single pit approximately 2.5 mi along strike, up to 0.9 mi wide, and up to 1,980 ft deep.

The Tilden operation has strict crude ore blending requirements to ensure the Plant receives a consistent crude ore feed. The most important characteristics of the crude ore are the crude ore iron grade and predicted concentrate mass recovery, and Conc_Fe, silica, and phosphorus content. Operationally, blending is completed on a shift-by-shift basis. Generally, three to four crude ore loading points are mined simultaneously with dispatch operators issuing real-time adjustments to meet specified crude ore blends for the Plant.

Crude ore is hauled to the crushing facility and either direct tipped to the primary crusher or stockpiled. Haul trucks are alternated to blend delivery from the multiple crude ore loading points. Crude ore stockpiles are used as an additional source for blending and production efficiency. Crushed crude ore is conveyed to a covered storage building for stockpiling, prior to being fed to the concentrator. Waste rock and overburden are hauled to one of the many waste stockpiles peripheral to the pit or to the in-pit backfill.

Primary pit equipment includes electric drills, electric rope shovels, haul trucks, front-end loaders (FELs), bulldozers, and graders. Extensive maintenance facilities are available at the Mine to service the mine equipment.

13.2 Pit Geotechnical

13.2.1 Overview

The geotechnical parameters used for slope design are based on the 2020 slope angle study completed by Call & Nicholas Inc. (CNI) (CNI, 2020). The geotechnical and haul road construction parameters incorporated into the Tilden pit design are summarized in Table 13-1 and referenced graphically in Figure 13-1 and Figure 13-2. Double benching is practiced, involving two, 45 ft working benches to create one, 90 ft overall BH.

**Table 13-1: Pit Wall Geotechnical Parameters
Cleveland-Cliffs Inc. – Tilden Property**

Parameter	Unit	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Overburden
IRA	Degrees	38.1	45.0	42.9	38.1	46.9	44.1	29.7
BFA	Degrees	48.5	63.5	60.0	48.5	66.5	62.0	60.0
BH	ft	90	90	90	90	90	90	45
CB	ft	35	45	45	35	45	45	53
Ramp-Width - 2 way	ft	120	120	120	120	120	120	120
Ramp-Width - 1 way	ft	90	90	90	90	90	90	90
Ramp Gradient (Maximum)	%	10.0	10.0	10.0	10.0	10.0	10.0	10.0

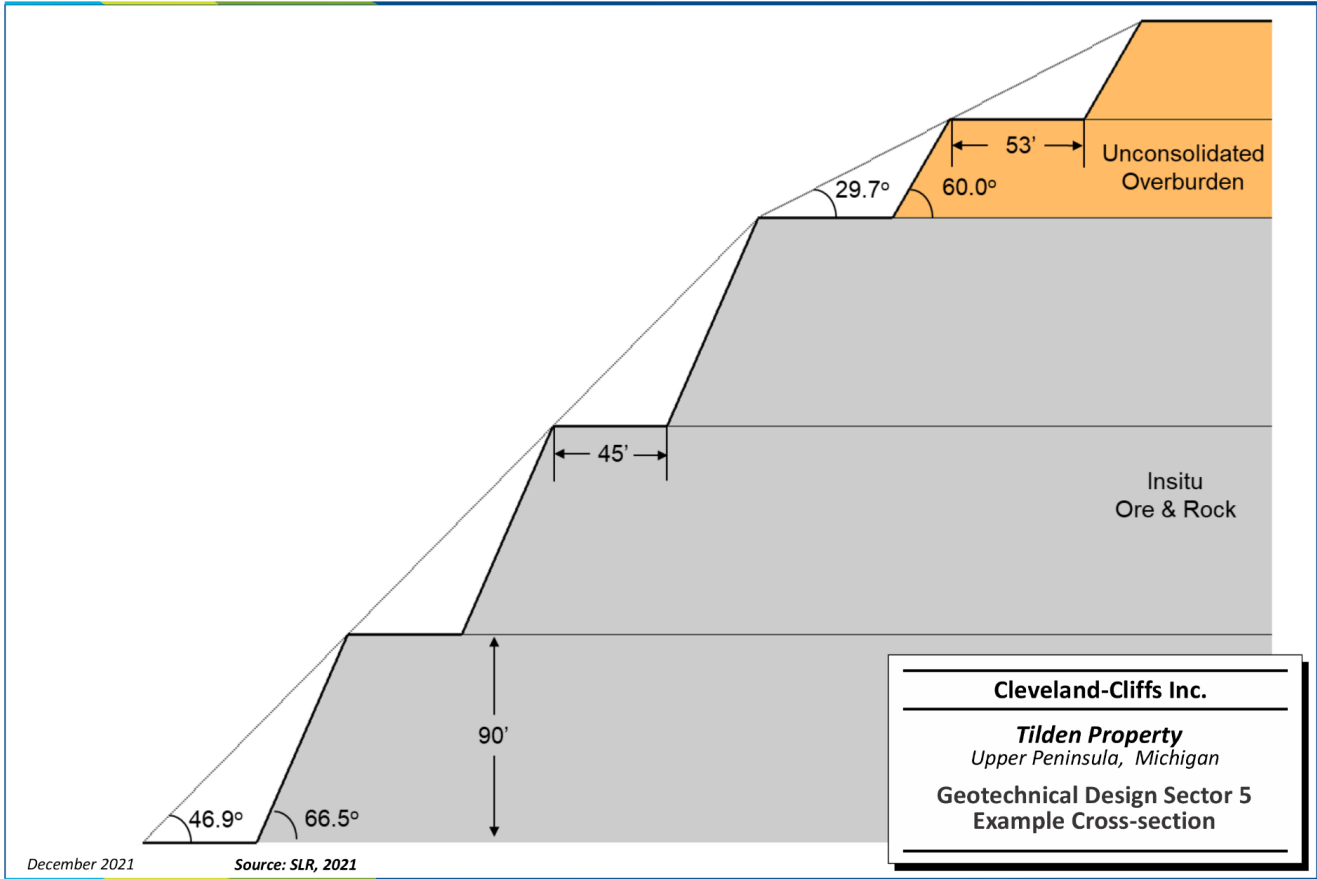


Figure 13-1: Geotechnical Design Sector 5 Example Cross-section

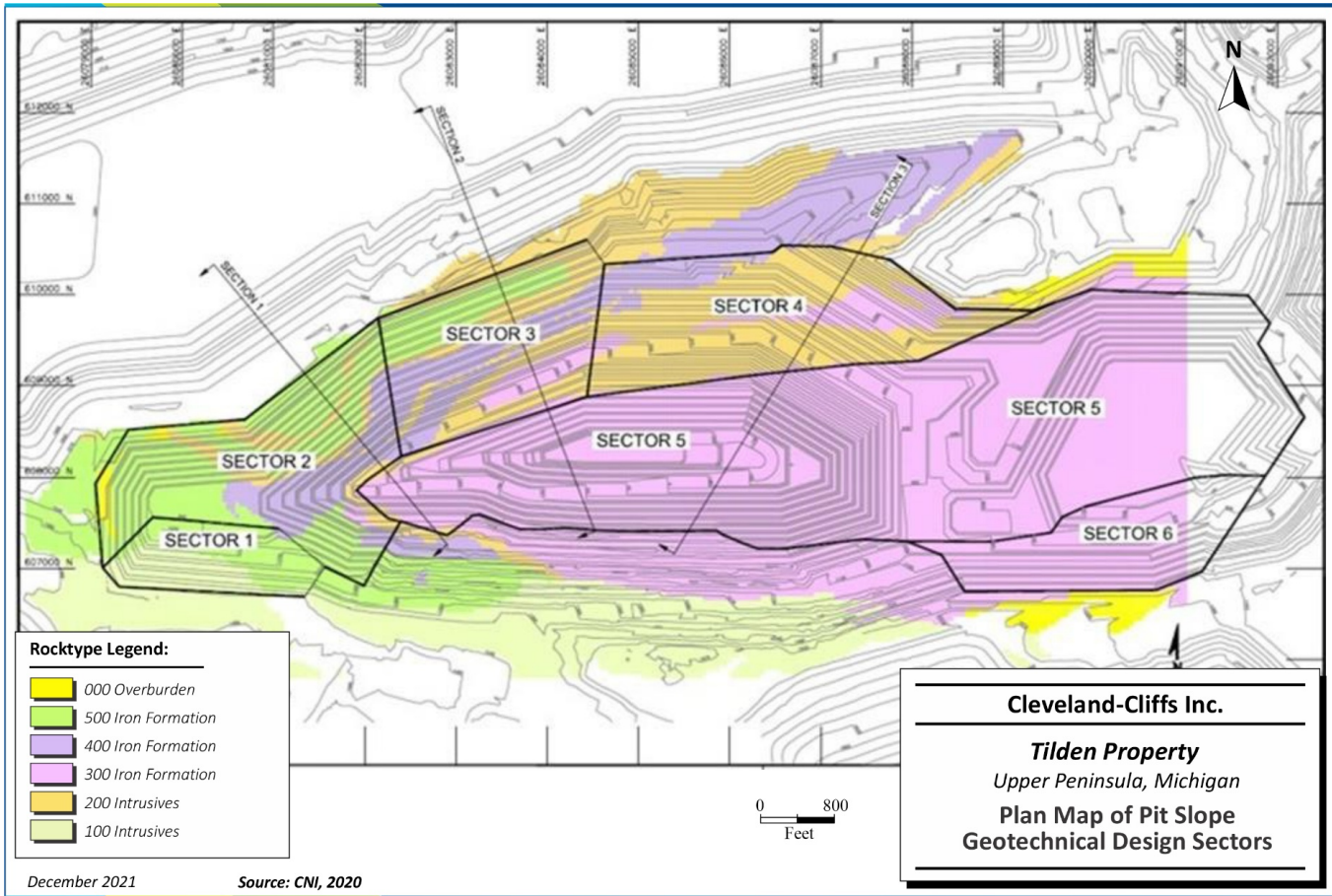


Figure 13-2: Plan Map of Pit Slope Geotechnical Design Sectors

13.2.2 Geotechnical Data

Geotechnical data includes RQD data, contained in the Tilden drill hole database, and laboratory test results of UCS, BTS, and direct shear tests on natural fractures (CNI, 2020). The tests performed are summarized in Table 13-2 and Table 13-3.

**Table 13-2: Summary of UCS and BTS Test Results
Cleveland-Cliffs Inc. – Tilden Property**

Rock Type	Mean UCS (psi)	Young's Modulus (psi)	Poisson's Ratio	Density (pcf)	Mean Tensile Strength (psi)	Number of Tests	
						UCS	BTS
Intrusive (200 series)	17,188	5.7E+06	0.26	176	1,939	13	21
Iron Formation (300, 400, 500 series)	23,657	1.4E+06	0.12	213.4	2,673	11	22

Source: after CNI (2020)

**Table 13-3: Summary of Direct Shear Test Results
Cleveland-Cliffs Inc. – Tilden Property**

Rock Type	Mean Cohesion (psi)	Standard Deviation Cohesion (psi)	Mean Friction Angle (°)	Standard Deviation Friction Angle (°)	Number of Tests
Iron Formation (300, 400, 500 series)	5.1	4.0	34.4	3.5	11
Fault Gouge	4.0	4.0	18.9	1.6	2

Source: after CNI (2020)

Photogrammetry data, combined with cell-mapping data collected by CNI in 2010 and 2012 was used to develop a structural model. Photographs taken using an aerial drone were processed by CNI using Pix4D to create high-definition point clouds. The point clouds were then used to map joints and faults and take measurements of dip and dip direction for use in defining structural domains and for input into a slope stability assessment.

13.2.3 Rock Mass Shear Strength

Geotechnical domains have been delineated from lithological contacts, lithology block models, fault traces and fault surfaces provided by Cliffs, in addition to from previous Mineral Reserve modeling work. Lithological contacts were used to define iron formation and intrusive rock domains, which were further subdivided into separate geotechnical domains by the faults. Mohr-Coulomb shear strength parameters for the rock mass have been determined using the CNI criterion, which uses a combination of the intact

rock strength and fracture shear strength weighted according to the RQD for each geotechnical domain (Table 13-4).

**Table 13-4: Material Properties Used in Overall Slope Stability Analysis
Cleveland-Cliffs Inc. – Tilden Property**

Cross Section	Rock Type	Geologic Domain	RQD 70% rel.	Fracture		Intact Rock		Rock Mass (crf 0.3) – US		
				Phi (°)	Coh (psi)	Phi (°)	Coh (psi)	Phi (°)	Coh (psi)	Unit Weight (lb/ft ³)
1	300 Iron Fm	-	40	34.4	5.1	44.9	3897	37.5	169	213
	200 Intrusive	2	43	19.4	4.7	44.9	2829	27.8	133	176
	400 Iron Fm	2	34	34.4	5.1	44.9	3897	37.2	145	213
	500 Iron Fm	2	35	34.4	5.1	44.9	3897	37.2	148	213
	200 Intrusive	3	43	19.4	4.7	44.9	2829	27.8	133	176
2	300 Iron Fm	3	40	34.4	5.1	44.9	3897	37.5	169	213
	200 Intrusive	6	43	19.4	4.7	44.9	2829	27.8	133	176
	400 Iron Fm	6	34	34.4	5.1	44.9	3897	37.2	145	213
	500 Iron Fm	6	35	34.4	5.1	44.9	3897	37.2	148	213
	200 Intrusive	4	43	19.4	4.7	44.9	2829	27.8	133	176
3	300 Iron Fm	4	40	34.4	5.1	44.9	3897	37.5	169	213
	400 Iron Fm	6	34	34.4	5.1	44.9	3897	37.2	145	213

Source: after CNI (2020)

Strength anisotropy is also modeled to account for strong preferential jointing in the iron formations and intrusive rocks, which reduces the shear strength of the rock mass in the direction parallel to the main structure. Anisotropic strength is calculated from a weighted average of intact rock strength (rock bridge) and fracture strength (Table 13-5).

**Table 13-5: Anisotropic Material Properties Used in the Weak Direction
Cleveland-Cliffs Inc. – Tilden Property**

Cross Section	Rock Type	Geologic Domain	Dip Range (°)	Type	Percentage Intact (%)	Phi (°)	Coh (psf)
1	300 Iron Fm	-	-		3.1	34.8	125.8
	200 Intrusive	2	53-38	Joint	1.9	19.9	58.4
	400 Iron Fm	2	55-39		3.1	34.8	125.8
	500 Iron Fm	2	55-39		3.1	34.8	125.8
	200 Intrusive	3	58-42		1.9	19.9	58.4
300 Iron Fm	3	51-35	3.1		34.8	125.8	
2	200 Intrusive	6	49-36	Joint	1.9	19.9	58.4
	400 Iron Fm	6	59-41		3.1	34.8	125.8
	500 Iron Fm	6	59-41		3.1	34.8	125.8
	200 Intrusive	4	51-35		1.9	19.9	58.4
3	300 Iron Fm	4	84-52	Joint	3.1	34.8	125.8
	400 Iron Fm	6	84-52		3.1	34.8	125.8

Source: after CNI (2020)

13.2.4 Hydrogeology and Pit Water Management

Surface water is abundant, as the Property is surrounded by natural lakes and wetlands. While water is known to be present within the rock mass, inflow of water from the pit walls has not been a significant challenge to operations.

Groundwater has been incorporated into the slope stability analysis using the results of 2D pore pressure modeling carried out by CNI based on the regional phreatic surface provided by Cliffs.

All pit dewatering that is discharged off-site must first pass through the clarifier system at the Gribben tailings basin prior to discharge via a National Pollutant Discharge Elimination System (NPDES)-permitted outfall, which has a maximum discharge rate of 25.8 million gallons per day.

Water used for dust control on roads comes from pit sumps. Overall water requirements for the Mine are detailed in section 15.10 of this TRS.

13.2.5 Stability Assessment and Slope Design

Recommended IRAs, CBs, and BFAs were derived by CNI from a survey of as-built slopes using LiDAR and drone survey data, which allowed for an assessment of achievable design parameters. The stability of the overall slope design was assessed for sections cut through the May 2019 pit surface combined with the current Mineral Reserve pit. Analysis was performed with Rocscience's Slide 2018 limit equilibrium software using the Spencer method of slices, including the modeled (regional) groundwater phreatic surface. A factor of safety (FoS) of 1.2 was chosen as the acceptance criteria for slope stability. Three sections were analyzed through slope sectors 2, 3, and 4. Results indicate that final slopes in sector 4

will be stable, while sectors 2 and 3 may require some depressurization to achieve a FoS of 1.2. SLR recommends an assessment of the groundwater conditions in the immediate vicinity of the final pit through a more focused groundwater model. The results of this assessment should be input into an update of the stability analysis on sections cut through the current final pit design.

13.3 Open Pit Design

The Tilden pit design combines current site access, minimum mining width requirements, geotechnical parameters, pit optimization results, and mining limit restrictions as described previously in sections 12.5 and 13.2 of this TRS.

Table 13-6 details the contents of the final pit design adjusted for the end of year, December 31, 2021 topographic survey.

**Table 13-6: Final Pit Design LOM Total - December 31, 2021
Cleveland-Cliffs Inc. – Tilden Property**

Pit	Crude Ore (MLT)	Crude Ore Fe (%)	Waste Rock Stripping (MLT)	Overburden Stripping (MLT)	Total Stripping (MLT)	Total Material (MLT)	Stripping Ratio (W:O)
Tilden	516.4	34.7	586.6	13.9	600.5	1,116.9	1.2

Notes:

1. Crude ore is *in situ* tonnage, stockpiled inventory is excluded.
2. Numbers may not add due to rounding.

Figure 13-3 presents a plan view of the final pit design in addition to the final waste stockpile designs. Figure 13-4 to Figure 13-6 present example cross-sections through the final pit design.

