Gibellini Vanadium Project

Eureka County, Nevada

NI 43-101 Technical Report on Preliminary Economic Assessment Update

Prepared for:

Silver Elephant Mining Corp. and
Nevada Vanadium LLC (a wholly-owned subsidiary of Silver Elephant Mining Corp.)

Effective Date:

30 August, 2021

Project Number:

248484

Prepared by:

Mr. Kirk Hanson, P.E., Wood
Mr. Todd Wakefield, RM SME, MTS
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CERTIFICATE OF QUALIFIED PERSON

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I, Kirk Hanson, P.E., am employed as a Technical Director, Open Pit Mining with Wood USA Mining Consulting SLC Engineering.

This certificate applies to the technical report entitled "Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment Update" that has an effective date of 30 August, 2021 (the "technical report").

I am registered as a Professional Engineer in the State of Idaho (#11063). I graduated with a B.Sc. degree from Montana Tech of the University of Montana, Butte, Montana in 1989 and from Boise State University, Boise, Idaho with an MBA degree in 2004.

I have practiced my profession for 32 years. I was Engineering Superintendent at Barrick's Goldstrike operation, where I was responsible for all aspects of open-pit mining, mine designs, mine expansions and strategic planning. After earning an MBA in 2004, I was assistant manager of operations and maintenance for the largest road department in Idaho. In 2007, I joined AMEC (now Wood) as a principal mining consultant. Over the past 14 years, I have been the mining lead for multiple scoping, pre-feasibility, and feasibility studies. I have also done financial modelling for multiple mines as part of completing the scoping, pre-feasibility and feasibility studies.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I visited the Gibellini Project most recently on 9 June, 2021.

I am responsible for Sections 1.1, 1.2, 1.12, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20, 1.21, 1.22; Sections 2.1 to 2.6; Section 3; Section 15; Section 16; Section 18; Section 19; Section 20; Section 21; Section 22; Section 24; Sections 25.1, 25.7, 25.9, 25.10, 25.11, 25.12, 25.13, 25.14, 25.15; Sections 26.1, 26.2.5; and Section 27 of the Technical Report.

I am independent of Silver Elephant Mining Corp. as independence is described by Section 1.5 of NI 43–101.

I have previously co-authored the following technical reports on the project:

- Hanson, K., Wakefield T., Orbock, E., and Rust, J.C., 2010: Rocky Mountain Resources NI 43-101 Technical Report Gibellini Vanadium Project Nevada, USA: technical report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 8 October, 2008.
- Hanson, K., Orbock, E., Hertel, M., and Drozd, M., 2011: American Vanadium, Gibellini Vanadium Project, Eureka County, Nevada, USA, NI 43 101 Technical Report on Feasibility Study: technical report prepared by AMEC E&C Services Inc. for American Vanadium, effective date 13 August, 2011.
- Hanson, K., Orbock, E.J.C., Peralta, E., and Gormely, L., 2018: Gibellini Vanadium Project Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment: report prepared by Amec Foster Wheeler E&C Services Inc. for Prophecy Development Corp., effective date 29 May, 2018;

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: 8 October 2021.

"Signed and sealed"

Kirk Hanson, P.E.

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CERTIFICATE OF QUALIFIED PERSON

Todd Wakefield, RM SME
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I, Todd Wakefield, RM SME, am employed as the Managing Partner and Principal Geologist with Mine Technical Services Ltd, with an office address at 4110 Twin Falls Drive, Reno, NV, 89511, USA.

This certificate applies to the technical report titled "Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment Update" that has an effective date of 30 August, 2021 (the "technical report").

I am a Registered Member (RM) of the Society of Mining, Metallurgy, and Exploration (SME), registration number 4028798. I graduated from the University of Redlands with a Bachelors of Science degree in Geology in 1986, the Colorado School of Mines with a Master of Science degree in Geology in 1989, and the University of Alberta with a Citation in Applied Geostatistics in 2019.

I have practiced my profession for continuously since 1987. I have been directly involved in gold and base metal exploration and mining projects in the United States, Venezuela, Indonesia, Perú, and Mexico, and I have been involved in the evaluation of data quality, geologic modeling, and resource modeling for gold, base metal, and industrial mineral projects in North and South America, and Asia Pacific.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101) for those sections of the technical report that I am responsible for preparing.

I visited the Gibellini Project most recently on 9 June, 2021.

I am responsible for Sections 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.10, 1.11, 1.22; Section 2; Section 3; Section 4; Section 5; Section 6; Section 7; Section 8; Section 9; Section 10; Section 11; Section 12; Section 14; Section 23; Sections 25.1, 25.2, 25.3, 25.4, 25.6; Sections 26.1, 26.2.1, 26.2.2, 26.2.3; and Section 27 of the technical report.

I am independent of Silver Elephant Mining Corp. as independence is described by Section 1.5 of NI 43–101.

I have previously co-authored a technical report on the Gibellini Project:

- Hanson, K., Wakefield T., Orbock, E., and Rust, J.C., 2010: Rocky Mountain Resources NI 43-101 Technical Report Gibellini Vanadium Project Nevada, USA: technical report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 8 October, 2008.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: 8 October, 2021

"Signed and stamped"

Todd Wakefield, RM SME

CERTIFICATE OF QUALIFIED PERSON

Alan Drake, P.L.Eng.
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I, Alan Drake, P.L.Eng., am employed as the Manager, Process Engineering with Wood Canada Limited ("Wood"), with a business address at 400-111 Dunsmuir Street, Vancouver, British Columbia V6B 5W3.

This certificate applies to the technical report entitled "Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment Update" that has an effective date of 30 August, 2021 (the "technical report").

I am a Professional Licensee Engineering with Engineers and Geoscientists British Columbia. I graduated from the Technikon Witwatersrand with a National Higher Diploma in Extraction Metallurgy in 1993.

I have practiced my profession for 27 years. I have been directly involved in metallurgical plant operations, process design, construction and commissioning of minerals processing and hydrometallurgical facilities for base and precious metals.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43–101") for those sections of the technical report that I am responsible for preparing.

I have not visited the Gibellini Project.

I am responsible for Sections 1.1, 1.2, 1.9, 1.13, 1.14, 1.17, 1.18, 1.22; Sections 2.1 to 2.3, 2.6; Section 3; Section 13; Section 17; Section 18.7; Sections 21.1, 21.2.1, 21.2.4, 21.2.9, 21.3.1, 21.3.3, 21.4; Sections 25.1, 25.5, 25.8, 25.9, 25.12, 25.13; Sections 26.1, 26.2.4; and Section 27 of the technical report.

I am independent of Silver Elephant Mining Corp. as independence is described by Section 1.5 of NI 43–101.

I have no previous involvement with the Gibellini Project.

I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.

As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated: 8 October 2021

"Signed"

Alan Drake, P.L.Eng.

IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for Silver Elephant Mining Corp. (Silver Elephant) by Amec Foster Wheeler E&C Services Inc. (Amec Foster Wheeler) and Mine Technical Services Ltd (MTS), collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Silver Elephant subject to terms and conditions of its contracts with each of the Report Authors. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

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1.0 SUMMARY

1.1 Introduction

The Wood Group USA, Inc (Wood) and Mine Technical Services Ltd (MTS) were requested to prepare an independent technical report (the Report) on the outcomes of an updated Preliminary Economic Assessment (PEA; the 2021 PEA) on the Gibellini Vanadium Project (the Project) for Silver Elephant Mining Corp. (Silver Elephant) and Nevada Vanadium LLC (Nevada Vanadium), a Silver Elephant subsidiary company. The Project is located within Eureka County, Nevada.

The Project consists of the Gibellini, Louie Hill and Bisoni–McKay vanadium deposits. The 2021 PEA envisages mining of the Gibellini and Louie Hill deposits.

1.2 Terms of Reference

The Report was prepared to support disclosure by Silver Elephant of the results of the 2021 PEA on the Gibellini and Louie Hill vanadium deposits in the news release dated 30 August 2021 and entitled “Silver Elephant: Gibellini Vanadium Project’s PEA Shows 25.4% After Tax IRR At $10/lb V_2O_5, Capex $147 million”.

AMEC E&C Services Inc. and Amec Foster Wheeler E&C Services Inc. (collectively AMEC), are predecessor companies to Wood. Where work was specifically undertaken by AMEC, that name is used in the Report. For all other purposes in this Report, the name Wood is used to refer to the current and predecessor AMEC/Amec Foster Wheeler companies.

A preliminary assessment was completed by AMEC in 2008 (2008 PA), followed by a feasibility study in 2011 (2011 Feasibility Study). This work was undertaken for RMP Resources Corporation (RMP), which became American Vanadium Corporation (American Vanadium). A preliminary economic assessment (PEA) was completed for Prophecy Development Corp. (Prophecy) in 2018. While none of these studies are considered by Silver Elephant to remain current, some elements of the studies, such as metallurgical test work, environmental baseline studies, and cost estimation data, are used in this Report.

Monetary units are in US dollars (US$). Unless otherwise specified, units are reported in US Customary units. Mineral Resources are reported using the 2014 edition of the Canadian Institute of Mining and Metallurgy’s *Definition Standards for Mineral Resources and Mineral Reserves* (the 2014 CIM Definition Standards).

1.3 Project Setting

The Project is situated on the east flank of the Fish Creek Range in the Fish Creek Mining District, about 25 miles south of Eureka, and is accessed by dirt road extending westward from State Route 379.

The 24.5 miles leading to the proposed mine site is either Federal, State or County-owned. The road can be paved, improved gravel or two-track dirt. The three miles of road access from County Road M-104 to the mine is a two-track dirt road; however, it can be upgraded to service the mine. This upgraded road would be the principal method of transport for goods and materials in and out of the Project.

The climate is typical of the dry Basin-and-Range conditions of northern Nevada. Exploration is possible year-round, though snow levels in winter and wet conditions in late autumn and in spring can make travel on dirt and gravel roads difficult. It is expected that any future mining operations will be able to be conducted year-round.

Nevada has a long mining history and a large resource of equipment and skilled personnel. Local resources necessary for the exploration and possible future development and operation of the Project are located in Eureka. Some resources would likely have to be brought in from the Elko and Ely areas.

A 69 kV power line is located approximately seven miles north of the proposed Project location and services Fiore Gold's Pan Mine. Exploration activities have been serviced by diesel generator as required, and this approach is likely to be used on any recommencement of exploration activities.

1.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

1.4.1 Ownership

Silver Elephant holds a 100% interest in the mineral claims by way of lease agreements and staked claims. Claims are in the name of Silver Elephant's indirectly wholly-owned Nevada subsidiaries, VC Exploration (US), Inc. (VC Exploration) and Nevada Vanadium (formerly Vanadium Gibellini Company LLC (Vanadium Gibellini)).

In August 2020, Nevada Vanadium and Silver Elephant concluded an agreement with Stina Resources Nevada Ltd. (Stina Resources) and Cellcube Energy Storage Systems Inc (Cellcube Energy), to purchase a set of claims, the Bisoni–McKay claims, which are situated adjacent the Gibellini claims.

1.4.2 Mineral Tenure

The Gibellini Project ground holdings include:

- 40 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Jacqualeene Campbell, successor to Janelle Dietrich (deceased) and the unpatented lode mining claims (Dietrich Claims) are leased to Silver Elephant under its former name, Prophecy
- 105 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is VC Exploration (US), Inc.
- 456 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Nevada Vanadium LLC. The Nevada Vanadium claims comprise a number of different claim blocks, including the PCY claims, NV claims, Stina (Bisoni–McKay) claims, and the 2018 MSM replacement claims.

Unpatented mining claims are kept active through payment of a maintenance fee due by 1 September of each year. There has been no legal survey of the Project claims. Under Nevada law, each unpatented claim is marked on the ground, and does not require survey.

Dietrich Claims

The Dietrich Lease over the Dietrich Claims has a 10 year period, commencing on 22 June, 2017, unless terminated earlier under provisions in the lease agreement. The lease can be extended for a second 10 year term. If mining operations are underway at either the end of the first or second year term, the lease will continue for additional one-year terms for as long as the mining operations continue. If no active mining is underway on the Dietrich Claims, but the claim area is being used to support mining operations on other claims, then the lease will continue for as long as operations are underway.

2018 MSM Replacement Claims

The 2018 MSM replacement claims are located on ground that was previously covered by a series of unpatented claims that were held by Richard A. McKay, Nancy M. Minoletti, and Pamela S. Scutt (the McKay claims). The McKay claims were originally subject to a 2017 lease agreement with Prophecy; however, in 2018, each of these claims was declared abandoned and cancelled by the Bureau of Land Management (BLM) because certain statutory obligations had not been met by the claim holders. Prophecy staked new claims to cover the open ground previously covered by the McKay claims.

1.4.3 Surface Rights

The Gibellini Project is situated entirely on public lands that are administered by the BLM. No easements or rights of way are required for access over public lands. Rights-of-way would need to be acquired for future infrastructure requirements, such as pipelines and powerlines.

1.4.4 Royalties

Dietrich Lease

The Dietrich Lease contains both an advance royalty and a production royalty. Under the advance royalty provision, Prophecy was required to pay $35,000 to Ms Dietrich upon execution of the lease. Thereafter, on the anniversary date of the execution of the lease, Silver Elephant must pay a sliding scale advance royalty as follows:

- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is below $7.00/pound during the preceding 12 months, $35,000 during the initial term and $50,000 during the additional term; or
- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is equal to or above $7.00/pound during the preceding 12 months, $10,000 x the average vanadium pentoxide price per pound, up to a maximum of $120,000 annually.

The advance royalty payments will continue until such time Silver Elephant begins payment of the production royalty. If the production royalty payable in any one year is less than the advance royalty that would otherwise be paid for that year, then Silver Elephant will pay the difference between the two amounts. All advance royalty payments, as well as the difference between the advance royalty payment made and the production royalty that would otherwise be due in such year, may be deducted as credits against Silver Elephant's future production royalty payments, provided that the credit will not be applied to payment of the difference between the production royalty paid during any year and the advance royalty that would otherwise be payable.

The Dietrich Lease does not specifically set forth what events trigger the payment of the production royalty; the legal opinion provided notes that a reasonable interpretation is that payment of such a royalty would be due upon commencement of commercial mining operations. The production royalty requires Prophecy to pay a 2.5% net smelter return (NSR) until $3 M in payments is made. After that milestone is reached, the NSR falls to 2%.

Silver Elephant has the option to require Ms Dietrich to transfer title over all but four of the unpatented mining claims within the Dietrich Claims at any time in exchange for US$1 million to be paid as an advance royalty or transfer payment.

The proposed Gibellini pit is almost entirely within the Dietrich claims, and the Dietrich Royalty will be payable on production. The advance royalty obligation and production royalty payable are not "affected, reduced or relieved" by the title transfer.

2018 MSM Replacement Claims/McKay Claims

Under the advance royalty provision, upon commencement of "Commercial Production" from the "Gibellini Project," Silver Elephant must pay $75,000 to the McKay claimants. Upon the sale of "all or any portion" of the 2018 MSM Replacement Claims to any third party, Silver Elephant must pay the McKay claimants $50,000. In addition, no later than July 10 of each year during the term of the Royalty Agreement, Silver Elephant must pay a sliding scale advance royalty as follows:

- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is below $7.00/pound during the preceding 12 months, $12,500; or
- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is equal to or above $7.00/pound during the preceding 12 months, $2,000 times the average vanadium pentoxide price per pound, up to a maximum of $28,000 annually.

The advance royalty payments will continue until such time as Silver Elephant begins payment of the production royalty, provided, however, that if the production royalty payable in any year is less than the advance royalty otherwise payable for such year, then Silver Elephant must pay the difference between such amounts. All advance royalty payments, as well as the difference between the advance royalty payment made and the production royalty that would otherwise be due in such year, may be deducted as credits against Silver Elephant's future production royalty payments, provided that the credit will not be applied to payment of the difference between the production royalty paid during any year and the advance royalty that would otherwise be payable.

A small portion of the Gibellini pit and the majority of the proposed Louie Hill pit are within the 2018 MSM replacement claims area, formerly the McKay Claims. The McKay claims royalty will be payable on production.

1.4.5 Water Rights

An agreement is in place with Mr. John C. Gretlein with regard to water rights held by Mr. Gretlein for irrigation purposes, and has a 10-year duration from 2018. The agreement can be extended. The water rights are presently diverted from a canal located in the SE¼ NW¼ of Sec. 8, Township 16N, Range 53E, MDB&M. The agreement grants Silver Elephant a portion of these water rights, consisting of a maximum amount of approximately 1,046.5 acre-feet of water per year.

The agreement envisages the following:

- The leased water will consist of 805 acre-feet per year to be consumed at the Project, and will be measured by a meter at a pump located on the canal on Mr. Gretlein's property
- Approximately 241.5 acre-feet per year (the actual amount to be determined by the Nevada Division of Water Resources) will not be used by either Mr. Gretlein or Silver Elephant, and will be used to offset the irrigation recharge that will not occur. This water amount will be determined by monitoring other Fish Creek Ranch water use through measurement by water meters placed at all other Fish Creek Ranch points of diversion
- Water will be available in the canal to allow Silver Elephant to take water at a minimum rate of 500 gal/min and a maximum rate of 750 gal/min for 24 hours per day, seven days per week, 365 days per year

The agreement has a provision that if Silver Elephant uses all of the 805 acre-feet per year allocation, the company can negotiate for additional water at a price per gallon to be set at the time of negotiations.

The agreement requires a $100,000 water rental payment per year until water take commences, at which point the rental payment increases to $350,000 per year.

The agreement is subject to the approval of the Nevada Division of Water Resources for the planned change in water useage.

1.5 Geology and Mineralization

The deposits of the Gibellini Project are examples of the "USGS Shale-Hosted Vanadium" deposit type. Vanadium-rich metalliferous black shales occur primarily in late Proterozoic and Phanerozoic marine successions. They typically contain high concentrations of organic matter, reduced sulfur, and a suite of metals including copper, molybdenum, nickel, platinum group elements (PGEs), silver, uranium, vanadium, and zinc.

The Project is located on the east flank of the southern part of the Fish Creek Range. The historic limestone-hosted Gibellini manganese–nickel mine and the Gibellini, Louie Hill and Bisoni–McKay shale hosted vanadium deposits are the most significant deposits in the district and all occur within the Gibellini Project boundary.

The vanadium-host shale unit ranges from 175 to >300 ft thick and overlies gray mudstone. The shale has been oxidized to a depth of about 100 ft. The oxidation state is classified as one of three oxide codes: oxidized, transitional, and reduced. Vanadium grade changes across these boundaries. The transitional zone reports the highest average vanadium grades, and this zone is interpreted to have been upgraded by supergene processes.

Mineralization is tabular, conformable with bedding, and remarkably continuous in grade and thickness between drill holes. In the oxidized zone, complex vanadium oxides occur in fractures in the sedimentary rocks including metahewettite ($CaV_6O_{16}{\cdot}H_2O$), bokite ($KAl_3Fe_6V_{26}O_{76}{\cdot}30H_2O$), schoderite ($Al_2PO_4VO_4{\cdot}8H_2O$), and metaschoderite ($Al_2PO_4VO_4{\cdot}6\text{-}8H_2O$). In the reduced sediments, vanadium occurs in organic material (kerogen) made up of fine grained, flaky, and stringy organism fragments <15 µm in size.

1.6 History

There is no modern commercial vanadium production recorded from the Project.

1.6.1 Niganz Manganese–Nickel Mine

The Gibellini manganese–nickel mine (also known as the Niganz manganese–nickel mine), located immediately northeast of the Gibellini deposit, was intermittently mined until the mid-1950s.

1.6.2 Gibellini–Louie Hill

Work completed on the Gibellini–Louie Hill area prior to Silver Elephant's involvement was undertaken by a number of companies, including the Nevada Bureau of Mines and Geology (NBMG, 1946), Terteling & Sons (Terteling; 1964–1965), Atlas Minerals Company (Atlas; 1969) TransWorld Resources Ltd (TransWorld; 1969), Noranda Inc. (Noranda; 1972–1975), and Inter-Globe Resources Ltd (Inter-Globe; 1989). Rocky Mountain Resources (RMP), later renamed to American Vanadium, conducted work from 2006–2011. No on-ground work or exploration drilling has been conducted in the Gibellini area since 2011. Work conducted by these companies included geological mapping, surface and underground geochemical sampling, trenching, rotary, reverse circulation (RC) and core drilling, resource estimates, and metallurgical testing.

RMP completed a PA in 2008, and a feasibility study in 2011. Additional metallurgical testwork and closure column leach and attenuation studies were conducted in 2013 and 2014. All baseline studies for permitting were conducted in 2012–2015.

Prophecy acquired the Gibellini–Louie Hill area from American Vanadium in 2017. Prophecy completed no exploration or drilling activities after the Project acquisition. A preliminary economic assessment (the 2018 PEA) was completed on the Gibellini and Louie Hill vanadium deposits. Prophecy was renamed to Silver Elephant in March, 2020.

Silver Elephant commissioned an updated PEA in 2021, based on mining of Gibellini and Louie Hill. While none of the previous studies are considered by Silver Elephant to remain current, some elements of the studies, such as metallurgical test work, environmental baseline studies, and cost estimation data, are used in this Report.

1.6.3 Bisoni–McKay

Work completed on the Bisoni–McKay area prior to Silver Elephant's involvement was undertaken by Union Carbide Corporation (Union Carbide; 1958–1959), Hecla Mining Company (Hecla; 1970s), TRV Minerals Corp. (TRV; 1981), Inter-Globe (1981), Vanadium International (1993–2004, 2007–to date) and Stina Resources (2005–2007). Work conducted by these companies included trenching, RC and core drilling, bulk sampling for heap leach testing, and mineral resource estimation.

1.7 Drilling and Sampling

1.7.1 Drilling

A total of 335 drill holes (about 73,424 ft) have been completed on the Gibellini Project since 1946, comprising 21 core holes (5,800 ft), 180 rotary drill holes (30,642 ft; note not all drill holes have footages recorded) and 130 RC holes (36,982 ft).

Drill holes were geologically logged, and logging information collected could include, depending on the drill program, formation, lithology, rock color, alteration mineralogy, stain color, and oxide zone (oxidized, transition, un-oxidized).

Collar locations are sourced from a combination of digitization of locations on maps, original drill logs, and hand-held global positioning system (GPS) instrument readings.

No down-hole surveys are recorded. Most of the drill holes making up the Gibellini Project resource database are relatively short (98% of holes are less than 350 ft in length) and vertical, and so the QP does not consider the lack of down-hole surveys to be a significant concern. About half of the inclined drill holes at Bisoni–McKay are >300 ft in length and there is a risk that mineralized intercepts may be misplaced because of the lack of down-hole surveys in the inclined drill holes.

There is no information available on the legacy drilling recoveries for Gibellini and Louie Hill. No information is available on the legacy RC drilling recoveries for Bisoni-McKay. Core recovery for the 2005 Stina Resources campaign at Bisoni-McKay ranged between 91 and 98%. For the Gibellini and Louie Hill drill hole campaigns, in the QP's opinion, core recovery is generally adequate, averaging 91.6%. The fine-grained and diffuse nature of mineralization would favor there being no grade bias caused by poor recovery.

Vertical intersections of mineralization are roughly approximate to the true mineralized thickness at Gibellini and Louie Hill. Inclined intersections of mineralization are roughly approximate to the true mineralized thickness at Bisoni–McKay.

RC samples were typically collected on 5 ft intervals. Core sampling was on nominal 5 ft intervals, but could range from 1–9 ft.

1.7.2 Sampling and Assay

Limited to no information is available regarding the laboratories used or the sample preparation and analytical methods for the early drill campaigns, and available assay data are from drill logs. Where known, independent analytical and assay laboratories included Union Assay Office Inc. (Union), Colorado School of Mines Research Institute (CSMRI), Skyline Laboratories (Skyline), Bondar Clegg, and ALS Chemex. The only known accreditations are for ALS Chemex, which, depending on the laboratory location, held ISO 9002 or ISO17025 accreditation for selected sample preparation or analytical techniques.

Where known, sample preparation procedures consisted of crushing to 70% passing 2 mm and pulverizing to 85% passing 75 µm. Analytical methods consisted of four-acid digestion on a 2.0 g subsample and ICP-AES finish for vanadium, and an additional 26- or 32-element suite, depending on the drill campaign. Gold, platinum, and palladium were determined by standard fire assay on a 30 g subsample. Select samples were assayed for uranium and selenium concentrations by X-ray fusion (XRF).

1.7.3 Specific Gravity

Specific gravity (SG) on 63 whole-core intervals from the Gibellini 2007 drilling campaign was determined by ALS Chemex using the wax-coated water immersion method.

1.7.4 Legacy Data Reviews

AMEC digitized existing legacy drill hole locations, surveys, logs and assays from paper maps, logs, and assay certificates to generate the initial Gibellini and Louie Hill databases. AMEC assembled all the data into a series of database tables (collar, survey, lithology, assay, and redox) in Access. MTS compiled all legacy drill data for the Bisoni–McKay property into a series of database tables in Excel format. AMEC and MTS conducted data integrity checks of the Gibellini Project digital database (checking for overlapping intervals, data beyond total depth of hole, unit conversion, etc.) and concluded that the resource database is reasonably error-free and acceptable for use in resource estimation.

1.7.5 Quality Assurance and Quality Control

SRMs, blanks, and duplicates were inserted by RMP with routine drill samples during the 2007–2008 and 2010 drill programs to control assay accuracy and precision.

1.7.6 Databases

Available geological logging, collar survey, analytical data for the Gibellini and Louie Hill deposits were stored in an Access database that was migrated to a GeoSequel sample data management system in January 2021 by Silver Elephant personnel. Legacy data from Bisoni–McKay were compiled in Excel format by MTS in January 2021 and merged into the Gibellini Project GeoSequel database by Silver Elephant personnel.

1.8 Data Verification

AMEC performed two data verification exercises, one in 2008, and a second during 2011, in support of technical reports on the Project. Both audits concluded that the data were generally acceptable for Mineral Resource estimation; however, restrictions on confidence classifications were made for some drill programs supporting Mineral Resource estimation at Gibellini and Louie Hill.

MTS compiled all legacy drill data from the Bisoni–McKay property from original documents in January 2021. MTS and Silver Elephant completed several data verification programs to confirm the data quality of the resource database. In the QP's opinion, the Bisoni–McKay resource database contains the best location, assay, and geology information available to Silver Elephant and is acceptable for resource estimation purposes. Because of data quality issues identified in the legacy drill data, the QP assigned a maximum classification of Inferred to the Bisoni–McKay Mineral Resource estimate.

1.9 Metallurgical Test Work

Metallurgical test work and associated analytical procedures were performed by recognized testing facilities, and the tests performed were appropriate to the mineralization type.

Samples selected for testing were representative of the various types and styles of mineralization at the Gibellini deposit. Samples were selected from a range of depths within the deposit. Sufficient samples were taken to ensure that tests were performed on sufficient sample mass.

Limited metallurgical test work has been performed on mineralized material from Louie Hill.

Metallurgical recovery assumptions for the projected life of mine include:

- Gibellini: 60% for oxide, 70% for transition, and 52% for reduced material
- Louie Hill: 60% for oxide.