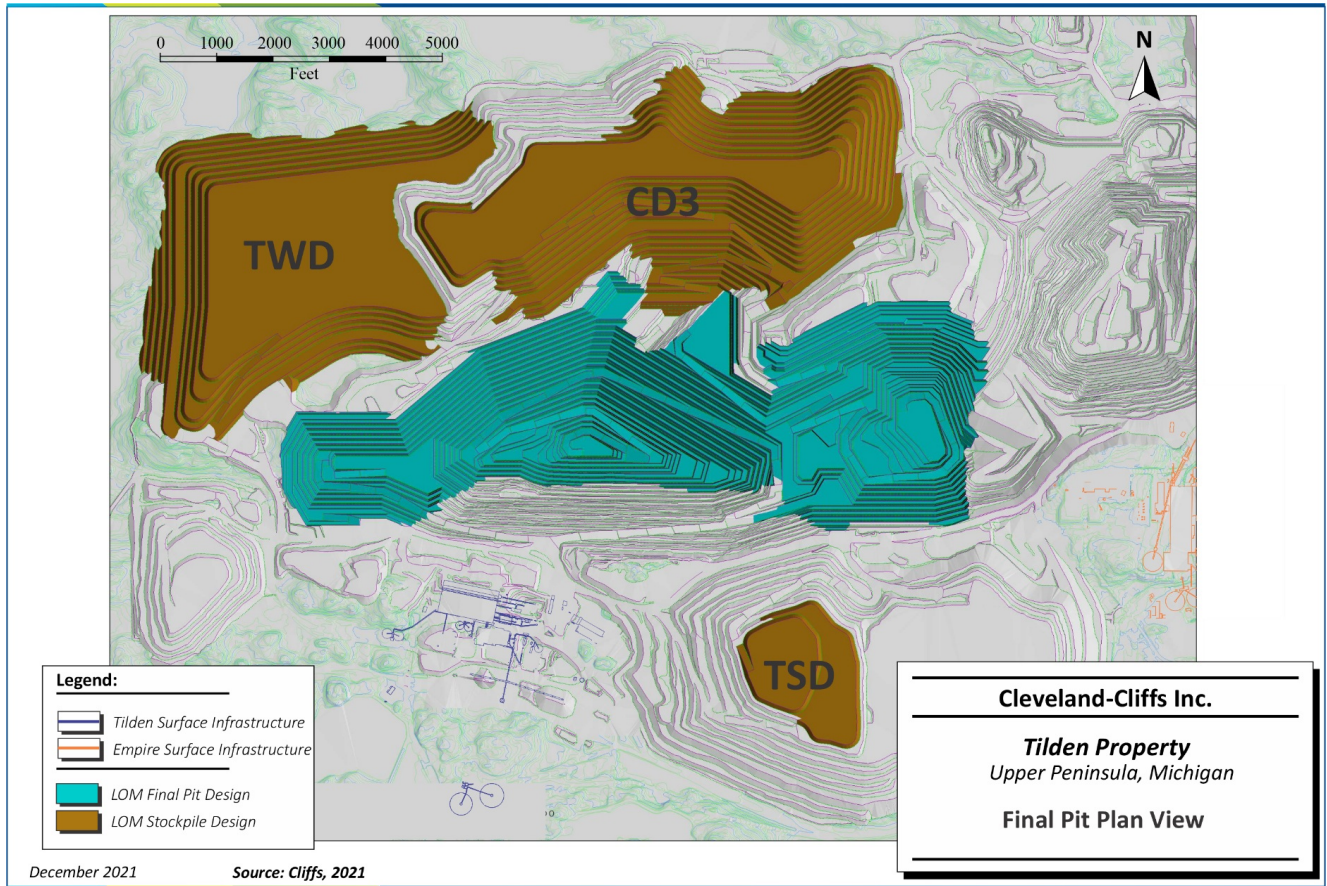


Figure 13-3: Final Pit Plan View

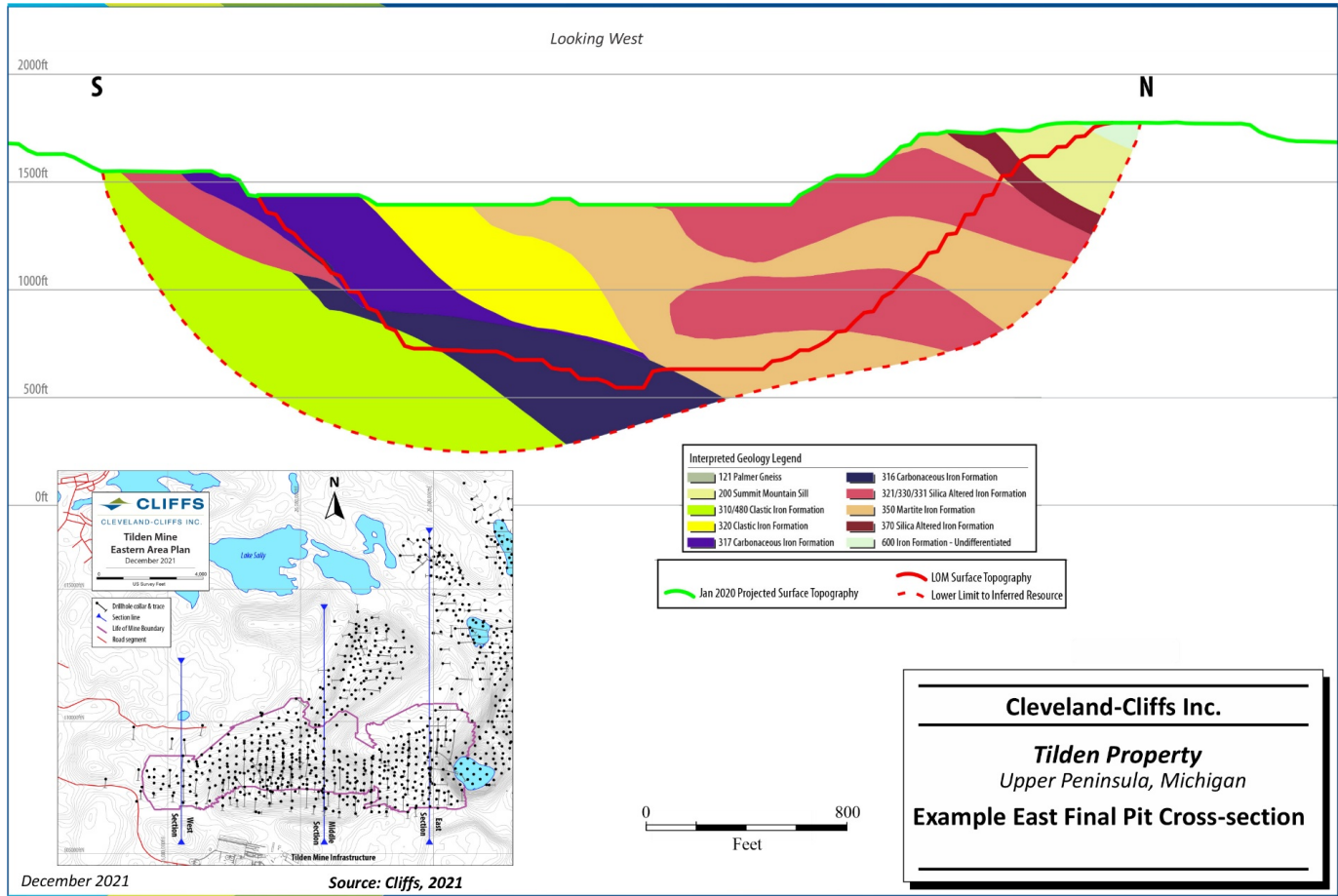


Figure 13-4: Example East Final Pit Cross-section Looking West

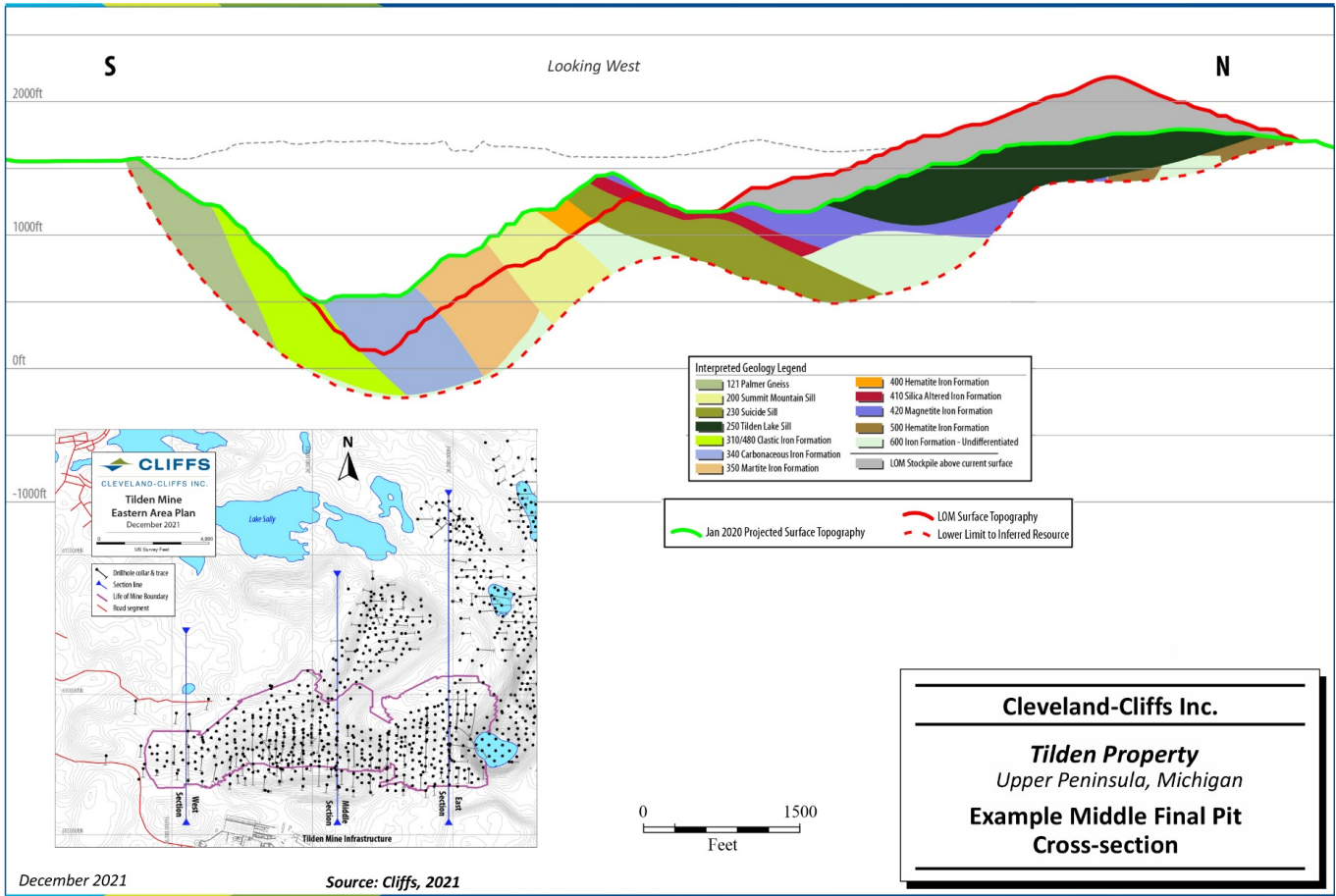


Figure 13-5: Example Middle Final Pit Cross-section Looking West

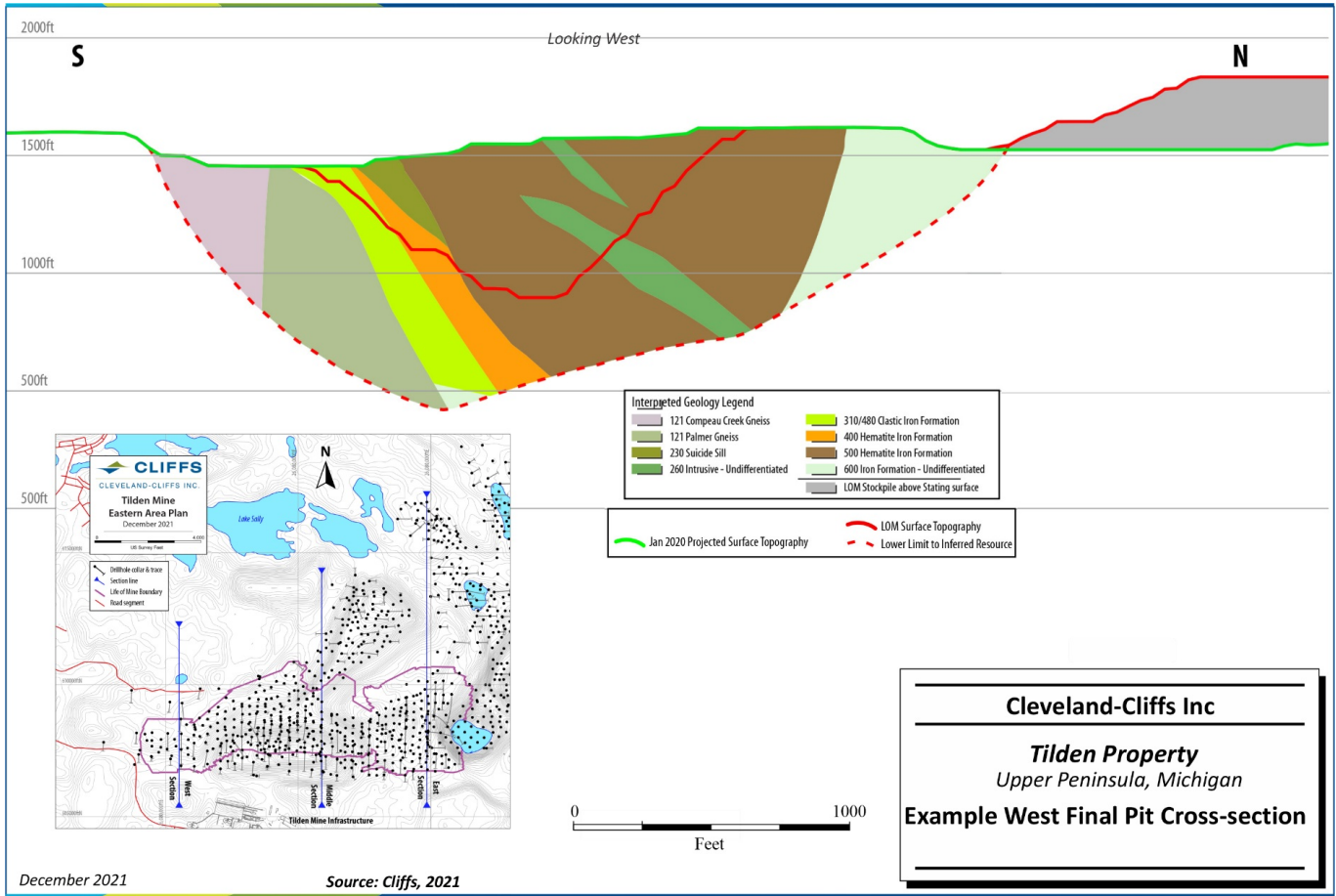


Figure 13-6: Example West Final Pit Cross-section Looking West

13.3.1 Pit Phase Design

Intermediate pit phase designs or pushbacks are included in the LOM planning. The primary objective of the phased designs is to balance waste stripping and maintain access to specific ore types for blending purposes while ensuring haulage access is maintained over the LOM. Access to crude ore, specifically 340 domain Fe carbonate, 350 domain Fe oxide, and 320 domain Fe clastic iron mineralization groups, plays a significant role in determining the pit phasing design.

Designs for each mining pit phase are largely determined by effective minimum mining width and influence on access to crude ore. Pit optimization results at lower revenue factors are also used to help guide the phase development.

Design parameters for intermediate-phase walls use decreased BFAs to account for shallower wall slopes as a result of not drilling and cleaning to the final pit design parameters. Figure 13-7 presents the location of the phases within the mining area, where the surface footprint of each phase is represented by a different color.

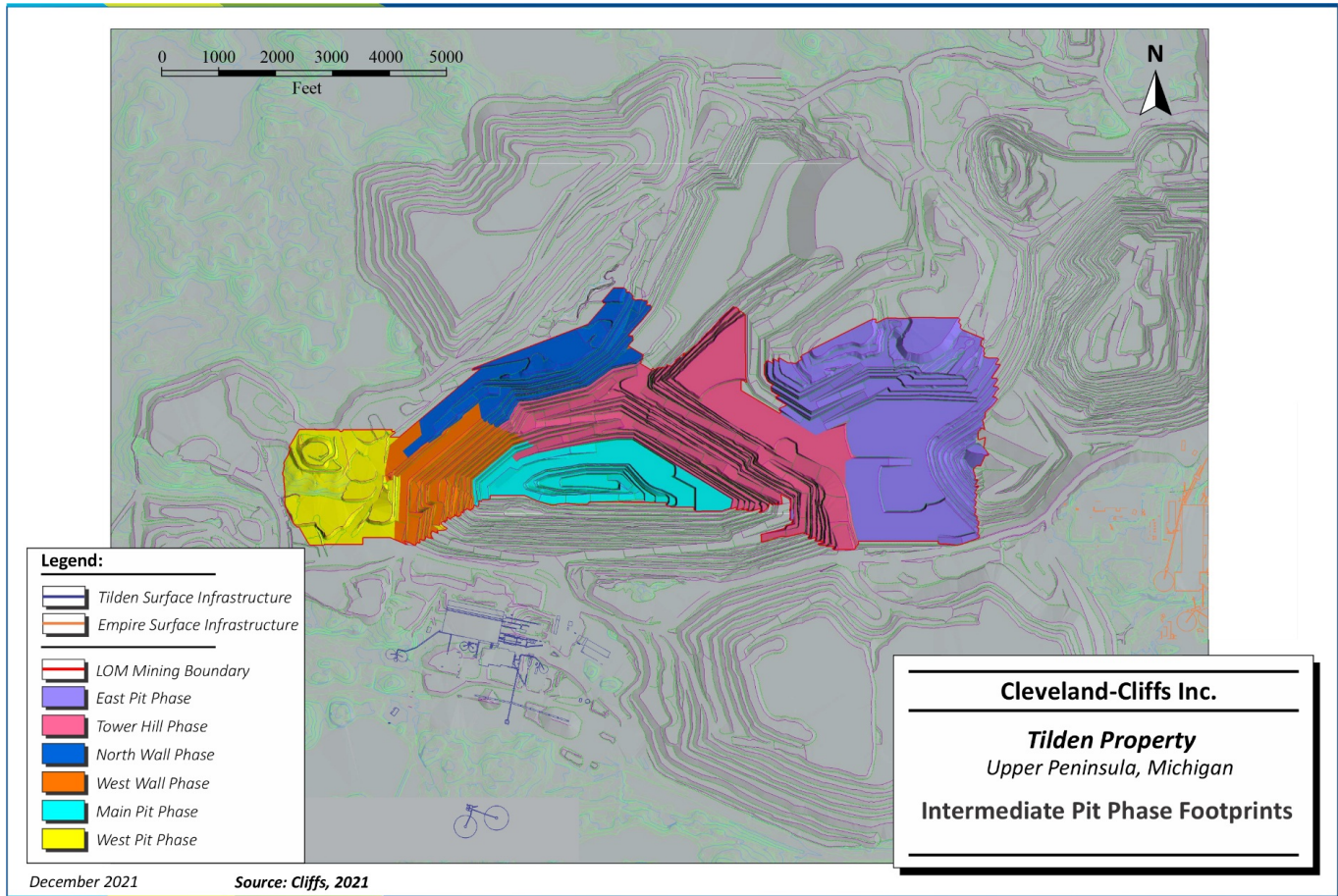


Figure 13-7: Intermediate Pit Phase Footprints

13.4 Production Schedule

13.4.1 Clearing

Before mining operations commence in new undeveloped areas, it is necessary to remove any overburden material. The primary clearing and grubbing equipment includes bulldozers, electric rope shovels, FELs, and trucks. This equipment has been successfully deployed in historical overburden clearing operations at Tilden. SLR notes there is a minimal amount of clearing and overburden removal remaining in the LOM plan, while the majority of the activity will be focused in areas of waste stockpile expansion.

13.4.2 Grade Control

A strict regiment of grade control procedures are followed at Tilden, coupled with post-blast, in-field ore and waste zone delineations to ensure a consistent crude ore feed blend for processing. As described in Sections 6.0 and 8.0 of this TRS, the local geology is well known with crude ore types geomettallurgically binned into Fe oxide, Fe carbonate, Fe hydroxide, and Fe clastic mineral groups.

Grade control sampling is performed on every other production blast hole from every other row drilled in the iron formation (i.e., approximately one third of the production blast holes in the iron formation) to confirm or reclassify crude ore mineral groupings and delineate ore-waste boundaries. If the crude ore iron chemistry for the sampled blast holes is above the cut-off grade, the sample proceeds to bench flotation testing at the Tilden laboratory. The results of the bench flotation testing are entered into a database that is available to the mine engineering and geology department. This data is exported to Vulcan mine planning software, where crude ore and waste zone delineations are made, and metallurgical grade blocks are created using grade control software. Metallurgical grade blocks are utilized in short-range planning and uploaded into dispatch for crude ore blending purposes. Metallurgical data from the corresponding grade block is assigned to each truck load delivered to the primary crusher, allowing for the determination of weighted-average metallurgical qualities for specified periods.

Generally, three to four crude ore headings and/or stockpiles are mined at any one time to obtain the best crude ore blend for the Plant. Operationally, blending is completed on a shift-by-shift basis using the dispatch system for production management and data tracking. The dispatch operator is provided a blend schedule for each shift detailing the active crude ore headings and the expected specific blend percentage for each of the headings. Each production loading unit is equipped with a high-precision GPS, which, when coupled with the spatial grade blocks uploaded into the dispatch system, allows the dispatch operator to monitor progress and manage mining activities at each heading. Dispatch operators issue real-time adjustments to meet specified crude ore blends or correct for changes in pit operating conditions. As crude ore is delivered to the primary crusher, the dispatch system tracks the tonnage and associated metallurgical grades to provide a running total to the dispatch operator. Crude ore is either delivered directly to the primary crusher or is stockpiled in crude ore type-specific stockpiles for later use. Ore can be stockpiled for immediate operational reasons, planned mining sequence optimization, or to ensure future consistent ore quality.

13.4.3 Production Schedule

The basis of the production schedule is to:

- Produce approximately 7.7 MLT/y of wet hemflux pellets for the LOM:
 - This production rate was selected as it represents maintaining the current production assumption throughout the LOM.
 - Limit crude ore delivery to the crusher to 22 MLT/y.
- Meet the maximum and minimum metallurgical constraints for crude ore and concentrate including carbonate crude ore type blending restrictions:
 - Constrain annual crude ore blend metallurgy to:
 - Minimum Conc_Fe of 61.5% Fe.
 - Maximum concentrate phosphorus of 0.040% P.
 - Limit delivery blend of specific crude ore types to:
 - Minimum 340 carbonate crude ore blend component of 20%.
 - Maximum combined 316, 420, and 421 carbonate crude ore blend component of 10%.
- Limit total mined tons per period at approximately 62 MLT to balance the mine fleet utilization.

The production schedule is planned yearly throughout the LOM. Scheduling is by mining blocks within the pit phases. Table 13-7 presents the LOM production schedule for Tilden.

**Table 13-7: LOM Production Schedule
Cleveland-Cliffs Inc. – Tilden Property**

Year	Crude Ore (MLT)	Crude Ore Fe (MLT)	Stripping (MLT)	Total Tons (MLT)	Stripping Ratio (W:O)	Crude Ore Milled (MLT)	Process Recovery (%)	Wet Pellets (MLT)
2022	19.3	34.3	38.4	57.7	1.8	21.6	35.6	7.7
2023	21.3	34.6	40.7	62.0	1.9	21.3	36.1	7.7
2024	22.7	34.7	39.3	62.0	1.9	21.2	36.3	7.7
2025	22.5	34.8	39.3	61.8	1.8	21.3	36.1	7.7
2026	20.4	34.6	37.9	58.3	1.7	22.1	34.9	7.7
2027	20.2	34.9	38.5	58.7	1.8	21.5	35.8	7.7
2028	20.8	35.0	29.2	50.0	1.4	20.8	37.1	7.7
2029	20.6	35.4	29.4	50.0	1.4	20.6	37.4	7.7
2030-2034	106.6	34.8	113.4	220.0	1.1	106.6	36.2	38.5
2035-2039	101.1	35.0	98.9	200.0	1.0	101.1	38.1	38.5
2040-2044	102.1	34.2	75.4	177.5	0.7	102.1	37.7	38.5
2045 - 2046	38.8	35.1	20.1	58.9	0.5	39.8	35.1	15.3
Total	516.4	34.7	600.5	1116.9	1.2	520.0	37.0	192.4

Note:

1. Numbers may not add due to rounding.

Recent past production (2010 to current) and LOM planned production for Tilden is presented in Figure 13-8.

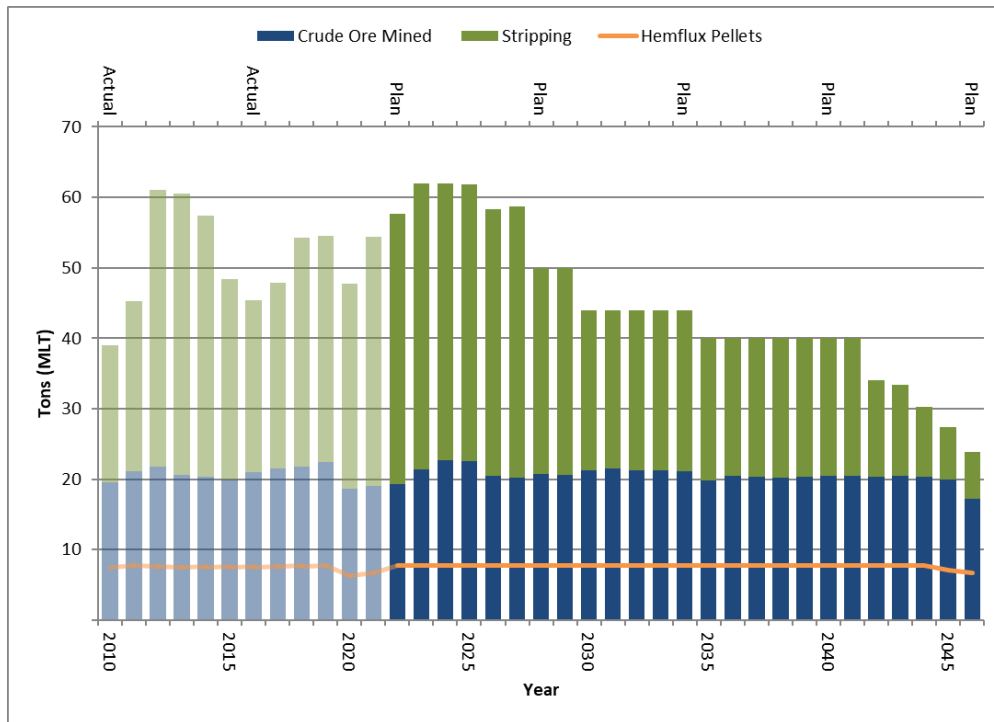


Figure 13-8: Past and Forecast LOM Production

As observed in Table 13-7 and Figure 13-8, waste stripping decreases significantly starting in 2028 and is steady or decreasing over the remaining LOM, with final-phase crude ore sources being exposed leading to decreases in required developmental stripping and overall material movement.

13.5 Overburden and Waste Rock Stockpiles

Waste rock and overburden excavated during the stripping process is placed in designated stockpiles located either around the periphery of the pit or inside the pit in designated in-pit backfills. Overburden that can be segregated is either used in concurrent reclamation activities or stockpiled for future reclamation use.

The overburden and waste rock stockpile design parameters are detailed in Table 13-8.

**Table 13-8: Stockpile Parameters
Cleveland-Cliffs Inc. – Tilden Property**

Parameter	Unit	Waste Rock	Overburden
OSA	degrees	22.8	20.1
BFA	degrees	36	30
BH	ft	50	50
Berm Width	ft	50	50
Ramp-Width - 2 way	ft	120	120
Ramp-Width - 1 way	ft	90	90
Ramp Gradient	%	10	10

Stripped waste rock excavated during the LOM plan will be stockpiled in either the CD3 in-pit backfill (CD3) to the north or the Tilden West Stockpile (TWD).

Overburden is segregated and if not used in concurrent reclamation activities is placed exclusively in the Tilden South Stockpile (TSD) stockpile, which was previously used as a waste rock stockpile. Stockpiled overburden material will be available for future reclamation activities.

The volumes for each stockpile are calculated using three-dimensional models created in Vulcan. Material-specific swell factors are used to convert the volumes into stockpile capacity. Table 13-9 lists the maximum design volume and storage capacity for each of the rock and overburden stockpile designs, in addition to the planned utilized capacity.

**Table 13-9: Volumes and Capacities of Stockpile Designs
Cleveland-Cliffs Inc. – Tilden Property**

Stockpile	Design Volume (Mft ³)	Design Capacity (MLT)	LOM Utilized Capacity (MLT)
Waste Rock Stockpiles			
CD3	6,097	339	339
TWD	6,053	337	248
Total Waste Rock Stockpiles	12,150	676	587
Overburden Stockpile			
TSD	437	24	14

SLR notes that there is sufficient overburden and waste rock stockpile capacity included in the LOM plan.

In addition to waste rock and overburden stockpiling activities, crude ore blending constraints require crude ore stockpiling in crude ore type-specific stockpiles. The crude ore stockpiles are active over the LOM with crude ore dispatched in and out and new accumulations of up to 3.0 MLT.

Figure 13-9 presents the full design capacities for the CD3 and TWD waste rock stockpiles and the TSD overburden stockpile.

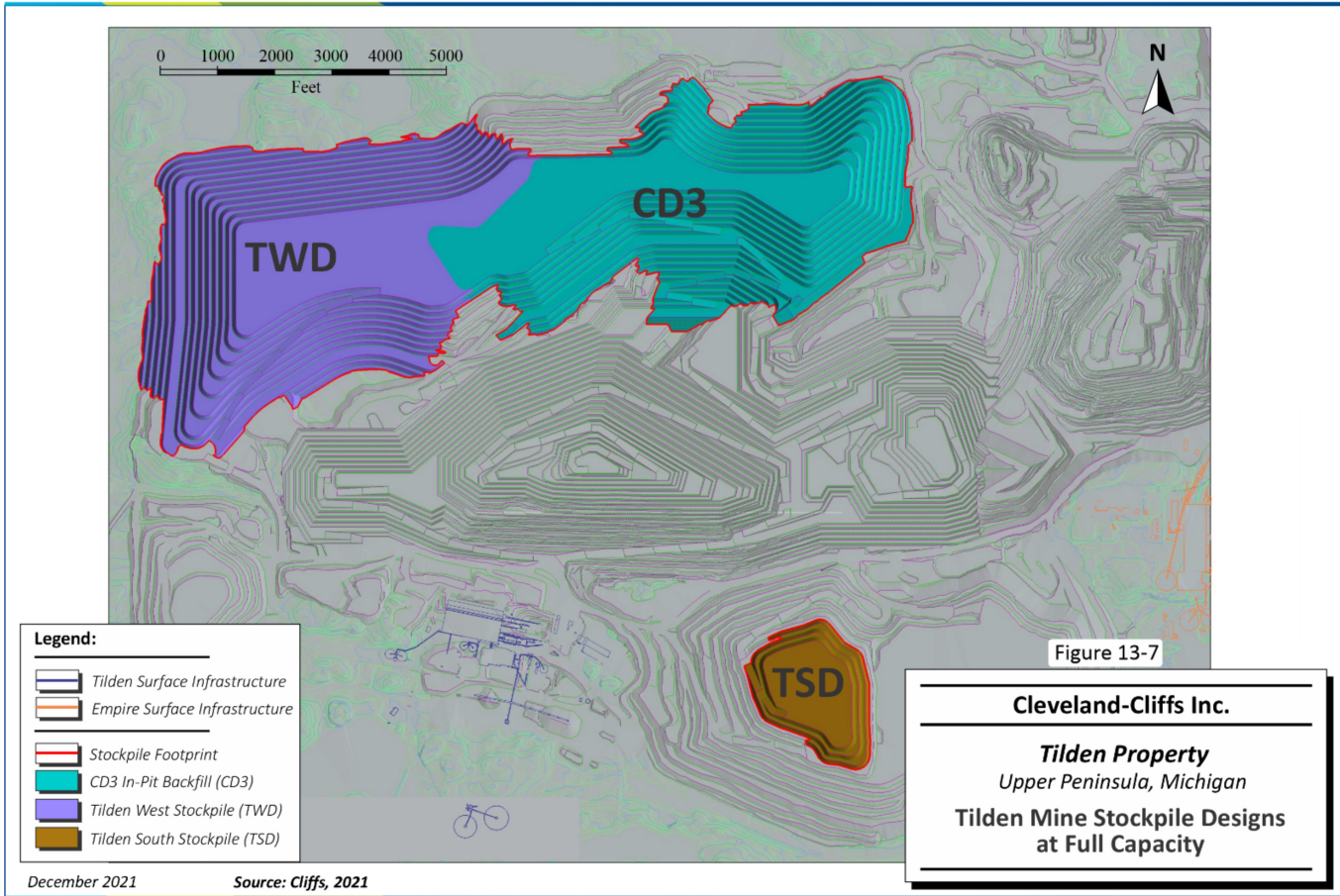


Figure 13-9: Tilden Mine Stockpile Designs at Full Capacity

In 2018, Golder Associates Inc. (Golder) assessed the current stockpiles following guidelines published by Hawley and Cuning (2017) to classify the instability hazard as either very low, low, moderate, high, or very high. All stockpiles evaluated were classified as being a low-instability hazard with the exception of the TOD stockpile (i.e., the Fox Valley overburden stockpile), which is listed as a moderate instability hazard, falling on the line differentiating moderate from low risk (Shaigetz and Cuning, 2019). SLR notes there is no additional loading of the TOD stockpile in the current LOM plan.

13.6 Mining Fleet

The primary mine equipment fleet consists of electric drills, electric cable shovels, and off-road dump trucks. In addition to the primary equipment, there are FELs, bulldozers, graders, water trucks, and backhoes for mining support. Additional equipment is on site for non-productive mining fleet tasks. The current fleet is to be maintained with replacement units as the current equipment reaches its maximum operating hours. The production equipment fleet is based on a quarterly, rolling five-year production schedule developed by the Mine.

Table 13-10 presents the existing fleet (2021/2022) and planned average major fleet requirements estimated to achieve the LOM plan.

**Table 13-10: Major Mining Equipment
Cleveland-Cliffs Inc. – Tilden Property**

Year	Drills	Shovels	Trucks	Loaders	Dozers	Graders
2022	4	6	17	4	7	4
2023	4	5	17	4	7	4
2024	4	5	16	4	7	4
2025-2029	4	5	18	4	7	4
2030-2034	3	5	15	2	7	4
2035-2039	3	4	15	3	7	4
2040-2044	3	3	13	4	7	4
2045-2048	3	3	10	4	7	4
Size/Payload	16 in	44 yd ³	320 ton	37 yd ³	57 yd ³	14 ft
Useful Life (hrs)	100,000	150,000	90,000	45,000	60,000	60,000
Example Unit	P&H 120A	P&H 2800	Komatsu 930E	LeTourneau L1850	CAT D11	CAT 16M

The primary loading and hauling equipment were selected to provide a good synergy between mine selectivity of crude ore and the ability to operate in variable conditions. Since crude ore is blended at the primary crusher, the loading units in crude ore do not operate at capacity.

Longer haulage distances will be realized as the open pit deepens and the waste stockpiles increase in size. As the haulage distances increase, the waste stripping ratio decreases, helping offset the need for additional haul trucks.

Extensive maintenance facilities are available at the Mine site to service the mine equipment.

13.7 Mine Manpower

The current mining manpower is summarized as follows:

- Mine operations: 237
- Mine maintenance (excluding mine crusher): 156
- Mine supervision and technical services: 40

The mine operations and mine maintenance manpower will increase/decrease proportionately with the change in haul trucks over the LOM. The additional required manpower will be sourced from local communities.

14.0 PROCESSING AND RECOVERY METHODS

14.1 Overview

Over the years, the Tilden concentrator capacity has expanded to its current nominal capacity of 7.7 MLT/y fluxed pellets from both hematite and magnetite crude ore sources. The Plant includes many unit operations standard to the industry, including, primary crushing, autogenous grinding (AG), flotation, filtering, drying, agglomeration, and induration to remove silica gangue and produce a hardened pellet. The unique feature of the Tilden concentrator is the selective flocculation and desliming process implemented prior to flotation, which successfully removes slime contaminants that would otherwise cause serious complications during subsequent stages of processing. The Tilden concentrator is designed to campaign either hematite-dominant ores or magnetite ores, but does not process both ore types simultaneously. The major difference between the hematite and magnetite circuits is the magnetite circuit includes two separate stages of magnetic separation in the grinding circuit. This section briefly describes the processes currently in use at the Plant.

The processing of magnetite ores at the Tilden concentrator ceased in 2009. Magnetite ore from the Mine was delivered and processed at the Empire Mine from 2010 through 2016 when the Empire Mine was indefinitely idled. Remaining Mineral Resources and Mineral Reserves at Tilden are processed in hematite-based flotation circuits.

14.2 Processing Methods

The process flowsheet for the hematite circuit is presented in Figure 14-1, while a list of major equipment is provided in Table 14-1.

14.2.1 Comminution

Primary crushing, which is operated and maintained by the mining department, is accomplished with a 60 in. x 109 in. Allis-Chalmers gyratory crusher operated to produce a nominal -9 in. crushed product, which is conveyed to the ore storage building ahead of the grinding circuit. Primary grinding is accomplished with eleven, 27 ft-diameter x 14.5 ft-long AG mills, each driven by two synchronous motors that have a combined output of 5,720 hp. Each primary AG mill discharges to a triple-deck screen, producing a -1.5 in. x 0.5 in. product that is used as a grinding media in the pebble mills (excess diverted to the pebble crushers or recirculated back to the primary mill), a -0.5 in. x 2 mm product that is conveyed back to the primary mill, and a -2 mm product that is advanced to the secondary pebble mills. The -2 mm discharge from each AG mill feeds two, 15.5 ft-diameter x 32 ft-long pebble mills, which are operated in closed circuit with a cluster of nine, 15 in.-diameter cyclones to produce a final grind of 80% to 85% passing 25 μ m. Caustic soda and slaked lime are added to the water circuit to control pH prior to desliming and flotation.

14.2.2 Desliming

Starch and a dispersant are added to the slurry and advanced to the deslime thickeners. At this stage, the iron oxides are selectively flocculated by the starch and depressed, and the siliceous slimes are dispersed and removed. Deslime thickener overflow containing these waste products is fed to the tailings thickeners, and the settled slimes are disposed of in the tailings pond. The deslime thickener underflow is conditioned with additional starch and advanced to the flotation circuit.

14.2.3 Flotation

The flotation circuit is divided into twelve lines, each consisting of ten, 500 ft² rougher flotation cells, which are used to float silica-rich tailings away from the iron minerals with an amine collector. The rougher flotation concentrate represents the final upgraded iron concentrate and is advanced to the concentrate thickener. Rougher tailings are further scavenged in four stages (fifteen, 500 ft³ flotation cells per line) of scavenger flotation to remove entrained iron values. Scavenger flotation concentrates are recycled back to the head of the rougher flotation circuit, with scavenger tailings being pumped to the tailings thickeners.

14.2.4 Dewatering

The iron concentrate is thickened to approximately 65% to 70% solids in two, 150 ft-diameter and two, 180 ft-diameter Eimco thickeners, neutralized to a pH of 7.0 using carbon dioxide and then filtered in a series of 9 ft-diameter x 8 disc vacuum disc filters to approximately 11.5% w/w moisture content. Filtered concentrates are either sent directly to the pelletizing plant, a thermal drying circuit, or to a concentrate storage stockpile.

14.2.5 Fluxstone

Fluxstone consisting of dolomite and calcite is received at Tilden via truck and stored in stockpiles. Material is fed from a stockpile via apron feeders and processed in two, 15.5 ft-diameter x 30 ft-long ball mills. The fluxstone slurry is added to the iron concentrate prior to filtering to ensure homogenous mixing.

14.2.6 Historical Magnetite Processing (1989 to 2009)

The magnetite processing circuit is similar to the hematite circuit, with the exception that when magnetite is campaigned through the concentrator, the -1.4 mm screen undersize from each AG mill is sent to low-intensity magnetic cobbing to recover the coarsely liberated magnetite. The non-magnetic cobber tail is directed to tailings. The magnetic fraction from the cobbing circuit is then directed to the secondary pebble mill grinding circuit, which is operated in closed circuit with a cluster of 15 in.-diameter cyclones. The cyclone overflow is then sent to two stages of deslime thickening. Thickener underflow from the second stage of desliming is processed in a finisher stage of low-intensity magnetic separation, with the magnetic concentrate continuing to a finisher thickener stage. Underflow from the finisher thickener is then advanced to silica flotation with amine collectors. The remaining magnetite circuit is the same as the hematite circuit.

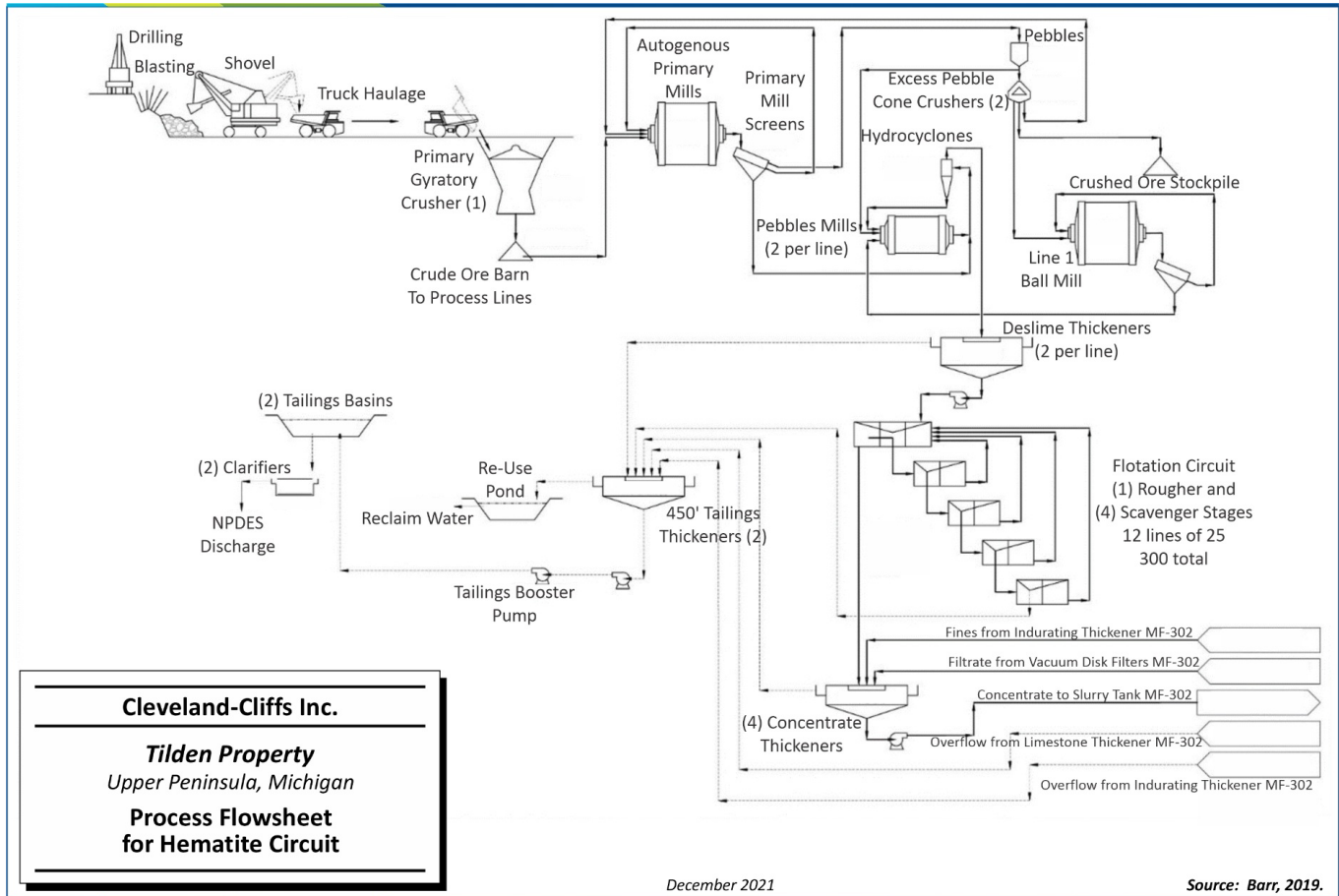


Figure 14-1: Hematite Circuit Process Flowsheet

14.3 Pelletizing Plant

The pelletizing plant unit processes include concentrate drying, concentrate agglomeration (balling), pellet hardening or induration in a grate kiln and cooler, and pellet storage and railcar loading. The pelletizing plant flowsheet is presented in Figure 14-2.

A portion of the concentrate feeding the pellet plant along with concentrate reclaimed from stockpiles is dried in a rotary dryer. The dried concentrate is combined with filtered concentrate on the agglomeration or balling feed conveyor.

14.3.1 Concentrate Agglomeration - Balling

The balling circuit is supplied with concentrate with a target moisture content of 9.5%. Balling is accomplished using fourteen, 12 ft-diameter x 33 ft-long rotary drums operated at approximately 12 rpm. Bentonite, a clay binder, is ratioed to the balling drum feed and blended on the balling drum feed belt to agglomerate the concentrate. Each drum utilizes an oscillating cutter bar, and the resulting green balls are discharged onto a vibrating seed screen with a 2 ft-long grizzly extension for oversize removal. Screen undersize is returned to the balling drum, while grizzly oversize is returned to the concentrate bin or diverted to outdoor storage. The seed screen product is conveyed by a reciprocating conveyor, which distributes the green balls over a grate feed belt.

14.3.2 Grate, Kiln, Cooler

The green balls are loaded onto a moving grates with a feed rate maintained to achieve a nominal bed depth of seven inches. The grates pass through 19 wind boxes. The green balls are subjected to 3.5 bays of updraft drying, 7.5 bays of downdraft drying, and eight bays of downdraft preheating. After traversing the length of the grates, the green balls are discharged into one of two, 25 ft-diameter x 160 ft-long rotary kilns. Heat for the kilns is produced with a combination of pulverized coal and/or natural gas. Product from the kiln is discharged into two, 10 ft-wide x 66 ft-diameter rotary coolers, sufficiently cooling the pellets to be transported by conveyor.