Scoping-level metallurgical testwork was carried out by Hazen Research on Bisoni–McKay samples in 2006. The purpose of the testwork was to examine potentially suitable front-end processing options that included magnetic separation, direct leaching, acid pugging and curing, and roasting experiments. The testwork results indicated a similar leach response and acid consumption to the equivalent Gibellini mineralization. Overall recovery indications for Bisoni–McKay at a scoping level of study were 65% for oxide, 56% for transition and 50% for reduced mineralization.

Wood notes that commercial heap leaching and SX recovery of vanadium ores has not been done before; nonetheless, heap leaching and SX recovery are common technologies in the mining industry. The most notable examples are the multiple copper heap leach projects that use an acid-leach solution to mobilize the metal followed by recovery in a SX plant, which is then followed by electro-winning. The Gibellini process would apply similar acid heap leaching and SX technology to recover vanadium. However, instead of electro-winning, the future Gibellini process would use an acid strip followed by precipitation to produce a final product.

During the 2011 testwork, American Vanadium identified a calcium boundary at 2.5% calcium. Calcium content may affect acid consumption in heap leaching. American Vanadium contoured this shape and identified that none of the metallurgical holes penetrated it; consequently, the metallurgical columns were in relatively benign material. American Vanadium also noted that the 2.5% calcium contour extended into the base of the transition mineralized material, particularly in the south–central portion of the deposit. This is a potential project risk to be considered in any future development plan, due to the elevated calcium levels and likely elevated acid consumption for this material.

1.10 Mineral Resource Estimation

Three Mineral Resource estimates were performed at Gibellini, Louie Hill and Bisoni–McKay. The QP personally performed the Bisoni–McKay Mineral Resource estimate and reviewed the estimates for Gibellini and Louie Hill that were performed by Mr. E.J.C. Orbock III, RM SME and Mr. Mark Hertel, RM SME (Principal Geologists at AMEC at the time the Gibellini and Louie Hill estimates were performed) respectively, and is responsible for those estimates.

1.10.1 Gibellini

Geological models were developed by American Vanadium geologists, and included oxidation domains and a grade envelope. Assays were composited along the trace of the drill hole to 10 ft fixed lengths; oxidation boundaries were treated as hard during composite construction.

Tonnage factors were calculated from specific gravity measurements and assigned to the blocks based on oxidation domain.

AMEC did not cap Gibellini assays, but capped three high-grade composites greater than 1.5% V_2O_5 to 1.5% V_2O_5. AMEC allowed all composites to interpolate grade out to 110 ft and capped composites greater than 1% V_2O_5 to 1% V_2O_5 beyond 110 ft.

Variography, using correlograms, was performed to establish anisotropy ellipsoids and the nugget value.

Only composites from RMP, Noranda, Inter-Globe, and Atlas drill campaigns were used for grade interpolation at Gibellini. Hard contacts were maintained between oxidation domains: oxide blocks were estimated using oxide composites; transition blocks were estimated using transition composites; and reduced blocks were estimated using reduced composites. A range restriction of 110 ft was placed on composites with grades greater than 1% V_2O_5 for each of the domains.

Ordinary kriging (OK) was used to estimate vanadium grade into blocks previously tagged as being within the 0.05% V_2O_5 grade domain solid. Two kriging passes were employed to interpolate blocks with vanadium grades.

AMEC interpolated blocks for grade that were outside of the grade shell using only composites external to the 0.05% V_2O_5 grade shell. These composites generally contain values of <0.05% V_2O_5. Mine block tabulation indicates that there were no oxide or transition blocks above the resource cut-off grades and only 2,645 st, classified Inferred, of reduced material above a cut-off grade of 0.088% V_2O_5 averaging 0.120% V_2O_5 were interpolated.

No potential biases were noted in the model from the validations performed.

AMEC was of the opinion that continuity of geology and grade is adequately known for Measured and Indicated Mineral Resources for grade interpolation and mine planning. Classification of Measured Mineral Resources broadly corresponds to a 110 x 110 ft drill grid spacing, Indicated Mineral Resources a 220 x 220 ft drill grid spacing, and Inferred Mineral Resources required a composite within 300 ft from the block.

1.10.2 Louie Hill

Geological models were developed by American Vanadium geologists as a grade envelope that differentiated mineralized from non-mineralized material.

Assays from Louie Hill were composited down-the-hole to 20 ft fixed lengths; no oxidation boundaries were interpreted, and the composite boundaries were treated as "hard" between mineralized and non-mineralized domains.

As no density measurements have been completed to date on mineralization from Louie Hill, the Gibellini density data were used in the Louie Hill estimate. No grade capping was employed for Louie Hill.

Variography, using correlograms, was performed to establish anisotropy ellipsoids and the nugget value.

Ordinary kriging was used to estimate V_20_5% grades into blocks domain tagged as mineralized and non-mineralized. A range restriction of 200 ft was placed on grades greater than 0.15% V_20_5, for blocks within the non-mineralized domain. Two kriging passes were employed to interpolate grades into the mineralized domain blocks. Blocks that contained both percentages of mineralized and non-mineralized material were weight averaged for a whole block V_20_5% grade.

No potential biases were noted in the model from the validations performed.

Because of the uncertainty in the drilling methods, sample preparation, assay methodology, and the slight grade bias of the Union Carbide's assays as compared to the American Vanadium assays, AMEC limited the classification of resource blocks to the Inferred Mineral Resource category.

1.10.3 Bisoni–McKay

Geological interpretations were developed by Stina Resources geologists. MTS used those interpretations, together with grade and oxidation-type polygons to construct a geological model. The grade and oxidation polygons were linked to create 3D surfaces or domain solids to code the block model.

MTS composited assays to 20 ft fixed lengths. Capping was not considered to be warranted for the Bisoni–McKay assays. No density data are available for the Bisoni–McKay area. MTS assigned density to the block model based on the density factors by oxidation type used for the Gibellini resource model.

Variography was performed to establish anisotropy ellipsoids and the nugget value. Acceptable variograms were obtained for the North A area; however, the variograms for the South B area were not useable. As a result, MTS used the same search distances for South B as used for North A area.

Estimation of V_2O_5 in the North A area was completed by OK and inverse distance (ID) methods using soft boundaries between oxidation types and hard boundaries between the mineralized and unmineralized domains. Estimation within the mineralized domain was completed in two passes using OK. The first pass estimated blocks using search ellipse distances determined from variography and the second pass estimated blocks using an extended minor axis distance and a minimum of one composite. A third pass estimated blocks in the unmineralized domain using ID. MTS estimated resources for the South B area using the ID method.

No potential biases were noted in the model from the validations performed.

All Mineral Resources at Bisoni–McKay are classified in the Inferred category. Based only on data spacing, some proportion of Mineral Resources could be classified as Indicated, but the data quality issues with the legacy drill data discussed in this Report preclude the QP from classifying the Mineral Resources above the Inferred category.

1.10.4 Reasonable Prospects for Eventual Economic Extraction

Mineralization was confined within Lerchs–Grossmann (LG) pit outlines, that used the following key assumptions, where applicable:

- Mineral Resource V_2O_5 price: variable, ranging from \$11.50–\$14.64/lb
- Mining cost: variable, ranging from \$2.21–\$2.90/st mined
- Process cost: variable, ranging from \$13.62–\$13.75/st processed
- General and administrative (G&A) cost: variable, ranging from \$0.99–\$1.00/st processed
- Metallurgical recovery assumptions: 60% for oxide material, 70% for transition material and 52% for reduced material (Gibellini and Louie Hill); 60% for oxide material, 56% for transition material and 50% for reduced material (Bisoni–McKay)
- Tonnage factors: 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material
- Royalty: 2.5% NSR
- Shipping and conversion costs: variable, ranging from \$0.37–\$0.625/lb V_2O_5.
- For the purposes of the resource estimates in this Report, an overall 40º pit slope angle was used.

1.11 Mineral Resource Statement

Mineral Resources are stated in Table 1-1 (Gibellini), Table 1-2 (Louie Hill) and Table 1-3 (Bisoni–McKay) using cut-off grades appropriate to the oxidation state of the mineralization. Mineral Resources take into account geological, mining, processing and economic constraints, and have been confined within appropriate LG pit shells, and therefore are classified in accordance with the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves (2014 CIM Definition Standards). Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Mr Todd Wakefield of Mine Technical Services, a SME Registered Member, is the Qualified Person (QP) for the Mineral Resource estimates. The estimates have an effective date of 5 June 2021.

Factors which may affect the conceptual pit shells used to constrain the mineralization, and therefore the Mineral Resource estimates include commodity price assumptions, metallurgical recovery assumptions, pit slope angles used to constrain the estimates, lithology and faulting models for Louie Hill and Bisoni-McKay deposits, changes to the input parameters used in the constraining pit shells, assignment of oxidation state values, and assignment of density values.

The Gibellini resource model has a known error that has effectively reduced the overall grade for Measured and Indicated by approximately 1%. Adjustments to Atlas's transition assays between zero percent and 0.410% V_2O_5 were implemented twice. In 2011, AMEC reran the model with the correction and the results indicate an approximate error of 1%. AMEC was of the opinion that the error was not material to the estimate; the review conducted by Wood of the model in support of the current Mineral Resource estimate also concurs that the error is not material. The QP concurs with this view.

Table 1-1: Mineral Resource Statement, Gibellini

Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
Measured	Oxide	0.101	3,960	0.251	19,870
	Transition	0.086	3,980	0.377	29,980
Indicated	Oxide	0.101	7,830	0.222	34,760
	Transition	0.086	7,190	0.325	46,730
Total Measured and Indicated			***22,950***	***0.286***	***131,340***
Inferred	Oxide	0.101	160	0.170	550
	Transition	0.086	10	0.180	30
	Reduced	0.116	14,800	0.175	51,720
Total Inferred			***14,970***	***0.175***	***52,300***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield, RM SME, of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021. The resource model was prepared by Mr. E.J.C. Orbock III, RM SME.
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Mineral Resources are reported at various cut-off grades for oxide, transition, and reduced material.
4. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.
5. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

Table 1-2: Mineral Resource Statement, Louie Hill

Confidence Category	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
Inferred	0.101	7,520	0.276	41,490
Total Inferred	***0.101***	***7,520***	***0.276***	***41,490***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield, RM SME, of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021. The resource model was prepared by Mr. Mark Hertel, RM SME.
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Oxidation state was not modeled.
4. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for mineralized material; tonnage factors of 16.86 ft^3/st for mineralized material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.
5. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

Table 1-3: Mineral Resource Statement, Bisoni–McKay

Area	Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
North Area A	Inferred	Oxide	0.107	6,970	0.29	39,720
		Transition	0.124	1,500	0.33	9,900
		Reduced	0.139	9,080	0.39	70,580
Total North Area A	Inferred	All	Variable	17,540	0.34	120,210
South Area B	Inferred	Oxide	0.107	1,470	0.28	8,160
		Transition	0.124	320	0.40	2,540
		Reduced	0.139	510	0.30	3,100
Total South Area B	Inferred	All	Variable	2,300	0.30	13,810
Total	***Inferred***	***All***	***Variable***	***19,850***	***0.34***	***134,020***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield, RM SME, of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021.
2. Mineral Resources are reported at various cut-off grades for oxide, transition, and reduced material.
3. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $11.50/lb; mining cost: $2.90/st mined; process cost: $13.75/st; general and administrative (G&A) cost: $1.00/st processed; metallurgical recovery assumptions of 65% for oxide material, 56% for transition material and 50% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.625/lb. An overall 40° pit slope angle assumption was used.
4. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

1.12 Mining Methods

The mine plan is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2021 PEA based on these Mineral Resources will be realized.

Table 1-4 provides the subset of the Mineral Resource estimate within the PEA mine plan for Gibellini; Table 1-5 summarizes the subset of the Mineral Resource estimate within the 2021 PEA mine plan for Louie Hill.

The 2021 PEA mine plan assumes production at 3 Mst/a from two open pits, at Gibellini and Louie Hill. The pit designs are based on pit shells obtained using the LG algorithm for pit optimizations in Whittle mining software. The ultimate pit designs are based on the $10.00 per pound V_2O_5 pit shells. Approximately 30% of the total estimated pounds of V_2O_5 in the 2021 PEA mine plan is in the Inferred category. Smoothed pit designs were made for the ultimate pits only. Whittle pit shells without smoothed designs were used for the internal pit phases in the mine schedule.

For the pit design, Wood incorporated geotechnical recommendations published in the Gibellini Vanadium Project Feasibility Level Pit Slope Design (Orman, 2012). Single and double benches of 20 and 40 ft, respectively were utilized. A 40° overall slope angle (OSA) was assumed for the 2021 PEA study based on dry conditions for the pit optimizations and the preliminary assessment pit design geometry recommendations. A slot cut was placed in the southwest corner of the Gibellini pit to facilitate drainage from the pit bottom. The pit bottom is limited to an elevation of 6,740 ft above sea level to avoid interaction with the known perched water table.

Five pit phases were developed for the Project. Phases I, II and III are mined from the Gibellini deposit and Phases IV and Phase V are mined from the Louie Hill deposit. The Gibellini pit will be mined first in its entirety based on the higher confidence categories of the resource estimate, and the preliminary nature of the Louie Hill pit, as opposed to having the pits based on optimized grade.

The haul roads in the 2021 PEA conceptual open pit are designed to accommodate 100-st haul trucks with a maximum gradient of 10% and an overall width of 85 ft. Access into the final pit bottoms will be gained via a section of single-lane road that will be 50 ft wide.

Table 1-4: Subset of the Gibellini Mineral Resource Estimate within the 2021 PEA Mine Plan

Leach Material	Domain	Cutoff (V_2O_5 %)	Tonnage (kst)	Grade (V_2O_5 %)	Contained V_2O_5 (klb)
Measured	Oxide	0.135	3,890	0.253	19,684
	Transition	0.135	3,944	0.378	29,824
Indicated	Oxide	0.135	6,246	0.240	30,024
	Transition	0.135	7,056	0.316	44,624
Total Measured and Indicated		***0.135***	***21,136***	***0.294***	***124,156***
Inferred	Oxide	0.135	116	0.174	403
	Reduced	0.135	5,183	0.163	16,919
Total Inferred		***0.135***	***5,299***	***0.163***	***17,323***

Table 1-5: Subset of the Louie Hill Mineral Resource Estimate within the 2021 PEA Mine Plan

Leach Material	Domain	Cut-off (V_2O_5 %)	Tonnage (kst)	Grade (V_2O_5 %)	Contained V_2O_5 (klb)
Inferred	Oxide	0.155	6,963	0.282	39,315
Total Inferred		***0.155***	**6,963**	**0.282**	**39,315**

Two waste rock storage facilities (WRSFs) were designed for a total capacity of 4.1 Mst. Only non-acid generating (NAG) material will be placed on waste dumps. All potentially-acid generating (PAG) material will be included with the mineralized material and stacked on the heap leach pad. Waste material from the Gibellini pit will be stored in a planned East WRSF that will have a maximum capacity of 2.5 Mst. An additional 2 Mst of inert waste material from the slot-cut area of the Gibellini pit will be used as construction material for the Louie Hill haul road. Waste from the Louie Hill pit is currently all classified as NAG and will be stored on a planned West WRSF that will have a capacity of 1.6 Mst. This material can also be used as construction material or backfill within the Gibellini pit if needed.

The mine plan assumption is that all mining will be performed by contractors using a small equipment fleet. No Owner fleet equipment will be required.

1.13 Recovery Methods

Commercial heap leaching and solvent extraction recovery of vanadium mineralization has not been done before; nonetheless, heap leaching and solvent extraction recovery are common technology in the mining industry. The most notable examples are the multiple copper heap leach projects that use an acid leach solution to mobilize the metal followed by recovery in a solvent extraction plant, which is then followed by electro-winning. The Project process applies the same acid heap leaching and solvent extraction technology to recover vanadium. However, instead of electro-winning, the Project process will use an acid strip followed by precipitation to produce a final product.

The design for the process plant is based on processing the mined material through a heap leach operation using heap-leach technology and standard proven equipment. The process design is based on the metallurgical testwork and is appropriate to the crush and recovery characteristics defined for the different oxidation states of the mineralization.

The envisaged process will consist of primary crushing, stockpiling and reclaim, secondary crushing and screening, agglomeration and heap leaching, gypsum removal, solvent extraction and precipitation.

Reagent requirements have been appropriately established for the operational throughput. Consumables required for the process will include sulfuric acid, polymer, kerosene, diethyl-hexa phosphoric acid (DEHPA), tri-octyl phosphorous oxide (Topo), hydrochloric acid, anhydrous ammonia, sodium hydroxide, sodium chlorate, sulfur dioxide and/or powdered iron, diesel, and propane. The water supply source for future operations has been leased from the Fish Creek Ranch. Power for the process route is assumed to be supplied from a new distribution line to be constructed to the Project.

1.14 Project Infrastructure

Infrastructure to support the Gibellini project will consist of site civil work, site facilities/buildings, a water system, and site electrical including an on-site photovoltaic (PV) energy and large-scale battery storage system.

Site facilities will include both mine facilities and process facilities. The mine facilities will include the main office building, truck shop and warehouse, truck wash, fuel storage and distribution, and miscellaneous facilities. The process facilities will include the process office building, assay laboratory, product storage building, heap leach pad, and solvent extraction, thickening and stripping areas. Both the mine facilities and the process facilities will be serviced with potable water, fire water, power, propane, communication, and sanitary systems.

Access to site will be provided by a light vehicle road from the site to the county road. Within the site, heavy equipment roads will connect the open pits and WRSFs to the main facilities and processing areas.

All mine personnel are assumed to commute from Eureka or other towns located in the region. No onsite camps or accommodations are anticipated.

The Gibellini heap leach facility will leach minus half-inch crushed and polymer agglomerated vanadium mineralized material from the Gibellini and Louie Hill pits. The leach pad will be developed in two phases, an initial phase of 16.7 Mst and an expansion, with a total planned capacity of 33.4 Mst. The Gibellini Project process ponds would work together as a system with process and stormwater being contained in the system as a whole. Under normal operating conditions, solution would discharge directly from the heap leach pad through a piping network that discharges into either the PLS pond or the intermediate leach solution (ILS) pond depending upon solution grade. Solution would be pumped directly from each pond into the processing plant.

The mine design assumes an average water requirement of 500 gal/min, of which 40 gal/min would be potable, and the remainder non-potable.

Gibellini Mine operations will be supported by a utility interconnection. The utility power supply for the Gibellini Project site is assumed to be a new three-phase, 24.9 kV overhead distribution line that will tap into and step-down the 69 kV supply carried by the existing line to the Pan Mine to 24.9 kV and place it on a line to the Gibellini Project. Negotiations with the power utility, Mt. Wheeler Power, would need to be undertaken to secure any future power supply contract and transmission line to the site. Site emergency power will be provided with a standby power generator rated for the maximum power required in the event of a utility power failure.

1.15 Environmental Considerations

As all permitting to date has been done in the name of Nevada Vanadium, that name, rather than Silver Elephant, is used in this Report section.

1.15.1 Project Status

For projects proposing disturbance of over five acres, a Plan of Operations (PoO) and National Environmental Policy Act (NEPA) compliance is required by the applicable land management agency on public lands (either the BLM or the United States Forestry Service (USFS)), together with a reclamation permit issued by the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation (BMRR), collectively the NDEP–BMRR. The Project is located on public lands administered by the BLM through the Mount Lewis Field Office located in Battle Mountain, Nevada. On June 28, 2019, Nevada Vanadium submitted a PoO, to the BLM's Mount Lewis Field Office. In addition, a Reclamation Permit Application was submitted to the NDEP–BMMR. The following steps have been completed in support of Project permitting:

- Baseline studies have been completed and accepted by the BLM
- The PoO and NDEP Reclamation Permit Application was submitted to the BLM and NDEP and accepted as complete. The permit will be issued following approval of the PoO through the NEPA process
- Supplemental Environmental Reports have been completed and accepted by the BLM
- A Notice of Intent (NOI) was published in the Federal Register on July 14, 2020, that formally began the Environmental Impact Statement analysis
- The Water Control Pollution Permit (WCPP) application with the Engineering Design Report was submitted to the NDEP-BMRR and is under review
- The Air Quality Permit application was submitted to NDEP-BAPC, and the final permit issued.

1.15.2 Environmental and Supporting Studies

Baseline studies were completed by Nevada Vanadium and accepted by BLM using the validated data developed during the American Vanadium permitting effort. These baseline studies were used by Nevada Vanadium as the basis for the current permitting. Studies were conducted to document the existing conditions of biological resources, cultural resources, surface water resources, ground water resources, and waste rock geochemical characterization.

1.15.3 Environmental Monitoring

Nevada Vanadium will conduct groundwater quality monitoring once the WPCP permit is issued. There are currently no other environmental monitoring programs associated with the proposed Project. Upon completion of permitting, various waste rock management, process fluid management, and other monitoring/sampling programs will be implemented.

Key issues currently being analyzed are the management of the uranium secondary product as well as long term closure management of the process facilities. The BLM has worked closely with the cooperating regulatory agencies to document the measures developed to avoid, minimize or mitigate potential impacts resulting from these issues.

1.15.4 Closure Planning

Nevada Vanadium will need to meet BLM and NDEP objectives for post mining land uses. Major land uses occurring in the Project area include mineral exploration and development, livestock grazing, wildlife habitat and dispersed recreation.

Following closure, the Project area will support the multiple land uses of mineral exploration and development, livestock grazing, wildlife habitat, and recreation. Nevada Vanadium will work with the agencies and local governments to evaluate alternative land uses that could provide long-term socioeconomic benefits from the mine infrastructure. Post-closure land uses will be in conformance with the BLM Battle Mountain Resource Management Plan and Eureka County Land Use Plan.

Nevada Vanadium has submitted updated plans for closure and reclamation of the disturbed lands as part the Reclamation Permit application. Additionally, Nevada Vanadium has submitted a plan for temporary closure due to planned or unplanned conditions, as part of the WPCP application.

Based on the conceptual mine plan, closure costs are estimated by Wood to be approximately US$40 million.

1.15.5 Permitting

The review of permit requirements for the project assumes the specific development scenario outlined in the 2021 PEA which is based on the following assumptions:

- All new Project activities would occur on unpatented claims and public lands administered by the BLM

- NDEP will concur that the Project can be operated and closed in a manner protective of human health and the environment through the issuance of the state permits.
- A Record of Decision is received form the BLM following completion of the Environmental Impact Statement (EIS).

Key permits with the longest lead times required to support any future operations include:

- BLM Plan of Operations/NDEP Reclamation Permit: both the PoO and Reclamation Permit application were submitted on June 28, 2019. The final approval of the PoO will be included in the Record of Decision for the EIS. It is anticipated that this approval will be received prior to the end of 2021. The Project is located on lands within the jurisdiction of the Mount Lewis Field Office of the Battle Mountain District which regularly processes exploration and mining plans of operations and NEPA documents
- Water Pollution Control Permit: a WPCP application has been submitted to NDEP-BMRR. By statute, NDEP-BMRR is allowed a minimum of 180 days to issue a permit. It is likely that the timeline for issuance of a permit will extend to 240 days or longer
- Nuclear Regulatory Commission Materials License: written confirmation was received from the Nuclear Regulatory Commission (NRC) that since Nevada Vanadium will not be producing uranium as a primary product that the permitting will be under the jurisdiction of the Nevada Department of Health (NDOH). The applicable permit application and supporting documents have been submitted to NDOH. Several rounds of comments have been responded to and a draft permit is expected in Q3 2021.

Nevada Vanadium has a permitting timeline; however, such permit timelines are variable depending on changes in regulations, changes in regulatory staff assigned to the Project, and other unforeseen delays.

1.15.6 Social Considerations

Nevada Vanadium will take all the necessary steps to engage the local community to create awareness regarding the Project. During the NEPA process, the public will have multiple opportunities to engage and comment on the project and express support or concerns.

The BLM will coordinate with local Native American tribes and interested parties throughout the permitting and NEPA process. The NEPA document will analyze how the Project will affect the social and economic values of the community.

Additional coordination between Nevada Vanadium and local governments will occur throughout the planning and permitting phase, operating phase, and closure phase of the Project to ensure that the Project addresses social and cultural considerations.

1.16 Markets and Contracts

Multiple sources were used to arrive at the study price of $10.00 per pound V_2O_5 sold including consensus pricing from recently-published technical reports, three-year average pricing published by the European market, and the July 20th, 2021 spot price from the Europe market. The average price of the three sources is $9.82/lb V_2O_5 which was rounded up to a study price of $10.00/lb V_2O_5.

Silver Elephant proposes to ship bagged products in one ton supersacks to end users. The final products included:

- Fused vanadium pentoxide (V_2O_5)
- High-grade vanadium pentoxide (V_2O_5)
- Wet yellowcake (uranium).

No value is placed on the wet yellowcake product in the 2021 PEA. Both the fused vanadium pentoxide and high-grade vanadium pentoxide are assumed to sell at the study price of $10.00/lb vanadium pentoxide less shipping and marketing costs of $0.54/lb.

Mining will be undertaken using contract mining services. No contracts are in place.

1.17 Capital Cost Estimates

Capital and operating costs for the 2021 PEA are based on supplying 3 Mst of crushed and agglomerated leach material annually from two open pits, Gibellini and Louie Hill, to the heap leach pads. Initial mine development is focused on Gibellini, with Louie Hill following nine years later. During the capital period, an initial leach pad having a capacity of 16.7 Mt is constructed followed by one expansion of approximately 16.7 Mt. Total initial capital is estimated at $147 million (Table 1-6).

Table 1-6: Project Capital Cost Estimate

Project Capital Cost Estimate Cost Description	Total ($000s)
Open Pit Mine	
Mobile equipment	122
On Site Infrastructure	
Site preparation	2,740
Roads	1,577
Water supply	2,263
Sanitary system	69
On-site electrical	2,325
Communications	187
Contact water ponds	186
Non-process facilities - buildings	8,594
Process Facilities	
Material handling	21,730
Heap leach system	22,033
Process plant	24,167
Off-Site Infrastructure	
Water system	5,095
Electrical supply system	3,657
First fills	975
Total Direct Cost	95,720
Construction indirect costs	5,355
Sales Tax/OH&P	5,333
EPCM	11,178
Contingency	29,396
Total Project Cost	***146,982***

The 2021 PEA capital cost estimate is based on the 2011 Feasibility Study capital estimate adjusted for inflation and a 25% contingency to reflect the level of study. All costs are escalated to Q1 2021. Sustaining capital costs are likewise based on the 2011 Feasibility Study adjusted for inflation and inclusive of contingency; however, unlike the 2011 Feasibility Study, the 2021 PEA sustaining costs account for the inclusion of mineralized material from Louie Hill, supporting infrastructure, and an additional leach pad expansions to accommodate the larger 2021 PEA resource base.

CostMine's Mining Cost Service was referenced to escalate Gibellini Project costs from Q2 2011 to Q1 2021. The escalation for surface mining over this time period was 21.3% whereas for milling it was 24.5%.

The Gibellini mining capital costs are minimal due to the use of contract mining, no pre-strip requirements, and minimal development requirements. The contract miner is assumed to supply the initial mine equipment fleet with the Owner supplying the mine facilities inclusive of the truck shop, wash bay, mine offices, and tire change area. These facilities are accounted for in the non-process facilities and buildings portion of the capital estimate.

Process capital accounts for the majority of the initial capital expenditure and is estimated at $67.9 million. Costs consist of the material handling system, heap leach system and process plant.

On-site infrastructure costs are estimated at $17.9 million and off-site infrastructure costs total an estimated $9.7 million. Indirect costs account for $21.9 million of the initial capital expenditure.