14.3.3 Pellet Loadout

Cooled pellets are conveyed directly to either a railroad load-out bin or to an outdoor stockpile with a nominal capacity of 2 MLT. Pellets are loaded into rail cars with 60 LT capacity in configurations of 110 cars. Pellets are transported via rail to a dock facility in Marquette, Michigan or directly to customers. Pellet stockpiles are selectively screened to reduce fines with a loader-fed, portable screening plant. Pellet chips and fines from this process are sold as secondary product.

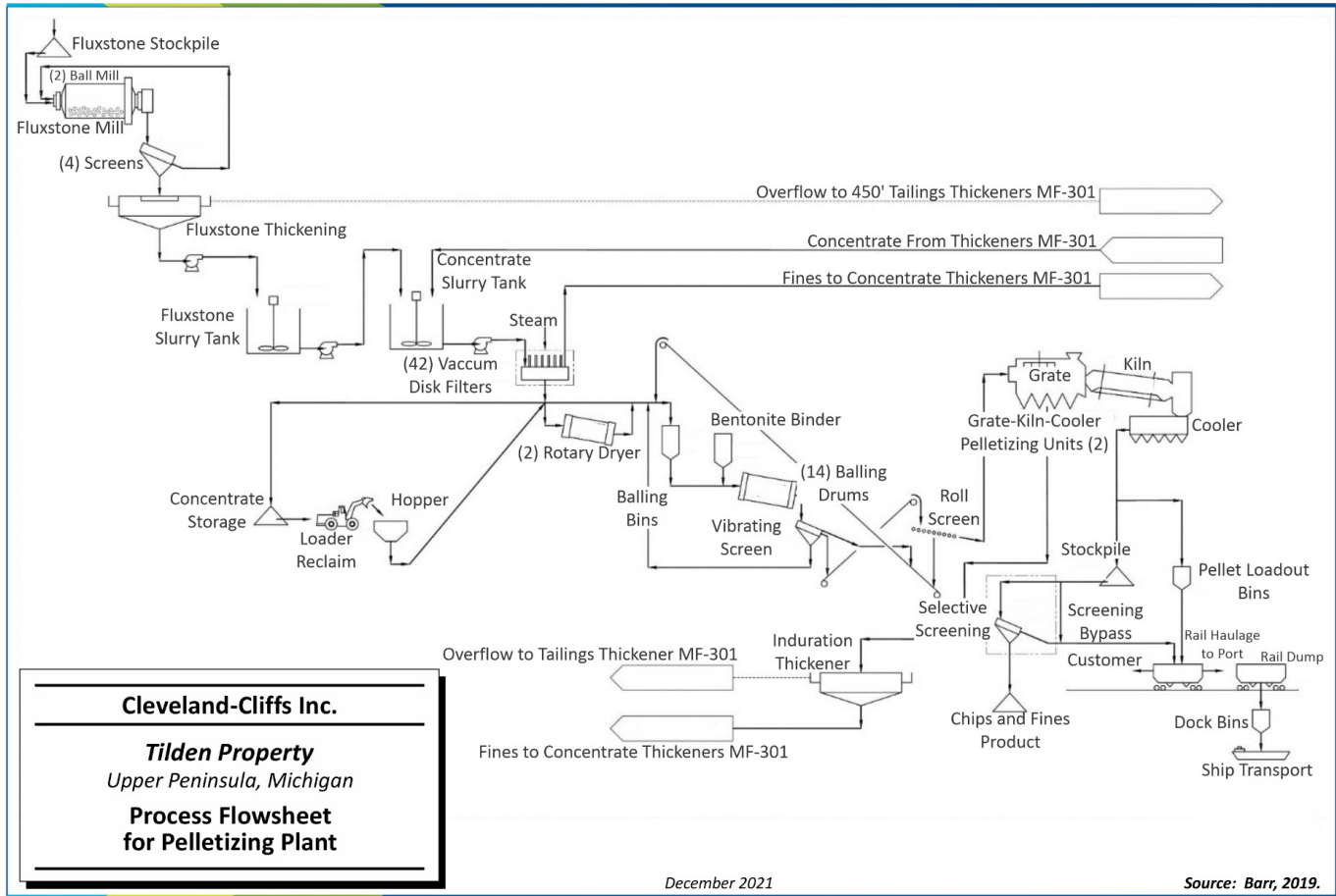


Figure 14-2: Process Flowsheet for Pelletizing Plant

14.4 Major Equipment

A list of all major processing equipment is provided in Table 14-1.

**Table 14-1: Major Processing Equipment
Cleveland-Cliffs Inc. – Tilden Property**

Equipment	Qty	Size	Manufacturer	Hp	Comments
Primary Gyrotory Crusher	1	60 in. x 109 in.	Allis Chalmers	1000	
Apron Feeders	4	48 in. x 9 ft	Stephen-Adamson	5	
Primary Autogenous Mill	5	27 ft x 15.5 ft	Allis Chalmers	2 x 2860	Tilden 1
Primary Autogenous Mill	6	27 ft x 15.5 ft	Allis Chalmers	2 x 3100	Tilden 2
Vibrating Screen	11	Model OA-160-D	Simplicity	50	triple-deck (12.7mm x 2mm)
Pebble Crusher	2	MP-800	Nordberg	800	
Crushed Product Ball Mill	1	27 ft x 15.5 ft	Allis Chalmers	2 x 2860	Internal diameter reduced
Secondary Pebble Mill	10	15.5 ft x 30 ft	Nordberg	2860	Tilden 1
Secondary Pebble Mill	12	15.5 ft x 32 ft	Nordberg	3100	Tilden 2
Hydrocyclone	198	15 in.	Krebs		9 cyclones per pebble mill
Cobber Magnetic Separators	27	48 in. x 120 in.	Eriez		Magnetite Processing Only
Deslime Thickener	24	55 ft diameter	EIMCO	7.5	
Flotation Feed Conditioner	12	9 ft x 9 ft	Denver Equipment	15	
Finishing Magnetic Separator	27	48 in. x 120 in.	Eriez		Magnetite Processing Only
Rougher Flotation Cells	10	500 ft ³	WEMCO	40	12 banks x 10/bank
Scavenger-1 Flotation Cells	5	500 ft ³	WEMCO	40	12 banks x 5/bank
Scavenger-2 Flotation Cells	4	500 ft ³	WEMCO	40	12 banks x 4/bank
Scavenger-3 Flotation Cells	3	500 ft ³	WEMCO	40	12 banks x 3/bank
Scavenger-4 Flotation Cells	3	500 ft ³	WEMCO	40	12 banks x 3/bank
Concentrate Dewatering					
Concentrate Thickener	2	150 ft diameter	EIMCO	7.5 + 7.5	
Concentrate Thickener	2	180 ft diameter	EIMCO	7.5 + 7.5	
Vacuum Disk Filter	42	9 ft diameter x 8 discs	EIMCO	5	
Vacuum Pump	3	12,100 ICFM@26 mm Hg	Ingersoll-Rand	500	
Vacuum Pump	14		Nash	500	
Dewatering Thickener	2	450 ft diameter	Dorr-Oliver	4 + 7.5	
Tailing Pumps	10	16 in. x 14 in.	GIW	400	Several different sizes
Gribben Booster Pump	1	16 in. x 14 in.	Warman	1000	
Lamella Clarifiers	2		Veolia		
Flux Preparation					
Flux Grinding Mill	2	15.5 ft x 30 ft	Nordberg	2520	Internal length reduced

Equipment	Qty	Size	Manufacturer	Hp	Comments
Hydrocyclones	3	15 in.	Krebs		
DSM Screens	4				
Thickener	1	55 ft diameter	Eimco	7.5 + 1	
			Plant Services		
Boiler	1	200 klb	Trane Murrey	350 fan	
Boiler	1	200 klb	Zun Boiler	350 fan	
Instrument Air Compressor	3	131/2 - 8x7	Joy	200	
Instrument Air Compressor	8	15-15x7	Joy	200	
Instrument Air Compressor	1	ZR 750	Atlas Copco	500	
Snap Blow Compressor	1	Pre-2 Series F	Ingersoll Rand		
Plant Air Compressor	1	TS-32-600	Sullair		

14.5 Plant Performance

Plant performance for 2014 to 2020 is summarized in Table 14-2 and demonstrates that crude iron ore head grades ranged from 33.4% Fe to 34.8% Fe over the period. Iron recovery to flotation concentrates on average ranged from 66.0% to 72.3%, with a concentrate grade averaging 62.5% to 63.7% during this period. Approximately 20.3 MLT (wet) of crude ore is processed through the concentrator annually to produce 8.0 MLT (wet) of fluxed concentrate and 7.5 MLT (wet) of fluxed pellets (hemflux pellet).

Table 14-2: Tilden Concentrator Performance 2014 to 2020
Cleveland-Cliffs Inc. – Tilden Property

	2014	2015	2016	2017	2018	2019	2020
Feed (LT)	20,298,301	19,660,601	20,671,866	21,006,512	21,016,286	21,500,213	18,006,414
Fe %	34.5	33.9	33.4	34.2	34.8	34.4	34.3
Flotation Conc. (WLT; Nat WR)	8,130,162	7,998,381	8,295,261	8,156,868	8,320,062	8,312,224	6,968,367
W% (Nat WR-WLT)	40.05	40.68	40.13	38.83	39.59	38.70	38.66
W% (Dry Met WR)	38.00	37.26	37.71	38.97	40.69	36.06	37.10
Fe% (Dry Met)	63.7	63.7	63.3	62.7	62.5	63.0	63.1
Fe Dist % (Dry Met)	70.2	70	71.5	71.3	72.3	66.04	68.26
Total Tailings (Dry LT; based on Met WR)	12,584,085	12,334,440	12,876,850	12,819,820	12,465,763	13,747,062	11,325,283
W% (Dry Met)	62.00	62.74	62.29	61.03	59.31	63.94	62.90
Fe% (Dry Met)	16.6	16.2	15.3	16	15.8	18.3	17.3
Fe Dist% (Dry Met)	29.80	30.00	28.50	28.70	27.70	33.96	31.74
Fluxstone (LT)	775,910	764,959	738,966	732,351	753,046	775,709	672,212
Fluxed Conc. (LT)	8,906,072	8,763,340	9,034,227	8,889,219	9,073,107	9,087,933	7,640,580

	2014	2015	2016	2017	2018	2019	2020
Pellet Plant Feed (LT)	8,907,111	8,918,098	9,002,847	8,989,704	9,068,586	9,096,377	7,489,057
Bentonite Binder (ST)	79,518	80,551	71,481	71,833	68,234	72,638	61,494
Hemflux Pellet (LT)	7,580,920	7,631,260	7,631,980	7,650,141	7,678,514	7,708,582	6,323,241

14.6 Pellet Quality

Tilden's blast furnace (BF) customers monitor the hemflux pellet physical quality parameters closely, with Tilden pellets measured against several physical and chemical properties outlined in Table 14-3.

**Table 14-3: Hemflux Pellet Quality
Cleveland-Cliffs Inc. – Tilden Property**

Quality Variable	Typical
% Fe	61.00
% SiO ₂	4.90
% CaO	4.40
CaO/SiO ₂	0.90
% MgO	1.70
% P	0.040
% Mn	0.3
% Al ₂ O ₃	0.6
% H ₂ O	1.5
BT -½" Total (%)	6
BT -½" +3/8" (%)	82
BT -3/8" +¼" (%)	9
BT -¼" Total (%)	2
BT -28M (%)	0.3
AT + ¼" Total (%)	96.5
AT -28M (%)	2.7
Comp. (lbs. Avg.)	470
Comp. (% -300 lbs)	14
Reducibility R40	0.93
LTD	93

SLR has reviewed yearly performance data for Tilden hemflux pellet production since 2014 and noted that Cliffs has achieved these specifications on a consistent basis during that period.

14.7 Consumable Requirements

Major consumables for the Plant operation include:

- **Carbon Dioxide:** Used to neutralize the slurry's pH prior to filtering and to lower the tails basin water's pH for management of selenium in the clarifier discharge.
- **Caustic Soda:** Used to control and maintain the process pH between 10.6 and 11.5 for effective operation of deslime and flotation.
- **Dispersant:** Added in deslime thickeners to aid with silica slime rejection.
- **Cornstarch:** Added in during desliming and flotation to reduce iron losses.
- **Starch Enhancer:** Modifier to improve process performance.
- **Amine:** Chemical added during flotation to selectively collect high-silica-bearing particles into froth.
- **DOSS:** Dioctyl sulfosuccinate added to aid moisture control in filtering.
- **Lime:** pH modifier for process waters, and offsets caustic soda usage.
- **Polymer Nalco:** Anionic polymer added during the concentrate thickener stage to minimize iron losses.
- **Polymer Filters:** Flocculant added in filter lines to aid with filter productivity.
- **Polymer Thickeners:** Flocculant added to tails thickeners for solids collection.
- **Dry Polymer:** Flocculant added to the concentrate thickener for slurry densification.
- **Filter bags:** Filtering consists of 42 filters comprised of 80 sectors. Each sector is covered with a bag that collects solids and allows water to pass through.
- **Ferric Chloride:** Used in the clarifier process.
- **Fluxstone:** A blend of calcite and dolomite added to the concentrate prior to filtration to create fluxed concentrate for fluxed pellet production. Delivered to site via trucks in four different classifications: summer calcite, summer dolomite, winter calcite, and winter dolomite. The winter prefix denotes coarser material than that denoted by summer, as it is used during the winter season for improved feeding to flux grinding system.
- **Grinding Balls:** Line 1 Ball Mill balls for grinding of crushed product from the secondary crusher.
- **Mill Lining:** Replaceable wear liner systems in grinding mills.
- **Bentonite:** Clay used to create green balls in balling drums for feed onto the induration grate.

Table 14-4 presents the unit rates for concentrator and pellet plant consumables.

Table 14-4: Consumables
Cleveland-Cliffs Inc. – Tilden Property

Consumable	Units (LT)	Rate
	Concentrator	
Carbon Dioxide	lb/ton Crude Feed	0.775
Carbon Dioxide-Tailings	lb/ton Crude Feed	0.4
Caustic Soda	lb/ton Crude Feed	1.25
Polyacrylic Acid	lb/ton Crude Feed	0.21
Cornstarch	lb/ton Crude Feed	0.525
Starch Enhancer	lb/ton Crude Feed	0.1
Amine	lb/ton Crude Feed	0.15
DOSS	lb/ton Crude Feed	0.28
Lime	lb/ton Crude Feed	1.5
Polymer Nalco	lb/ton Crude Feed	0.005
Polymer Filters	lb/ton Crude Feed	0.04
Polymer Thickeners	lb/ton Crude Feed	0.32
Dry Polymer	lb/ton Crude Feed	0.0024
Filter Bags	bags/ton Std Concentrate	0.0031
Ferric Chloride	lb/ton Crude Feed	0.2117
Fluxstone	LT flux/ton Std Concentrate	0.09
Grinding Balls	lb/ton Std Concentrate	0.5
Mill Lining	lb/ton Std Concentrate	0.8013
Electric Power	kWh/ton Std Concentrate	51.011
Natural Gas	MMBtu/ton Std Concentrate	0.8013
Process Fuel	MMBtu/ton Std Concentrate	0.1719
Heating	MMBtu/ton Std Concentrate	0.0098
	Pellet Plant	
Bentonite	lb/ton Pellets	19.5
Electric Power	kWh/ton Pellets	21.09
Process Fuel Kiln (Nat Gas/Coal)	MMBtu/ton Pellets	0.8707
Process Fuel Dryer (Nat Gas)	MMBtu/ton Pellets	0.0875
Heating (Nat Gas)	MMBtu/ton Pellets	0.0411

14.8 Process Workforce

Current processing headcount totals 399 and is summarized as follows:

- Plant operations – 160
- Plant maintenance – 180
- Plant supervision and technical services – 59

15.0 INFRASTRUCTURE

15.1 Roads

Primary access to the Mine is via the Tilden Mine Access Road. This road is one mile in length, connecting the mine guard gate to County Road 476 just south of National Mine. Once on the Property, the Tilden administration buildings and Plant are located 0.8 mi to the east. Mining area (pit) offices are located at the adjacent Empire Mine facility 2.75 mi to the east. Secondary access to the Mine is east of the Empire Mine facility, just north of the town of Palmer. Further details regarding local resources can be found in section 4.3.

15.2 Rail

Pellets produced at Tilden are loaded from stockpiles either by FELs or through a train load-out pocket to rail cars and are transported by the LS&I, a wholly owned subsidiary of Cliffs. Rail cars have a nominal capacity of 60 LT, with a train typically consisting of 110 cars. Average rail rates are 25,000 LT/d to the LS&I dock at Marquette, Michigan, a distance of 22 mi. LS&I owns approximately 1,000 cars and uses a mixture of owned and leased locomotives.

Pellets can also be shipped using the CN railroad. The CN owns and operates its own rail fleet. Currently, one customer receives direct rail deliveries by CN to Sault Ste. Marie, Ontario, Canada, a distance of 120 mi from the Property. The customer is responsible for the rail contract with CN. Figure 15-1 is a satellite photograph of the LS&I railway and port facilities in Marquette, Michigan.



Figure 15-1: LS&I Railroad and Port

15.3 Port Facilities

The LS&I gravity dump pocket dock was designed in 1910 and placed in operation in 1912. The dock serves two primary purposes, to load ships with iron pellets. The dock is a 1,274 ft-long, 74 ft-tall concrete structure comprising storage pockets with 100 gravity-feed chutes on each side of the dock that are lowered for discharging pellets into the holds of Great Lakes iron ore freighters. The storage pockets are loaded from LS&I bottom-dump rail cars positioned on top of the dock. There are four parallel rail lines on top of the dock with room for positioning 200 rail cars at any one time. An automated dumper opens the clam shell bottom hatches on the cars discharging the pellets into the pockets. The storage capacity of the dock is approximately 450 rail cars including the 200 cars positioned on top of the dock. Locomotives are used to shuttle empty and loaded cars to and from the dock to keep the dock full for ship loading.

15.4 Tailings Disposal

CCIC operates the Mine in Marquette County, Michigan, which includes the Gribben Tailings Basin (GTB) located approximately five miles southeast of the Plant and nine miles from Lake Superior. The GTB is comprised of two ring dike-type impoundments: the Gribben North Tailings Basin (GNTB), which encompasses approximately 1,350 acres, and the Gribben South Tailings Basin (GSTB), which encompasses approximately 1,100 acres. Each impoundment is comprised of a perimeter dam constructed in an upstream method from an original centerline structure with a keyed core from which tailings are discharged, a Water Retention Dam, which is constructed in a modified centerline method and which the supernatant pool is typically impounded against, and the decant structure. The Mine first began producing iron ore pellets in 1974, with tailings disposed into the GNTB beginning in 1977.

The GNTB and GSTB were designed and permitted as unlined facilities, with the tailings providing a low-permeability material to reduce seepage.

Typically, a tailings slurry flow of approximately 10,000 gpm at approximately 50% solids by weight is deposited in either GNTB or GSTB. The coarser fraction of the tailings slurry typically settles out near the discharge point and forms the beach material, and the gradation of the tailings becomes progressively finer with increasing distance from the discharge point. The gradation of the tailings typically varies from a silt to a clayey silt.

GNTB and GSTB were designed to have the supernatant pools located against the WRDs, and the water levels at GSTB and GNTB are controlled using concrete decant structures. Water from the supernatant pool is not re-used in the process, but is treated and released. Water can be transferred from GNTB to GSTB or from GSTB to GNTB, or can be conveyed directly to the GTB water treatment facility (WTF) and treated using a clarification process with flow rates ranging up to 12,000 gpm before being released into the Goose Lake Outlet.

The GTB configuration is presented in Figure 15-2, and the facilities are discussed in the following sections.

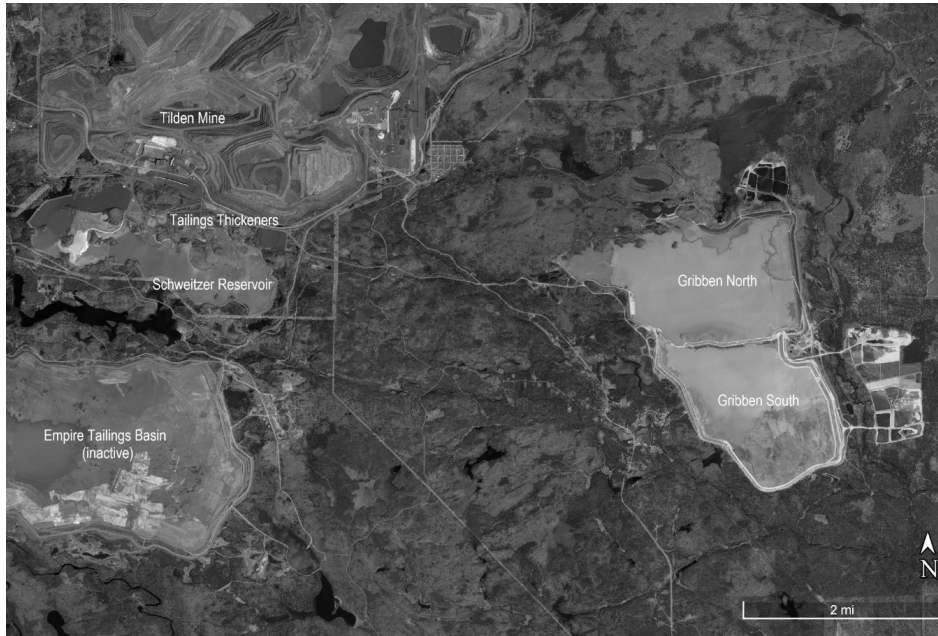


Figure 15-2: Gribben Tailings Basin

15.4.1 Facility Description

15.4.1.1 Gribben North Tailings Basin

The GNTB is located on the northern end of the tailings basin, with the southern perimeter of GNTB forming the north perimeter of GSTB. The tailings dam crest is currently approximately 5.4 mi long and at an elevation of approximately 1,331 ft. The dam is currently a maximum of approximately 130 ft high, and the ultimate height of the dam will be approximately 160 ft based on an ultimate crest elevation of 1,361 ft.

Foundation soils beneath GTB generally consist of natural, medium-dense to dense sands and silty sands that are well drained.

The original design for GNTB was developed by Harza Engineering Company (Harza). A series of connected perimeter dams were constructed to form GNTB beginning during 1976 that included a seepage cut-off core and a slurry trench or silty clay cut-off trench below the dam that was keyed into bedrock or relatively impermeable soils above the bedrock. The original perimeter dam system was constructed at that time to a crest elevation of 1,271 ft. To accommodate continued tailings storage, vertical expansions were and continue to be performed. The initial Phase 1 raise began in 1989 with construction of upstream dikes placed on previously deposited tailings beaches generally along the east perimeter. Upstream raises are typically accomplished in 10 ft-high, staged construction lifts at a 2H:1V dike slope, which results in an overall composite downstream slope of approximately 6H:1V when the benches and dam crest are considered. The GNTB Water Retention Dams (areas where the pond is

located adjacent to the dam) was raised in a downstream manner with a compacted tailings core to crest elevation 1,331 ft and will be raised from crest elevation 1,331 ft to 1,361 ft (1) in a modified upstream manner with sloping compacted tailings core over tailings placed in the GNTB in the area around the decant, (2) an upstream manner with a vertical compacted tailings core, and (3) an upstream manner towards between the Water Retention Dam and West Dam. The raises will be performed in 10 ft-high, staged construction lifts until the dam has a 30 ft-wide dam crest at an ultimate crest elevation of 1,361 ft, which will result in a maximum dam height of approximately 115 ft.

A buttress was constructed along the GNTB southeast corner of the dam (area immediately upgradient of the WTF) to elevation 1,278 ft in 2013, and the buttress in this general area was raised to elevation 1,292 ft in 2020 to enhance the upstream dike stability. The long-term construction design for GNTB includes vertically expanding the upstream dike and Water Retention Dam embankments along the basin perimeter to the Phase 9 crest elevation +1,361 ft (GEI, 2016).

A vertical decant structure is located along the southwest corner of the GNTB (at approximately Station 184+00), and the raises have been designed to coincide with the raising of the Upstream Dike and Water Retention Dam construction program.

Natural sand borrow material east of Goose Lake Outlet is used for the Upstream Dike and Water Retention Dam construction with the exception of the compacted tailings core within the Water Retention Dam sections. Tailings borrow material for the core sections of the Water Retention Dam is typically obtained from within the interior of the basin, in areas where the tailings material is readily accessible.

15.4.1.2 Gribben South Tailings Basin

The GSTB is located on the southern end of the tailings basin, with the northern perimeter of GSTB forming the south perimeter of GNTB. The tailings dam crest is currently approximately 4.2 mi long (not including approximately 1.3 mi of dam common to GSTB and GNTB). With a current dam crest elevation of approximately 1,310 ft (Cliffs, 2021a), the dam is currently a maximum of approximately 10 ft high. The ultimate height of the dam will be approximately 160 ft based on an ultimate crest elevation of 1,361 ft.

Foundation soils beneath GSTB generally consist of natural, medium-dense to dense sands and silty sands that are well drained.

The original design for GSTB was issued by STS Consulting Ltd (STS) in 1997. Construction commenced in 1997 and was completed in 2003. Construction of the Water Retention Dam was performed to approximately elevation 1,250 ft on the east side, a decant structure to elevation 1,250 ft, and upstream dike to elevation 1,230 ft on the south and west sides. The design, construction, and operation of GSTB are very similar to GNTB. Water Retention Dams are constructed along the east perimeter of GSTB, with upstream tailings retention dikes constructed along the south and west perimeter.

To accommodate additional tailings storage, vertical expansions were and continue to be performed to a crest elevation of 1,361 ft. Upstream raises are typically accomplished with construction of upstream dikes placed on previously deposited tailings beaches, in 10 ft-high, staged construction lifts at a 2H:1V dike slope. This results in an overall composite downstream slope of approximately 6H:1V when the benches and dam crest are considered. The Water Retention Dams (areas where the pond is located adjacent to the dam) are raised in a modified centerline method. This is also performed in 10 ft-high,

staged construction lifts, and consists of placing an outboard and inboard set of dikes at a 2H:1V slope and hydraulically placing tailings material to form a low-permeability core between the two dikes, until the dam is at a crest elevation of 1,320 ft (GEI, 2019). The long-term construction design for GSTB includes vertically expanding the Upstream Dike and Water Retention Dam embankments along the basin perimeter to an ultimate crest elevation +1,361 ft to match the GNTB (GEI, 2019).

A vertical decant structure is located midway along the east Water Retention Dam of the GSTB, and the raises have been designed to coincide with the raising of the Upstream Dike and Water Retention Dam construction program.

Natural sand borrow material east of Goose Lake Outlet is used for the Upstream Dike and Water Retention Dam construction material, with the exception of the hydraulically placed tailings core material within the Water Retention Dam sections.

15.4.2 Design and Construction

Design of the perimeter dam to crest elevation +1,271 ft was performed by Harza. Vertical expansion above elevation +1,271 ft was designed by STS, which became part of AECOM in 2007. SLR understands that Cliffs has retained GEI Consultants, Inc. (GEI) since 2010 as the Engineer of Record (EOR) for the tailings basin. Typical EOR services include the design (i.e., volumetrics, stability analysis, water balances, hydrology, seepage cut-off design, etc.), construction and construction monitoring, inspections (i.e., annual dam safety inspections) and instrumentation monitoring data review (i.e., regularly scheduled instrumentation monitoring and interpretation), to verify that the tailings basins are being constructed and operated by Cliffs as designed and to meet all applicable regulations, guidelines, and standards. The EOR has been involved with design and construction work at GNTB since upstream dike construction began during the late 1980s and became the EOR in 1997 when working with STS.

GEI states that the slope stability Factors of Safety and the capacity to store the design storm event met the requirements for the tailings dam designs that have been completed for crest elevations for GNTB and GSTB between 1,361 ft and 1,325 ft, respectively.

During the ongoing construction of the tailings dams, field instrumentation (such as piezometers and inclinometers) are monitored as needed, and a summary is reported annually. Data that is collected is compared to thresholds set for each stage of design and reported using web-based, data visualization and an instrumentation monitoring database.

SLR understands that the current GTB provides storage for approximately 15 years of tailings, based on the current tailings production schedule, and that Cliffs plans to store the remaining ten years of tailings production in the Empire Tailings Basin that was operated from 1963 to 2016 (Cliffs, 2021b).

15.4.3 Audits

Third-party audits have been performed on the TSF by Golder in 2007 and 2012. The 2007 Golder audit would have had limited input to the GSTB as it began operations in 2006. SLR understands that Cliffs plans to engage a third party audit for the tailings basin in 2022.

SLR understands that an External Peer Review Team (EPRT) was established in 2019 as part of the tailings basin design and operations review. The EPRT is an independent group that is not associated with the day-to-day engineering activities performed by GEI or Cliffs, and it works with the EOR and Owner to review design, construction, monitoring, and risk management.

15.4.4 Inspections

During GEI's most recent inspection (GEI, 2020), GEI noted that all observations suggest the dam and dike segments are well maintained and stable, and the conclusion of the inspection report was that the systems are functioning as designed and are in good operational condition. Monitoring data was not presented.

15.4.5 Reliance on Data

SLR relies on the statements and conclusions of GEI and Cliffs and provides no conclusions or opinions regarding the stability or performance of the listed dams and impoundments.

15.4.6 Recommendations

Cliffs has been operating the Tilden Tailings Basin Cells since 1976, which is currently operating under the permit requirements of the Michigan Department of Natural Resources. Upstream tailings dam raises, such as those that have been or will be carried out by Cliffs at Tilden for the GTB vertical expansions, are typically done in low-seismic zones and can be constructed using the coarse-fraction tailings (sand) material. This type of construction approach, however, requires comprehensive communication and documentation system, careful water management, monitoring of the dam and foundation performance, and the placement of tailings material to ensure that it meets the design requirements. To address these issues, Cliffs has retained GEI as the EOR, with the EOR designation being an industry standard for tailings management, as the EOR typically verifies that the Tailings Storage Basin Cells are being constructed and operated by Cliffs as designed and meet all applicable regulations, guidelines, and standards.

Based on a review of the documentation provided, SLR has the following recommendations:

1. Prioritize the completion of an Operations, Maintenance and Surveillance (OMS) Manual for the TSF with the EOR in accordance with Mining Association of Canada (MAC) guidelines and other industry-recognized standard guidance for tailings facilities
2. Document, prioritize, track, and close out in a timely manner the remediation, or resolution, of items or concerns noted in TSF audits or inspection reports.
3. Assess the impacts of depositing tailings in the Empire facility, and prepare the necessary design and permitting documents.

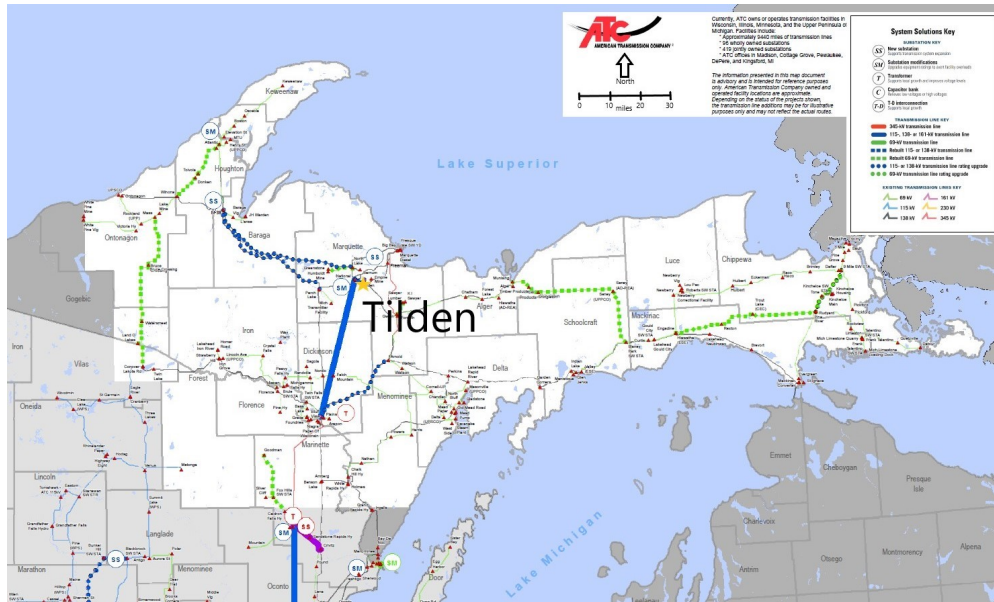
15.5 Power

Power is received at Tilden's substation on transmission lines owned by American Transmission Company. Four substation transformers have a capacity of 90 MVA and reduce voltage from 138 kV to 13.8 kV for onsite distribution.

Installed switchgear distributes 13.8 kV power to the pit and remote pumping facilities through overhead lines and to the Plant through underground ducts. In the concentrator and pelletizing plant, power is then distributed through secondary step-down transformers to the crushing, grinding, flotation, filtering, and thickening, and induration facilities at 4,160 V to 480 V, as required.

Backup diesel-powered generators are installed at several locations to operate critical equipment should main power be lost.

In August 2016, the Mine executed a 20-year special contract with the Upper Michigan Energy Resources (UMERC) that began on April 1, 2019. The electricity under that contract is supplied through the existing power grid, which is interconnected to neighboring states (Figure 15-3).

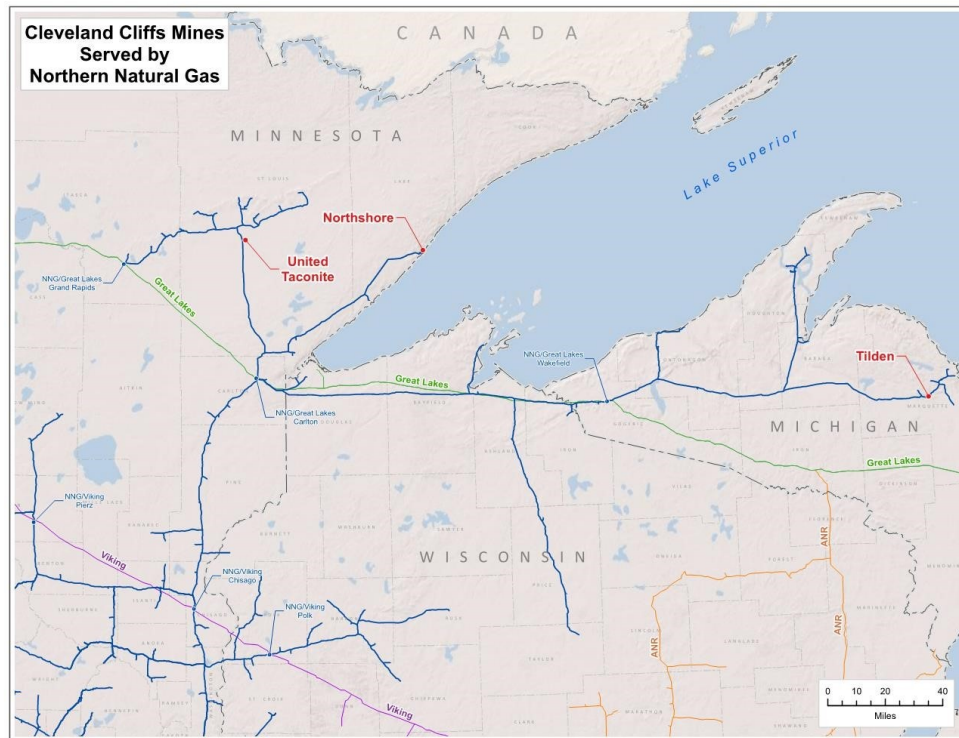


Source: American Transmission Company

Figure 15-3: Regional Electrical Power Distribution

15.6 Natural Gas

Natural gas is primarily used for firing the 160 ft rotary kilns at the pelletizing plant and water boilers in the concentrator. Natural gas is purchased from Encore Energy and supplied to the site via a gas pipeline owned and operated by Northern Natural Gas (NNG). NNG has an extensive interstate pipeline system that travels through the Midwest and is interconnected to other major interstate pipelines. Gas is delivered to a border reducing station at 575 psi. Natural gas is further reduced to 50 psi with an incoming 10 in. feed line for use in plant application. The natural gas line is buried and protected by cathodic protection. Figure 15-4 is a map of the NNG pipeline system.



Source: Northern Natural Gas Company

Figure 15-4: Regional Natural Gas Supply

15.7 Coal

The Tilden pellet plant kilns are a dual fuel system with the ability to operate on pulverized coal, natural gas, or a combination of both.

15.8 Diesel and Propane

U.S. Oil supplies the Mine from its terminal in Green Bay, Wisconsin. Tilden has one, 20,000-gal, above-ground diesel fuel tank and one, 10,000-gal, underground gasoline storage tank. Small diesel and gasoline fueling stations are used for small maintenance equipment and fleet vehicles. There is sufficient fuel supply in the region to meet the requirements of the operation.

15.9 Communications

Communications to the facility are provided by AT&T via a direct fiber connection to the Tilden facility for data/network communications. Tilden is connected to other locations such as Empire with a separate fiber line to that facility and a T1 connection to the LS&I Eagle Mills facility. Network switch

connectivity is provided via gigabit connections between the various locations/buildings on the Property. Telephone connectivity is also provided by dedicated phone lines from AT&T, and the phone system is provided by Avaya.

15.10 Water Supply

15.10.1 Fresh Water

Fresh makeup water for the process is supplied from the Greenwood Reservoir. The reservoir is located approximately seven miles southwest of Ishpeming and is on the Middle Branch Escanaba River. It was constructed in 1972. The reservoir impounds 22,000 acre-ft and has a surface area of 1,400 acres. It has a 26-mi shoreline and includes 13 small islands, which add an additional 11 mi of shoreline.

Water is released from the reservoir into an after-bay, a mini reservoir downstream of the main dam, through a four-port outlet system. Water can be selected from one of the four gates from the bottom to the surface, depending on water temperature desired, or any combination of gates can be opened to obtain the desired blend.

The diversion water is conveyed by gravity through a 30 in.-diameter x 4,000 ft-long pipeline to Green Creek, which flows into the Schweitzer Reservoir, constructed in 1963 for the Empire Mine. A permanent pumping system with three pumps (one duty and two standby), pumps the fresh water 1.5 mi from the Schweitzer Reservoir to the Tilden concentrator fresh water head tank via a buried water line (Figure 15-5).

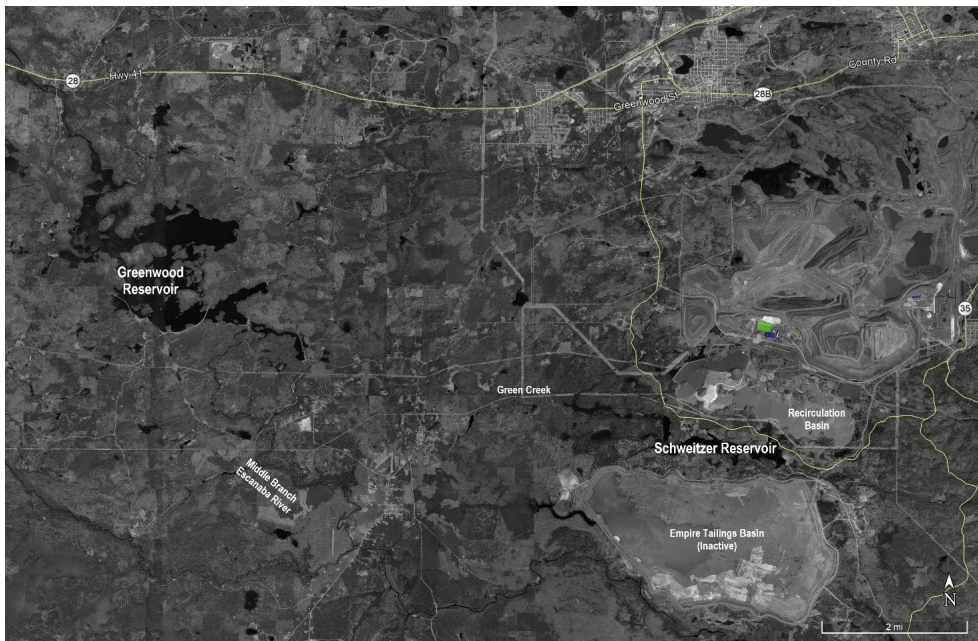


Figure 15-5: Fresh Water Supply

15.10.2 Process Water

The majority of process water requirements are met by reclaiming from the operation via tailings thickener overflow, reuse water basin, or decanting and returning from the tailings basin. Reuse basin water is a combination of excess tailings thickener overflow water and fresh water makeup to maintain level. Reuse water is pumped back to the Plant using twelve reuse pumps and boosted in pressure with seven reuse water booster pumps for Plant use.

15.10.3 Fire Water

Fire water is supplied from the fresh water head tank, which holds a minimum reserve for emergency purposes. Fire water is distributed throughout the operation both via underground piping to external buildings separated from the Plant including the Tilden truck shop, primary crusher, and fuel buildings, and via above-ground piping within the Plant. Line pressure is maintained by a small jockey pump, with full pressure supplied by an electric pump should a significant amount of water be required. A backup diesel pump is provided in the event of a power outage.

15.10.4 Potable Water

Potable water is supplied by two deep well pumps located on site. Water is pumped to a head tank with the offtake being boosted for use in the operation.

15.11 Support Facilities

The main processing facility is contained in a conventional, multilevel, insulated steel building. Mining offices and mobile equipment maintenance shops are separated from the main facility and are located on Empire Mine property. Construction of the facility was completed in 1974 for Tilden 1 and 1978 for Tilden 2. Substantial buildings separated from the main complex include the fresh water and reuse water pump houses, clarifier and reagent mixing pump house, tailings thickener pump house, and Tilden truck shop. Figure 15-6 shows a general layout of buildings near the Plant and Figure 15-7, the Empire truck shop.

Site security is provided by General Security Services Corporation (GSSC) and is managed by the Tilden Safety department.

Explosive delivery and handling is performed by contractors. There is no storage of explosives at the site.

15.11.1 Administration Buildings and Offices

Administration offices of the facility are encompassed within the Plant footprint. Sufficient office space for human resources, finance, health and safety, environmental, engineering, warehousing, plant operations, and maintenance reside in the Plant; mining, geology, mine engineering, mine operations and maintenance reside in the Empire Mine services building. Centralized support services for payroll, information technology (IT), procurement, and research are based either from Cleveland, Ohio and/or Ishpeming, Michigan. Additional finished office space is available in the Tilden truck shop if required.

15.11.2 Maintenance Shops

Mining maintenance is performed primarily at the Empire truck shop for mobile equipment. This facility is equipped with a truck wash bay and has 26 stalls with associated overhead cranes, lubrication, and parts storage. The Empire truck shop is directly connected to the mining administration building. Maintenance on drills is either performed in the field or at the Tilden truck shop. The Tilden truck shop is equipped with the bare essentials and is primarily used to provide an area out of the elements for the drill repair crew and is used as the onsite drill core logging and storage facility.