The 2011 Feasibility Study contingency of 12.6% was replaced with a 25% contingency to more appropriately reflect the current level of study, the study basis being Mineral Resources, and the uncertainty associated with additional project costs due to changes in permitting, regulatory, and design requirements. The contingency on the initial capital is estimated at $29.4 million.

Sustaining capital costs are estimated at $25.2 million (Table 1-7). The majority of the sustaining capital costs are incurred as a result of expanding the leach pad from the initial 16.7 Mt capacity to approximately 33.4 Mt in one 16.7 Mt expansion. The expansion occurs a year prior to loading in Year 5. Approximately $1.2 million is estimated in Year 8 for building the infrastructure to support Louie Hill development. Approximately $1.0 million is estimated for replacing mobile equipment, primarily in the process area. It is assumed that over the approximate 11.1 year mine life, 50% of the initial mobile equipment will be either replaced or rebuilt.

Table 1-7: Sustaining Capital Costs

Description	Total ($000s)
Leach pad expansions	23,069
Haul road to Louie Hill	814
Storm water controls Louie Hill pit/WRSF/roads	386
Equipment annual allowance	971
Total sustaining capital	***25,240***

The 2011 Feasibility Study contingency of 12.6% was replaced with a 25% contingency to more appropriately reflect the current level of study, the study basis being Mineral Resources, and the uncertainty associated with additional project costs due to changes in permitting, regulatory, and design requirements. The contingency on the initial capital is estimated at $29.4 million.

1.18 Operating Cost Estimates

The 2021 PEA operating cost estimate is based on the 2011 Feasibility Study operating cost estimate adjusted for inflation and supplemented with recent quotes for mine contract rates and acid pricing. For mining, contract quotes (seven in total) from recent 2019–2020 projects were used to benchmark costs for Gibellini.

Process and general and administrative (G&A) operating costs from the 2011 Feasibility Study were adjusted for inflation by area using CostMine's Mining Cost Service data.

For sulfuric acid, which accounts for over half the process operating costs, an indicative quote of $150/st acid based on historical pricing for 2020, obtained in May 2021, was used.

Mine operating costs are estimated to average $2.84/st mined over the LOM inclusive of a $2.62/st contract mine cost, $0.27/st Owner's cost, and a $0.05/st haul cycle reduction.

Process operating costs are estimated to average $11.79/st leached, which is an approximate 5.8% decrease compared to the 2011 Feasibility Study process costs of $12.51/st.

G&A operating costs are estimated at $0.97/st, which is a 13% increase over the 2011 Feasibility Study costs of $0.86/st. The increase is primarily a result of higher labor costs.

Operating costs are anticipated to average $16.12/st leached over the LOM (Table 1-8). Annual operating costs average $48 million and vary primarily with mine stripping requirements. Process costs account for 73% of the total operating costs followed by mining at 21% and G&A at 6%.

1.19 Economic Analysis

The results of the economic analysis represent forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking information includes Mineral Resource estimates; commodity prices; the proposed mine production plan; projected recovery rates; use of a process method, that although well-known and proven on other deposit types, has not been previously brought into production for a vanadium project; infrastructure construction costs and schedule; and assumptions that Project environmental approval and permitting will be forthcoming from County, State and Federal authorities.

The economic analysis is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2021 PEA based on these Mineral Resources will be realized.

Financial analysis of the Gibellini project was carried out using a discounted cash flow (DCF) approach. This method of valuation requires projecting yearly cash inflows, or revenues, and subtracting yearly cash outflows such as operating costs, capital costs, royalties, and taxes. The resulting net annual cash flows are discounted back to the date of valuation and totalled to determine the net present value (NPV) of the project at selected discount rates.

The internal rate of return (IRR) is expressed as the discount rate that yields an NPV of zero. The payback period is the time calculated from the start of production until all initial capital expenditures have been recovered. All monetary amounts are presented in US$.

Table 1-8: Operating Costs

Operating Costs	US$/st	US$/ lb of V_2O_5 Recovered
G&A	0.97	0.28
Mine	3.36	0.98
Processing	11.79	3.44
Total Cash Operating Costs	***16.12***	***4.70***

The following assumptions are used in the analysis:

- The Project mine plan is based on Measured, Indicated, and Inferred Mineral Resources contained within pits designed at a $10.00 V_2O_5 price
- Transportation and selling costs are estimated at $0.54/lb V_2O_5 sold
- The metal price used for the economic analysis is $10.00/lb V_2O_5
- Silver Elephant is required to pay a production royalty (Dietrich Royalty) for Gibellini of 2.5% of the NSR until royalty payments reach a total of $3 million, at which time the royalty decreases to 2%.
- Silver Elephant is required to pay a production royalty (McKay Royalty) for Louie Hill of 2.5% of the NSR until royalty payments reach a total of $1 million, at which time the royalty decreases to 1.0%.
- Over the Project life, working capital nets to zero
- The tax model is reflective of the tax laws passed by congress in 2017 and effective starting 2018
- Reclamation and closure costs were estimated by Wood, and are incorporated within the financial model as an accrual against V_2O_5 production. Closure costs are estimated at $40.0 million.

Based on Wood's financial evaluation, the Gibellini Project generates positive before and after-tax financial results. The before-tax NPV at a 7% discount rate (the base case rate) is $153.8 million and the IRR is 28.0% (Table 1-9). Before-tax payback for the Project is estimated at 2.40 years. The after-tax NPV at a 7% discount rate is $127.9 million and the IRR is 25.4% (Table 1-10). After-tax payback for the Project is estimated at 2.49 years.

Table 1-9: Before-Tax Cash Flow

Annualized Cash Flow Before Tax	Units	Value
Cash flow	M US$	304.8
NPV @5%	M US$	187.4
NPV @7%	M US$	153.8
NPV @10%	M US$	113.3
IRR	%	28.0
Payback - years from startup	Years	2.40

Table 1-10: After-Tax Cash Flow

Annualized Cash Flow After Tax	Units	Value
Cash flow	M US$	260.8
NPV @5%	M US$	157.5
NPV @7%	M US$	127.9
NPV @10%	M US$	92.3
IRR	%	25.4
Payback - years from startup	Years	2.49

The LOM cash operating costs, all-in-sustaining cost (AISC), and break-even price are provided in Table 1-11.

Figure 1-1 provides the annual cash operating costs, AISC, and break-even price. The break-even price is based on selling costs, royalties, cash costs, taxes (local, state, and federal), working capital, and sustaining and capital costs. The sustaining and capital costs are proportioned over total metal produced and accounted for on an annual pro rata basis.

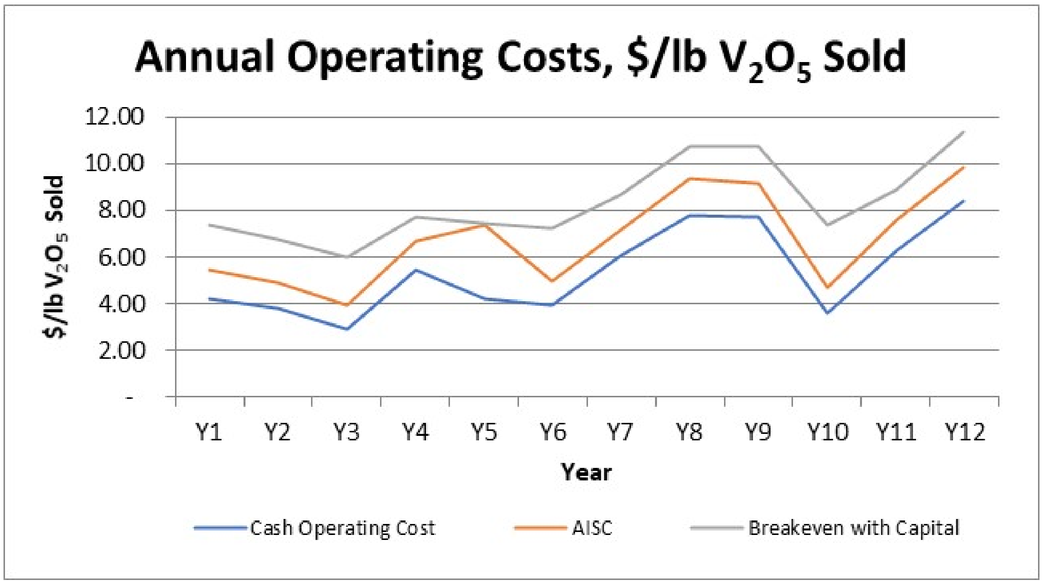
1.20 Sensitivity Analysis

A sensitivity analysis was completed over the ranges of ±45% for capital costs, operating costs, grade, and metal price (V_2O_5). Note that grade and metal price are multiplicative; consequently, the two sensitivity lines are coincidental with one overlying the other. Project after-tax sensitivity to cashflow, NPV and IRR is included as Figure 1-2, Figure 1-3, and Figure 1-4 respectively.

Table 1-11: Key Costs and Breakeven Price (LOM)

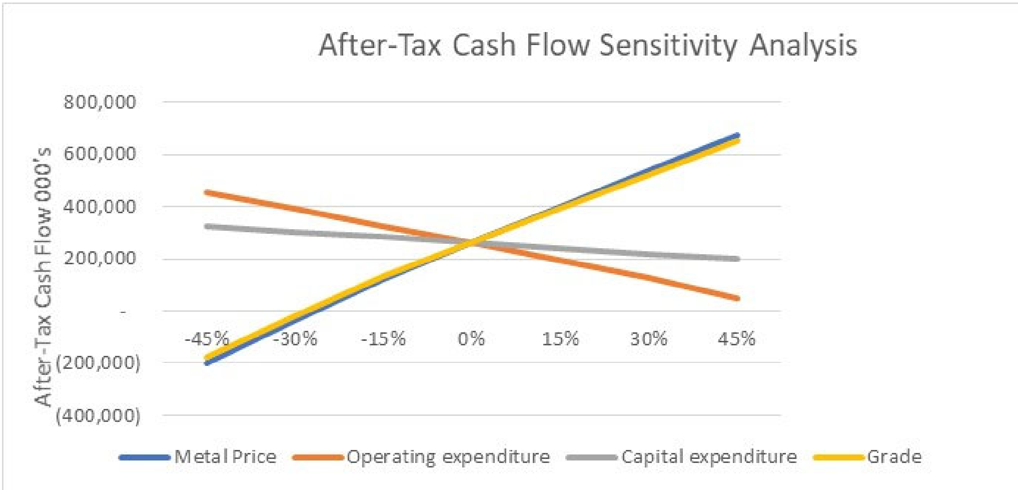
Item	Units	Value
Operating cash cost	US$/lb V_2O_5	4.70
All-in sustaining cost	US$/lb V_2O_5	6.04
Breakeven price	US$/lb V_2O_5	7.71

Figure 1-1: Annual Operating Costs (USD/lb V_2O_5)



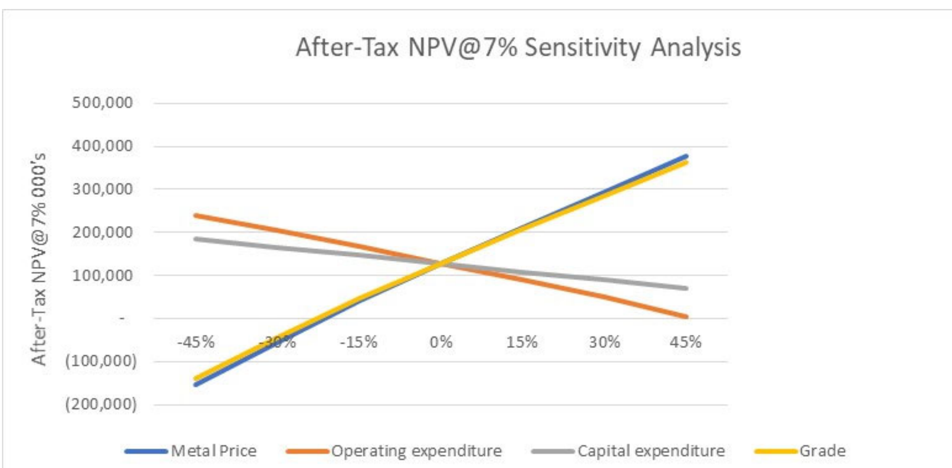
Note: Figure prepared by Wood, 2021.

Figure 1-2: After-Tax Cash Flow Sensitivity



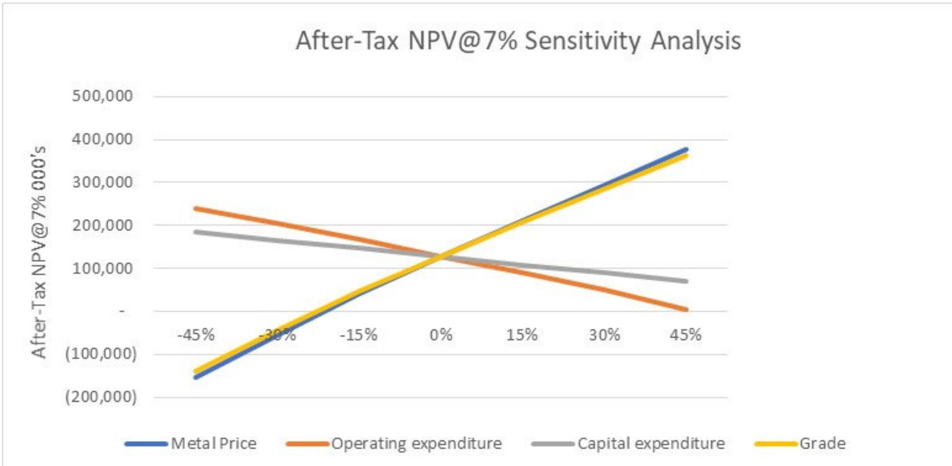
Note: Figure prepared by Wood, 2021.

Figure 1-3: After-Tax NPV@7% Sensitivity



Note: Figure prepared by Wood, 2021.

Figure 1-4: After-Tax IRR Sensitivity



Note: Figure prepared by Wood, 2021.

Based on the sensitivity work, the Gibellini Project is most sensitive to metal price and grade, followed by operating costs. The Project is least sensitive to capital costs.

Table 1-12 to Table 1-15 provide after-tax sensitivity of the IRR, NPV and cash flows to variations in the V_2O_5 price, V_2O_5 grade, capital cost estimate, and operating cost estimate. The base case is highlighted in each table.

1.21 Interpretation and Conclusions

Under the assumptions in this Report, the Project returns positive economics.

1.22 Recommendations

Recommendations are envisaged as a single-stage program. Additional metallurgical testwork and drilling are recommended for the Louie Hill and Bisoni–McKay deposits. Mining-related studies are recommended for Gibellini and Louie Hill. The work program budget is estimated at approximately $3,883,000 to $5,391,000.

Table 1-12: After-Tax IRR, NPV and Cash Flow Sensitivity to V_2O_5 Price

V_2O_5 Price Change (%)	V_2O_5 Price (US$/lb)	After-Tax IRR (%)	After-Tax NPV (US$ M @ 7%)	After-Tax Cashflow (US$ M)
45	14.50	49	377.0	671.5
30	13.00	42	295.4	536.8
15	11.50	34	212.3	399.7
Base Case	10.00	25	127.9	260.8
-15	8.50	14	42.1	122.3
-30	7.00	0	(55.8)	(38.9)
-45	5.50	0	(155.1)	(202.0)

Table 1-13: After-Tax IRR, NPV and Cash Flow Sensitivity to V_2O_5 Grade

Grade Change (%)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
45	48	363.8	649.7
30	41	286.6	522.2
15	34	207.7	392.2
Base Case	25	127.9	260.8
-15	15	46.9	130.0
-30	0	(45.2)	(21.4)
-45	0	(139.0)	(175.5)

Table 1-14: After-Tax IRR, NPV and Cash Flow Sensitivity to Capital Costs

Capital Cost Estimate Change (%)	After-Tax IRR (%)	After-Tax NPV (US$ M @ 7%)	After-Tax Cashflow (US$ M)
45	14	69.2	197.5
30	17	89.2	218.6
15	21	108.6	239.7
Base Case	25	127.9	260.8
-15	31	146.9	281.9
-30	38	165.8	303.0
-45	48	184.7	324.1

Table 1-15: After-Tax IRR, NPV and Cash Flow Sensitivity to Operating Costs

Operating Cost Estimate Change (%)	After-Tax IRR (%)	After-Tax NPV (US$ M @ 7%)	After-Tax Cashflow (US$ M)
45	8	3.6	50.6
30	15	49.2	128.5
15	21	89.2	195.3
Base Case	25	127.9	260.8
-15	29	166.4	326.7
-30	33	203.7	390.7
-45	36	239.9	452.6

2.0 INTRODUCTION

2.1 Introduction

The Wood Group USA Inc. (Wood) and Mine Technical Services Ltd (MTS) were requested to prepare an independent technical report (the Report) on a preliminary economic assessment (PEA) completed for the Gibellini Vanadium Project (the Project) for Silver Elephant Mining Corp. (Silver Elephant) and Nevada Vanadium LLC (Nevada Vanadium), a Silver Elephant subsidiary company. The Project is located within Eureka County, Nevada (Figure 2-1).

2.2 Terms of Reference

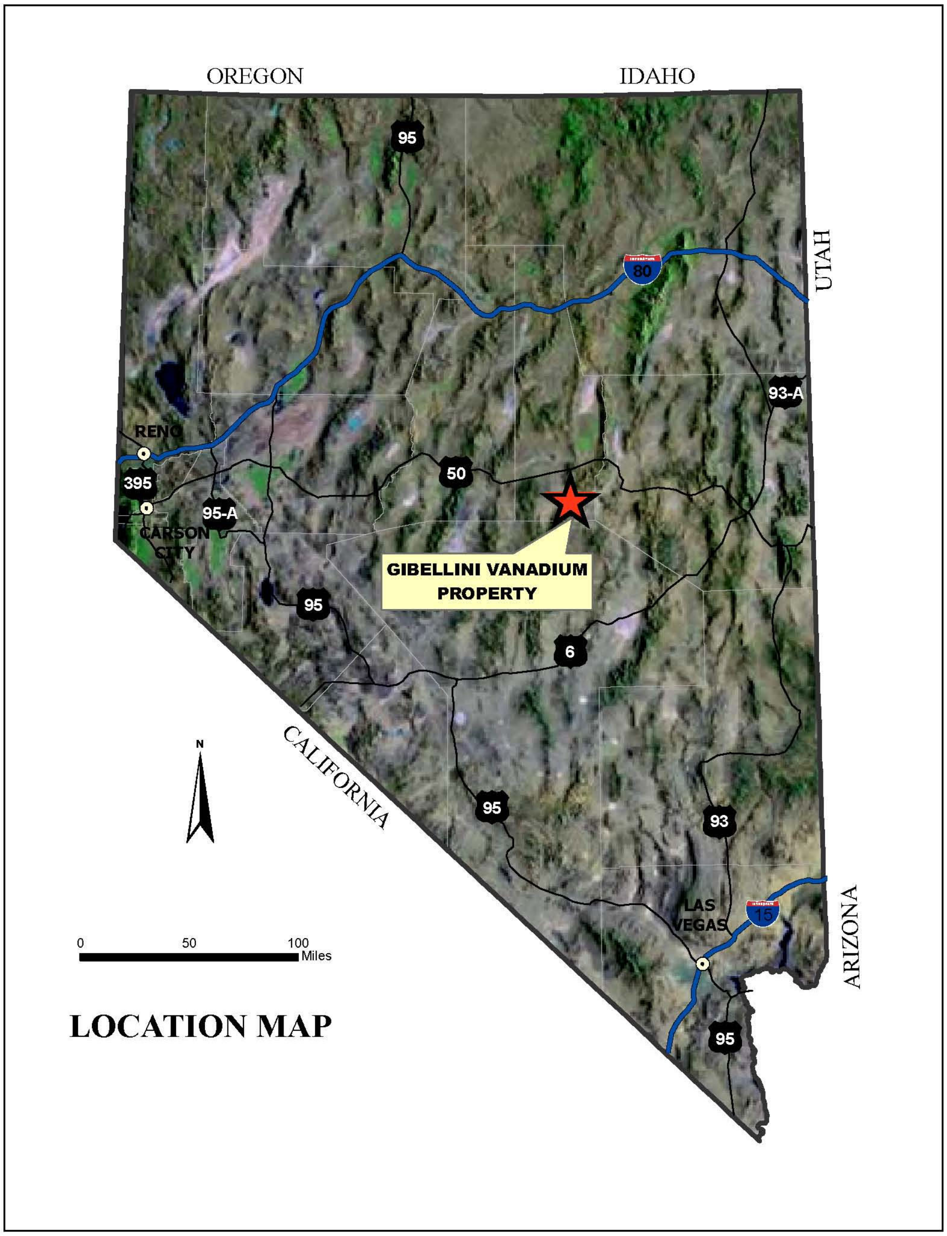
The Report was prepared to support disclosure by Silver Elephant of the results of the 2021 PEA on the Gibellini and Louie Hill vanadium deposits in the news release dated 30 August 2021 and entitled "Silver Elephant: Gibellini Vanadium Project's PEA Shows 25.4% After Tax IRR At $10/lb V_2O_5, Capex $147 million".

Mineral Resource estimates were performed in accordance with the 2019 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (CIM, 2019), and reported in accordance with the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves (2014 CIM Definition Standards).

AMEC E&C Services Inc. (AMEC) and Amec Foster Wheeler E&C Services Inc. (Amec Foster Wheeler) are predecessor companies to Wood. Where work was specifically undertaken by AMEC, that name is used in the Report; where work was specifically undertaken by Amec Foster Wheeler. that name is used in the Report. For all other purposes in this Report, the name Wood is used to refer to the current and predecessor AMEC/Amec Foster Wheeler companies.

A preliminary assessment was completed by AMEC in 2008 (2008 PA), followed by a feasibility study in 2011 (2011 Feasibility Study). This work was undertaken for RMP Resources Corporation (RMP), which became American Vanadium Corporation (American Vanadium). A preliminary economic assessment (PEA) was completed for Prophecy Development Corp. (Prophecy) in 2018 following Project acquisition from American Vanadium. Prophecy was renamed to Silver Elephant in March, 2020.

Figure 2-1: Project Location Plan



Note: Figure from Hanson et al., 2011.

While none of these studies are considered by Silver Elephant to remain current, some elements of the studies, such as metallurgical test work, environmental baseline studies, and cost estimation data, are used in this Report.

2.3 Qualified Persons

The following Wood and MTS staff served as the Qualified Person (QP) as defined in National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, and in compliance with Form 43-101F1:

- Mr. Kirk Hanson, P.E., Technical Director, Open Pit Mining
- Mr. Todd Wakefield, RM SME, Managing Partner and Principal Geologist, MTS
- Mr. Alan Drake, P.L.Eng., Manager, Process Engineering, Wood.

2.4 Site Visits and Scope of Personal Inspection

Mr Kirk Hanson visited the Project site on 23 June, 2008, on 17 November, 2010 and again on 9 June, 2021. During those site visits, he inspected sites that were potentially amenable for locating infrastructure from a mine engineering perspective, in particular sites that could host future waste rock storage facilities, heap leach pads, and open pit mine infrastructure.

Mr. Todd Wakefield visited the Project site on 28 June 2006, on 10–11 February 2021, and again on 9 June 2021. During those visits he visited outcrops and trench exposures at the Gibellini, Louie Hill, and Bisoni-McKay deposits, reviewed core and RC cuttings from Project drill holes, collected verification samples at the Gibellini deposit, and verified legacy drill hole locations at the Gibellini, Louie Hill, and Bisoni McKay deposits.

2.5 Effective Date

The following effective dates are noted:

- Mineral Resource estimate, Gibellini, Louie Hill, and Bisoni–McKay: 5 June, 2021
- Economic analysis supporting the PEA: 30 August, 2021.

The overall Report effective date is taken as the date of the economic analysis, which is 30 August, 2021.

2.6 Information Sources and References

Reports and documents listed in Section 2.7, Section 3 and Section 27 of this Report were used to support preparation of the Report.

2.7 Previous Technical Reports

Silver Elephant, under its former name of Prophecy, filed the following technical reports on the Project:

- Orbock, E.J.C., 2017: Gibellini Vanadium Project, Nevada, USA, NI 43-101 Technical Report: prepared by Amec Foster Wheeler E&C Services Inc. for Prophecy Development Corp., effective date 10 November, 2017.
- Hanson, K., Orbock, E.J.C., Peralta, E., and Gormely, L., 2018: Gibellini Vanadium Project Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment: report prepared by Amec Foster Wheeler E&C Services Inc. for Prophecy Development Corp., effective date 29 May, 2018;

Prior to Prophecy's Project interest, the following technical reports had been filed on the Gibellini claims area:

- Wakefield, T., and Orbock, E., 2007: NI 43-101 Technical Report Gibellini Property Eureka County, Nevada: report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 18 April, 2007.
- Hanson, K., Wakefield T., Orbock, E., and Rust, J.C., 2010: Rocky Mountain Resources NI 43-101 Technical Report Gibellini Vanadium Project Nevada, USA: report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 8 October, 2008;
- Hanson, K., Orbock, E., Hertel, M., and Drozd, M., 2011: American Vanadium, Gibellini Vanadium Project, Eureka County, Nevada, USA, NI 43-101 Technical Report on Feasibility Study: report prepared by AMEC E&C Services Inc. for American Vanadium, effective date 13 August, 2011;

Prior to Silver Elephant's interest in the Bisoni–McKay claims area, the following technical reports had been filed:

- Turner A.R. and James, J.A.A., 2005: Bisoni McKay Vanadium Property Technical Report: report prepared by JAMine Inc for Stina Resources Ltd. and Vanadium International Corporation, effective date 20 January, 2005

- Ullmer, E., and James J.A.A., 2006: Bisoni McKay Vanadium Property, Nye County, Nevada, Phase I Technical Report: report prepared by JAMine Inc for Stina Resources Ltd., effective date 10 April, 2006
- Ullmer, E., 2008: Bisoni McKay Vanadium Property, Nye County, Nevada, Phase II Technical Report (Amended): report prepared for Stina Resources Ltd., effective date 20 January, 2008
- Ullmer, E., and Bentzen, E.H. III, 2016: Bisoni McKay Vanadium Property, Nye County, Nevada, Phase II Technical Report (Amended): report prepared for Stina Resources Ltd., effective date 23 October 2015, amended 29 August 2016.

3.0 RELIANCE ON OTHER EXPERTS

3.1 Introduction

The QPs have relied upon the following other expert reports, which provided information regarding mineral rights, surface rights, property agreements, royalties, marketing and taxation for use in sections of this Report.