Plant maintenance is provided with work-shop space at three primary locations within the Plant footprint: concentrator, pellet plant, and main shops. Field fitting and fabricating is performed at the first two, with associated overhead cranes, welding, and cutting equipment provided. The main shop is located adjacent to the warehouse facility and provides rebuild services for primarily rotating equipment components. Large fabrication jobs are handled by an in-house fabrication shop at the Empire facility or contracted to local fabrication and machining facilities. These facilities are typically located at Calumet (114 mi northwest) or Escanaba (67 mi south-southeast).

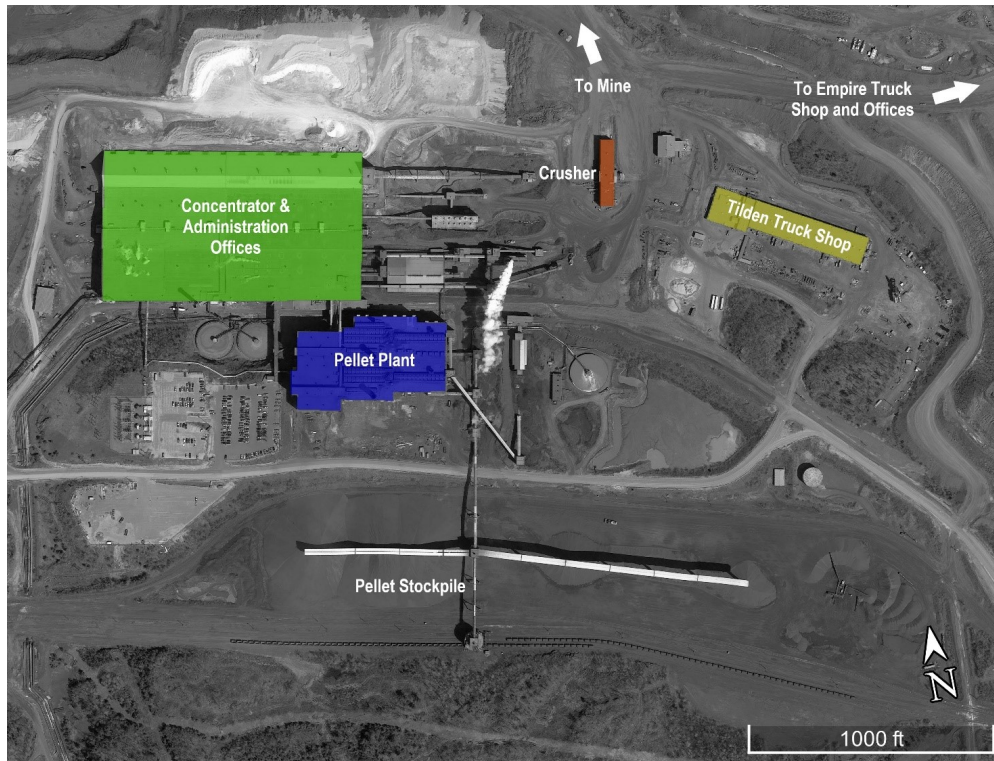


Figure 15-6: Process Plant and Administration Offices

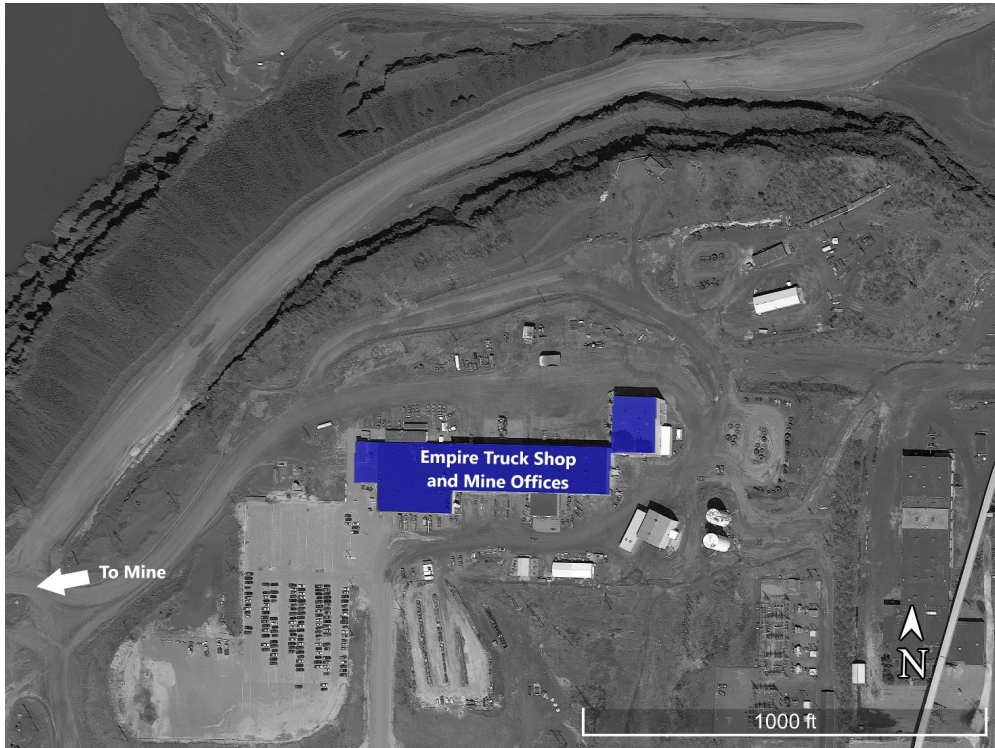


Figure 15-7: Mine Offices and Truck Shop

16.0 MARKET STUDIES

16.1 Markets

Note that while iron ore production is listed in long or gross tons (2,240 lb), steel production is normally listed in short tons (2,000 lb) or otherwise noted.

Cliffs is the largest producer of iron ore pellets in North America. It is also the largest flat-rolled steel producer in North America. In 2020, Cliffs acquired two major steelmakers, ArcelorMittal USA (AMUSA), and AK Steel (AK), vertically integrating its legacy iron ore business with steel production and emphasis on the automotive end market.

Cliffs owns or co-owns five active iron ore mines in Minnesota and Michigan. Through the two acquisitions and transformation into a vertically integrated business, the iron ore mines are primarily now a critical source of feedstock for Cliffs' downstream primary steelmaking operations. Based on its ownership in these mines, Cliffs' share of annual rated iron ore production capacity is approximately 28.0 million tons, enough to supply its steelmaking operations and not have to rely on outside supply.

In 2021, with underlying strength in demand for steel, the price reached an all time high. It is expected to remain at historically strong levels going forward for the foreseeable future. In 2020, North America consumed 124 million tons of steel while producing only 101 million tons, which is in line with the historical trend of North America being a net importer of steel. That trend is expected to continue going forward, as demand is expected to outpace supply in North America. Given the demand, it will likely be necessary for most available steelmaking capacity to be utilized.

On a *pro-forma* basis, in 2019 Cliffs shipped 16.5 million tons of finished flat-rolled steel. The next three largest producers were Nucor with 12.7 million tons, U.S. Steel with 10.7 million tons, and Steel Dynamics with 7.7 million tons. In 2019, total US flat-rolled shipments in the United States were about 60 million tons, so these four companies make up approximately 80% of shipments.

With respect to its BF capacity, Cliffs' ownership and operation of its iron ore mines is a primary competitive advantage against electric arc furnace (EAF) competitors. With its vertically integrated operating model, Cliffs is able to mine its own iron ore at a relatively stable cost and supply its BF and direct reduced iron (DRI) facilities with pellets in order to produce an end steel or hot briquetted iron (HBI) product, respectively. Flat-rolled EAFs rely heavily on bushelling scrap (offcuts from domestic manufacturing operations and excludes scrap from obsolete used items), which is a variable cost. The supply of prime scrap is inelastic, which has caused the price to rise with the increased demand. S&P Global Platts has stated the open-market demand for scrap could grow by nearly 9 million tons through 2023 as additional EAF capacity comes online, with the impact of the scrap market to continue to tighten as all new steel capacity slated to come online is from EAFs (S&P Global Platts, news release, March 18, 2021).

In addition to its traditional steel product lines, Cliffs-produced steel is found in products that are helping in the reduction of global emissions and modernization of the national infrastructure. For example, Cliffs' research and development center has been working with automotive manufacturer customers to meet their needs for electric vehicles. Cliffs also offers a variety of carbon and plate products that can be used in windmills, while it is also the sole producer of electrical steel in the United States. Additionally, in Cliffs' opinion, future demand for steel given its low CO₂ emissions positioning will increase relative to other materials such as aluminum or carbon fiber.

Cliffs is uniquely positioned for the present and future due to a diverse portfolio of iron ore, HBI, BFs, and EAFs generating a wide variety of possible strategic options moving forward, especially with iron ore. For instance, Cliffs has the optionality to continue to provide iron ore to its BFs, create more DRI internally, or sell iron ore externally to another BF or DRI facility.

The necessity for virgin iron materials like iron ore in the industry is apparent, as EAFs rely on bushelling scrap or metallics. As of 2020, EAFs accounted for 71% of the market share, a remarkably high percentage among major steelmaking nations. Because scrap cannot be consistently relied upon as feedstock for high-quality steel applications, the industry needs iron ore-based materials like those provided by Cliffs to continue to make quality steel products.

The US automotive business consumes approximately 17 million tons of steel per year and is expected to consume around or at this level over time for the foreseeable future. Cliffs' iron ore reserves provide a competitive advantage in this industry as well, due to high quality demands that are more difficult to meet for scrap-based steelmakers. As a result, Cliffs is the largest supplier of steel to the automotive industry in the United States, by a large margin.

Table 16-1 shows the historical pricing for hot rolled coil (HRC) product, Bushelling Scrap feedstock, and IODEX iron ore indices for the last five years. The table includes 2021 pricing for each index, which shows a significant increase that is primarily driven by demand.

**Table 16-1: Five Year Historical Average Pricing
Cleveland-Cliffs Inc. – Tilden Property**

Indices	2017	2018	2019	2020	2021	5 Yr. Avg.
US HRC (\$/short ton)	620	830	603	588	1611	850
Busheling (\$/gross ton)	345	390	301	306	562	381
IODEX (\$/dry metric ton)	71	69	93	109	160	100

The economic viability of Cliffs' iron ore reserves will in many cases be dictated by the pricing fundamentals for the steel it is generated for, as well as scrap and seaborne iron ore itself.

The importance of the steel industry in North America, and specifically the USA, is apparent by the actions of the US federal government by implementing and keeping import restrictions in place. Steel is a product that is a necessity to North America. It is a product that people use every day, often without even knowing. It is important for middle-class job generation and the efficiency of the national supply chain. It is also an industry that supports the country's national security by providing products used for US military forces and national infrastructure. Cliffs expects the US government to continue recognizing the importance of this industry and does not see major declines in the production of steel in North America.

For the foreseeable future, Cliffs expects the prices of all three indexes to remain well above their historical averages, given the increasing scarcity of prime scrap as well as the shift in industry fundamentals both in the US and abroad.

16.2 Contracts

16.2.1 Pellet Sales

Since Cliffs' 2020 acquisition of AK and AMUSA's BF steel making facilities, Tilden L.C. ships most pellets by freighter via the Great Lakes to Cliffs' steelmaking facilities in the Midwestern USA, and some pellets by rail to external customers.

For cash flow projections, Cliffs uses a blended three-year trailing average revenue rate based on the dry standard pellet from all Cliffs' mines, calculated from the blended wet pellet revenue average of \$98/WLT Free on Board (FOB) Mine as shown in Table 16-2. Pellet prices are negotiated with each customer on long-term contracts based on annual changes in benchmark indexes such as those shown in Table 16-1 and other adjustments for grade and shipping distances.

**Table 16-2: Cliffs Consolidated Three-Year Trailing Average Wet Pellet Revenue
Cleveland-Cliffs Inc. – Tilden Property**

Description	2017	2018	2019	3YTA
Revenue Rate (\$/WLT)	88.02	105.64	99.50	98.00
Total Pellet Sales (MWLT)	18.7	20.6	19.4	19.5

SLR examined annual pricing calculations provided by Cliffs for the period 2017-2019 for external customers, namely AK. The terms appear reasonable. It should be noted that Cliffs has subsequently acquired AK and AMUSA steelmaking facilities in 2020 making the company a vertically integrated, high-value steel enterprise, beginning with the extraction of raw materials through the manufacturing of steel products, including prime scrap, stamping, tooling, and tubing.

For the purposes of this TRS, it is assumed that the internal transfer pellet price for Cliffs' steel mills going forward is the same as the \$98/WLT pellet price when these facilities were owned by AK and AMUSA. Based on macroeconomic trends, SLR is of the opinion that Cliffs pellet prices will remain at least at the current three-year trailing average of \$98/WLT or above for the next five years.

16.2.2 Operations

Major current suppliers for the Tilden operation include, but are not limited to, the following:

- Electrical Grid Power: Upper Michigan Energy Resources
- Natural Gas: Encore Energy Services, Inc.
- Diesel Fuel: U.S. Oil, a Division of U.S. Venture, Inc.
- Propane: UP Propane
- Pellet Rail Transport to Marquette: LS&I, a wholly owned Cliffs' subsidiary
- Pellet Rail Transport to external customers: CN Railway

17.0 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

The SLR review process for Tilden included updating information that Cliffs had developed as part of its draft 2019 SK-1300 report. SLR has not had sight of or reviewed environmental studies, management plans, permits, or monitoring reports. The original and updated information included in this section is based on the information provided by the Cliffs project team.

17.1 Environmental Studies

Tilden L.C. conducted several environmental assessments for specific projects over time that have supported different aspects of its current operation. Each of those studies culminated in a determination by the relevant state and/or federal authorities to grant permits to construct and operate Tilden's facilities. The relevant historical studies are listed below. There are no environmental impact studies in process at this time.

- Empire & Tilden Mine Impact Assessment, May 2000, to support proposed wetland impacts at both mines.

Tilden has been operating for over 45 years, with baseline and other environmental studies undertaken as required to support various approvals over the site's operating history. Currently, additional environmental studies, including collecting and updating baseline information, are undertaken on an as-required basis to support new permit applications or to comply with specific permit conditions. Cliffs has indicated that all water quality-based studies site wide are being implemented per the requirements set forth in the NPDES permits.

17.2 Environmental Requirements

Tilden L.C. maintains an environmental management system (EMS) that is registered to the international ISO 14001:2015 standard. The ISO standard requires components of leadership commitment, planning, internal and external communication, operations, performance evaluation, and management review. Tilden's continued registration to the ISO standard is evaluated through external auditors. ISO audits are performed as required by the registrar to maintain the umbrella certification. The last audit was completed in June 2021. Compliance audits are performed as scheduled by corporate environmental, with the last audit completed in November 2021.

The EMS *Register of Legal Requirements* is used to maintain a current listing of compliance obligations that are applicable to the site's environmental aspects. Compliance obligations are incorporated into the EMS Procedures, Work Instructions, or other operational controls such as work orders, environmental plans, and operational procedures that have been developed for the significant environmental aspects. Additionally, compliance obligations are incorporated into procedures, plans, and work orders for aspects that have not been identified as "significant" under the EMS, but where incorporation of the compliance obligations is deemed necessary to promote regulatory compliance.

17.2.1 Site Monitoring

Tilden L.C. operates through permission granted by multiple permits, which are summarized in Table 17-1. The permits contain requirements for site monitoring including air, water, waste, and land aspects.

of Tilden's operation. Those permit-required data are required to be maintained by the facility, and exceptions to the monitoring obligations are reportable to the permitting authority. Monitoring is conducted in compliance with permit requirements, and management plans are developed as required to outline protocols and mitigation strategies for specific components or activities. Monitoring and management programs currently undertaken in compliance with Tilden's existing permits include:

- Air Quality: Management plans including fugitive dust control plans, operation and maintenance plans, and malfunction plans; monitoring of fugitive sources and stacks, visible dust emission monitoring at the tailings facility; and greenhouse gas (GHG) emissions monitoring and reporting.
- Noise and Vibration: Blast management plans including vibration monitoring.
- Surface Water: Routine water quality sampling in receiving waters; quantity of water takings and discharges; selenium-related monitoring and management program including collection and treatment of runoff and monitoring program at nearby streams/creeks.
- Groundwater: Routine water quality sampling at the Mine's potable and monitoring wells in accordance with legal requirements; quantity of potable water takings.
- Wetlands: monitoring of nearby wetlands where a potential impact has been identified, including related to drawdown and/or discharge activities.
- Wildlife: monitoring of species in accordance with specific permit conditions.

There are no specific management plans related to social aspects in place.

In terms of compliance, Cliffs received a Notice of violation on December 17, 2020 for fugitive dust events at GTB in November/December 2020. Tilden indicated that it completed an evaluation of its FDCP and submitted a revised plan to Michigan Department of Environment, Great Lakes and Energy (EGLE) on March 8, 2021 per EGLE request.

The State and Federal government conduct regional ecologic monitoring in the vicinity of the facility operations. Two recent examples of such monitoring include:

- Environmental Protection Agency (EPA) conducted its residual risk and technology review (RTR) of the Taconite NESHAP (40 CFR 63). EPA's final rule (July 28, 2020) documents that risks from the Taconite Iron Ore Processing source category are acceptable, and the current standards provide a margin of safety to protect public health and prevent an adverse environmental effect.
- The State of Michigan conducts regional watershed monitoring to assess the overall health of waterbodies throughout the state including water quality, and macroinvertebrate and fish population diversity and health. The State may develop watershed management tools for water bodies of concern such as total maximum daily load (TMDL) plans. Tilden is not currently subject to any TMDL-based load restrictions.

17.2.2 Water

Tilden L.C.'s current NPDES permit, MI0038369, authorizes to discharge treated process wastewater and treated sanitary wastewater from the GTB to Goose Lake Outlet, which is part of the Escanaba River watershed. Cliffs indicated that Tilden is currently in compliance with all permit conditions set forth in the NPDES permit for process water discharges. Cliffs indicated these discharge outfalls have provided adequate permitted capacity to move water as necessary to support the mining process.

Selenium had been identified in the process water and stormwater runoff from the facility, causing exceedances in surface water quality standards in certain watersheds proximal to the mining operations.

Capital improvements projects had been identified and implemented to achieve compliance with water quality standards in the receiving water adjacent to Tilden operations.

Tilden L.C. maintains two water use permits for operations makeup water, with adequate capacity for the facility's needs.

17.2.3 Hazardous Materials, Hazardous Waste, and Solids Waste Management

Tilden L.C. typically generates small quantities of hazardous waste and has a Small Quantity Generator status according to the federal Resource Conservation and Recovery Act (RCRA). Tilden generates other waste materials typical of any large industrial site and manages those wastes offsite through approved vendors.

17.2.4 Tailings Disposal, Mine Overburden, and Waste Rock Stockpiles

Requirements for tailings disposal are discussed in section 15.4 of this TRS. Tailings disposal is authorized by permits from the applicable regulatory authorities. See Table 17-1 for a full list of permits.

Because iron ore geology is different from some other mineralized ore bodies, acid-rock drainage is not a concern with the iron ore bodies and associated tailings in Michigan. Moreover, EPA itself describes the iron ore mining and beneficiation process as generating wastes that are "earthen in character." Chemical constituents from iron ore mining include iron oxide, silica, crystalline silica, calcium oxide, and magnesium oxide — none of which are Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances. The acid-neutralizing potential of carbonates in iron ore offsets any residual acid rock drainage risks, leading to pit water that naturally stabilizes at a pH of 7.5-8.5.

Tilden L.C. has implemented compliance plans to manage selenium present in the tailings basin discharge according to permit conditions. It is understood that the compliance plan has successfully managed selenium levels at or below the permit limit.

Requirements for the disposal of mine overburden and non-mineralized or lean rock are discussed in section 13.5 of this TRS. Stockpiling of these materials is authorized by permits from the applicable regulatory authorities. See Table 17-1 for a full list of permits.

17.3 Operating Permits and Status

Tilden operates through permission granted by multiple permits, which are summarized in Table 17-1.

While permitting exercises always involve varying degrees of risk due to external factors, Cliffs indicated that it has a demonstrated record of obtaining necessary environmental permits without unduly impacting the facility operational plan. Tilden is not aware of any permits/lack of permits that could lead to future operational issues.

Tilden has the following permit applications pending with a permitting authority:

- Routine renewal of Tilden's NPDES Permit with the Michigan Department of Energy, Great Lakes and Environment
- Wetland and stream impact permit for Tilden west stockpile progression (anticipated in 2022)
- Wetland and stream impact permit to support stormwater collection system upgrades (anticipated in 2022)

It is understood that all required permits are in place.