3.2 Mineral Tenure, Surface Rights, Property Agreements and Royalties

The QPs have not independently reviewed ownership of the Project area and any underlying property agreements, mineral tenure, surface rights, water rights, or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from legal experts retained by Silver Elephant for this information through the following documents:

- Parsons, Behle, Latimer, 2017: Gibellini Property: legal opinion provided to Prophecy Development Corp. and Amec Foster Wheeler, dated 2 October 2017, 100 p.
- Parsons, Behle, Latimer, 2018: Title Opinion—Gibellini Vanadium Project: legal opinion provided to Prophecy Development Corp. and Amec Foster Wheeler, dated 5 May 2018, 37 p. and two annexes.
- Parsons, Behle, Latimer, 2020a: Silver Elephant Mining Corp. - Gibellini Vanadium Project Title Opinion: legal opinion provided to Silver Elephant Mining Corp., dated 29 October, 2020, in two parts, 87 p. and 92 p.
- Parsons, Behle, Latimer, 2020b: Silver Elephant Mining Corp. - Gibellini Vanadium Project Title Opinion: legal opinion provided to Silver Elephant Mining Corp., dated 16 December, 2020, 100 p.
- Nevada Vanadium LLC, 2020: Asset Purchase Agreement, Bisoni–McKay: agreement between Stina Resources Nevada Ltd. and Nevada Vanadium LLC, 18 August, 2020, 41 p.
- Vanadium Gibellini Company LLC, 2020: Water Rights Agreement: agreement between John C. Gretlein and Vanadium Gibellini Company LLC, 9 August, 2018.

This information is used in Section 4 of the Report. The information is also used in support of the Mineral Resource estimate in Section 14 and the financial analysis in Section 22.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Introduction

The Gibellini Project is located in Eureka County, Nevada; about 25 miles south of the town of Eureka. The Project is situated on the east flank of the Fish Creek Range in the Fish Creek Mining District and is accessed by dirt road extending westward from State Route 379.

The Project can be located on the USGS Summit Mountain 1:100,000 scale topographic map and the USGS Eightmile Well 1:24,000 scale, 7.5 minute series quadrangle map (Gibellini and Louie Hill deposits) and the USGS Snowball Ranch 1:2,4000 scale, 7.5 minute series quadrangle map (Bisoni–McKay).

Mineralization at Gibellini and Louie Hill is located within the southeast quadrant of Section 34 and the southwest quadrant of Section 35, Township 16 North, Range 52 East (T16N, R52E) Mount Diablo Base and Meridian (MDBM) and the northwest quadrant of Section 2 and the northeast quadrant of Section 3, Township 15 North, Range 52 East (T15N, R52E) MDBM. It is centered at latitude 39° 13′ north and longitude 116° 05′ west.

Mineralization at Bisoni–McKay is located within Township 14 North, Range 52 East within Sections 17, 18, 19 , 20, 29, and 30. It is centered at latitude 39° 05′ north and longitude 116° 09′ west.

4.2 Property and Title in Nevada

Information in this sub-section has been compiled from Papke and Davis, (2019). The QPs have not independently verified this information, and has relied upon the Papke and Davis report, which is in the public domain, for the data presented.

4.2.1 Mineral Title

Federal (30 USC and 43 CFR) and Nevada (NRS 517) laws concerning mining claims on Federal land are based on an 1872 Federal law titled "An Act to Promote the Development of Mineral Resources of the United States." Mining claim procedures still are based on this law, but the original scope of the law has been reduced by several legislative changes.

The Mineral Leasing Act of 1920 (30 USC Chapter 3A) provided for leasing of some non-metallic materials; and the Multiple Mineral Development Act of 1954 (30 USC Chapter 12) allowed simultaneous use of public land for mining under the mining laws and for lease operation under the mineral leasing laws. Additionally, the Multiple Surface Use Act of 1955 (30 USC 611-615) made "common variety" materials non- locatable; the Geothermal Steam Act of 1970 (30 USC Chapter 23) provided for leasing of geothermal resources; and the Federal Land Policy and Management Act of 1976 (the "BLM Organic Act," 43 USC Chapter 35) granted the Secretary of the Interior broad authority to manage public lands. Most details regarding procedures for locating claims on Federal lands have been left to individual states, providing that state laws do not conflict with Federal laws (30 USC 28; 43 CFR 3831.1).

Mineral deposits are located either by lode or placer claims (43 CFR 3840). The locator must decide whether a lode or placer claim should be used for a given material; the decision is not always easy but is critical. A lode claim is void if used to acquire a placer deposit, and a placer claim is void if used for a lode deposit. The 1872 Federal law requires a lode claim for "veins or lodes of quartz or other rock in place" (30 USC 26; 43 CFR 3841.1), and a placer claim for all "forms of deposit, excepting veins of quartz or other rock in place" (30 USC 35). The maximum size of a lode claim is 1,500 ft in length and 600 ft in width, whereas an individual or company can locate a placer claim as much as 20 acres in area.

Claims may be patented or unpatented. A patented claim is a lode or placer claim or mill site for which a patent has been issued by the Federal Government, whereas an unpatented claim means a lode or placer claim, tunnel right or mill site located under the Federal (30 USC) act, for which a patent has not been issued.

4.2.2 Surface Rights

About 85% of the land in Nevada is controlled by the Federal Government; most of this land is administered by the US Bureau of Land Management (BLM), the US Forest Service, the US Department of Energy, or the US Department of Defense. Much of the land controlled by the BLM and the US Forest Service (USFS) is open to prospecting and claim location. The distribution of public lands in Nevada is shown on the BLM "Land Status Map of Nevada" (1990) at scales of 1:500,000 and 1:1,000,000.

Bureau of Land Management regulations regarding surface disturbance and reclamation require that a notice be submitted to the appropriate Field Office of the Bureau of

Land Management for exploration activities in which five acres or fewer are proposed for disturbance (43 CFR 3809.1-1 through 3809.1-4). A Plan of Operations (PoO) is needed for all mining and processing activities, plus all activities exceeding five acres of proposed disturbance. A PoO is also needed for any bulk sampling in which 1,000 or more tons of presumed mineralized material are proposed for removal (43 CFR 3802.1 through 3802.6, 3809.1-4, 3809.1-5). The BLM also requires the posting of bonds for reclamation for any surface disturbance caused by more than casual use (43 CFR 3809.500 through 3809.560). The USFS has regulations regarding land disturbance in forest lands (36 CFR Subpart A). Both agencies also have regulations pertaining to land disturbance in proposed wilderness areas.

4.2.3 Environmental Regulations

All surface management activities, including reclamation, must comply with all pertinent Federal laws and regulations, and all applicable State environmental laws and regulations. The fundamental requirement, implemented in 43 CFR 3809, is that all hard-rock mining under a PoO or Notice of Intent (NOI) on the public lands must prevent unnecessary or undue degradation. The PoO and any modifications to the approved PoO must meet the requirement to prevent unnecessary or undue degradation.

Authorization to allow the release of effluents into the environment must be in compliance with the Clean Water Act, Safe Drinking Water Act, Endangered Species Act, other applicable Federal and State environmental laws, consistent with BLM's multiple-use responsibilities under the Federal Land Policy and Management Act and fully reviewed in the appropriate National Environmental Policy Act (NEPA) document.

4.2.4 Fraser Institute Policy Perception Index

Wood used the Policy Perception Index from the 2020 Fraser Institute Annual Survey of Mining Companies report (the 2020 Fraser Institute survey) as a credible source for the assessment of the overall political risk facing an exploration or mining project in Nevada. Each year, the Fraser Institute sends a questionnaire to selected mining and exploration companies globally. The Fraser Institute survey is an attempt to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment.

Wood used the 2020 Fraser Institute survey because it is globally regarded as an independent report-card style assessment to governments on how attractive their policies are from the point of view of an exploration manager or mining company and forms a proxy for the assessment by industry of political risk in specific political jurisdictions from the mining industry's perspective.

Of the 77 jurisdictions surveyed in the 2020 Fraser Institute survey, Nevada ranks first for investment attractiveness, fifth for policy perception and seventh for best practices mineral potential.

4.3 Project Ownership

Silver Elephant holds a 100% interest in the claims discussed in Section 4.4 by way of lease agreements and staked claims.

Claims are in the name of Silver Elephant's indirectly wholly-owned Nevada subsidiaries, VC Exploration (US), Inc. (VC Exploration) and Nevada Vanadium (formerly Vanadium Gibellini Company LLC (Vanadium Gibellini)).

4.4 Agreements

In August 2020, Nevada Vanadium and Silver Elephant concluded an agreement with Stina Resources Nevada Ltd. (Stina Resources) and Cellcube Energy Storage Systems Inc (Cellcube Energy), to purchase a set of claims, the Bisoni–McKay claims, which are situated adjacent the Gibellini claims, in Eureka and Nye Counties, Nevada. The purchase agreement included:

- Cash payment of C$200,000;
- Issuance of four million shares in Silver Elephant;

A share bonus is payable if, on or before December 31, 2023, the price of European vanadium pentoxide published by Metal Bulletin (or an equivalent publication) remains ≥U.S.$12/lb for a period of 30 consecutive calendar days (referred to as the vanadium price condition). The payment will consist of the number of Silver Elephant shares that is equal to the quotient obtained by dividing C$500,000 by the volume-weighted average price of one Silver Elephant share on the Toronto Stock Exchange during the five-trading day period immediately following the date upon which the vanadium price condition is satisfied.

4.5 Mineral Tenure

The Gibellini Project ground holdings include:

- 40 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Jacqualeene Campbell, successor to Janelle Dietrich (deceased) and the unpatented lode mining claims (Dietrich Claims) are leased to Silver Elephant under its former name, Prophecy
- 105 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is VC Exploration (US), Inc.
- 456 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Nevada Vanadium LLC.

Table 4-1 provides a list of the Dietrich Claims, Table 4-2 summarizes the VC Exploration claims, and Table 4-3 includes a listing of the Nevada Vanadium claims.

Figure 4-1 is a claim location plan for the Gibellini claims. Figure 4-2 shows the Bisoni–McKay claim locations. Note that due to the proximity of the two areas, a portion of the Bisoni–McKay claims are also shown on Figure 4-1.

Within Nevada, unpatented claims can have a maximum area of 20.66 acres.

Unpatented mining claims are kept active through payment of a maintenance fee due by 1 September of each year.

There has been no legal survey of the Project claims. Under Nevada law, each unpatented claim is marked on the ground, and does not require survey.

4.5.1 Dietrich Claims/Dietrich Lease

The 40 unpatented lode claims are located within unsurveyed Sections 1, 2 and 3, Township 15 North, Range 52 East, and unsurveyed Sections 26, 34, 35 and 36, Township 16 North, Range 52 East, MDM, Eureka County, Nevada.

According to the online BLM serial register pages the Dietrich claims, annual mining claim maintenance fees for the assessment years up to and including the assessment year beginning September 1, 2021 have been properly and timely paid.

Janelle Dietrich (Ms. Dietrich) leased the Dietrich claims on 22 June, 2017 to Prophecy (the Dietrich Lease). Public notice of the Dietrich Lease was made on 7 November, 2017, and recorded in the official records of the Eureka County Recorder's office as Document No. 234657 on 17 January 2018.

Table 4-1: Dietrich Claims

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1038844	Black Iron 1-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0160N 0520E 035	SW
NMC1038845	Black Iron 3-N	Eureka	Lode	21 0160N 0520E 034	SE
				21 0160N 0520E 035	SW
NMC1038846	Black Iron 4-N	Eureka	Lode	21 0160N 0520E 035	SW
NMC1038847	Black Iron 5-N	Eureka	Lode	21 0150N 0520E 002	NE, NW
				21 0160N 0520E 035	SW
NMC1038848	Black Iron 6-N	Eureka	Lode	21 0160N 0520E 034	NE, SE
				21 0160N 0520E 035	NW, SW
NMC1038849	Flat 1-N	Eureka	Lode	21 0150N 0520E 002	NE, NW
NMC1038850	Flat 2-N	Eureka	Lode	21 0150N 0520E 002	NE, NW
				21 0160N 0520E 035	SW, SE
NMC1038851	Flat 10-N	Eureka	Lode	21 0150N 0520E 002	NE
NMC1038852	Flat 11-N	Eureka	Lode	21 0150N 0520E 002	NE
NMC1038853	Flat 12-N	Eureka	Lode	21 0150N 0520E 001	NW
				21 0150N 0520E 002	NE
NMC1038854	Flat 13-N	Eureka	Lode	21 0150N 0520E 001	NE, NW
NMC1038855	Manganese 3-N	Eureka	Lode	21 0160N 0520E 035	NW, SW
NMC1038856	Rattler 1-N	Eureka	Lode	21 0160N 0520E 035	SW, SE
NMC1038857	Rattler 2-N	Eureka	Lode	21 0160N 0520E 035	NE, SW, SE
NMC1038858	Rattler 3-N	Eureka	Lode	21 0160N 0520E 035	NE
NMC1038859	Rattler 4-N	Eureka	Lode	21 0160N 0520E 026	SE
				21 0160N 0520E 035	NE
NMC1038860	Rift 1-N	Eureka	Lode	21 0160N 0520E 035	NW
NMC1038861	Rift 2-N	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 035	NW
NMC1038862	Rift 3-N	Eureka	Lode	21 0160N 0520E 035	NW
NMC1038863	Rift 4-N	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 035	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1038864	Clyde 1-N	Eureka	Lode	21 0160N 0520E 035	SW
NMC1038865	Clyde 2-N	Eureka	Lode	21 0160N 0520E 035	SW, SE
NMC1038866	Clyde 3-N	Eureka	Lode	21 0150N 0520E 002	NE
				21 0160N 0520E 035	SE
NMC1038867	Clyde 4-N	Eureka	Lode	21 0150N 0520E 002	NE
				21 0160N 0520E 035	SE
NMC1038868	Clyde 5-N	Eureka	Lode	21 0150N 0520E 002	NE
				21 0160N 0520E 035	SE
NMC1038869	Clyde 6-N	Eureka	Lode	21 0150N 0520E 002	NE
				21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1038870	Clyde 7-N	Eureka	Lode	21 0150N 0520E 001	NW
				21 0150N 0520E 002	NE
				21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1038871	Clyde 8-N	Eureka	Lode	21 0160N 0520E 035	NE, NW, SW, SE
NMC1038872	Black Hill 1-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0160N 0520E 035	SW
NMC1038873	Black Hill 2-N	Eureka	Lode	21 0160N 0520E 034	NE, SE
				21 0160N 0520E 035	SW
NMC1038874	Black Hill 3-N	Eureka	Lode	21 0160N 0520E 034	SE
				21 0160N 0520E 035	SW
NMC1038875	Black Hill 4-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0160N 0520E 034	SE
				21 0160N 0520E 035	SW
NMC1038876	Black Hill 7-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0150N 0520E 003	NE
NMC1038877	Black Hill 8-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0150N 0520E 003	NE
				21 0160N 0520E 034	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				21 0160N 0520E 035	SW
NMC1038878	Black Hill 9-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0150N 0520E 003	NE
NMC1038879	Black Hill 10-N	Eureka	Lode	21 0150N 0520E 003	NE
				21 0160N 0520E 034	SE
NMC1038880	Black Hill 11-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0150N 0520E 003	NE
NMC1038881	Black Hill 12-N	Eureka	Lode	21 0150N 0520E 002	NW
				21 0150N 0520E 003	NE
NMC1070904	Black Hill 13-N	Eureka	Lode	21 0150N 0520E 002	NW, SW
NMC1070905	Black Hill 14-N	Eureka	Lode	21 0150N 0520E 002	NW, SW

Table 4-2: VC Exploration Claims

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148135	VDT 1	Eureka	Lode	21 0160N 0520E 034	SW, SE
NMC1148136	VDT 2	Eureka	Lode	21 0160N 0520E 034	SE
NMC1148137	VDT 3	Eureka	Lode	21 0160N 0520E 034	SW, SE
NMC1148138	VDT 4	Eureka	Lode	21 0160N 0520E 034	SE
NMC1148139	VDT 5	Eureka	Lode	21 0160N 0520E 034	SW, SE
NMC1148140	VDT 6	Eureka	Lode	21 0160N 0520E 034	SE
NMC1148141	VDT 7	Eureka	Lode	21 0150N 0520E 003	NE, NW
				21 0160N 0520E 034	SW, SE
NMC1148142	VDT 8	Eureka	Lode	21 0150N 0520E 003	NE
				21 0160N 0520E 034	SE
NMC1148143	VDT 9	Eureka	Lode	21 0150N 0520E 003	NE, NW
NMC1148144	VDT 10	Eureka	Lode	21 0150N 0520E 003	NE
NMC1148145	VDT 11	Eureka	Lode	21 0150N 0520E 003	NE, NW
NMC1148146	VDT 12	Eureka	Lode	21 0150N 0520E 003	NE
NMC1148147	VDT 13	Eureka	Lode	21 0150N 0520E 003	NE, NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148148	VDT 14	Eureka	Lode	21 0150N 0520E 003	NE
NMC1148149	VDT 15	Eureka	Lode	21 0150N 0520E 003	NE, NW
NMC1148150	VDT 16	Eureka	Lode	21 0150N 0520E 003	NE
NMC1148151	VDT 17	Eureka	Lode	21 0150N 0520E 003	NE, NW, SW, SE
NMC1148152	VDT 18	Eureka	Lode	21 0150N 0520E 003	NE, SE
NMC1148155	VDT 21	Eureka	Lode	21 0160N 0520E 034	SE
				21 0160N 0520E 035	SW
NMC1148156	VDT 22	Eureka	Lode	21 0160N 0520E 035	SW
NMC1148157	VDT 23	Eureka	Lode	21 0160N 0520E 035	SE
NMC1148158	VDT 24	Eureka	Lode	21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1148159	VDT 25	Eureka	Lode	21 0160N 0520E 035	SE
NMC1148160	VDT 26	Eureka	Lode	21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1148161	VDT 27	Eureka	Lode	21 0160N 0520E 035	SE
NMC1148162	VDT 28	Eureka	Lode	21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1148164	VDT 30	Eureka	Lode	21 0160N 0520E 036	SW
NMC1148165	VDT 31	Eureka	Lode	21 0160N 0520E 036	SW
NMC1148166	VDT 32	Eureka	Lode	21 0160N 0520E 036	SW
NMC1148167	VDT 33	Eureka	Lode	21 0150N 0520E 001	NW
				21 0160N 0520E 036	SW
NMC1148168	VDT 34	Eureka	Lode	21 0150N 0520E 001	NW
				21 0160N 0520E 036	SW
NMC1148169	VDT 35	Eureka	Lode	21 0150N 0520E 001	NE, NW
				21 0160N 0520E 036	SW, SE
NMC1148170	VDT 36	Eureka	Lode	21 0150N 0520E 001	NW
				21 0150N 0520E 002	NE
NMC1148172	VDT 38	Eureka	Lode	21 0150N 0520E 001	NW
NMC1148173	VDT 39	Eureka	Lode	21 0150N 0520E 001	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148174	VDT 40	Eureka	Lode	21 0150N 0520E 001	NW
NMC1148175	VDT 41	Eureka	Lode	21 0150N 0520E 001	NE, NW
NMC1148178	VDT 44	Eureka	Lode	21 0150N 0520E 002	SW
NMC1148180	VDT 46	Eureka	Lode	21 0150N 0520E 002	SW
NMC1148181	VDT 47	Eureka	Lode	21 0150N 0520E 002	NW, SW
NMC1148182	VDT 48	Eureka	Lode	21 0150N 0520E 002	SW
NMC1148183	VDT 49	Eureka	Lode	21 0150N 0520E 002	NE, NW, SW, SE
NMC1148184	VDT 50	Eureka	Lode	21 0150N 0520E 002	SW, SE
NMC1148185	VDT 51	Eureka	Lode	21 0150N 0520E 002	NE, SE
NMC1148186	VDT 52	Eureka	Lode	21 0150N 0520E 002	SE
NMC1148187	VDT 53	Eureka	Lode	21 0150N 0520E 002	NE, SE
NMC1148188	VDT 54	Eureka	Lode	21 0150N 0520E 002	SE
NMC1148189	VDT 55	Eureka	Lode	21 0150N 0520E 002	NE, SE
NMC1148190	VDT 56	Eureka	Lode	21 0150N 0520E 002	SE
NMC1148191	VDT 57	Eureka	Lode	21 0150N 0520E 001	NW, SW
				21 0150N 0520E 002	NE, SE
NMC1148192	VDT 58	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 002	SE
NMC1148193	VDT 59	Eureka	Lode	21 0150N 0520E 001	NW, SW
NMC1148194	VDT 60	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 002	SE
NMC1148195	VDT 61	Eureka	Lode	21 0150N 0520E 001	NW, SW
NMC1148196	VDT 62	Eureka	Lode	21 0150N 0520E 001	SW
NMC1148197	VDT 63	Eureka	Lode	21 0150N 0520E 001	NW, SW
NMC1148198	VDT 64	Eureka	Lode	21 0150N 0520E 001	SW
NMC1148199	VDT 65	Eureka	Lode	21 0150N 0520E 001	NW, SW
NMC1148200	VDT 66	Eureka	Lode	21 0150N 0520E 001	SW
NMC1148201	VDT 67	Eureka	Lode	21 0150N 0520E 001	NE, NW, SW, SE
NMC1148202	VDT 68	Eureka	Lode	21 0150N 0520E 001	SW, SE
NMC1148205	VDT 71	Eureka	Lode	21 0150N 0520E 003	SW, SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148209	VDT 75	Eureka	Lode	21 0160N 0520E 035	SW, SE
NMC1148210	VDT 76	Eureka	Lode	21 0160N 0520E 035	SW, SE
NMC1148211	VDT 77	Eureka	Lode	21 0150N 0520E 010	NE
NMC1148212	VDT 78	Eureka	Lode	21 0150N 0520E 010	NE, NW, SW, SE
NMC1148213	VDT 79	Eureka	Lode	21 0150N 0520E 010	NE, SE
NMC1148214	VDT 80	Eureka	Lode	21 0150N 0520E 010	SW, SE
NMC1148215	VDT 81	Eureka	Lode	21 0150N 0520E 010	SW, SE
NMC1148216	VDT 82	Eureka	Lode	21 0150N 0520E 010	SW, SE
NMC1148217	VDT 83	Eureka	Lode	21 0150N 0520E 010	SW
NMC1148218	VDT 84	Eureka	Lode	21 0150N 0520E 010	SW, SE
				21 0150N 0520E 015	NE
NMC1148219	VDT 85	Eureka	Lode	21 0150N 0520E 010	SW
				21 0150N 0520E 015	NW
NMC1148220	VDT 86	Eureka	Lode	21 0150N 0520E 010	SW, SE
				21 0150N 0520E 015	NE, NW
NMC1148221	VDT 87	Eureka	Lode	21 0150N 0520E 015	NW
NMC1148222	VDT 88	Eureka	Lode	21 0150N 0520E 015	NE, NW
NMC1148223	VDT 89	Eureka	Lode	21 0150N 0520E 015	NW
NMC1148224	VDT 90	Eureka	Lode	21 0150N 0520E 015	NE, NW
NMC1148225	VDT 91	Eureka	Lode	21 0150N 0520E 015	NW
NMC1148226	VDT 92	Eureka	Lode	21 0150N 0520E 015	NE, NW
NMC1148227	VDT 93	Eureka	Lode	21 0150N 0520E 010	SE
NMC1148228	VDT 94	Eureka	Lode	21 0150N 0520E 010	SE
				21 0150N 0520E 015	NE
NMC1148234	VDT 100	Eureka	Lode	21 0150N 0520E 010	NE
				21 0150N 0520E 011	NW
NMC1148235	VDT 101	Eureka	Lode	21 0150N 0520E 002	SW
				21 0150N 0520E 011	NW
NMC1148236	VDT 102	Eureka	Lode	21 0150N 0520E 011	NW
NMC1148237	VDT 103	Eureka	Lode	21 0150N 0520E 002	SW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				21 0150N 0520E 011	NW
NMC1148238	VDT 104	Eureka	Lode	21 0150N 0520E 011	NW
NMC1148239	VDT 105	Eureka	Lode	21 0150N 0520E 010	NE, SE
				21 0150N 0520E 011	NW, SW
NMC1167815	VDT 19	Eureka	Lode	21 0150N 0520E 003	NE, NW, SW, SE
NMC1167816	VDT 20	Eureka	Lode	21 0150N 0520E 003	NE, SE
NMC1167817	VDT 29	Eureka	Lode	21 0160N 0520E 035	SE
				21 0160N 0520E 036	SW
NMC1167818	VDT 37	Eureka	Lode	21 0150N 0520E 001	NW
				21 0160N 0520E 036	SW
NMC1167819	VDT 42	Eureka	Lode	21 0150N 0520E 002	NW, SW
				21 0150N 0520E 003	NE, SE
NMC1167820	VDT 43	Eureka	Lode	21 0150N 0520E 002	NW, SW
NMC1167821	VDT 45	Eureka	Lode	21 0150N 0520E 002	NW
NMC1167822	VDT 69	Eureka	Lode	21 0150N 0520E 003	SW, SE
NMC1167823	VDT 70	Eureka	Lode	21 0150N 0520E 003	SE
NMC1167824	VDT 72	Eureka	Lode	21 0150N 0520E 003	SE
NMC1167825	VDT 73	Eureka	Lode	21 0150N 0520E 003	SW, SE
NMC1167826	VDT 74	Eureka	Lode	21 0150N 0520E 003	SE
NMC1167827	VDT 95	Eureka	Lode	21 0150N 0520E 002	SW
				21 0150N 0520E 003	SE
NMC1167828	VDT 96	Eureka	Lode	21 0150N 0520E 003	SE
				21 0150N 0520E 010	NE
NMC1167829	VDT 97	Eureka	Lode	21 0150N 0520E 002	SW
				21 0150N 0520E 003	SE
NMC1167830	VDT 98	Eureka	Lode	21 0150N 0520E 002	SW
				21 0150N 0520E 003	SE
				21 0150N 0520E 010	NE
				21 0150N 0520E 011	NW
NMC1167831	VDT 99	Eureka	Lode	21 0150N 0520E 002	SW