**Table 17-1: List of Major Permits and Licenses
Cleveland-Cliffs Inc. – Tilden Property**

Permit No	Description	Type	Jurisdiction	Agency	Status
MI0038369	NPDES Permit	NPDES	State	EGLE	Active
MI-ROP-B4885	Renewable Operating Permit (Title V)	Air	State	EGLE	Active
Permit No. 2	Part 631 Metallic Mineral	Mining	State	EGLE	Active
---	Part 35 Water Use Permit	Water Use	State	EGLE	Active
various	Wells	Well	State	EGLE / County Health Dept.	Active
4-MI-103-33- 1G-00663	Federal Explosives Permit/License	Explosives	Federal	US Dept. of Justice	Active
05-52-0032-P	Rock Stock Pile Expansion	Wetland and Stream	State	EGLE	Active
97-03-0019	Stock Pile Expansion Tilden Lake	Wetland and Stream	State	EGLE	Active
13-52-0008-P	GSTB Dike Elev 1395, Dam Elev 1300, Outlet Wks Elev 1302	Dam Safety	State	EGLE	Active
13-52-0009-P	GNTB PH 7-9 Dike construction Elev 1361	Dam Safety	State	EGLE	Active
MID083290551	Hazardous Waste Generator ID	License	State	EGLE	Active

Notes:

EGLE: Michigan Department of Environment, Great Lakes and Energy
USNRC: United States Nuclear Regulatory Commission

Regulatory issues with the potential to materially impact Tilden's current plans to address any issues related to environmental compliance and permitting are actively monitored and disclosed in Cliffs' 10-K; Part I Environment, which has discussion relevant to:

- Conductivity
- Selenium Discharge Regulation
- Evolving water quality standards for selenium and conductivity
- Definition of "Waters of the United States" Under the Clean Water Act

- Climate Change and GHG Regulation
- Regional Haze FIP Rule
- NO₂ and SO₂ National Ambient Air Quality Standards (NAAQS)
- CERCLA 108(b)
- Regulation of Discharges to Groundwater

17.4 Mine Closure Plans and Bonds

Tilden's current mine life is projected at 25 years as referenced in section 13.4 of this TRS. Michigan's Part 631 Rules (R 425.8) requires preparation of a reclamation plan that addresses a long-range look at the mining area, including consideration of reclamation, minimization of erosion and pollution, and estimated time to complete the plan. Cliffs has indicated that Tilden L.C. has developed a plan consistent with the Part 631 requirements and maintains it on file. As a matter of good mining practice, Tilden L.C. seeks to conduct progressive reclamation throughout its mining life to minimize risk and costs at closure. Tilden actively reclaims stockpiles with no further planned use, consistent with the Michigan Part 631 requirements.

Cliffs performs an annual review of significant changes to each operations Asset Retirement Obligation (ARO) cost estimates. Additionally, Cliffs conducts an in-depth review every three years to ensure ARO legal liabilities are accurately estimated based on current laws, regulations, facility conditions, and cost to perform services. These cost estimates are conducted in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 410 FASB ARO estimates comply with rules set forth by the United States General Accepted Accounting Principles (USGAAP) and the SEC, and those costs are reported as part of Cliffs' company-wide SEC disclosure. Arcadis calculated the 2020 ARO legal obligation Closure and Reclamation costs associated with project deactivation to be \$52.5 million (Arcadis, 2020). The total ARO liability for Cliffs is \$56.8 million; to calculate the total ARO liability, Cliffs deducts Arcadis' specified contingency value and adds Cliffs' accounting policy contingency at 15% and Cliffs' accounting policy market risk at 4%. SLR notes that there are differences between the ARO estimate and the book value calculated by Cliffs due to the long life of the operation.

Tilden L.C. indicated that it worked with a third party to develop a site-specific estimate of actual closure and reclamation cost, which considers likely approaches and techniques to close the facility consistent with the requirements of its Part 631 plan. Cliffs indicated that upon closure Tilden will implement short-term and long-term water quality treatment technologies to meet water quality standards in the receiving waters.

SLR cannot comment on adequacy of the closure costing and the closure plan based on currently available information.

17.4.1 Performance or Reclamations Bonds

Tilden currently has no outstanding performance or reclamation bonds.

17.5 Social and Community

Tilden has an agreement with Richmond and Tilden Townships to make an annual contribution to a house-washing program. The township administers the program for local homeowners through an area contractor. Cliffs indicated that this is a good faith gesture by Tilden to address any dust-related

concerns in the community. Cliffs also provides access/lease agreements with organizations for public use of inactive mine lands.

Cliffs Public/Government Affairs maintains a list of stakeholders for Cliffs iron ore mine operations.

SLR is not able to verify adequacy of management of social issues and what the general issues raised are. However, it is understood that Cliffs has a positive relationship with the community, and in the event of a complaint, Cliffs would work directly with affected community members to develop a mutually acceptable resolution.

18.0 CAPITAL AND OPERATING COSTS

Cliffs' forecasted capital and operating costs estimates are derived from annual budgets and historical actuals over the long life of the current operation. According to the American Association of Cost Engineers (AACE) International, these estimates would be classified as Class 1 with an accuracy range of -3% to -10% to +3% to +15%. All unit rates are reported in WLT pellets.

18.1 Capital Costs

Capital costs were derived from current levels and work of similar scope based on the 2022 plan. Table 18-1 shows the sustaining capital cost forecast for the five-year period from 2022 to 2026, which totals \$314.2 million, or \$8.29/WLT pellet. These costs include but are not limited to:

- \$15.4 million environmental compliance
- \$180.8 million in mine fleet replacements and additions
- \$94.3 million in plant maintenance
- \$23.7 million in plant and tailings basin operations

For the remaining LOM starting in 2027, an annual sustaining capital cost of \$4/WLT pellet totaling an additional \$579.9 million in expenditures is required for the remaining mine life as follows:

- \$261.4 million for major fleet purchases
- \$318.5 million for other sustaining capital expenditures (environmental, maintenance, etc.)

Total capital expenditures are estimated at \$894.2 million, or \$4.65/WLT pellet.

**Table 18-1: LOM Capital Costs
Cleveland-Cliffs Inc. – Tilden Property**

Type	Values	LOM	2022	2023	2024	2025	2026	2027-2046
Capital Costs								
Sustaining	\$ millions	632.8	63.5	82.9	45.7	43.8	78.3	318.5
Major Fleet	\$ millions	261.4						261.4
Total	\$ millions	894.2	63.5	82.9	45.7	43.8	78.3	579.9
Pellet Sales								
Pellet Sales	MWLT	192.4	7.7	7.5	7.4	7.6	7.7	154.5
Unit Rates								
Sustaining	\$/LT	3.29	8.25	11.10	6.16	5.73	10.17	2.06
Major Fleet	\$/LT	1.36						1.69
Total	\$/LT	4.65	8.25	11.10	6.16	5.73	10.17	3.75

A final closure reclamation cost of \$56.8 million is estimated, with \$18.9 million spent annually starting in the last year of production in 2047 and the two subsequent years.

18.2 Operating Costs

Operating costs for the LOM are based on the 2022 plan. For this period, costs are based on a full run rate of flux production consistent with what is expected for the life of the mine. At this point in time, there are no items identified that should significantly impact operating costs either positively or negatively for the evaluation period. Minor year-to-year variations should be expected based upon maintenance outages and production schedules. The 2022 Budget and LOM-average operating costs over the remaining 25 years of mine life are shown below in Table 18-2.

**Table 18-2: LOM Operating Costs
Cleveland-Cliffs Inc. – Tilden Property**

Description	2022 (\$/WLT Pellet)	LOM (\$/WLT Pellet)
Mining	21.43	15.30
Processing	42.73	42.79
Site Administration	2.88	2.84
General/Other Costs	6.35	5.07
Operating Cash Cost (\$/WLT Pellet)	73.39	66.00

Processing costs consist of crushing, grinding, concentrating, and pelletizing activities along with tailings basin disposal and shop allocations. Unlike Cliffs' Northshore and United operations, Tilden only includes pellet loading costs at the mine site and does not include the cost of railing pellets to Marquette port and ship loading in its operating costs. General/Other costs include production tax and royalty costs, insurance, corporate cost allocations, and other minor costs.

The Tilden operation employs a total of 967 salaried and hourly employees (including LS&I railroad staff) as of Q4 2021 consisting of 141 salaried and 826 hourly employees. The majority of the hourly employees are United Steelworkers production and maintenance bargaining unit members.

Table 18-3 summarizes the current workforce levels by department for the Property.

**Table 18-3: Workforce Summary
Cleveland-Cliffs Inc. - Tilden Property**

Category	Salary	Hourly	Total
Mine	40	393	433
Plant	59	340	399
General Staff Organization	28	0	28
LS&I Railroad	14	93	107
Total	141	826	967

19.0 ECONOMIC ANALYSIS

19.1 Economic Criteria

The economic analysis detailed in this section was completed after the mine plan was finalized. The assumptions used in the analysis are current for the time the analysis was completed (Q3 2021), which may be different than the economic assumptions defined in Sections 11.0 and 12.0 when calculating the economic pit. For this period costs are based on a full run rate of pellet production consistent with what is expected for the life of the mine.

An un-escalated, technical-financial model was prepared on an after-tax basis, the results of which are presented in this section. Key criteria used in the analysis are discussed in detail throughout this report. General assumptions used are shown summarized in Table 19-1.

Cliffs uses a 10% discount rate for DCF analysis incorporating quarterly cost of capital estimates based on Bloomberg data. SLR is of the opinion that a 10% discount/hurdle rate for after-tax cash flow discounting of large iron ore and/or base metal operations is reasonable and appropriate.

**Table 19-1: Technical-Economic Assumptions
Cleveland-Cliffs Inc. – Tilden Property**

Description	Value
Start Date	December 31, 2021
Mine Life	25 years
Three-Year Trailing Average Revenue	\$98/WLT Pellet
Operating Costs	\$66.00/WLT Pellet
Sustaining Capital (after five years)	\$4/WLT Pellet
Discount Rate	10%
Discounting Basis	End of Period
Inflation	0%
Federal Income Tax	20%
State Income Tax	None – Sales made out of state

The operating cost of \$66.00/WLT pellet includes royalties and State of Michigan production taxes.

The production and cost information developed for the Property are detailed in this section. Table 19-2 is a summary of the estimated mine production over the 25-year mine life.

**Table 19-2: LOM Production Summary
Cleveland-Cliffs Inc. – Tilden Property**

Description	Units	Value
ROM Ore	MLT	520.0
Total Material	MLT	1,116.9
Fe Grade	%	34.7
Average Annualized Mining Rate	MLT/y	44
Maximum Annualized Mining Rate	MLT/y	62

Table 19-3 is a summary of the estimated plant production over the 25-year mine life.

**Table 19-3: LOM Plant Production Summary
Cleveland-Cliffs Inc. – Tilden Property**

Description	Units	Value
ROM Material Milled	MLT	520.0
Annual Processing Rate	MLT/y	20.8
Process Recovery	%	37.0
Total Hemflux Pellet	MLT	192.4
Annual Hemflux Pellet Production	MLT/y	7.7

19.2 Cash Flow Analysis

The indicative economic analysis results, shown in Table 19-4, indicate an after-tax NPV, using a 10% discount rate, of \$1,322 million at an average blended wet pellet price of \$98/WLT. The after-tax IRR is not applicable since the Plant has been in operation for a number of years. Capital identified in the economics is for sustaining operations and plant rebuilds as necessary.

Project economic results and estimated cash costs are summarized in Table 19-4. Annual estimates of mine production and pellet production with associated cash flows are provided for years 2022 to 2026 and then by ten-year groupings through the end of mine life.

The economic analysis was performed using the estimates presented in this TRS and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

**Table 19-4: Life of Mine Indicative Economic Results
Cleveland-Cliffs Inc. – Tilden Property**

Mine Life		1	2	3	4	5	6-15	16-25	26-35
Calendar Years	Total	2022	2023	2024	2025	2026	2027- 2036	2037- 2046	2047- 2056
Reserve Base:									
Tilden Mining Ore Pellet Reserve Tons (millions)	192.4	184.7	177.2	169.8	162.2	154.5	77.5	0.0	0.0

Mine Life		1	2	3	4	5	6-15	16-25	26-35
Calendar Years	Total	2022	2023	2024	2025	2026	2027- 2036	2037- 2046	2047- 2056
Tonnage Data:									
Tilden Mining Total Tons Moved (millions)	1,116.9	60.0	62.0	60.5	60.6	60.0	460.0	353.8	-
Tilden Mining Crude Ore Tons Mined (millions)	520.0	21.6	21.3	21.2	21.3	22.1	209.6	202.8	-
Tilden Mining Pellet Production Tons (millions)	192.4	7.7	7.5	7.4	7.6	7.7	77.0	77.5	-
Inputs:									
Tilden Mining Pellet Revenue Rate (\$/ton)	98	98	98	98	98	98	98	98	-
Tilden Mining Operating Cash Costs (\$/ton)									
Mining	15.30	21.43	20.57	21.77	21.34	19.76	15.82	12.02	-
Crushing	0.80	0.87	0.69	0.81	0.80	0.80	0.80	0.80	-
Concentrating	28.02	28.58	27.49	28.95	27.98	27.98	27.98	27.98	-
Tailings Basin	-	-	-	-	-	-	-	-	-
Pelletizing and Pellet Handling	13.97	13.28	12.80	12.11	14.14	14.14	14.14	14.14	-
Site Administration	2.84	2.88	2.84	2.90	2.85	2.85	2.85	2.83	-
Production Taxes	1.03	1.03	1.06	1.06	1.02	1.02	1.02	1.02	-
Royalty	5.19	5.08	5.02	5.10	5.22	5.22	5.22	5.19	-
Insurance Charges	0.36	0.34	0.35	0.36	0.36	0.36	0.36	0.36	-
SG&A Corporate Allocation	0.02	0.46	0.00	0.00	0.00	0.00	0.00	0.00	-
General / Other Costs	(1.52)	(0.55)	(1.41)	(1.50)	(1.58)	(1.58)	(1.58)	(1.57)	-
Tilden Mining Operating Cash Cost (\$/ton)	66.00	73.39	69.42	71.57	72.13	70.55	66.60	62.76	-
Income Statement:									
Tilden Mining Gross Revenue (\$ in millions)	18,854	755	732	728	748	755	7,546	7,591	-
Mining	2,944	165	154	162	163	152	1,218	931	-
Crushing	154	7	5	6	6	6	62	62	-
Concentrating	5,391	220	205	215	214	215	2,154	2,167	-
Tailings Basin	-	-	-	-	-	-	-	-	-
Pelletizing and Pellet Handling	2,688	102	96	90	108	109	1,088	1,095	-
Site Administration	547	22	21	22	22	22	219	219	-
Production Taxes	197	8	8	8	8	8	79	79	-

Mine Life		1	2	3	4	5	6-15	16-25	26-35
Calendar Years	Total	2022	2023	2024	2025	2026	2027- 2036	2037- 2046	2047- 2056
Royalty	998	39	37	38	40	40	402	402	-
Insurance Charges	69	3	3	3	3	3	28	28	-
SG&A Corporate Allocation	4	4	0	0	0	0	0	0	-
General / Other Costs	(293)	(4)	(11)	(11)	(12)	(12)	(122)	(122)	-
Tilden Mining Operating Cash Cost (\$ in millions)	12,698	565	518	531	551	543	5,128	4,861	-
Tilden Mining Operating Income (excl. Depreciation & Accretion)	6,156	190	213	196	198	211	2,418	2,730	-
Federal Income Taxes (\$ in millions)	(1,231)	(38)	(43)	(39)	(40)	(42)	(484)	(546)	-
Depreciation Tax Savings (\$ in millions)	209	5	6	7	7	7	82	94	-
Accretion Tax Savings (\$ in millions)	13	0	0	0	0	0	4	8	-
Tilden Mining Income after Taxes (\$ in millions)	5,147	157	177	164	165	176	2,020	2,287	-
Other Cash Inflows & Outflows (\$ in millions):									
Sustaining Capital Investments	(633)	(64)	(83)	(46)	(44)	(78)	(177)	(141)	-
Significant All Material Change Capital Additions	(261)	-	-	-	-	-	(124)	(137)	-
Mine Closure Costs (Incl. Post Closure)	(57)	-	-	-	-	-	-	-	(57)
Tilden Mining Cash Flow (\$ in millions)	4,196	94	95	118	121	98	1,718	2,009	(57)
Tilden Mining Discounted Cash Flow (\$ in millions)	1,322	85	78	89	83	61	642	289	(4)

19.3 Sensitivity Analysis

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities. The Tilden operation is nominally most sensitive to market prices (revenues) followed by operating cost as demonstrated in Table 19-5. For each dollar movement in sales price and operating cost, respectively, the after-tax NPV changes by approximately \$55 million.

SLR notes that recovery and head grade sensitivity do not vary much in iron ore deposits compared to metal price sensitivity. In addition, sustaining capital expenditures amount to 5% of LOM operating costs and, therefore, do not have much impact on the viability of operating mines.

**Table 19-5: NPV @ 10% Sensitivity Analysis
Cleveland-Cliffs Inc. – Tilden Property**

	Operating Costs (\$/WLT Pellet)					
	\$81	\$76	\$71	\$66	\$61	\$56
\$83	(\$345)	(\$67)	\$211	\$489	\$766	\$1,044
\$88	(\$67)	\$211	\$489	\$766	\$1,044	\$1,322
\$93	\$211	\$489	\$766	\$1,044	\$1,322	\$1,600
\$98	\$489	\$766	\$1,044	\$1,322	\$1,600	\$1,878
Sales Price (\$/WLT Pellet)	\$103	\$766	\$1,044	\$1,322	\$1,600	\$1,878
	\$108	\$1,044	\$1,322	\$1,600	\$1,878	\$2,155
	\$113	\$1,322	\$1,600	\$1,878	\$2,155	\$2,433
	\$118	\$1,600	\$1,878	\$2,155	\$2,433	\$2,711
	\$123	\$1,878	\$2,155	\$2,433	\$2,711	\$2,989
					\$2,989	\$3,267

20.0 ADJACENT PROPERTIES

This TRS is based solely on information and data from the Tilden Property. Although Cliffs' Empire Mine is adjacent to the Tilden Property and is on care and maintenance status, the Mineral Resource and Mineral Reserves stated in this TRS are contained entirely within the Property's mineral leases, and information from other operations was not used in this TRS.

21.0 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information that is not discussed in this TRS.

22.0 INTERPRETATION AND CONCLUSIONS

Tilden has successfully produced iron ore pellets for over 47 years. The update to the Mineral Resource and Mineral Reserve does not materially change any of the assumptions from previous operations. An economic analysis was performed using the estimates presented in this TRS and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves for a 25-year mine life.

SLR offers the following conclusions by area.

22.1 Geology and Mineral Resources

- Indicated Mineral Resources at Tilden, exclusive of Mineral Reserves, are estimated to total 135.4 MLT at a grade of 34.7% crude Fe. Inferred Mineral Resources are estimated to total 350.4 MLT at a grade of 34.7% crude Fe.
- The 2019 QA/QC program as designed and implemented by Cliffs has been helpful to understand the precision and accuracy of sample analysis at the Tilden laboratory, which is used to support the assay results within the database and confirm that the database is suitable for use in estimating Indicated and Inferred Mineral Resources.
- The Tilden database is adequate for the purposes of estimating Indicated and Inferred Mineral Resources. The lack of regular QA/QC sample submissions alongside samples used to support Mineral Resources is outside of industry-standard practice, and there are several database integrity issues that require attention.
- There is a moderate to good correlation of all variables between drill and blast hole twinned samples. Correlation of iron content values decreases for samples with high silica in concentrate values. There is a potential high bias of phosphorus in concentrate values in favor of blast holes. The known bias of weight recovery (wtrec) in favor of blast hole data is not observable in the paired dataset.
- The estimated block grades reflect the local blast hole or drill hole composite value, and the trends of the different variables are as intended.

22.2 Mining and Mineral Reserves

- The Property has been in production since 1974, and specifically under 100% Cliffs operating management since 2017. Cliffs conducts its own Mineral Reserve estimations.
- Total Proven and Probable Mineral Reserves are estimated at 520.0 MLT of crude ore at a grade of 34.7% crude Fe.
- Mineral Reserve estimation practices follow industry standards.
- The Mineral Reserve estimate indicates a sustainable project over a 25-year LOM.
- The geotechnical design parameters used for pit design are reasonable and support previous operations. Slope depressurization may be required as part of the development of the final pit walls.
- The LOM production schedule is reasonable and incorporates large mining areas and open benches.
- An appropriate mining equipment fleet, maintenance facilities, and manpower are in place, with additions and replacements estimated, to meet the LOM production schedule requirements.

- Sufficient storage capacity for waste stockpiles and tailings has been identified to support the production of the Mineral Reserve.

22.3 Mineral Processing

- The Tilden deposit is complex and requires metallurgical testing to classify materials as ore and waste. A standard flotation testing procedure has been developed for material classification, resource modeling, and concentrator feed blending.
- The capacity of the Tilden concentrator and pellet plant is 7.7 MLT/y of fluxed pellets (hemflux) from hematite-dominant crude ore sources.
- The ore is amenable to AG, and the concentrator consists of eleven lines of primary autogenous mills for coarse grinding and pebble mills for fine grinding, eliminating the requirement for steel grinding media.
- Pellets are indurated using a gas- and coal-fired grate drying and preheating furnace, followed by gas- and coal-fired rotary kilns for fusing and hardening, and rotary coolers for cooling. Heat must be supplied by fuel for low-magnetite concentrates, without the benefit of the exothermic heat of reaction from magnetite oxidation to hematite during heating.
- Crude iron ore head grades feeding the Plant during 2014 to 2020 ranged from 34.4% Fe to 35.5% Fe. Iron recovery to flotation concentrates ranged from 69.6% to 74.8%, with concentrate grades averaging 62.2% to 63.7% during this period. Approximately 20.5 MLT of crude ore is processed through the concentrator annually to produce 8.9 MLT of fluxed concentrate and 7.7 MLT of fluxed pellets (hemflux).

22.4 Infrastructure

- The Property is in a historically important, iron-producing region of Northern Michigan. All the infrastructure necessary to mine and process commercial quantities of iron ore and produce and ship pellets is in place, including the Mine, concentrator, and support facilities, line power supplies, natural gas sourced from an interstate pipeline system, local supply of coal, and diesel fuel supply from Green Bay, Wisconsin.
- The GTB is located approximately five miles southeast of the Tilden concentrator plant and nine miles from Lake Superior. The GTB is comprised of two, ring dike-type impoundments: the GNTB, which encompasses approximately 1,350 acres, and the GSTB, which encompasses approximately 1,100 acres.