Table 4-3: Nevada Vanadium Claims

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1159868	PCY 49	Eureka	Lode	21 0160N 0520E 026	SE
				21 0160N 0520E 035	NE
NMC1159869	PCY 50	Eureka	Lode	21 0160N 0520E 026	SE
				21 0160N 0520E 035	NE
NMC1159870	PCY 51	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 026	SE
				21 0160N 0520E 035	NE
				21 0160N 0520E 036	NW
NMC1159871	PCY 52	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 036	NW
NMC 1159872	PCY 53	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 036	NW
NMC1159873	PCY 85	Eureka	Lode	21 0160N 0520E 035	NE
NMC1159874	PCY 86	Eureka	Lode	21 0160N 0520E 035	NE
NMC1159875	PCY 87	Eureka	Lode	21 0160N 0520E 035	NE
				21 0160N 0520E 036	NW
NMC1159876	PCY 88	Eureka	Lode	21 0160N 0520E 036	NW
NMC1159877	PCY 89	Eureka	Lode	21 0160N 0520E 036	NW
NMC1159878	PCY 90	Eureka	Lode	21 0160N 0520E 036	NW
NMC1159879	PCY 91	Eureka	Lode	21 0160N 0520E 036	NE, NW
NMC1159880	PCY 92	Eureka	Lode	21 0160N 0520E 036	NE
NMC1159881	PCY 93	Eureka	Lode	21 0160N 0520E 036	NE
NMC1159882	PCY 94	Eureka	Lode	21 0160N 0520E 036	NE
NMC1159883	PCY 95	Eureka	Lode	21 0160N 0520E 036	NE
NMC1160655	PCY 25	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 027	SE
NMC1160656	PCY 26	Eureka	Lode	21 0160N 0520E 026	SW
NMC1160657	PCY 27	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 027	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				21 0160N 0520E 034	NE
				21 0160N 0520E 035	NW
NMC1160658	PCY 28	Eureka	Lode	21 0160N 0520E 034	NE
				21 0160N 0520E 035	NW
NMC1160659	PCY 29	Eureka	Lode	21 0160N 0520E 034	NE
				210160N 0520E 035	NW
NMC1160660	PCY 30	Eureka	Lode	21 0160N 0520E 034	NE
				21 0160N 0520E 035	NW
NMC1160661	PCY 33	Eureka	Lode	21 0160N 0520E 026	SW
NMC1160662	PCY 34	Eureka	Lode	21 0160N 0520E 026	SW
NMC1160663	PCY 35	Eureka	Lode	21 0160N 0520E 026	SW
NMC1160664	PCY 36	Eureka	Lode	21 0160N 0520E 026	SW
NMC1160665	PCY 37	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 035	NW
NMC1160666	PCY 38	Eureka	Lode	21 0160N 0520E 035	NW
NMC1160667	PCY 39	Eureka	Lode	21 0160N 0520E 035	NW
NMC1160668	PCY 40	Eureka	Lode	21 0160N 0520E 035	NW
NMC1160669	PCY 43	Eureka	Lode	21 0160N 0520E 026	SW, SE
NMC1160670	PCY 44	Eureka	Lode	21 0160N 0520E 026	SW, SE
NMC1160671	PCY 45	Eureka	Lode	210160N 0520E 026	SW, SE
NMC1160672	PCY 46	Eureka	Lode	21 0160N 0520E 026	SW, SE
NMC1160673	PCY 47	Eureka	Lode	21 0160N 0520E 026	SW, SE
				21 0160N 0520E 035	NE, NW
NMC1160674	PCY 48N	Eureka	Lode	21 0160N 0520E 035	NE, NW
NMC1160675	PCY 49N	Eureka	Lode	21 0160N 0520E 035	NE, NW
NMC1160676	PCY 50N	Eureka	Lode	21 0160N 0520E 035	NE, NW
NMC1160677	PCY 53N	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 026	SE
NMC1160678	PCY 54N	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 026	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160679	PCY 55N	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 026	SE
NMC1160680	PCY 63	Eureka	Lode	21 0160N 0520E 025	SW
NMC1160681	PCY 64	Eureka	Lode	21 0160N 0520E 025	SW
NMC1160682	PCY 65	Eureka	Lode	21 0160N 0520E 025	SW
NMC1160683	PCY 100	Eureka	Lode	21 0160N 0520E 036	NE
				21 0160N 0530E 031	NW
NMC1160684	PCY 110	Eureka	Lode	21 0160N 0530E 031	NW
NMC1160685	PCY 120	Eureka	Lode	21 0160N 0530E 031	NE, NW
NMC1160686	PCY 130	Eureka	Lode	21 0160N 0530E 031	NE
				21 0160N 0530E 032	NW
NMC1160687	PCY 140	Eureka	Lode	21 0160N 0530E 032	NW
NMC1160688	PCY 146	Eureka	Lode	21 0160N 0520E 036	NE, NW, SW, SE
NMC1160689	PCY 147	Eureka	Lode	21 0160N 0520E 036	NE,SE
NMC1160690	PCY 148	Eureka	Lode	21 0160N 0520E 036	NE, SE
NMC1160691	PCY 149	Eureka	Lode	21 0160N 0520E 036	NE, SE
NMC1160692	PCY 150	Eureka	Lode	21 0160N 0520E 036	NE, SE
NMC1160693	PCY 151	Eureka	Lode	21 0160N 0520E 036	NE, SE
				21 0160N 0530E 031	NW, SW
NMC1160694	PCY 152	Eureka	Lode	21 0160N 0530E 031	NW, SW
NMC1160695	PCY 153	Eureka	Lode	21 0160N 0530E 031	NW, SW
NMC1160696	PCY 154	Eureka	Lode	21 0160N 0530E 031	NW, SW
NMC1160697	PCY 155	Eureka	Lode	21 0160N 0530E 031	NE, NW, SW, SE
NMC1160698	PCY 156	Eureka	Lode	21 0160N 0S30E 031	NE, SE
NMC1160699	PCY 157	Eureka	Lode	21 0160N 0530E 031	NE, SE
NMC1160700	PCY 158	Eureka	Lode	21 0160N 0530E 031	NE, SE
NMC1160701	PCY 159	Eureka	Lode	21 0160N 0530E 031	NE, SE
				21 0160N 0530E 032	NW, SW
NMC1160702	PCY 160	Eureka	Lode	21 0160N 0530E 032	NW, SW
NMC1160703	PCY 161	Eureka	Lode	21 0160N 0520E 036	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160704	PCY 162	Eureka	Lode	21 0160N 0520E 036	SE
NMC1160705	PCY 163	Eureka	Lode	21 0160N 0520E 036	SE
NMC1160706	PCY 164	Eureka	Lode	21 0160N 0520E 036	SE
				21 0160N 0530E 031	SW
NMC1160707	PCY 165	Eureka	Lode	21 0160N 0530E 031	SW
NMC1160708	PCY 166	Eureka	Lode	21 0160N 0530E 031	SW
NMC1160709	PCY 167	Eureka	Lode	21 0160N 0530E 031	SW
NMC1160710	PCY 168	Eureka	Lode	21 0160N 0530E 031	SW, SE
NMC1160711	PCY 169	Eureka	Lode	21 0160N 0530E 031	SE
NMC1160712	PCY 170	Eureka	Lode	21 0160N 0530E 031	SE
NMC1160713	PCY 171	Eureka	Lode	21 0160N 0530E 031	SE
NMC1160714	PCY 172-	Eureka	Lode	21 0160N 0530E 031	SE
				21 0160N 0530E 032	SW
NMC1160715	PCY 173	Eureka	Lode	21 0160N 0530E 032	SW
NMC1160716	PCY 174	Eureka	Lode	21 0150N 0520E 001	NE
				21 0160N 0520E 036	SE
NMC1160717	PCY 175	Eureka	Lode	21 0150N 0520E 001	NE
				21 0160N 0520E 036	SE
NMC1160718	PCY 176	Eureka	Lode	21 0150N 0520E 001	NE
				21 0160N 0520E 036	SE
NMC1160719	PCY 177	Eureka	Lode	21 0150N 0520E 001	NE
				21 0160N 0520E 036	SE
				21 0160N 0530E 031	SW
NMC1160720	PCY 178	Eureka	Lode	21 0150N 0520E 001	NE
				21 0150N 0530E 006	NW
				21 0160N 0530E 031	SW
NMC1160721	PCY 179	Eureka	Lode	21 0150N 0530E 006	NW
				21 0160N 0530E 031	SW
NMC1160722	PCY 180	Eureka	Lode	21 0150N 0530E 006	NW
				21 0160N 0530E 031	SW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160723	PCY 181	Eureka	Lode	21 0150N 0530E 006	NW
				21 0160N 0530E 031	SW, SE
NMC1160724	PCY 182	Eureka	Lode	21 0150N 0530E 006	NE, NW
				21 0160N 0530E 031	SE
NMC1160725	PCY 183	Eureka	Lode	21 0150N OS30E 006	NE
				21 0160N 0530E 031	SE
NMC1160726	PCY 184	Eureka	Lode	21 0150N 0530E 006	NE
				21 0160N 0530E 031	SE
NMC1160727	PCY 185	Eureka	Lode	21 0150N 0530E 006	NE
				21 0160N 0530E 031	SE
				21 0160N 0530E 032	SW
NMC1160728	PCY 186	Eureka	Lode	21 0150N 0530E 005	NW
				21 0150N 0530E 006	NE
				21 0160N 0530E 032	SW
NMC1160729	PCY 187	Eureka	Lode	21 0150N 0520E 001	NE, SE
NMC1160730	PCY 188	Eureka	Lode	21 0150N 0520E 001	NE, SE
NMC1160731	PCY 189	Eureka	Lode	21 0150N 0520E 001	NE, SE
NMC1160732	PCY 190	Eureka	Lode	21 0150N 0520E 001	NE, SE
NMC1160733	PCY 191	Eureka	Lode	21 0150N 0520E 001	NE, SE
				21 0150N 0530E 006	NW, SW
NMC1160734	PCY 192	Eureka	Lode	21 0150N 0530E 006	NW, SW
NMC1160735	PCY 193	Eureka	Lode	21 0150N 0530E 006	NW, SW
NMC1160736	PCY 194	Eureka	Lode	21 0150N 0530E 006	NW, SW
NMC1160737	PCY 195	Eureka	Lode	21 0150N 0530E 006	NE, NW, SW, SE
NMC1160738	PCY 196	Eureka	Lode	21 0150N 0530E 006	NE, SE
NMC1160739	PCY 197	Eureka	Lode	21 0150N 0530E 006	NE, SE
NMC1160740	PCY 198	Eureka	Lode	21 0150N 0530E 006	NE, SE
NMC1160741	PCY 199	Eureka	Lode	210150N 0530E 005	NW, SW
				21 0150N 0530E 006	NE, SE
NMC1160742	PCY 200-	Eureka	Lode	21 0150N 0520E 001	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160743	PCY 201	Eureka	Lode	21 0150N 0520E 001	SE
NMC1160744	PCY 202	Eureka	Lode	21 0150N 0520E 001	SE
NMC1160745	PCY 203	Eureka	Lode	21 0150N 0520E 001	SE
NMC1160746	PCY 204	Eureka	Lode	21 01 50N 0520E 001	SE
				21 0150N 0530E 006	SW
NMC1160747	PCY 205	Eureka	Lode	21 0150N 0530E 006	SW
NMC1160748	PCY 206	Eureka	Lode	21 0150N 0530E 006	SW
NMC1160749	PCY 207	Eureka	Lode	21 0150N 0530E 006	SW
NMC1160750	PCY 208	Eureka	Lode	21 0150N 0530E 006	SW, SE
NMC1160751	PCY 209	Eureka	Lode	--21 0150N 0530E 006	SE
NMC1160752	PCY 210	Eureka	Lode	21 0150N 0530E 006	SE
NMC1160753	PCY 211	Eureka	Lode	21 0150N 0530E 006	SE
NMC1160754	PCY 212	Eureka	Lode	21 0150N 0530E 005	SW
				21 0150N 0530E 006	SE
NMC1160755	PCY 213	Eureka	Lode	21 0150N 0520E 001	SE
NMC1160756	PCY 214	Eureka	Lode	21 0150N 0520E 012	NE
				21 0150N 0520E 001	SE
NMC1160757	PCY 215-	Eureka	Lode	21 0150N 0520E 012	NE
				21 0150N 0520E 001	SE
NMC1160758	PCY 216	Eureka	Lode	21 0150N 0520E 001	SE
				21 0150N 0520E 012	NE
NMC1160759	PCY 217	Eureka	Lode	21 0150N 0520E 001	SE
				21 0150N 0520E 012	NE
				21 0150N 0530E 006	SW
				21 0150N 0530E 007	NW
NMC1160760	PCY 218	Eureka	Lode	21 0150N 0530E 006	SW
				21 0150N 0530E 007	NW
NMC1160761	PCY 219	Eureka	Lode	21 0150N 0530E 006	SW
				21 0150N 0530E 007	NW
NMC1160762	PCY 220	Eureka	Lode	21 0150N 0530E 006	SW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				21 0150N 0530E 007	NW
NMC1160763	PCY 221	Eureka	Lode	21 0150N 0530E 006	SW, SE
				21 0150N 0530E 007	NE, NW
NMC1160764	PCY 222	Eureka	Lode	21 0150N 0530E 006	SE
				21 0150N 0530E 007	NE
NMC1160765	PCY 223	Eureka	Lode	21 0150N 0530E 006	SE
				21 0150N 0530E 007	NE
NMC1160766	PCY 224	Eureka	Lode	21 0150N 0530E 006	SE
				21 0150N 0530E 007	NE
NMC1160767	PCY 225	Eureka	Lode	21 0150N 0530E 005	SW
				21 0150N 0530E 006	SE
				21 0150N 0530E 007	NE
				21 0150N 0530E 008	NW
NMC1160768	PCY 226	Eureka	Lode	21 0 150N 0520E 012	NE
NMC1160769	PCY 227	Eureka	Lode	21 0150N 0520E 012	NE
NMC1160770	PCY 228	Eureka	Lode	21 0150N 0520E 012	NE
NMC1160771	PCY 229	Eureka	Lode	21 0150N 0520E 012	NE
NMC1160772	PCY 230	Eureka	Lode	21 0150N 0520E 012	NE
				21 0150N 0530E 007	NW
NMC1160773	PCY 231	Eureka	Lode	21 0150N 0530E 007	NW
NMC1160774	PCY 232	Eureka	Lode	21 0150N 0530E 007	NW
NMC1160775	PCY 233	Eureka	Lode	21 0150N 0530E 007	NW
NMC11 60776	PCY 234	Eureka	Lode	21 0150N 0530 E 007	NE, NW
NMC1160777	PCY 235	Eureka	Lode	21 0150N 0530E 007	NE
NMC1160778	PCY 236	Eureka	Lode	21 0150N 0530E 007	NE
NMC1160779	PCY 237	Eureka	Lode	21 0150N 0530E 007	NE
NMC1160780	PCY 238	Eureka	Lode	21 0150N 0530E 007	NE
				21 0150N 0530E 008	NW
NMC1160781	PCY 239	Eureka	Lode	21 0150N 0520E 012	NE, SE
				21 0150N 0530E 007	NW, SW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160782	PCY 240	Eureka	Lode	21 0150N 0530E 007	NW, SW
NMC1160783	PCY 241	Eureka	Lode	21 0150N 0530E 007	NW, SW
NMC1160784	PCY 242	Eureka	Lode	21 0150N 0530E 007	NW, SW
NMC1160785	PCY 243	Eureka	Lode	21 015 0N 0530E 007	NE, NW, SW, SE
NMC1160786	PCY 244	Eureka	Lode	21 0150N 0530E 007	NE, SE
NMC1160787	PCY 245	Eureka	Lode	21 0150N 0530E 007	NE, SE
NMC1160788	PCY 246	Eureka	Lode	21 0150N 0530E 007	NE, SE
NMC1160789	PCY 247	Eureka	Lode	21 0150N 0530E 007	NE, SE
				21 0150N 0530E 008	NW, SW
NMC1160790	PCY 248	Eureka	Lode	21 0150N 0520E 012	SE
				21 0150N 0530E 007	SW
NMC1160791	PCY 249	Eureka	Lode	21 0150N 0530E 007	SW
NMC1160792	PCY 250	Eureka	Lode	21 0150N 0530E 007	SW
NMC1160793	PCY 251	Eureka	Lode	21 0150N 0530E 007	SW
NMC1160794	PCY 252	Eureka	Lode	21 0150N 0530E 007	SW,SE
NMC1160795	PCY 253	Eureka	Lode	21 0150N 0530E 007	SE
NMC1160796	PCY 254	Eureka	Lode	21 0150N 0530E 007	SE
NMC1160797	PCY 255	Eureka	Lode	21 0150N 0530E 007	SE
NMC1160798	PCY 256	Eureka	Lode	21 0150N 0530E 007	SE
				21 0150N 0530E 008	SW
NMC1160799	PCY 257	Eureka	Lode	21 0150N 0520E 012	SE
				21 0150N 0520E 013	NE
				21 0150N 0530E 007	SW
				21 0150N 0530E 018	NW
NMC1160800	PCY 258	Eureka	Lode	21 0150N 0530E 007	SW
				21 0150N 0530E 018	NW
NMC1160801	PCY 259	Eureka	Lode	21 0150N 0530E 007	SW
				21 0150N 0530E 018	NW
NMC1160802	PCY 260	Eureka	Lode	21 0150N 0530E 007	SW
				21 0150N 0530E 018	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160803	PCY 261	Eureka	Lode	21 0150N 0530E 007	SW, SE
				21 0150N 0530E 018	NE, NW
NMC1160804	PCY 262	Eureka	Lode	21 0150N 0530E 007	SE
				21 0150N 0530E 018	NE
NMC1160805	PCY 263	Eureka	Lode	21 0150N 0530E 007	SE
				21 0150N 0530E 018	NE
NMC1160806	PCY 264	Eureka	Lode	21 0150N 0530E 007	SE
				21 0150N 0530E 018	NE
NMC1160807	PCY 265	Eureka	Lode	21 0150N 0530E 007	SE
				21 0150N 0530E 008	SW
				21 0150N 0530E 017	NW
				21 0150N 0530E 018	NE
NMC1160808	PCY 266	Eureka	Lode	21 0150N 0520E 002	SW
NMC1160809	PCY 267	Eureka	Lode	21 0150N 0520E 002	SW, SE
NMC1160810	PCY 268	Eureka	Lode	21 0150N 0520E 002	SE
NMC1160811	PCY 269	Eureka	Lode	21 0150N 0520E 002	SE
NMC1160812	PCY 270	Eureka	Lode	21 0150N 0520E 002	SE
NMC1160813	PCY 271	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 002	SE
NMC1160814	PCY 272	Eureka	Lode	21 0150N 0520E 001	SW
NMC1160815	PCY 273	Eureka	Lode	21 0150N 0520E 001	SW
NMC1160816	PCY 274	Eureka	Lode	21 0150N 0520E 001	SW
NMC1160817	PCY 275	Eureka	Lode	21 0150N 0520E 001	SW
NMC1160818	PCY 276	Eureka	Lode	21 0150N 0520E 001	SW, SE
NMC1160819	PCY 277	Eureka	Lode	21 0150N 0520E 002	SW
				21 0150N 0520E 011	NW
NMC1160820	PCY 278	Eureka	Lode	21 0150N 0520E 002	SW, SE
				210150N 0520E 011	NE, NW
				210150N 0520E 002	SE
				21 0150N 0520E 011	NE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160821	PCY 279	Eureka	Lode	21 0150N 0520E 002	SE
				21 0150N 0520E 011	NE
NMC1160822	PCY 280	Eureka	Lode	21 0150N 0520E 002	SE
				21 0150N 0520E 011	NE
NMC1160823	PCY 281	Eureka	Lode	21 0150N 0520E 002	SE
				21 0150N 0520E 011	NE
NMC1160824	PCY 282	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 002	SE
				21 0150N 0520E 011	NE
				21 0150N 0520E 012	NW
NMC1160825	PCY 283	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 012	NW
NMC1160826	PCY 284	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 012	NW
NMC1160827	PCY 285	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 012	NW
NMC1160828	PCY 286	Eureka	Lode	21 0150N 0520E 001	SW
				21 0150N 0520E 012	NW
NMC1160829	PCY 287	Eureka	Lode	21 0150N 0520E 001	SW, SE
				21 0150N 0520E 012	NE, NW
NMC1160830	PCY 288	Eureka	Lode	21 0160N 0520E 034	NE, SE
				21 0160N 0520E 035	NW, SW
NMC1160831	PCY 289	Eureka	Lode	210160N 0520E 034	NE
				21 0160N 0520E 035	NW, SW
NMC1160832	PCY 290	Eureka	Lode	21 0160N 0520E 035	NW,S W
NMC1160833	PCY 291	Eureka	Lode	21 0160N 0520E 035	SW
NMC1160834	PCY 292	Eureka	Lode	21 0160N 0520E 035	SW, SE
NMC1160835	PCY 293	Eureka	Lode	21 0160N 0530E 032	NE
NMC1160836	PCY 294	Eureka	Lode	21 0160N 0530E 028	SW, SE
				21 0160N 0530E 033	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1167804	PCY 300	Eureka	Lode	21 0150N 0520E 003	SE
				21 0150N 0520E 010	NE
NMC1167805	PCY 301	Eureka	Lode	21 0150N 0520E 003	SE
				21 0150N 0520E 010	NE
NMC1167806	PCY 302	Eureka	Lode	21 0150N 0520E 003	SW, SE
				21 0150N 0520E 010	NE, NW
NMC1167807	PCY 303	Eureka	Lode	21 0150N 0520E 003	SW
				21 0150N 0520E 010	NW
NMC1167808	PCY 305	Eureka	Lode	21 0150N 0520E 010	NW, SW
NMC1167809	PCY 306	Eureka	Lode	21 0150N 0520E 010	SW
NMC1167810	PCY 307	Eureka	Lode	21 0150N 0520E 010	SW
NMC1167811	PCY 308	Eureka	Lode	21 0150N 0520E 010	NW, SW
NMC1167812	PCY 309	Eureka	Lode	21 0150N 0520E 010	NE, SW
				21 0150N 0520E 011	NW, SW
NMC1167813	PCY 310	Eureka	Lode	21 0150N 0520E 010	SE
				210150N 0520E 015	NE
NMC1167814	PCY 311	Eureka	Lode	21 0150N 0520E 015	NE, SE

Table 4-4: Bisoni–McKay Claims

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148582	BMK 1	Nye	Lode	T14N, R52E Sec 005	NE
				T15N, R52E Sec 032	SE
NMC1148583	BMK 2	Nye	Lode	T14N, R52E, Sec 004	NW
				T14N, R52E, Sec 005	NE
				T15N, R52E, Sec 032	SE
				T15N, R52E, Sec 033	SW
NMC1148584	BMK 3	Nye	Lode	T14N, R52E, Sec 005	NE
NMC1148585	BMK 4	Nye	Lode	T14N, R52E, Sec 004	NW
				T14N, R52E, Sec 005	NE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148586	BMK 5	Nye	Lode	T14N, R52E, Sec 005	NE
NMC1148587	BMK 6	Nye	Lode	T14N, R52E, Sec 004	NW
				T14N, R52E, Sec 005	NE
NMC1148588	BMK 7	Nye	Lode	T14N, R52E, Sec 005	NE
NMC1148589	BMK 8	Nye	Lode	T14N, R52E, Sec 004	NW
				T14N, R52E, Sec 005	NE
NMC1148590	BMK 9	Nye	Lode	T14N, R52E, Sec 005	NE, SE
NMC1148591	BMK 10	Nye	Lode	T14N, R52E, Sec 004	NW, SW
				T14N, R52E, Sec 005	NE, SE
NMC1148592	BMK 11	Nye	Lode	T14N, R52E, Sec 005	SE
NMC1148593	BMK 12	Nye	Lode	T14N, R52E, Sec 004	SW
				T14N, R52E, Sec 005	SE
NMC1148594	BMK 13	Nye	Lode	T14N, R52E, Sec 005	SE
NMC1148595	BMK 14	Nye	Lode	T14N, R52E, Sec 004	SW
				T14N, R52E, Sec 005	SE
NMC1148596	BMK 15	Nye	Lode	T14N, R52E, Sec 005	SE
NMC1148597	BMK 16	Nye	Lode	T14N, R52E, Sec 004	SW
				T14N, R52E, Sec 005	SE
NMC1148598	BMK 17	Nye	Lode	T14N, R52E, Sec 005	SE
NMC1148599	BMK 18	Nye	Lode	T14N, R52E, Sec 004	SW
				T14N, R52E, Sec 005	SE
NMC1148600	BMK 19	Nye	Lode	T14N, R52E, Sec 005	SE
				T14N, R52E, Sec 008	NE
NMC1148601	BMK 20	Nye	Lode	T14N, R52E, Sec 004	SW
				T14N, R52E, Sec 005	SE
				T14N, R52E, Sec 008	NE
				T14N, R52E, Sec 009	NW
NMC1148602	BMK 21	Nye	Lode	T15N, R52E, Sec 028	SW, SE
				T15N, R52E, Sec 033	NE,NW
NMC1148603	BMK 22	Nye	Lode	T15N, R52E, Sec 028	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				T15N, R52E, Sec 033	NE
NMC1148604	BMK 23	Nye	Lode	T15N, R52E, Sec 033	NE, NW
NMC1148605	BMK 24	Nye	Lode	T15N, R52E, Sec 033	NE
NMC1148606	BMK 25	Nye	Lode	T15N, R52E, Sec 028	SE
NMC1148607	BMK 26	Nye	Lode	T15N, R52E, Sec 027	SW
				T15N, R52E, Sec 028	SE
NMC1148608	BMK 27	Nye	Lode	T15N, R52E, Sec 028	SE
NMC1148609	BMK 28	Nye	Lode	T15N, R52E, Sec 027	SW
				T15N, R52E, Sec 028	SE
NMC1148610	BMK 29	Nye	Lode	T15N, R52E, Sec 028	SE
NMC1148611	BMK 30	Nye	Lode	T15N, R52E, Sec 027	SW
				T15N, R52E, Sec 028	SE
NMC1148612	BMK 31	Nye	Lode	T15N, R52E, Sec 028	NE, SE
NMC1148613	BMK 32	Nye	Lode	T15N, R52E, Sec 027	NW, SW
				T15N, R52E, Sec 028	NE, SE
NMC1148614	BMK 33	Nye	Lode	T15N, R52E, Sec 029	SE
				T15N, R52E, Sec 032	NE
NMC1148615	BMK 34	Nye	Lode	T15N, R52E, Sec 028	SW
				T15N, R52E, Sec 029	SE
				T15N, R52E, Sec 032	NE
				T15N, R52E, Sec 033	NW
NMC1148616	BMK 35	Nye	Lode	T15N, R52E, Sec 032	NE
NMC1148617	BMK 36	Nye	Lode	T15N, R52E, Sec 032	NE
				T15N, R52E, Sec 033	NW
NMC1148618	BMK 37	Nye	Lode	T15N, R52E, Sec 032	NE
NMC1148619	BMK 38	Nye	Lode	T15N, R52E, Sec 032	NE
				T15N, R52E, Sec 033	NW
NMC1148620	BMK 39	Nye	Lode	T15N, R52E, Sec 032	NE
NMC1148621	BMK 40	Nye	Lode	T15N, R52E, Sec 032	NE
				T15N, R52E, Sec 033	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148622	BMK 41	Nye	Lode	T15N, R52E, Sec 032	NE, SE
NMC1148623	BMK 42	Nye	Lode	T15N, R52E, Sec 032	NE, SE
				T15N, R52E, Sec 033	NW, SW
NMC1148624	BMK 43	Nye	Lode	T15N, R52E, Sec 032	SE
NMC1148625	BMK 44	Nye	Lode	T15N, R52E, Sec 032	SE
				T15N, R52E, Sec 033	SW
NMC1148626	BMK 45	Nye	Lode	T15N, R52E, Sec 032	SE
NMC1148627	BMK 46	Nye	Lode	T15N, R52E, Sec 032	SE
				T15N, R52E, Sec 033	SW
NMC1148628	BMK 47	Nye	Lode	T15N, R52E, Sec 032	SE
NMC1148629	BMK 48	Nye	Lode	T15N, R52E, Sec 032	SE
				T15N, R52E, Sec 033	SW
NMC1148630	BMK 49	Nye	Lode	T15N, R52E, Sec 032	SE
NMC1148631	BMK 50	Nye	Lode	T15N, R52E, Sec 032	SE
				T15N, R52E, Sec 033	SW
NMC1148632	BMK 51	Nye	Lode	T15N, R52E, Sec 028	NE
NMC1148633	BMK 52	Nye	Lode	T15N, R52E, Sec 027	NW
				T15N, R52E, Sec 028	NE
NMC1148634	BMK 53	Nye	Lode	T15N, R52E, Sec 028	NE
NMC1148635	BMK 54	Nye	Lode	T15N, R52E, Sec 027	NW
				T15N, R52E, Sec 028	NE
NMC1148636	BMK 55	Nye	Lode	T15N, R52E, Sec 028	NE
NMC1148637	BMK 56	Nye	Lode	T15N, R52E, Sec 027	NW
				T15N, R52E, Sec 028	NE
NMC1148638	BMK 57	Nye	Lode	T15N, R52E, Sec 028	NE
NMC1148639	BMK 58	Nye	Lode	T15N, R52E, Sec 027	NW
				T15N, R52E, Sec 028	NE
NMC1148640	BMK 59	Eureka	Lode	T15N, R52E, Sec 015	NW
NMC1148641	BMK 60	Eureka	Lode	T15N, R52E, Sec 015	NE, NW
NMC1148642	BMK 61	Eureka	Lode	T15N, R52E, Sec 015	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148643	BMK 62	Eureka	Lode	T15N, R52E, Sec 015	NE, NW
NMC1148644	BMK 63	Eureka	Lode	T15N, R52E, Sec 015	NW, SW
NMC1148645	BMK 64	Eureka	Lode	T15N, R52E, Sec 015	NE, NW, SW, SE
NMC1148646	BMK 65	Nye	Lode	T14N, R52E, Sec 005	SW, SE
NMC1148647	BMK 66	Nye	Lode	T14N, R52E, Sec 005	SW, SE
				T14N, R52E, Sec 008	NE, NW
NMC1148648	BMK 67	Nye	Lode	T14N, R52E, Sec 008	NW
NMC1148649	BMK 68	Nye	Lode	T14N, R52E, Sec 008	NE,NW
NMC1148650	BMK 69	Nye	Lode	T14N, R52E, Sec 008	NW
NMC1148651	BMK 70	Nye	Lode	T14N, R52E, Sec 008	NE, NW
NMC1148652	BMK 71	Nye	Lode	T14N, R52E, Sec 008	NW
NMC1148653	BMK 72	Nye	Lode	T14N, R52E, Sec 008	NE, NW
NMC1148654	BMK 73	Nye	Lode	T14N, R52E, Sec 008	NW, SW
NMC1148655	BMK 74	Nye	Lode	T14N, R52E, Sec 008	NE, NW, SW, SE
NMC1148656	BMK 75	Nye	Lode	T14N, R52E, Sec 008	SW
NMC1148657	BMK 76	Nye	Lode	T14N, R52E, Sec 008	SW, SE
NMC1148658	BMK 77	Nye	Lode	T14N, R52E, Sec 008	SW
NMC1148659	BMK 78	Nye	Lode	T14N, R52E, Sec 008	SW, SE
NMC1148660	BMK 79	Nye	Lode	T14N, R52E, Sec 008	SW
NMC1148661	BMK 80	Nye	Lode	T14N, R52E, Sec 008	SW, SE
NMC1148662	BMK 81	Nye	Lode	T14N, R52E, Sec 008	SW
NMC1148663	BMK 82	Nye	Lode	T14N, R52E, Sec 008	SW
NMC1148664	BMK 83	Nye	Lode	T14N, R52E, Sec 008	SW
				T14N, R52E, Sec 017	NW
NMC1148665	BMK 84	Nye	Lode	T14N, R52E, Sec 008	SW
				T14N, R52E, Sec 017	NE, NW
NMC1148666	BMK 85	Nye	Lode	T14N, R52E, Sec 008	NW
NMC1148667	BMK 86	Nye	Lode	T14N, R52E, Sec 008	NE
				T14N, R52E, Sec 009	NW
NMC1148668	BMK 87	Nye	Lode	T14N, R52E, Sec 008	NE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148669	BMK 88	Nye	Lode	T14N, R52E, Sec 008	NE
				T14N, R52E, Sec 009	NW
NMC1148670	BMK 89	Nye	Lode	T14N, R52E, Sec 008	NE
NMC1148671	BMK 90	Nye	Lode	T14N, R52E, Sec 008	NE
				T14N, R52E, Sec 009	NW
NMC1148672	BMK 91	Nye	Lode	T14N, R52E, Sec 008	NE, SE
NMC1148673	BMK 92	Nye	Lode	T14N, R52E, Sec 008	NE, SE
				T14N, R52E, Sec 009	NW, SW
NMC1148674	BMK 93	Nye	Lode	T15N, R52E, Sec 033	NE, NW
NMC1148675	BMK 94	Nye	Lode	T15N, R52E, Sec 033	NE
NMC1148676	BMK 95	Nye	Lode	T15N, R52E, Sec 033	NE, NW
NMC1148677	BMK 96	Nye	Lode	T15N, R52E, Sec 033	NE
NMC1148678	BMK 97	Nye	Lode	T15N, R52E, Sec 033	NE, NW, SW, SE
NMC1148679	BMK 98	Nye	Lode	T15N, R52E, Sec 033	NE, SE
NMC1148680	BMK 99	Nye	Lode	T15N, R52E, Sec 033	SW, SE
NMC1148681	BMK 100	Nye	Lode	T15N, R52E, Sec 033	SE
NMC1148682	BMK 101	Nye	Lode	T15N, R52E, Sec 033	SW, SE
NMC1148683	BMK 102	Nye	Lode	T15N, R52E, Sec 033	SE
NMC1148684	BMK 103	Nye	Lode	T15N, R52E, Sec 033	SW, SE
NMC1148685	BMK 104	Nye	Lode	T15N, R52E, Sec 033	SE
NMC1148686	BMK 105	Nye	Lode	T15N, R52E, Sec 033	SW, SE
NMC1148687	BMK 106	Nye	Lode	T15N, R52E, Sec 033	SE
NMC1148688	BMK 107	Nye	Lode	T14N, R52E, Sec 004	NE, NW
				T15N, R52E, Sec 033	SW, SE
NMC1148689	BMK 108	Nye	Lode	T14N, R52E, Sec 004	NE, NW
NMC1148690	BMK 109	Nye	Lode	T14N, R52E, Sec 004	NE, NW
NMC1148691	BMK 110	Nye	Lode	T14N, R52E, Sec 004	NE, NW
NMC1148692	BMK 111	Nye	Lode	T15N, R52E, Sec 021	SE
				T15N, R52E, Sec 028	NE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148693	BMK 112	Nye	Lode	T15N, R52E, Sec 021	SE
				T15N, R52E, Sec 022	SW
				T15N, R52E, Sec 027	NW
				T15N, R52E, Sec 028	NE
NMC1148694	BMK 113	Nye	Lode	T15N, R52E, Sec 021	SE
NMC1148695	BMK 114	Nye	Lode	T15N, R52E, Sec 021	SE
				T15N, R52E, Sec 022	SW
NMC1148696	BMK 115	Nye	Lode	T15N, R52E, Sec 021	SE
NMC1148697	BMK 116	Nye	Lode	T15N, R52E, Sec 021	SE
				T15N, R52E, Sec 022	SW
NMC1148698	BMK 117	Nye	Lode	T15N, R52E, Sec 021	SE
NMC1148699	BMK 118	Nye	Lode	T15N, R52E, Sec 021	SE
				T15N, R52E, Sec 022	SW
NMC1148700	BMK 119	Eureka	Lode	T15N, R52E, Sec 021	NE, SE
		Nye	Lode	T15N, R52E, Sec 021	NE, SE
NMC1148701	BMK 120	Eureka	Lode	T15N, R52E, Sec 021	NE, SE
				T15N, R52E, Sec 022	NW, SW
		Nye	Lode	T15N, R52E, Sec 021	NE, SE
				T15N, R52E, Sec 022	NW, SW
NMC1148702	BMK 121	Eureka	Lode	T15N, R52E, Sec 021	NE
		Nye	Lode	T15N, R52E, Sec 021	NE
NMC1148703	BMK 122	Eureka	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
		Nye	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
NMC1148704	BMK 123	Eureka	Lode	T15N, R52E, Sec 021	NE
		Nye	Lode	T15N, R52E, Sec 021	NE
NMC1148705	BMK 124	Eureka	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
		Nye	Lode	T15N, R52E, Sec 021	NE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				T15N, R52E, Sec 022	NW
NMC1148706	BMK 125	Eureka	Lode	T15N, R52E, Sec 021	NE
		Nye	Lode	T15N, R52E, Sec 021	NE
NMC1148707	BMK 126	Eureka	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
		Nye	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
NMC1148708	BMK 127	Eureka	Lode	T15N, R52E, Sec 021	NE
		Nye	Lode	T15N, R52E, Sec 021	NE
NMC1148709	BMK 128	Eureka	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
		Nye	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
NMC1148710	BMK 129	Eureka	Lode	T15N, R52E, Sec 016	SE
				T15N, R52E, Sec 021	NE
		Nye	Lode	T15N, R52E, Sec 021	NE
NMC1148711	BMK 130	Eureka	Lode	T15N, R52E, Sec 015	SW
				T15N, R52E, Sec 016	SE
				T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
		Nye	Lode	T15N, R52E, Sec 021	NE
				T15N, R52E, Sec 022	NW
NMC1148712	BMK 131	Eureka	Lode	T15N, R52E, Sec 016	SE
NMC1148713	BMK 132	Eureka	Lode	T15N, R52E, Sec 015	SW
				T15N, R52E, Sec 016	SE
NMC1148714	BMK 133	Eureka	Lode	T15N, R52E, Sec 016	SE
NMC1148715	BMK 134	Eureka	Lode	T15N, R52E, Sec 015	SW
				T15N, R52E, Sec 016	SE
NMC1148716	BMK 135	Eureka	Lode	T15N, R52E, Sec 016	SE

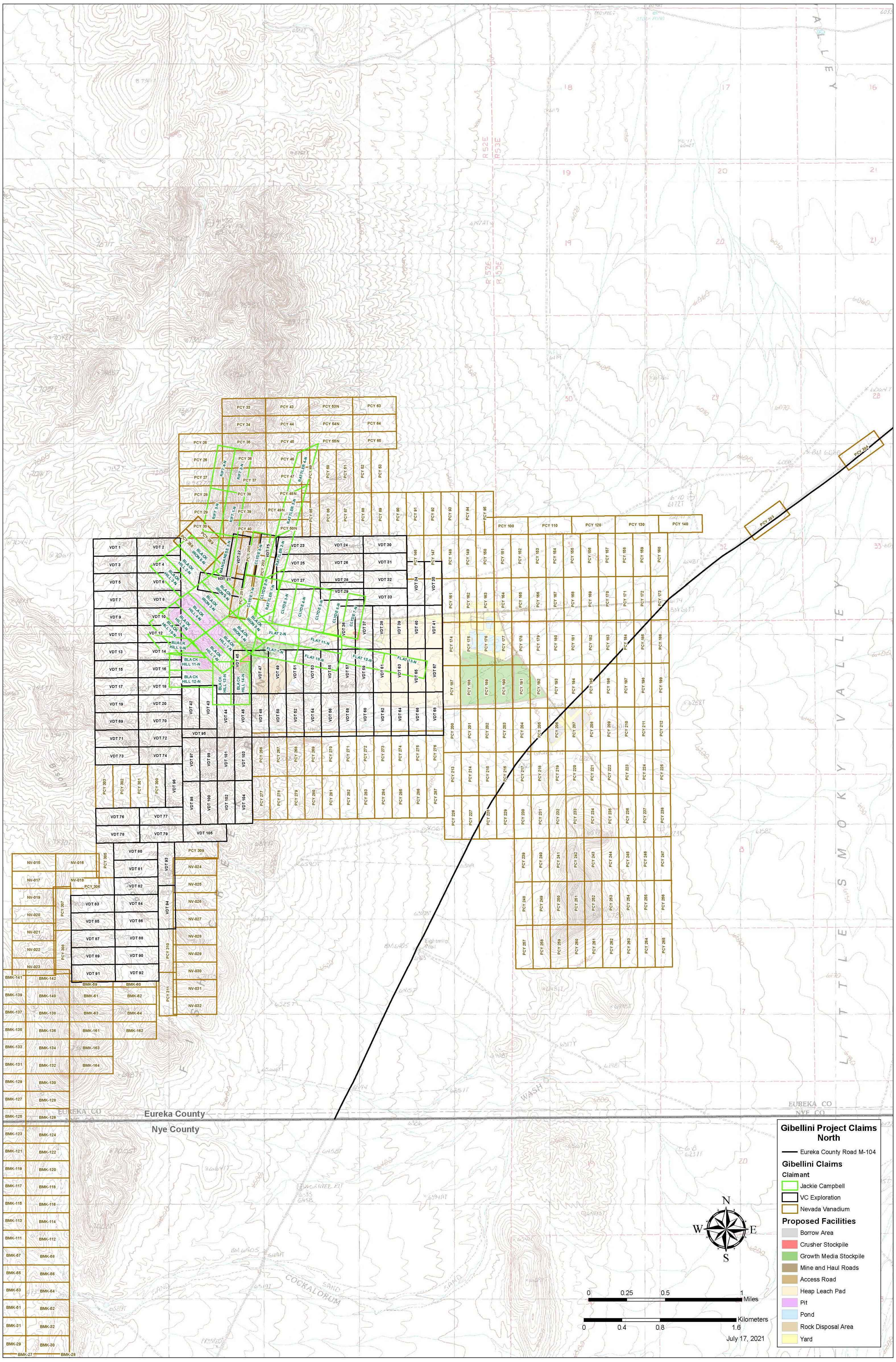
Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148717	BMK 136	Eureka	Lode	T15N, R52E, Sec 015	SW
				T15N, R52E, Sec 016	SE
NMC1148718	BMK 137	Eureka	Lode	T15N, R52E, Sec 016	NE, SE
NMC1148719	BMK 138	Eureka	Lode	T15N, R52E, Sec 015	NW, SW
				T15N, R52E, Sec 016	NE, SE
NMC1148720	BMK 139	Eureka	Lode	T15N, R52E, Sec 016	NE
NMC1148721	BMK 140	Eureka	Lode	T15N, R52E, Sec 015	NW
				T15N, R52E, Sec 016	NE
NMC1148722	BMK 141	Eureka	Lode	T15N, R52E, Sec 016	NE
NMC1148723	BMK 142	Eureka	Lode	T15N, R52E, Sec 015	NW
				T15N, R52E, Sec 016	NE
NMC1148724	BMK 143	Nye	Lode	T15N, R52E, Sec 028	SW
				T15N, R52E, Sec 029	SE
NMC1148725	BMK 144	Nye	Lode	T15N, R52E, Sec 028	SW
				T15N, R52E, Sec 029	SE
NMC1148726	BMK 145	Nye	Lode	T15N, R52E, Sec 028	SW
				T15N, R52E, Sec 029	SE
NMC1148727	BMK 146	Nye	Lode	T15N, R52E, Sec 028	SW, SE
NMC1148728	BMK 147	Nye	Lode	T15N, R52E, Sec 028	SW
				T15N, R52E, Sec 029	SE
NMC1148729	BMK 148	Nye	Lode	T15N, R52E, Sec 028	SW, SE
NMC1148730	BMK 149	Nye	Lode	T15N, R52E, Sec 028	NW, SW, SE
NMC1148731	BMK 150	Nye	Lode	T15N, R52E, Sec 028	NE, NW, SE
NMC1148732	BMK 151	Nye	Lode	T15N, R52E, Sec 028	NE, NW
NMC1148733	BMK 152	Nye	Lode	T15N, R52E, Sec 028	NE, NW
NMC1148734	BMK 153	Nye	Lode	T15N, R52E, Sec 028	NE, NW
NMC1148735	BMK 154	Nye	Lode	T15N, R52E, Sec 021	SW, SE
				T15N, R52E, Sec 028	NE, NW
NMC1148736	BMK 155	Nye	Lode	T15N, R52E, Sec 021	SW, SE
NMC1148737	BMK 156	Nye	Lode	T15N, R52E, Sec 021	SW,SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1148738	BMK 157	Nye	Lode	T15N, R52E, Sec 033	NE
				T15N, R52E, Sec 034	NW
NMC1148739	BMK 158	Nye	Lode	T15N, R52E, Sec 033	NE
				T15N, R52E, Sec 034	NW
NMC1148740	BMK 159	Nye	Lode	T15N, R52E, Sec 033	NE
				T15N, R52E, Sec 034	NW
NMC1148741	BMK 160	Nye	Lode	T15N, R52E, Sec 027	SE
					SW
				T15N, R52E, Sec 033	NE
				T15N, R52E, Sec 034	NW
NMC1148742	BMK 161	Eureka	Lode	T15N, R52E, Sec 015	SW
NMC1148743	BMK 162	Eureka	Lode	T15N, R52E, Sec 015	SW, SE
NMC1148744	BMK 163	Eureka	Lode	T15N, R52E, Sec 015	SW
NMC1148745	BMK 164	Eureka	Lode	T15N, R52E, Sec 015	SW
NMC728070	Jeanette #1	Nye	Lode	T14N, R52E, Sec 017	SW
NMC728081	Nan #1	Nye	Lode	T14N, R52E, Sec 018	SE
NMC728082	Nan #2	Nye	Lode	T14N, R52E, Sec 018	SE
NMC728083	Nan #3	Nye	Lode	T14N, R52E, Sec 019	NE
NMC728084	Nan #4	Nye	Lode	T14N, R52E, Sec 019	NE
NMC728085	Nan #5	Nye	Lode	T14N, R52E, Sec 019	NE
NMC728086	Kitty #4	Nye	Lode	T14N, R52E, Sec 019	SE
NMC797108	Jeanette	Nye	Lode	T14N, R52E, Sec 017	SW
NMC797109	Jeanette 2	Nye	Lode	T14N, R52E, Sec 017	SW
NMC797110	Jeanette 3	Nye	Lode	T14N, R52E, Sec 017	SW
NMC797111	Willow 28	Nye	Lode	T14N, R52E, Sec 017	SW
NMC797112	Willow 27	Nye	Lode	T14N, R52E, Sec 018	SE
NMC797113	Willow 30	Nye	Lode	T14N, R52E, Sec 018	SE
NMC797114	Willow 31	Nye	Lode	T14N, R52E, Sec 017	SW
NMC797115	Willow 12	Nye	Lode	T14N, R52E, Sec 019	SE
NMC797116	Willow 14	Nye	Lode	T14N, R52E, Sec 019	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC797117	Willow 13	Nye	Lode	T14N, R52E, Sec 019	SE
NMC797118	Willow 15	Nye	Lode	T14N, R52E, Sec 019	SE
NMC797119	Willow 17	Nye	Lode	T14N, R52E, Sec 019	SE
NMC905366	Ginsu 1	Nye	Lode	T14N, R52E, Sec 008	SW
				T14N, R52E, Sec 017	NW
NMC905367	Ginsu 2	Nye	Lode	T14N, R52E, Sec 008	SW
				T14N, R52E, Sec 017	NW
NMC905368	Ginsu 3	Nye	Lode	T14N, R52E, Sec 017	NW
NMC905369	Ginsu 4	Nye	Lode	T14N, R52E, Sec 017	NE, NW
NMC905370	Ginsu 5	Nye	Lode	T14N, R52E, Sec 017	NE, NW, SW, SE
NMC905371	Ginsu 6	Nye	Lode	T14N, R52E, Sec 017	SW
NMC905372	Ginsu 7	Nye	Lode	T14N, R52E, Sec 017	SW
				T14N, R52E, Sec 020	NW
NMC905373	Ginsu 8	Nye	Lode	T14N, R52E, Sec 017	SW
				T14N, R52E, Sec 020	NW
NMC905374	Ginsu 9	Nye	Lode	T14N, R52E, Sec 019	NE
				T14N, R52E, Sec 020	NW
NMC905375	Ginsu 10	Nye	Lode	T14N, R52E, Sec 019	NE
				T14N, R52E, Sec 020	NW
NMC905376	Ginsu 11	Nye	Lode	T14N, R52E, Sec 019	NE
				T14N, R52E, Sec 020	NW, SW
NMC905377	Ginsu 12	Nye	Lode	T14N, R52E, Sec 019	NE, SE
				T14N, R52E, Sec 020	NW, SW
NMC905378	Ginsu 13	Nye	Lode	T14N, R52E, Sec 019	SE
				T14N, R52E, Sec 030	NE, NW
NMC905379	Ginsu 14	Nye	Lode	T14N, R52E, Sec 019	SE
				T14N, R52E, Sec 030	NE
NMC905380	Ginsu 15	Nye	Lode	T14N, R52E, Sec 019	SE
				T14N, R52E, Sec 030	NE

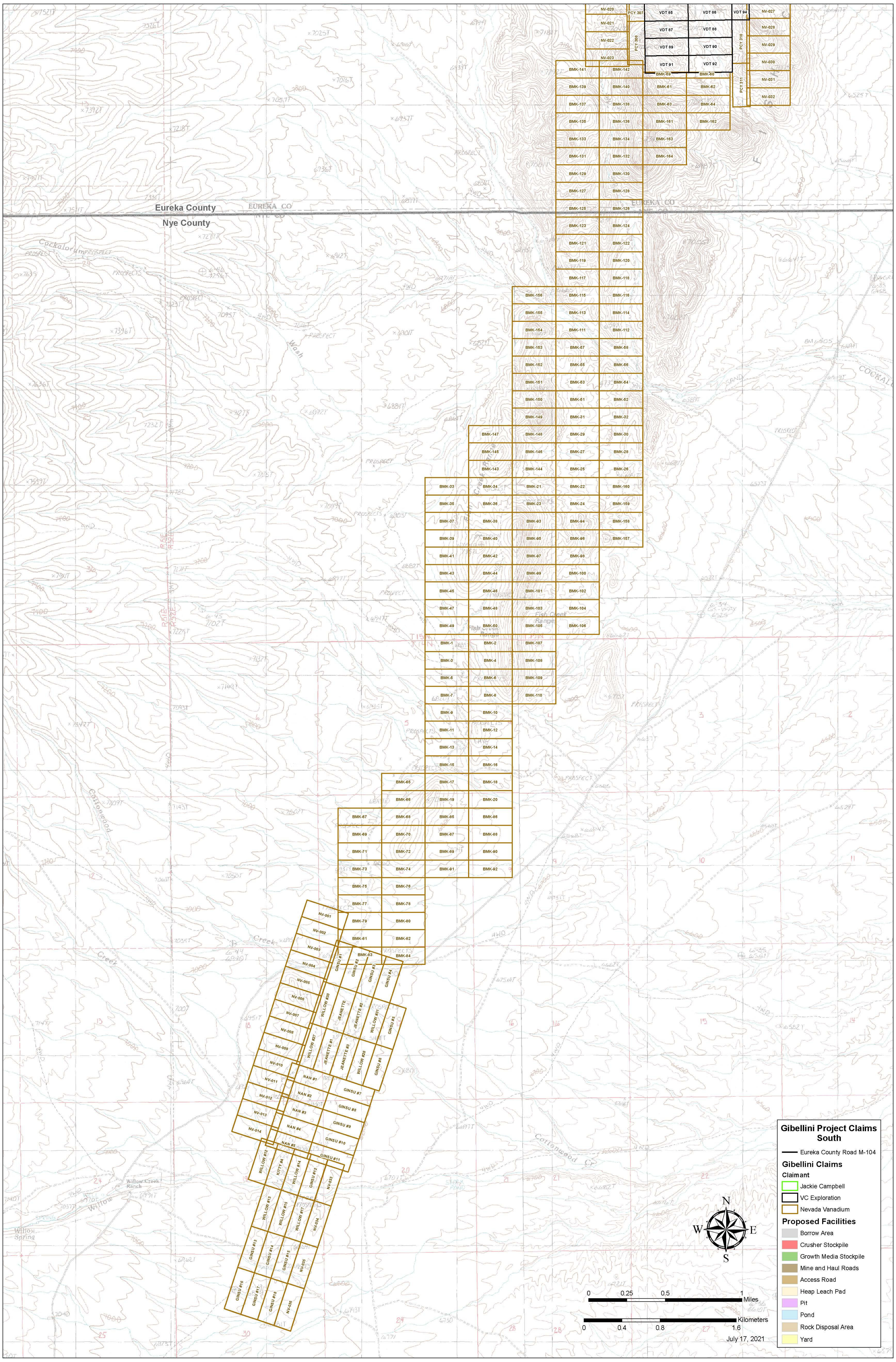
Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC905381	Ginsu 16	Nye	Lode	T14N, R52E, Sec 030	NE, NW
NMC905382	Ginsu 17	Nye	Lode	T14N, R52E, Sec 030	NE, NW
NMC905383	Ginsu 18	Nye	Lode	T14N, R52E, Sec 030	NE, SE

Figure 4-1: Mineral Tenure Plan, Gibellini Area



Note: Figure courtesy Silver Elephant, 2021

Figure 4-2: Mineral Tenure Plan, Bisoni–McKay Area



Note: Figure courtesy Silver Elephant, 2021

The Dietrich Lease has a 10 year period, commencing on 22 June, 2017, unless terminated earlier under provisions in the lease agreement. The lease can be extended for a second 10 year term. If mining operations are underway at either the end of the first or second year term, the lease will continue for additional one-year terms for as long as the mining operations continue. If no active mining is underway on the Dietrich Claims, but the claim area is being used to support mining operations on other claims, then the lease will continue for as long as operations are underway.

Under an Amendment to Mineral Lease Agreement (Amendment to Lease), signed on 18 April, 2018, Prophecy has the option to require Ms Dietrich to transfer title over all but four of the unpatented mining claims within the Dietrich Claims at any time in exchange for US$1 million to be paid as an advance royalty or transfer payment. The four claims exempted are:

- Black Iron 1-N
- Black Iron 4-N
- Black Iron 5-N
- Manganese 3-N.

4.5.2 VC Exploration

The 105 unpatented lode claims are located within unsurveyed Sections 1, 2 and 3, 10, 11, and 15, Township 15 North, Range 52 East, and unsurveyed Sections 34, 35 and 36, Township 16 North, Range 52 East, MDM, Eureka County, Nevada.

A Notice of Intent to Hold and Affidavit of Payment of Fees, dated August 16, 2021 was recorded in the Eureka County Recorder's Office, satisfying the Nevada statutory requirements for the assessment year beginning September 1, 2021 for all claims other than VDT 19, VDT 20, VDT 29, VDT 37, VDT 42, VDT 43, VDT 45, VDT 69, VDT 70, VDT 72, VDT 73, VDT 74, VDT 95, VDT 96, VDT 97, VDT 98, and VDT 99.

The VDT 19, VDT 20, VDT 29, VDT 37, VDT 42, VDT 43, VDT 45, VDT 69, VDT 70, VDT 72, VDT 73, VDT 74, VDT 95, VDT 96, VDT 97, VDT 98, and VDT 99 claims were located in March 2018. A Notice of Intent to Hold and Affidavit of Payment of Fees, dated August 16, 2021 was recorded in the Eureka County Recorder's Office, satisfying the Nevada statutory requirements for the assessment year beginning September 1, 2021.

4.5.3 Nevada Vanadium

The 456 unpatented lode claims are located within unsurveyed Sections 25, 26, 27, 34, 35, 36 Township 16 North, Range 52 East; Sections 28, 31, 32, 33 Township 16 North, Range 53 East; Section 5, 6, 7, 8, 17, 18, Township 15 North, 53 East; Sections 1, 2, 3, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 27, 28, 29, 32, 33, 34, Township 15 North, Range 52 East; Sections 4, 5, 7, 8, 9, 17, 18, 19, 20, 30, Township 14 North, Range 52 East 21 MDM (Eureka and Nye Counties).

The Nevada Vanadium claims comprise a number of different claim blocks.

PCY Claims

This claim block consists of 209 claims that were located by Vanadium Gibellini Company LLC. The notice of the name change to Nevada Vanadium LLC was recorded in the Official Records of the County Recorder of Eureka County, Nevada on September 2, 2020 as Document No. 2020-241866 and filed with the BLM on September 3, 2020.