22.5 Environment

- Tilden indicated that it maintains the requisite state and federal permits and is in compliance with all permits. Various permitting applications have been submitted to authorities and are pending authorization. Environmental liabilities and permitting are further discussed in Section 17.0.

23.0 RECOMMENDATIONS

23.1 Geology and Mineral Resources

1. Complete a reconciliation study to support the inclusion of Measured Mineral Resources at Tilden.
2. Complete additional drilling to improve the understanding of the deposit at its periphery and at depth, with a focus on low drill density areas within the 2019 LOM plan, as well as in areas with increased variability, such as the high-silica zones in the east of the Main Pit. Integrate the downhole information from the Empire and Tilden mines into a single, valid database.
3. Develop a standard operating procedure for detailed logging of drill core that captures iron speciation, alteration, mineralogy, structure, and lithology. Retain initial geological observations in drill core separately from subsequent re-interpretations based on metallurgical results or results of neighboring drill holes.
4. Undertake a study where samples are consistently taken at shorter intervals, broken by geology, to examine how the variance of the assays is affected and how the material-type designation, based on a calculation of those variables, compares against the material-type designation of longer samples. Sample intrusive material (dilution) too small to be segregated when modeling or mining as part of iron formation unit samples.
5. Continue work to define fault orientations and related alteration in the east of the Main Pit to confirm the syn-bedding and cross-cutting directions of the modeled, high-silica alteration units and investigate alternative tools to capture drill hole information, including a magnetometer and hyperspectral and x-ray fluorescence handheld devices to allow empirical measurements of magnetism (where relevant), alteration, such as clay, and iron speciation.
6. Develop and implement a robust QA/QC program at Tilden for both exploration drill hole and blast hole samples and incorporate analytical attribute data, such as grind time, starch type, and dates into the assay database, to be able to analyze results in context of changing test protocols for performance and bias.
7. Address capacity issues at the Tilden laboratory to allow the sample analysis to be completed in a timely manner and to facilitate the inclusion of QA/QC samples.

23.2 Mining and Mineral Reserves

1. Assess groundwater conditions in the immediate vicinity of the final pit through a more focused groundwater model. The results of this assessment should be input into an update of the pit slope stability analysis on sections cut through the current final pit design.

23.3 Mineral Processing

1. Continue specialized metallurgical testing to support resource modeling and mine planning and blending for the concentrator.
2. Plant operational performance including concentrate and pellet production and pellet quality continues to be consistent year over year. It is important to maintain diligence in process-oriented metallurgical testing and in plant maintenance.

23.4 Infrastructure

1. Prioritize the completion of an OMS Manual for the TSF with the EOR in accordance with MAC guidelines and other industry-recognized standard guidance for tailings facilities.
2. Document, prioritize, track, and close out in a timely manner the remediation, or resolution, of items of concern noted in TSF audits or inspection reports.
3. Assess the impacts of depositing tailings in the Empire facility, and prepare the necessary design and permitting documents.

24.0 REFERENCES

- AACE International, 2012, Cost Estimate Classification System – As applied in the Mining and Mineral Processing Industries, AACE International Recommended Practice No. 47R-11, 17 p.
- AECOM Environment, 2011, Final Interpretative Report - Hydrogeologic study, Empire and Tilden Mines, Ishpeming, Michigan: unpublished report prepared for Cliffs Michigan Operations, August 31, 2011.
- Arcadis, 2020. 2020 Asset Retirement Obligation Summary, Tilden Mining Company L.C., December 2020
- Barr Engineering Co. (2008). Startup, Shutdown, and Malfunction (SSM) Plan, Cleveland-Cliffs, Tilden Mining Company L.C., February 27, 39 p.
- Albert, D.A., 1995, Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working classification (Fourth Revision: July 1994). North Central Forest Exp. Station. Forest Service-U.S. Dept. of Ag. General Technical Report NC-178. Northern Prairie Wildlife Research Center Online. <http://www.npwr.usgs.gov/resource/1998/rlandscp/rlandscp.htm> (Version 03JUN98).
- Barr Engineering Co., 2008, Startup, Shutdown, and Malfunction (SSM) Plan, Cleveland-Cliffs, Tilden Mining Company L.C., February 27, 39 p.
- Bayley, R.W., and James, H.L., 1973, Precambrian Iron-Formations of the United States, Economic Geology, Vol. 68, pp. 934-959.
- Boyum, B.H., 1964, The Marquette mineral district of Michigan, Institute of Lake Superior Geology National Science Foundation Summer Conference sponsored by Michigan Technological University. Cleveland-Cliffs Iron Company: Ishpeming, Michigan, 37 p.
- Call and Nicholas Inc., 2020, Life of mine feasibility level open pit slope angle study – Tilden Mine. Report prepared for Cleveland-Cliffs Inc., February 2020.
- Cambray, F.W., 2002, The evolution of a Paleoproterozoic plate margin, Northern Michigan. Field Trip Guide for the Great Lakes Section, Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 32nd Annual Fall Field Conference.
- Cannon, W.F., 1976, Hard iron ore of the Marquette Range, Michigan, Economic Geology, Vol. 71, pp. 1012-1028.
- Cannon, W.F., LaBerge, G.L., Klasner, J.S., and Schulz, K.J., 2007, The Gogebic iron range - a sample of the northern margin of the Penokean fold and thrust belt: U.S. Geological Survey Professional Paper 1730, 44 p.
- Case, J.E., and Gair, J.E., 1965, Aeromagnetic map of parts of Marquette, Dickinson, Baraga, Alger, and Schoolcraft Counties, Michigan, and its geologic interpretation: U.S. Geol. Survey Geophys. Inv. Map GP-467, scale 1:62,000.

Cliffs, 2021a, Personal Communication.

Cliffs, 2021b, Personal Communication

Empire Iron Mining Partnership & Tilden Mining Company L.C., 2011, 2010 Annual mining and reclamation report, Empire Iron Mining Partnership Metallic Mineral Mining Permit #1 and Tilden Mining Company L.C. Metallic Mineral Mining Permit #2, March 11.

Gair, J.E., 1975, Bedrock geology and ore deposits of the Palmer Quadrangle, Marquette County, Michigan. United States Geological Survey Professional Paper 769: 159

GEI Consultants, 2020, 2020 Dam Inspection Report, Gribben Tailings Basin Dam, Inventory Identification No. 00113, December 2020.

GEI Consultants, 2019, Design Documentation Report, Phase 5 Water Retention Dam and Decant Structure and Phase 8 through 10 Upstream Dikes Gribben South Tailings Basin, Cliffs Michigan Operations, Richmond Township, Marquette County, Michigan Site. May 2019

GEI Consultants, 2016, Design Documentation Report, Phase 7 through 9 Water Retention, Dam and Phase 4 Decant Structure, Construction, (Phase 7 Stationing 171+32 to 250+80), Gribben North Tailings Basin, Richmond Township, Marquette County, Michigan

Guilbert, J.M., and Park, C.F. Jr., 1986, The Geology of Ore Deposits, W. H. Freeman and Company, New York, pp. 715-716.

Hawley, M., and Cuning, J., eds., 2017, Guidelines for mine waste dump and stockpile design, CSIRO Publishing, Melbourne, Australia, 370 p.

Houghton, J., and Bristol, T.W., 1846, Reports of Wm. A. Burt and Bela Hubbard: Esqs., on the geography, topography and geology of the U. S. Surveys of the mineral region of the south shore of Lake Superior, for 1845; accompanied by a list of working and organized mining companies; a list of mineral locations, and a correct map of the mineral region, also a chart of Lake Superior, reduced from the British Admiralty Survey. C. Wilcox, Buffalo, NY, 109 p.

James, H.L., 1954, Zones of regional metamorphism in the Precambrian of northern Michigan: Geological Society of America Bulletin, v. 66, no.12, p. 1455-1487.

James, H.L., 1966, Chemistry of the iron-rich sedimentary rocks, U.S. Geological Survey Professional Paper 440-W, pp. W1-W61.

Lukey, H.M., Johnson, R.C., and Scott, G.W., 2007, Mineral zonation and stratigraphy of the Tilden Haematite Deposit, Marquette Range, Michigan, USA, Proceedings Iron Ore 2007, pp. 123-130, (The Australasian Institute of Mining and Metallurgy: Melbourne).

Nordstrom, P. M., 1995, Relationship of apparent specific gravity and head iron in selected Tilden core.

Nummela, W., and Anderson, G., 1970, Evaluation of specific gravity test results from selected Empire mine samples. Internal Cleveland-Cliffs Iron Company report. May 22, 1970.

- Orobona, M., 2020, Exploration Quality Assurance/Quality Control campaign report, 2019, Tilden. Internal Memo.
- Orobona, M., 2021, Pycnometer testing of 217 samples of reserved -10M crushed reject from Tilden diamond drill core. Internal Cleveland-Cliffs Iron Company report. August 3, 2021.
- S&P Global Platts (<https://www.spglobal.com/platts/en/market-insights/latest-news/metals/031821-open-market-scrap-demand-in-us-could-grow-by-almost-9-million-mt-through-2023>), 2018, Analysis: Open market scrap demand in US could grow by almost 9 million mt through 2023, news release, March 18, 2021.
- Schaetzl, R.J., and Anderson, S., 2005, Soils: genesis and geomorphology, Cambridge University Press.
- Schneider, D.A., Bickford, M.E., Cannon, W.F., Schultz, K.J., and Hamilton, M.A., 2002, Age of volcanic rocks and syndepositional iron formations, Marquette Range Supergroup: implications for the tectonic setting of Paleoproterozoic iron formation of the Lake Superior region, Can. J. Earth Sci. 39:999-1012
- Shagetz, M.L., and Cuning, J., 2019, Waste dump and stockpile stability rating and hazard classification for Cliffs Michigan Operations: April 8, 2019 report to D. Keranen prepared by Golder Associates, Montréal, QC, Canada, 24 p.
- Simmons, G.C., 1974, Bedrock geologic map of the Ishpeming quadrangle, Marquette County, Michigan: US Geological Survey Quad Map-1130.
- Sims, P.K., *Compiler*, 1992, Geologic map of Precambrian rocks, southern Lake Superior region, Wisconsin and northern Michigan: U.S. Geological Survey Miscellaneous Investigations Series Map I-2185, scale 1:500,000.
- Sommers, L.M., 1984, Michigan: A Geography, Boulder, CO, Geographies of the United States.
- Stiffler, D.L., 2010, The iron riches of Michigan's Upper Peninsula, Michigan State Department of Natural Resources Webpage, historical webpage http://www.michigan.gov/dnr/0,4570,7-153-54463_18670_18793-53100--,00.html
- Tilden SOP, 0903Q0200, Development Drill Core - Bench Flot Test, Tilden Sharepoint
- Tilden SOP, 0903Q2701, SATMAGAN Magnetic Iron Determination, Tilden SharePoint
- Tilden SOP, 0909Q0401, Sample Preparation and Fusion, Tilden SharePoint
- Tilden SOP, 0909Q0501, XRF - Measuring a Sample, Tilden SharePoint
- Tilden SOP, 0909Q0901, Soluble Iron by Al Wire/Titration Method, Tilden SharePoint
- Van Hise, C.R., and Leith, C.K., 1911, The geology of the Lake Superior region: U.S. Geol. Survey Mon. 52, 641 p.

Van Schmus, W.R., and Woolsey, L.L., 1975, Rb-Sr geochronology of the Republic area, Marquette County, Michigan: Canadian Jour. Earth Sci., v. 12, p. 1723-1733

Waggoner, T.D., 1977, Specific gravity – intrusive waste. Internal Cleveland-Cliffs Iron Company report. October 4, 1977.

Western Regional Climate Center, 2015, Period of record monthly climate summary for Ishpeming, MI (Station 204127), Website, <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?mi4127>

25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This report has been prepared by SLR for Cliffs. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Cliffs and other third party sources.

For the purpose of this report, SLR has relied on ownership information provided by Cliffs and verified in an email from Gabriel D. Johnson, Cliffs' Senior Manager – Land Administration dated January 20, 2022. SLR has not researched property title or mineral rights for Tilden as we consider it reasonable to rely on Cliffs' Land Administration personnel who are responsible for maintaining this information.

SLR has relied on Cliffs for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Tilden Mine in the Executive Summary and Section 19. As the Tilden Mine has been in operation for almost 50 years, Cliffs has considerable experience in this area.

SLR has relied on information provided by Cliffs pertaining to environmental studies, management plans, permits, compliance documentation, and monitoring reports that were verified in an email from Scott A. Gischia, Cliffs' Director – Environmental Compliance, Mining and Pelletizing, dated January 21, 2022.

The Qualified Persons have taken all appropriate steps, in their professional opinion, to ensure that the above information from Cliffs is sound.

Except for the purposes legislated under applicable securities laws, any use of this report by any third party is at that party's sole risk.

26.0 DATE AND SIGNATURE PAGE

This report titled "Technical Report Summary on the Tilden Property, Michigan, USA" with an effective date of December 31, 2021 was prepared and signed by:

Signed *SLR International Corporation*

Dated at Lakewood, CO

February 7, 2022

SLR International Corporation

27.0 APPENDIX 1

27.1 Geometallurgical Domains

For operational purposes, the Tilden Mine is divided into geometallurgical domains, as shown in Figure 6-6. The domains are based on the metallurgical response from bench-scale flotation tests and processing in the Plant. Wtrec, SiO₂ content, and crude magnetic Fe content determine the domain designation. These properties are controlled by lithology (martite, carbonate, clastic, intrusive) and ore type (flot, magnetite).

The primary economic parameters are wtrec and grade of Fe (crude) and concentrate SiQ. Wtrec is the percentage by weight of each ton of material that reports to the concentrate following flotation. The grade of Fe and SiO₂ in the concentrate determine if the material will meet specifications for economic processing. Other factors that can affect the Plant operation and pellet quality are mineralogy as related to total oxides and loss on ignition; trace element chemistry, in particular phosphorous (P), but also manganese (Mn), magnesium oxide (MgO), calcium oxide (CaO), and alkalis; crude soluble, magnetic, and slime Fe. It should be noted that these data are essentially all based on involved bench test results that may not directly reflect the Plant response. The bench test is described in Section 10.2.2.

Brief descriptions of the individual geometallurgical domains are as following.

27.1.1 500 Northwest Domain

Stratigraphically above CDIII/West pit hanging-wall metadiabase (250) and below North Intrusive (270); it includes numerous dikes and one mappable igneous body, the West Intrusive (260);

- 550 Restricted to the Far West Extension, West Hematite domain is dominantly hematite-chert with mixed goethite, with weight recoveries around 40% and variable but elevated P. Its contact with the 530 domain is defined by a thin intrusive and metallurgical change;
- 530 Hematite-Goethite domain includes flotation ore (531) and Waste Iron Formation (WIF, 532);
 - 531 Dominantly goethite-chert with wtrec from low-30s to mid-40s and variable, but generally high, concentrate SiQ and P content;
 - 532 Oxidized martite/goethite; characterized by low wtrec, high SiQ and P; low head Fe indicates original Fe formation may have been carbonate facies (?). Sulfate minerals are locally common in bench faces;
- 520 Magnetite domain is dominantly magnetite-carbonate with silicate horizons. It is locally flotation and/or mag ore depending on liberation characteristics; and
- 510 Clastic interval at contact with top of the CDIII/West pit hanging-wall (250) in local (?) syncline. The 510 Clastic domain is locally flotation ore.

27.1.2 400 CDIII-West Pit Domain

Stratigraphically between the CDIII/West pit hanging-wall metadiabase (250) and CDIII footwall (230). Includes numerous small dikes and sills, the Keweenawan dike, and the West Pit Marker interval (240);

- 480 Footwall clastic zone along Main pit footwall (100). Consists of dominant martite clastics with coarse quartzite/conglomerate and interbedded martite-hematite chert;
- 470 Hanging-wall zone along base of CDIII/West pit hanging-wall metadiabase (250). It is defined as waste iron formation (WIF) due to very fine grain size and/or oxidization;

- 460 Dike domain is defined as a northeast-trending zone of chloritic dikes and associated oxidized and unoxidized Fe formation. The dikes result in a high dilution factor;
- 450 South Hematite domain in south part of CDIII and the West pit contains flotation ore of variable metallurgy and WIF. Dominantly thin-bedded, fine-grained, hematite-martite-chert, although some zones may be oxidized carbonate;
 - 451 Goethite zones within hematite domain associated with folding and faulting;
 - 452 Goethite zone along CDIII footwall, south of Keweenaw dike. Typically, high slime Fe, the goethite zone may be oxidized Carbonate (430) domain near the intersection of dike and footwall;
- 440 North hematite domain consists of fine-grained, oxidized, martite-hematite chert with numerous dikes. The boundary between this domain and the Magnetite domain (420) trends northeast and dips steeply to the south. This domain is locally flotation ore;
- 430 Carbonate domain is carbonate flotation ore with low magnetite content, high wtrec, and low concentrate grade. It is fault-bounded on north and south but apparently gradational down-dip to west to Magnetite domain (420);
- 420 Magnetite domain consists of magnetite-carbonate and magnetite-silicate-chert with variable oxidation and grain size. Boundaries are relatively sharp with other domains. The domain is generally defined by magnetite content, not ore type, so it contains potential flotation ore;
 - 421 West pit magnetite domain is an isolated (?) zone of high-grade magnetite in the west pit. It is defined by exploration drilling and blast pattern data;
 - 422 South CDIII carbonate is magnetite-carbonate flotation ore, apparently separate from the 420 and 421 domains; and
- 410 Footwall zone is defined as the magnetite-silicate body proximal to the contact with the CDIII Footwall metadiabase (230). It is typically waste or low-grade ore due to low magnetite content or poor liberation.

27.1.3 300 Main Pit Domain

Contains Fe formation units stratigraphically below the CDIII footwall metadiabase (230) and/or the East pit hanging-wall metadiabase (200). Includes numerous small, mafic intrusives;

- 370 Hanging-wall contact includes zones of erratic metallurgy along the base of the CDIII footwall (230) or East pit hanging-wall (200);
- 360 Transition zone between CDIII footwall (230) and the East pit hanging-wall (200). Consists of variably oxidized hematite Fe formation and mafic intrusives. Restricted to north side of the East pit;
- 350 Hematite-martite domain in East pit consists of various types of martite-chert. Includes intervals of magnetite-carbonate Fe formation and thin dikes. Gradational transition over 20 ft to 50 ft;
- 340 Carbonate Fe formation stratigraphically below the hematite-martite domain (350) in the East pit. Consists of martite-carbonate-chert with variable magnetite/martite content. Defined by magnetic Fe, wtrec, and total oxides. Has lower wtrec and higher concentrate grade than CDIII carbonates (430). May be magnetite ore in part;
- 330 Clay zone is defined as the intervals of Fe formation outlined as waste due to high SiO₂ from montmorillonite (or other) interference. Does not differentiate non-liberating hematite material. May be stratigraphically controlled. Includes some flotation ore within boundaries;
- 320 East pit clastics are mixed siliceous and silicate clastics and hematite Fe formation. Includes oxide and carbonate intervals. A thin dike defines the north boundary, presumably marking a fault, with the martite or carbonate domains;

- 321 High SiO₂ zones (6% to greater than (>) 10%) in the clastic domain reflects clay and/or Fe-silicates and/or non-liberating Fe formation;
- 310 Footwall Fe formation domain consists of variably oxidized oxide Fe formation and coarse clastics. Typified by erratic metallurgy; and
- 311 Earthy fines are high grade (>50 weight (wt) rec and >50 head Fe), oxidized zones controlled by structures within the footwall domain.

27.1.4 200 Intrusive Domains

These domains are used for correlation of the Fe formation domains and structural trends and appear to be conformable at the scale of the ore body. Generally interpreted as intrusives, they consist of mafic rocks, which vary from diabasic to porphyritic to aphanitic. All units appear to thin to the west and south. Contacts tend to be sheared and locally oxidized. Contact metamorphism of the Fe formation is minimal and, if present, results in finer-grained Fe formation. Synclinal structures and intersections with dikes have focused oxidation of the Fe formation;

- 270 North intrusive is a poorly defined intrusive body at the top of the Northwest zone (500);
- 260 West intrusive is a poorly defined but mappable intrusive body within the Northwest zone (500);
- 250 The CDIII/West pit hanging-wall is a relatively easily mappable diabase marker unit, and along with the CDIII footwall (230) is one of the principle stratigraphic correlations between the CDIII pit and the Main pit;
- 240 The West pit marker is a thin but continuous intrusive unit within the CDIII/West pit stratigraphy (300). It is interpreted to extend from the Foster Lake slot through the West pit;
- 230 The top of the CDIII footwall defines the base of the CDIII/West pit domain (400), while the base defines the top of the Main pit east domain (300);
- 220 Chloritic and diabase dikes and thin sills occur in all domains. The domain includes an east-west trending, 30+ ft-thick Keweenawan dike in CDIII; and
- 200 The East pit hanging-wall is separated from the CDIII footwall (230) by the Transition zone (360) Fe formation. Along the north side of the East pit, the base of this intrusive body marks the top of the Main pit East domain (300) for mining and planning purposes.

27.1.5 100 Main Pit Footwall Domain

- This domain consists of Archean (?) metamorphic rocks that are separated from the Fe formation domains by an east-west trending, north-dipping, high-angle fault;
- 121 Chloritic schist is the dominant footwall rock type exposed within the pit and in drill holes. This rock may be the extension of the CDIII footwall horizon (230) within the fault zone; and
- 111 Granite gneiss occurs south of the chloritic schist (121) but is only poorly exposed in the pit. This domain has not been used in the drill hole codes.

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