NV Claims

This claim block consists of 32 claims, NV 1–32, located in Eureka County and Nye County, and is held by Nevada Vanadium and its agents. Certificates of Location for these claims were recorded on September 10, 2020.

Stina (Bisoni–McKay) Claims

This claim block of 201 claims, comprising the BMK 1–164, Ginsu 1–18, Jeanette, Jeanette 1–3, Kitty #4, Nan 1–5, Willow 12–15, Willow 17, Willow 27–28, and Willow 30–31 is located in Eureka and Nye Counties, Nevada, and was acquired by Nevada Vanadium from Stina Resources pursuant to a Mineral Deed recorded in the Official Records of the County Recorder of Nye County, Nevada on August 24, 2020, as Document No. 936586; and a Mineral Deed recorded in the Official Records of the County Recorder of Eureka County, Nevada on August 26, 2020 as Document No. 2020-241733.

2018 MSM Replacement Claims

This claim block consists of 14 claims located by Vanadium Gibellini (now Nevada Vanadium).

The 2018 MSM Replacement Claims are located on ground that was previously covered by a series of unpatented claims were held by Richard A. McKay, Nancy M. Minoletti, and

Pamela S. Scutt (the McKay claims, Table 4-5). The McKay claims were the subject of a mineral lease agreement dated July 10, 2017 by and between Richard A. McKay, Nancy M. Minoletti and Pamela S. Scutt (McKay claimants) as lessors and Prophecy as lessee (McKay Lease), a memorandum of which was recorded in the Eureka County Recorder's office on January 1, 2018 as Document No. 234656.

However, in February 2018, each of these claims was declared abandoned and cancelled by BLM because the McKay claimants failed to file a proof of labor evidencing satisfaction of the labor requirements mandated by their small miner exemption by December 31, 2017. Under the federal regulations, owners of fewer than 10 unpatented lode claims can file a "Small Miner Waiver," which exempts the claimant from the payment of annual federal maintenance fees, provided that the claimant satisfies the work requirements for each claim for which the waiver is sought and files a proof of labor with the BLM no later than December 31 of the year following the assessment year in which the waiver was granted.

For the assessment year beginning September 1, 2016, the McKay claimants sought a "Small Miner Waiver," and filed a Small Miner Certification with the BLM on August 30, 2016. Under the federal regulations, the McKay claimants had until December 31, 2017 to file the required Proof of Labor containing information showing that the work requirements of the Small Miner Exemption had been satisfied for the assessment year September 1, 2016 through September 1, 2017. However, the McKay claimants failed to file the required proof of labor with the BLM and the BLM declared the McKay Claims to be abandoned and forfeited. Therefore, as of January 1, 2018, the ground that had been staked as the McKay claims became open.

On March 11–12, 2018, Vanadium Gibellini located the PCY 300, PCY 301 and PCY 302 and VC Exploration located the VDT 19, VDT 20, VDT 42, VDT 43, VDT 69, VDT 70, VDT 72, VDT 73, VDT 74, VDT 95, VDT 96, VDT 97, VDT 98 and VDT 99 to cover the open ground previously covered by the McKay claims. The record title to each of the Vanadium Gibellini and VC Exploration (US) Inc claims is current and in the names of those two companies.

Table 4-5: McKay Claims

BLM Serial No.	Claim Name
NMC954492	BUFF 16
NMC954493	BUFF 17
NMC954494	BUFF 18
NMC954500	BUFF 43
NMC954502	BUFF 45
NMC968757	VAN 1
NMC968758	VAN 2
NMC968759	VAN 3
NMC968760	VAN 4
NMC969607	VAN 3A

4.6 Royalties

4.6.1 Dietrich Lease (Dietrich Royalty)

The Dietrich Lease contains both an advance royalty and a production royalty. Under the advance royalty provision, Silver Elephant was required to pay $35,000 to Ms. Dietrich upon execution of the lease. Thereafter, on the anniversary date of the execution of the lease, Silver Elephant must pay a sliding scale advance royalty as follows:

- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is below $7.00/lb during the preceding 12 months, $35,000 during the initial term and $50,000 during the additional term; or
- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is equal to or above $7.00/lb during the preceding 12 months, $10,000 multiplied by the average vanadium pentoxide price per pound, up to a maximum of $120,000 annually.

The advance royalty payments will continue until such time Silver Elephant begins payment of the production royalty. If the production royalty payable in any one year is less than the advance royalty that would otherwise be paid for that year, then Silver Elephant will pay the difference between the two amounts. All advance royalty payments, as well as the difference between the advance royalty payment made and the production royalty that would otherwise be due in such year, may be deducted as credits against Silver Elephant's future production royalty payments, provided that the credit will not be applied to payment of the difference between the production royalty paid during any year and the advance royalty that would otherwise be payable.

The Dietrich Lease does not specifically set forth what events trigger the payment of the production royalty; the legal opinion provided notes that a reasonable interpretation is that payment of such a royalty would be due upon commencement of commercial mining operations. The production royalty requires Silver Elephant to pay a 2.5% net smelter return (NSR) until $3 M in payments is made. After that milestone is reached, the NSR falls to 2%.

The Amendment to Lease agreement requires Ms. Dietrich to transfer title over all but four of the unpatented mining claims (claims Black Iron 1-N, Black Iron 4-N, Black Iron 5-N, and Manganese 3-N are exempted) within the Dietrich Claims at any time in exchange for US$1 million to be paid as an advance royalty or transfer payment.

Silver Elephant has agreed to pay a federal tax lien against the Dietrich Claims of $99,027.22. Should Silver Elephant exercise the option under the Amendment to Lease, the tax lien payment will be deducted from the transfer payment, and a transfer payment of the remaining US$900,972.78 will be immediately due when the Dietrich Claims are transferred from Ms. Dietrich to Silver Elephant.

If Silver Elephant does develop a mine on the Dietrich claims, or construct mining-related facilities within the claims, then Silver Elephant must notify Ms. Dietrich as to which claims Silver Elephant requires. Ms. Dietrich may request that Silver Elephant "*acquire title to the portion*" of the Dietrich Claims "*required for [l]essee's proposed uses for nominal consideration of $1*." If Ms. Dietrich does require Silver Elephant to take title to all or any portion of the Dietrich claims, then the advance royalty and production royalty contained in the lease would not be affected.

The proposed Gibellini open pit is almost entirely within the Dietrich claims (Figure 4-3), and the Dietrich Royalty will be payable on production. The advance royalty obligation and production royalty is not "affected, reduced or relieved" by the transfer of title.

4.6.2 McKay Lease (McKay Royalty)

On October 22, 2018, Prophecy (now Silver Elephant) and the McKay claimants entered into a Royalty Agreement, under which the McKay claimants agreed to waive and release all claims against Vanadium Gibellini and VC Exploration related to the interests, if any, they had in the 2018 MSM Replacement Claims under the MSM Lease, in exchange for an advance royalty and a production royalty. The Royalty Agreement also affirmatively terminated and cancelled the MSM Lease.

Under the advance royalty provision, upon commencement of "Commercial Production" from the "Gibellini Project," Silver Elephant must pay $75,000 to the McKay claimants. Upon the sale of "all or any portion" of the 2018 MSM Replacement Claims to any third party, Silver Elephant must pay the McKay claimants $50,000. In addition, no later than July 10 of each year during the term of the Royalty Agreement, Silver Elephant must pay a sliding scale advance royalty as follows:

- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is below $7.00/pound during the preceding 12 months, $12,500; or
- If the average vanadium pentoxide price per pound, as quoted on Metal Bulletin, is equal to or above $7.00/pound during the preceding 12 months, $2,000 times the average vanadium pentoxide price per pound, up to a maximum of $28,000 annually.

The advance royalty payments will continue until such time as Silver Elephant begins payment of the production royalty, provided, however, that if the production royalty payable in any year is less than the advance royalty otherwise payable for such year, the Silver Elephant must pay the difference between such amounts. All advance royalty payments, as well as the difference between the advance royalty payment made and the production royalty that would otherwise be due in such year, may be deducted as credits against Silver Elephant's future production royalty payments, provided that the credit will not be applied to payment of the difference between the production royalty paid during any year and the advance royalty that would otherwise be payable.

Under the production royalty provision, Silver Elephant is required to pay a 2.5% net smelter return (NSR) until $1 M in payments is made. After that milestone is reached, the NSR falls to 1.0%.

Figure 4-3: Location Plan, Pit Limits in Relation to Dietrich Lease

Note: Figure prepared by Wood, 2021.

4.7 Surface Rights

The Gibellini Project is situated entirely on public lands that are administered by the BLM.

No easements or rights of way are required for access over public lands. Rights-of-way would need to be acquired for future infrastructure requirements, such as pipelines and powerlines.

4.8 Water Rights

An agreement is in place with Mr. John C. Gretlein with regard to water rights held by Mr. Gretlein for irrigation purposes, and has a 10-year duration from 2018. The agreement can be extended. The water rights are presently diverted from a canal located in the SE¼ NW¼ of Sec. 8, Township 16N, Range 53E, MDB&M. The agreement grants Silver Elephant a portion of these water rights, consisting of a maximum amount of approximately 1,046.5 acre-feet of water per year.

The agreement envisages the following:

- The leased water will consist of 805 acre-feet per year to be consumed at the Project, and will be measured by a meter at a pump located on the canal on Mr. Gretlein's property
- Approximately 241.5 acre-feet per year (the actual amount to be determined by the Nevada Division of Water Resources) will not be used by either Mr. Gretlein or Silver Elephant, and will be used to offset the irrigation recharge that will not occur. This water amount will be determined by monitoring other Fish Creek Ranch water use through measurement by water meters placed at all other Fish Creek Ranch points of diversion
- Water will be available in the canal to allow Silver Elephant to take water at a minimum rate of 500 gal/min and a maximum rate of 750 gal/min for 24 hours per day, seven days per week, 365 days per year

The agreement has a provision that if Silver Elephant uses all of the 805 acre-feet per year allocation, the company can negotiate for additional water at a price per gallon to be set at the time of negotiations.

The agreement requires a $100,000 water rental payment per year until water take commences, at which point the rental payment increases to $350,000 per year.

The agreement is subject to the approval of the Nevada Division of Water Resources for the planned change in water useage.

4.9 Significant Risk Factors

The regulatory permitting process for a vanadium heap leach project may require additional geochemical baseline data collection and closure planning, as this type of vanadium leach project has not been permitted before in the State of Nevada. Therefore, any future agency concurrence with data collection protocols and the determination of data adequacy and closure design requirements could be subject to reviews and revisions.

4.10 Permitting Considerations

Prior to commencing any mining operations on public lands administered by the BLM, a Plan of Operations describing how a proponent will prevent unnecessary and undue land degradation and reclaim the disturbed areas has been submitted to the BLM and determined by the BLM to be complete.

4.11 Environmental Considerations

Baseline studies conducted in 2010–2011 included studies to document the existing conditions of biological resources, cultural resources, surface water resources, ground water resources, and waste rock geochemical characterization. Verification surveys were completed in 2019 and approved by the BLMand the Nevada Department of Environmental Protection (NDEP).

No additional baseline data collection is anticipated to support the National Environmental Policy Act (NEPA) document.

4.12 Social License Considerations

Silver Elephant to date has completed extensive community consultations. The company plans to continue to take all the necessary steps to engage the local community to create awareness regarding the Project. Community consultation is required as part of NEPA documentation and is considered by Silver Elephant to be an essential element of Project development.

4.13 Comments on Section 4

Information provided by legal experts retained by Prophecy supports the following:

- Information from legal experts supports that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources
- Mineral tenure is held by way of the Dietrich lease agreement and through staked claims
- The Dietrich royalty is an advance royalty and a 2.5% NSR production royalty; the 2.5% NSR is in place until such payments have reached a total sum of $3 million. Thereafter, the production royalty is reduced to 2.0% NSR
- For the purposes of the financial analysis in Section 22, it was assumed that no advance and production royalties would be payable on the ground holdings that constituted the former McKay claims
- There has been no legal survey of the Project claims. Under Nevada law, each unpatented claim is marked on the ground, and does not require survey
- Wood was supplied with legal opinion that indicates the annual claim maintenance fees have been paid for assessment year beginning 1 September, 2020 where claims had assessments due
- Surface rights are held by the BLM
- Permits, environmental studies and public consultation will be required for any future Project development.

To the extent known to the QP, there are no other significant factors and risks that may affect access, title, or right or ability to perform work on the Project that are not discussed in this Report.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Accessibility

5.1.1 Gibellini and Louie Hill

The Gibellini and Louie Hill deposits are accessed from Eureka by traveling southeast on US Highway 50 approximately 10 miles to Nevada State Route 379, then following SR 379 southwest for approximately eight miles to a fork in the road. At the fork, an improved gravel county road, on the right, is followed for approximately seven miles to where a two-track road on the west leads to the Gibellini portion of the property.

The 24.5 miles leading to the proposed mine site is either Federal, State or County-owned. The road can be paved, improved gravel or two-track dirt. The three miles of road access from County Road M-104 to the mine is a two-track dirt road; however, it can be upgraded to service the mine. This upgraded road would be the principal method of transport for goods and materials in and out of the Project.

Access to the Project area is good, and is possible year-round.

5.1.2 Bisoni–McKay

The Bisoni–McKay claims are accessed from Eureka via US Highway 50 by driving south-east about 12 miles, then turning south on State Route 379 toward Duckwater. About 8 miles south of Highway 379, the road forks, and the right (west fork) is followed southwestward along Russell Ranch road for about 20 miles, passing the Gibellini and Bisoni vanadium properties. Approximately 20 miles south of the fork, the road curves west and a sign to the Bisoni–McKay property indicates a left turn onto an unmaintained four-wheel drive track that goes southward directly onto the Bisoni–McKay claim block.

The interior of the property block is accessed by a system of unimproved roads.

As with the Gibellini claims, access to the Project area is good, and is possible year-round.

5.2 Climate

The climate in the Gibellini Project area is typical for east–central Nevada. Average monthly high temperatures range from 74–85°F in the summer and 37–47 °F in the winter.

Yearly rainfall averages approximately 12 inches with nearly uniform distribution from September through May. June, July, and August are typically hot and dry months; December, January, and February receive the bulk of the snowfall.

Exploration is possible year-round, though snow levels in winter and wet conditions in late autumn and in spring can make travel on dirt and gravel roads difficult. It is expected that any future mining operations will be able to be conducted year-round.

5.3 Local Resources and Infrastructure

The nearest town to the Project is Eureka, Nevada, which is situated along US Highway 50 and hosts a population of 1651 (Census 2000 data). The nearest city is Reno, Nevada, approximately 215 miles to the west, which hosts a population of 180,480 (Census 2000 data). The most significant towns in the Project vicinity are Carlin, which has a rail-head, and Elko, which is the northeastern regional mining center.

Local resources necessary for the exploration and possible future Project development and operation are located in Eureka. Some resources would likely have to be brought in from the Elko area.

Nevada has a long mining history and a large resource of equipment and skilled personnel. Workers would likely be imported from Elko County (Carlin and Elko) to supplement the work force available in Eureka.

A 69 kV power line is located approximately seven miles north of the proposed Project location and currently services Fiore Gold's Pan Mine. A second, smaller-rated, powerline services the Fish Creek Aradan Ranch.

Exploration activities have been serviced by diesel generator as required, and this approach is likely to be used on recommencement of exploration activities.

Water was supplied for exploration purposes from wells, and this water source remains an option for such future work programs. Water supply sources for future mining activity are discussed in Section 18.

There are currently no communications facilities on site. The Project site is within cellular signal range.

5.4 Physiography

The Project is located on the east flank of the Fish Creek Range along a northwest-trending ridge. Elevation at the Project ranges from 6,600 to 7,131 ft above mean sea level and the topographic relief can be characterized as moderate to steep.

Vegetation is typical of the Basin and Range physiographic province. The Project is covered by sagebrush, grass, and various other desert shrubs. Fauna that have been observed in the Gibellini Project area are typical of those of the Great Basin area.

5.5 Comments on Section 5

Additional ground may be required to host some of the infrastructure that could be associated with any future open pit mining and heap leach operation.

6.0 HISTORY

6.1 Exploration History

6.1.1 Gibellini

In 1942, Mr. Louis Gibellini located claims covering the Gibellini manganese-nickel mine (also known as the Niganz manganese–nickel mine) immediately northeast of the Gibellini deposit. The deposit was intermittently mined until the mid-1950s. Workings at the mine consist of a shaft 37 ft deep, an adit 176 ft long, several shallow pits, and some trenches. Manganese mineralization consists of pyrolusite and dense nodules of psilomelane within Devonian limestone on the footwall of a northeast-trending fault zone. The average grade of the ore produced from the workings was about 9.5% Mn, 2.8% Zn, and 1.22% Ni. A shipment of 95.4 st of mineralization in 1953 to the Combined Metals Company mill in Castleton, Nevada, reportedly contained 31.6% Mn (Roberts et al., 1967).

During 1946, the Nevada Bureau of Mines and Geology (NBMG) completed four core holes at the Gibellini manganese-nickel mine.

In 1956, Union Carbide discovered vanadium mineralization one mile south of the Gibellini manganese-nickel mine, on what is now known as the Louie Hill prospect. A resource estimate was completed in 1969 (Joralemon, 1969). The Gibellini deposit was discovered shortly thereafter.

The Gibellini deposit was first explored by Siskon Co. in 1960–1961 (Roberts et al, 1967). Cheschey & Co. (1960–1963), Terteling & Sons (Terteling; 1964–1965), and Atlas Minerals Company (Atlas; 1969) and TransWorld Resources Ltd (TransWorld; 1969) reportedly worked one or both deposits during the 1960s (Morgan, 1989). Work during this period included rotary drilling, trenching, mapping, and metallurgical testing. Terteling drilled 33 rotary holes in the Gibellini area and Atlas drilled 77 holes. Cheschey & Co. appear to have drilled several holes in the area, but no information from these holes remain beyond a drill hole location map. The low grade and complex metallurgy of the deposits, together with the low trading price of V_2O_5 at the time (about \$2.50/lb) discouraged further development (Morgan, 1989).

In 1972, Noranda Inc. (Noranda) optioned claims covering the Gibellini and Louie Hill areas. In the same year, metallurgical research on Gibellini drill hole composite samples and mine and market economic studies by the Colorado School of Mines Research

Institute (CSMRI) indicated that the Gibellini deposit was potentially economic. In 1972 and 1973 Noranda drilled 52 rotary and reverse circulation (RC) drill holes in the Gibellini deposit to provide data for a mineral resource estimate and to provide material for additional metallurgical testing. Five holes were also drilled in the Louie Hill area at this time.

Based upon the drilling results, Noranda completed a resource estimate using polygonal methods (Condon, 1975). Noranda did not use the assays from the Terteling or Atlas drill holes in their resource estimate. Noranda's review of previous drilling noted 'serious discrepancies in grade and continuity of mineralization between holes' (Condon, 1975).

Noranda conducted extensive research into the metallurgy of the Gibellini deposit. They found that acceptable extractions could be achieved by sulphuric acid extraction, but at that time, reagent costs were prohibitive. In 1974, after critical review of the CSMRI work and in-house investigations into the metallurgy of the vanadium ores, Noranda concluded the Gibellini deposit was not economically viable.

Noranda also completed a resource estimate on the Louie Hill prospect but noted that further work was required before an accurate resource estimate could be performed (Condon, 1975). Morgan (1989), using the Noranda drill plan and ore blocks, estimated a mineral resource for Louie Hill.

Inter-Globe Resources Ltd (Inter-Globe) picked up the Gibellini Project in 1989 and contracted James Askew Associates (JAA) to drill 11 vertical RC holes to confirm grades reported in the Noranda, Atlas, and Terteling drilling and to provide material for metallurgical test work (JAA, 1989a). JAA also mapped and sampled nine trenches and pits constructed by previous operators (JAA, 1989b).

Vanadium grades from the Inter-Globe drill holes confirmed the width and grade of the Noranda, Terteling, and Atlas drill holes (JAA, 1989a). There is no evidence that the planned metallurgical testing took place; the report/results were not provided to Nevada Vanadium.

RMP acquired the property in March 2006. During 2006, RMP expanded the land position of the Gibellini Project, mapped the surface geology, collected surface and underground geochemical samples, and conducted preliminary metallurgical testwork.

A Mineral Resource estimate was completed by AMEC for RMP in 2007. Following this initial technical report, RMP completed RC and core drilling, and additional metallurgical test work. As a result of encouraging results, RMP commissioned AMEC in 2008 to complete a preliminary assessment (2008 PA) for the Gibellini deposit. The preliminary assessment indicated that a heap leach operation producing vanadium pentoxide was the most likely processing method.

In January 2011, RMP changed its name to American Vanadium. No on-ground work or exploration drilling has been conducted in the Gibellini area since 2011.

A feasibility study was commissioned from AMEC in late 2010 and completed in 2011 (2011 Feasibility Study). The study assumed the following:

- A conventional open pit mine at Gibellini using a truck and shovel fleet
- Heap leach operation to produce V_2O_5 on site as a bagged product.

Additional metallurgical testwork and closure column leach and attenuation studies were conducted in 2013 and 2014. All baseline studies for permitting were conducted in 2012–2015.

Prophecy acquired the Project from American Vanadium in 2017. Prophecy completed no exploration or drilling activities after the Project acquisition. Prophecy requested that Amec Foster Wheeler prepare a preliminary economic assessment (the 2018 PEA) on the Gibellini and Louie Hill vanadium deposits. The 2018 PEA assumed:

- Conventional open pit mines at Gibellini and Louie Hill, using a truck and shovel fleet
- Heap leach operation to produce V_2O_5 on site as a bagged product.

Nevada Vanadium is not treating either the Mineral Reserves resulting from the 2011 Feasibility Study or the economic results of that study as current. Nevada Vanadium is not treating the economic results of the 2018 PEA as current.

Some of the information generated during the 2011 Feasibility Study, the 2018 PEA, and the 2012–2015 permitting was used as a basis for the 2021 PEA.

6.1.2 Bisoni–McKay

On 18 September 2020, Nevada Vanadium completed the acquisition of the Bisoni–McKay vanadium property. The Bisoni–McKay claim block is immediately south of and contiguous with the Gibellini claim block. This acquisition effectively consolidated all known significant vanadium mineralization in the district within the Gibellini Project boundary.

Union Carbide Corporation (Union Carbide) evaluated the vanadium mineralization at Bisoni–McKay in 1958 and 1959, shortly after the discovery of mineralization at Louie Hill. Documentation of work completed by Union Carbide at Bisoni–McKay is not available to Nevada Vanadium.

Hecla Mining Company (Hecla) carried out an extensive exploration program at Bisoni–McKay in the 1970s, including drilling of 19 RC drill holes and significant trenching of outcropping vanadium mineralization. The drill results from the Hecla drilling campaign are included in the Project resource database but the trench mapping and sampling results are not available to Nevada Vanadium.

TRV Minerals Corp. (TRV) and Inter-Globe Resources acquired the Bisoni–McKay property in 1981 and conducted bulk sampling for heap leach testing, but the results of this testwork are not available to Nevada Vanadium. In 1993, the claims covering the Bisoni–McKay property lapsed and were restaked by Vanadium International Corporation (Vanadium International). In 2004, Vanadium International completed two RC drill holes and the sampling of 27 bulldozed trenches previously dug by Hecla.

In 2005, Stina Resources optioned the Bisoni–McKay property from Vanadium International and completed five core drill holes, 11 RC drill holes, and the sampling of 11 trenches formerly excavated by Hecla. In 2007, Stina Resources completed a campaign of 12 drill holes focused on the North A area and an estimate of Mineral Resources for the Bisoni–McKay property.

6.2 Production

There is no modern commercial vanadium production recorded from the Project.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Gibellini Project occurs on the east flank of the southern part of the Fish Creek Range (Figure 7-1).

The southern part of the Fish Creek Range consists primarily of Paleozoic sedimentary rocks of Ordovician to Mississippian Age of the eastern carbonate, western siliceous, and overlap assemblages. Tertiary volcanic rocks crop out along the eastern edge of the range and Tertiary to Quaternary sedimentary rocks and alluvium bound the range to the west and east in the Antelope and Little Smoky valleys, respectively. North to northeast-trending faults dominate in the region, particularly along the eastern range front (Roberts et al., 1967).

The Gibellini Project lies within the Fish Creek Mining District. The limestone-hosted Gibellini Manganese-Nickel mine and the Gibellini, Louie Hill, and Bisoni–McKay sediment-hosted vanadium deposits are the most significant deposits in the district. and all occur within the Gibellini Project boundary. A fluorite–beryl prospect and silver–lead–zinc vein mines with minor production are also reported to occur in the district (Roberts et al., 1967).

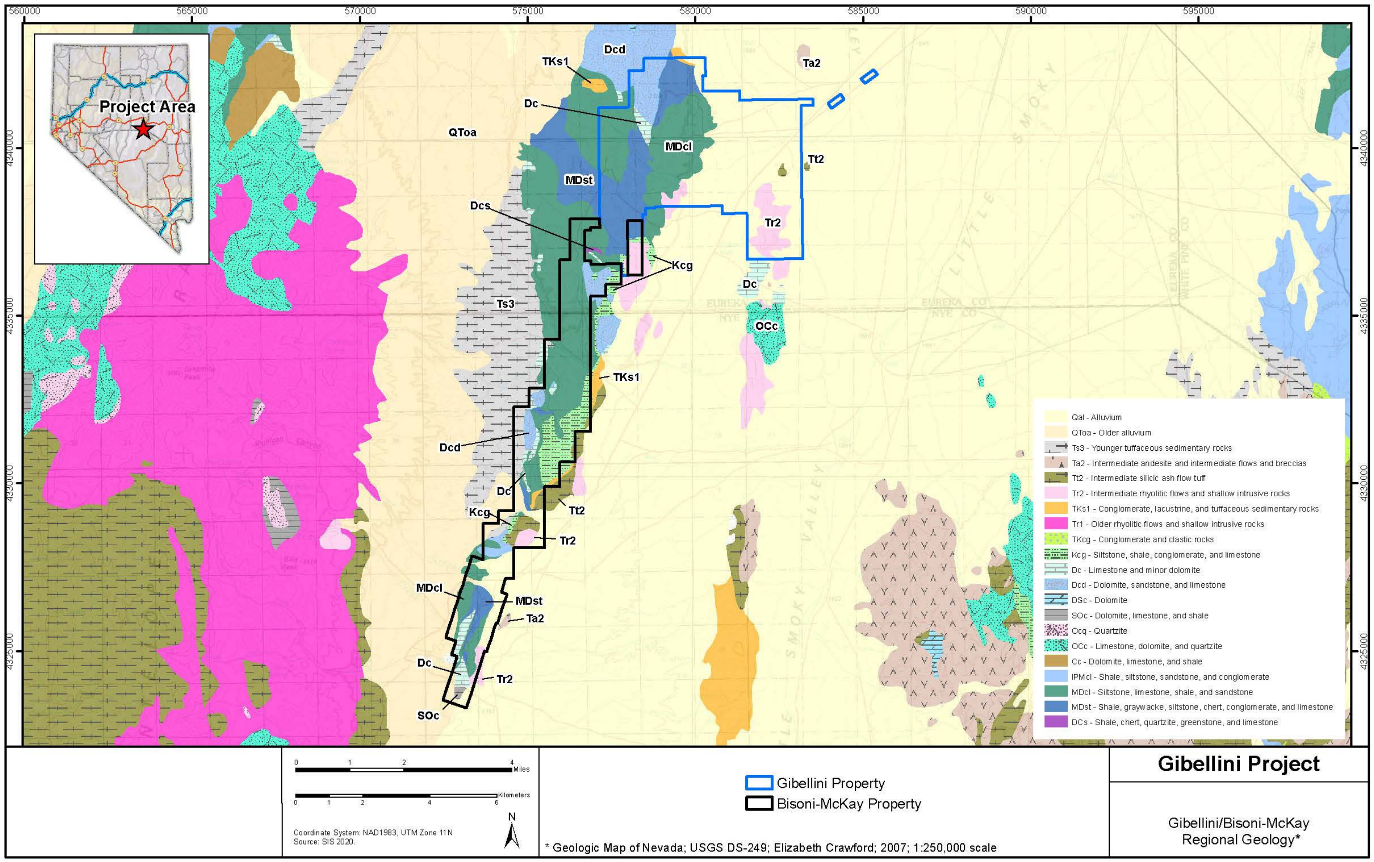
7.2 Project Geology

The Gibellini deposit occurs within an allocthonous fault wedge of organic-rich siliceous mudstone, siltstone, and chert, which forms a northwest trending prominent ridge. These rocks are mapped as the Gibellini facies of the Woodruff Formation of Devonian Age (Desborough et al., 1984). These rocks are described by Noranda as thin-bedded shales, very fissile and highly folded, distorted and fractured (Condon, 1975).

The Woodruff Formation is interpreted to have been deposited as eugeosynclinal rocks (western assemblage) in western Nevada that have been thrust eastward over miogeosynclinal rocks (eastern assemblage) during the Antler Orogeny in late Devonian time.

The Gibellini facies is structurally underlain by the Bisoni facies of the Woodruff Formation. The Bisoni unit consists of dolomitic or argillaceous siltstone, siliceous mudstone, chert, and lesser limestone and sandstone (Desborough and others, 1984).

Figure 7-1: Regional Geology Map



Note: Figure courtesy Silver Elephant, 2021.

Structurally underlying the Woodruff Formation are coarse clastic rocks of the Antelope Range Formation. These rocks are interpreted to have been deposited during the Antler Orogeny and are attributed to the overlap assemblage.

The ridge on which the Gibellini manganese–nickel mine (Niganz mine) lies is underlain by yellowish-gray, fine-grained limestone. This limestone is well bedded with beds averaging 2 ft thick. A fossiliferous horizon containing abundant Bryozoa crops out on the ridge about 100 ft higher than the mine. The lithologic and faunal evidence suggest that this unit is part of the Upper Devonian Nevada Limestone. Beds strike at N18E to N32W and dip at 18° to 22° west. The manganese–nickel mineralization occurs within this unit. Alluvium up to 10 ft thick overlies part of the area, and is composed mostly of limy detritus from the high ridge north of the mine. Minor faulting has taken place in the limestone near the mine. A contact between the mineralization and overlying limestone strikes northeast and dips at 25° northwest. This may be either a normal sedimentary contact or a fault contact (interpreted to be thrust fault but evidence is inconclusive).

The Louie Hill and Bisoni–McKay deposits are located in the same formation and lithologic units as the Gibellini deposit. The general geology in these areas is interpreted to be the same geological units as seen in the Gibellini deposit area.

7.3 Deposit Descriptions

7.3.1 Gibellini

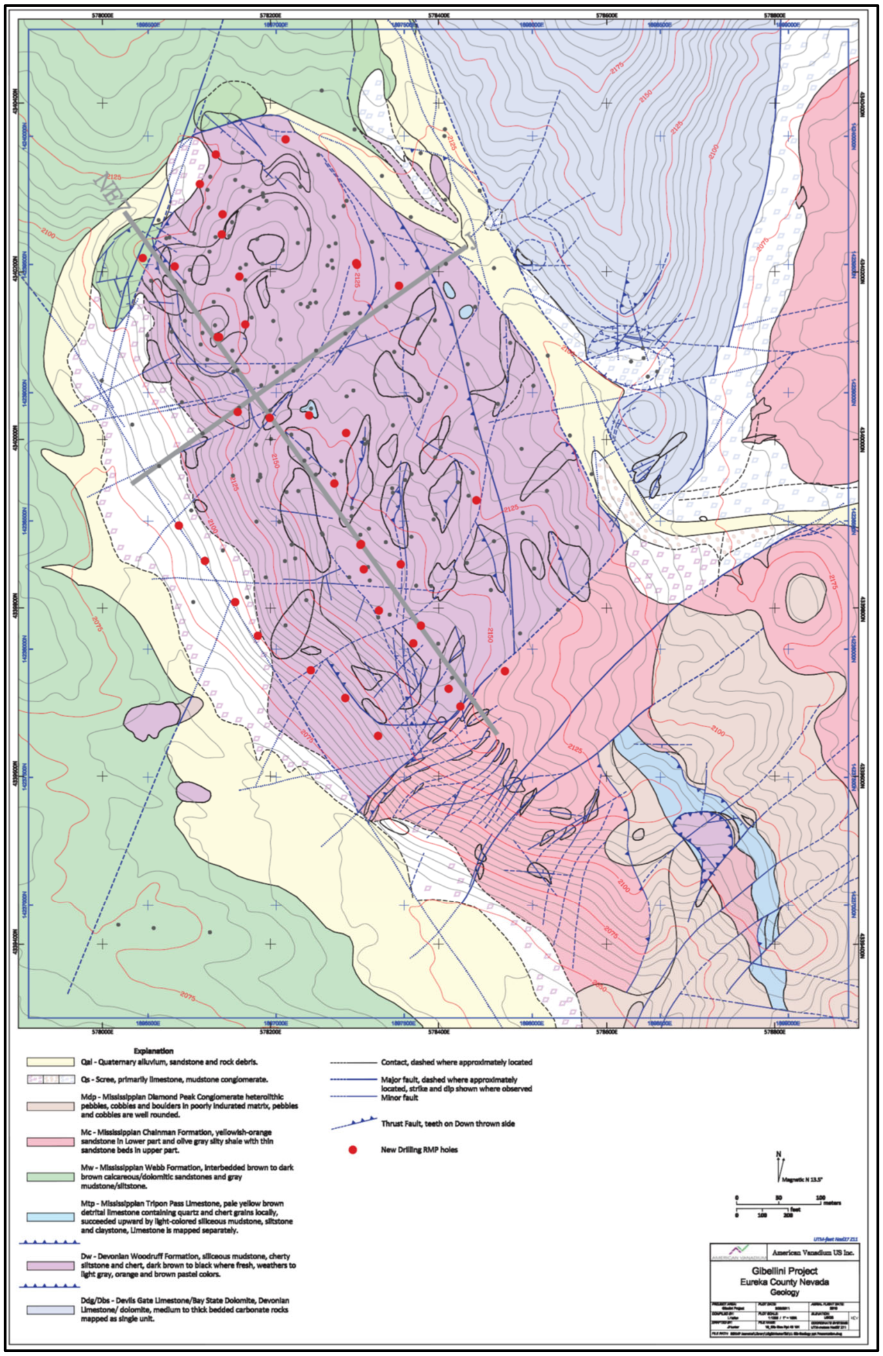
The Gibellini deposit occurs within organic-rich siliceous mudstone, siltstone, and chert of the Gibellini facies of the Devonian Age Woodruff Formation (Figure 7-2).

In general, the beds strike north–northwest and dip from 15–50° to the west. The siltstone/shale unit that hosts the vanadium Mineral Resource estimate is from 175 ft to over 300 ft thick and overlies gray mudstone of the Bisoni facies. The shale has been oxidized to various hues of yellow and orange up to a depth of 100 ft.

Descriptions of the lithological units mapped at the Gibellini deposit are as follows:

- Qal: Quaternary alluvium, sandstone and rock debris
- Qs: Scree, primarily limestone, mudstone and conglomerate
- Mdp: Mississippian Diamond Peak Conglomerate heterolithic pebbles, cobbles and boulders in poorly-indurated matrix, pebbles and cobbles are well rounded

Figure 7-2: Gibellini Deposit Geology Map



Note: Figure from Hanson et al., 2011. New drilling as indicated on the plan refers to drilling completed in 2010 (see Section 10)

- Mc: Mississippian Chainman Formation, yellowish-orange sandstone in lower part and olive gray silty shale with thin sandstone beds in upper part
- Mw: Mississippian Webb Formation, interbedded brown to dark brown calcareous to dolomitic sandstones and gray mudstone/siltstone
- Mtp: Mississippian Tripon Pass Limestone, pale yellow–brown detrital limestone containing quartz and chert grains locally succeeded upward by light-colored siliceous mudstone, siltstone and claystone
- Dw: Devonian Woodruff Formation, siliceous mudstone, cherty siltstone and chert, dark brown to black where fresh, weathers to light gray, orange and brown pastel colors
- Ddg/Dba: Devonian Devils Gate Limestone/Bay State Dolomite, medium- to thick-bedded carbonate rocks. Forms resistant ledges up to 10 ft thick. Locally dolomitic where altered.

Figure 7-3 and Figure 7-4 are cross- and long-sections through the Gibellini deposit showing typical V_2O_5 grades, alteration (oxidation), and lithologic units.

Alteration (oxidation) of the rocks is classified as one of three oxide codes: oxidized, transitional, and reduced. Vanadium grade changes across these boundaries. The transitional zone reports the highest average grades and RMP geologists interpreted this zone to have been upgraded by supergene processes.

7.3.2 Louie Hill

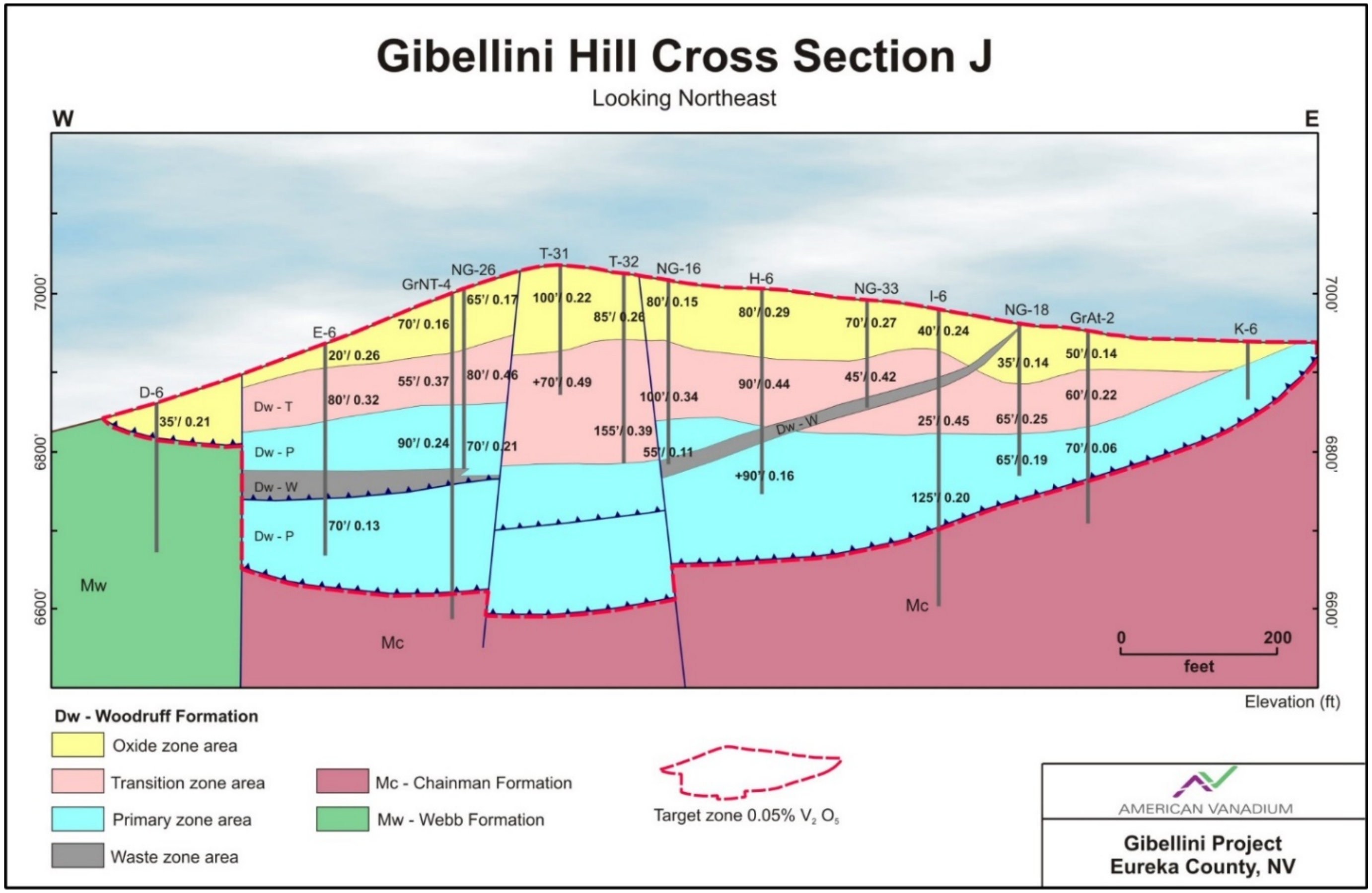
The Louie Hill deposit lies approximately 500 m south of the Gibellini deposit, being separated from the latter by a prominent drainage. Mineralization at Louie Hill is hosted by organic-rich siliceous mudstone, siltstone, and chert of the Gibellini facies of the Devonian Woodruff Formation and probably represents a dissected piece of the same allochthonous fault wedge containing the Gibellini deposit.

Mineralized beds cropping out on Louie Hill are often contorted and shattered but in general strike in a north–south direction, and dip to the west at 0–40°.

Rocks underlying the Louie Hill Deposit consist of mudstone, siltstone, and fine-grained sandstone probably of Mississippian age (Webb and/or Chainman Formations).

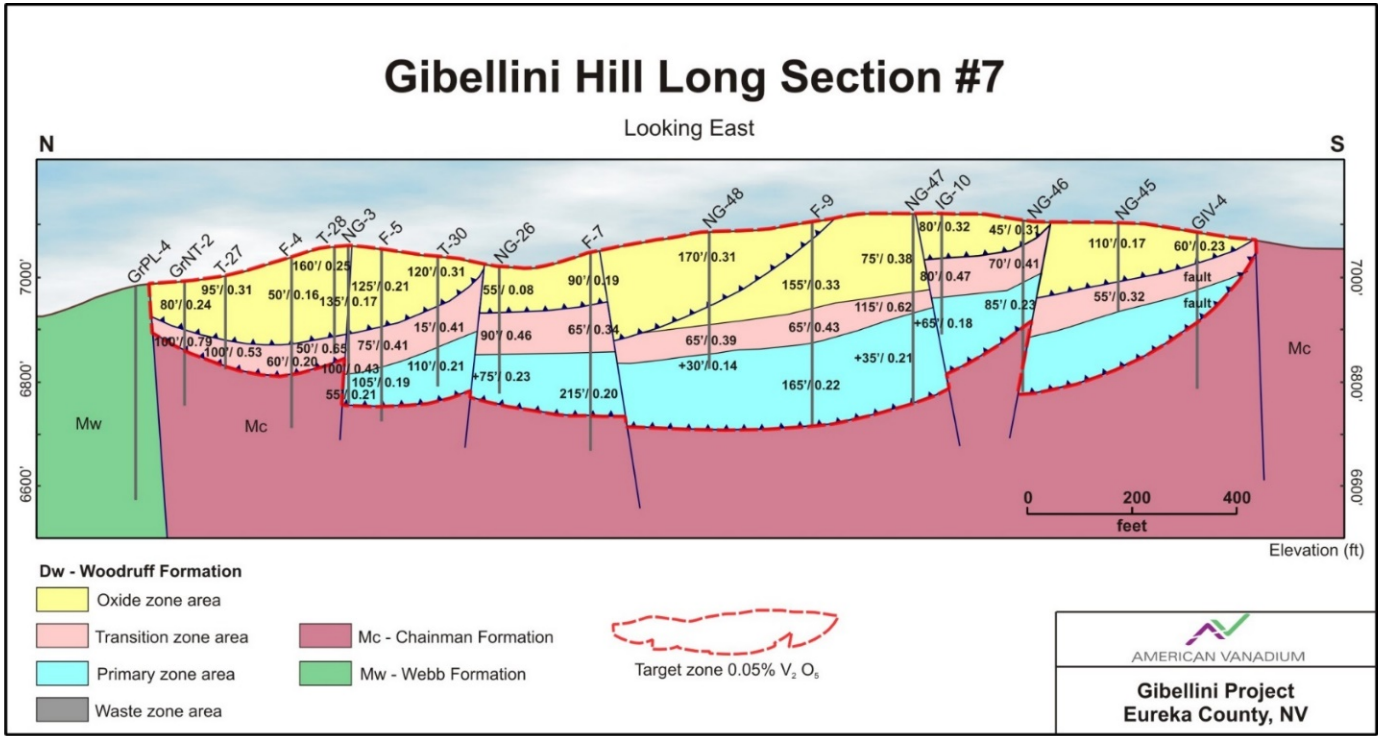
Oxidation of the mineralized rocks has produced light-colored material with local red and yellow bands of concentrated vanadium minerals.

Figure 7-3: Cross-section Across Gibellini (looking northwest)



Note: Figure from Hanson et al., 2011. Red outline shows the 0.050% V_2O_5 grade shell outline with drill hole trace.

Figure 7-4: Long Section Across Gibellini (looking northeast)



Note: Figure from Hanson et al., 2011. Red outline showing 0.050% V_2O_5 grade shell with drill hole trace. East grid lines are spaced 500 ft apart.

A geological section through the Louie Hill deposit is included as Figure 7-5.

7.3.3 Bisoni–McKay

The geological description of the Bisoni–McKay area is taken largely from Ullmer (2008).

The Bisoni–McKay deposits occur approximately eight miles south of the Gibellini deposit. Vanadium mineralization at Bisoni–McKay is hosted by the Gibellini facies of the Devonian Woodruff Formation. The exposed Woodruff rocks are composed of carbonaceous shale, mudstone, siltstone and minor limey shale and sandstone. The Bisoni facies of the Woodruff Formation underlies the Gibellini facies and consists of gray dolomitic or argillaceous mudstone and siltstone with less carbonaceous material. Devonian Devils Gate Limestone and Mississippian Webb Formation rocks are also mapped in the area (Figure 7-6).

The Woodruff and underlying Devils Gate Limestone contact relationship is mapped as a fault, which may be a slide block plane. Prior to Tertiary faulting, the Devils Gate Limestone, the overlying Woodruff Formation, and the Webb Formation appear to have been folded as a unit as exemplified by the north-trending fold and an accompanying fault that extends along the west side of the North A area. The fold may be due to drag along the north–south fault trend.

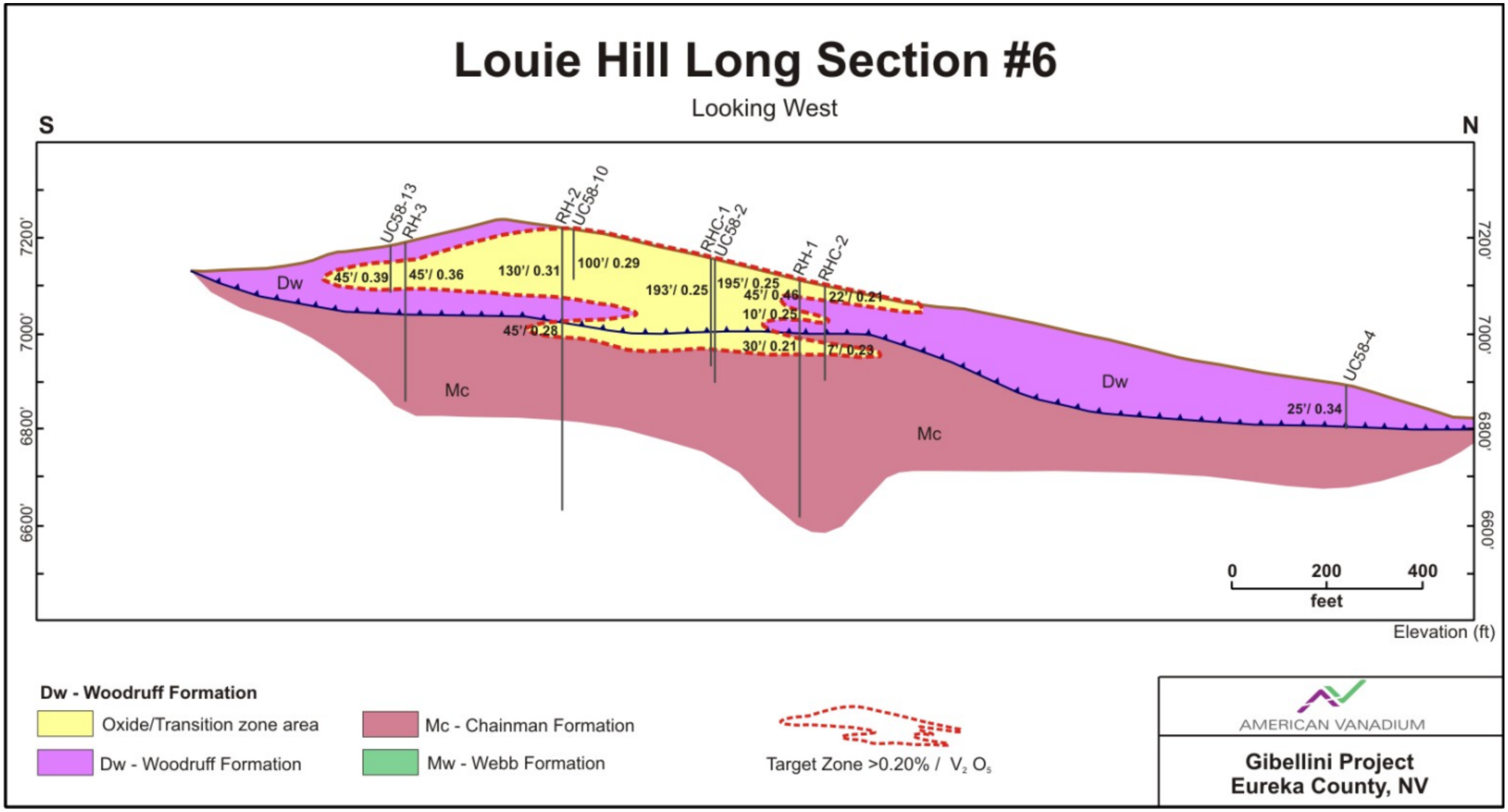
The Gibellini facies and the greater Woodruff Formation are typically preserved and exposed in down-dropped fault blocks. The Woodruff Formation is juxtaposed with the older, massive outcrops of Devils Gate Limestone on the east and west in the North A and South B areas. In the northwestern part of the North A area, a northwest trending concealed fault has juxtaposed the Devils Gate limestone against the Webb Formation rocks that has resulted in placing the Woodruff rocks in fault contact with the younger Webb Formation rocks.

The thickness of the Woodruff Formation is uncertain because complete sections have not been drilled, but it is likely to be between 300–400 ft.

Mapping work by Poole and Sandberg (2015) at Bisoni–McKay suggests the geology of the area may be significantly more structurally complex than initially recognized.

A geological section through the Bisoni–McKay deposit is included as Figure 7-7.

Figure 7-5: Long-Section Across Louie Hill (looking west)



Note: Figure from Hanson et al., 2011. Red outline showing 0.20% V_2O_5 grade shell with drill hole trace

Figure 7-6: Bisoni–McKay Geology Map

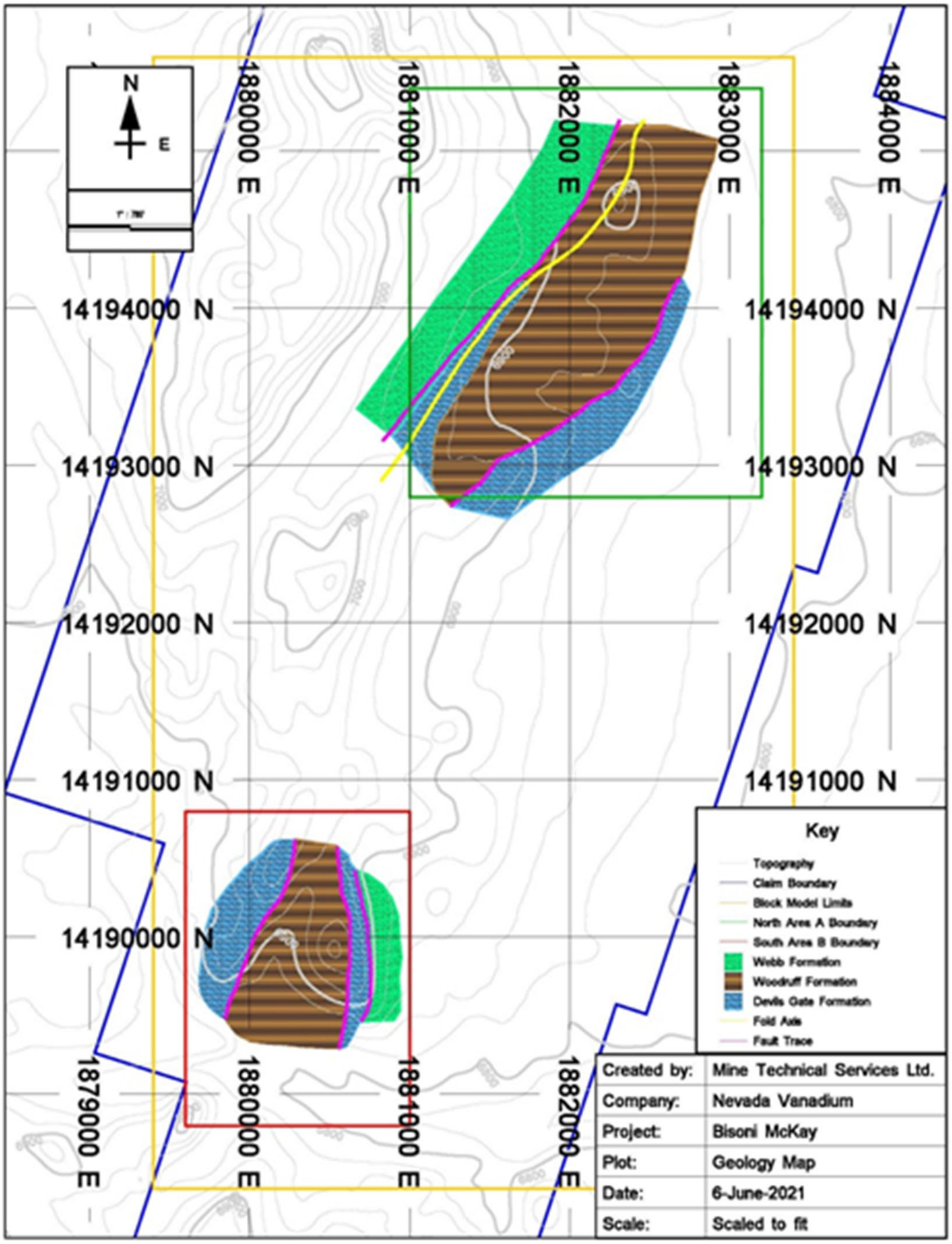
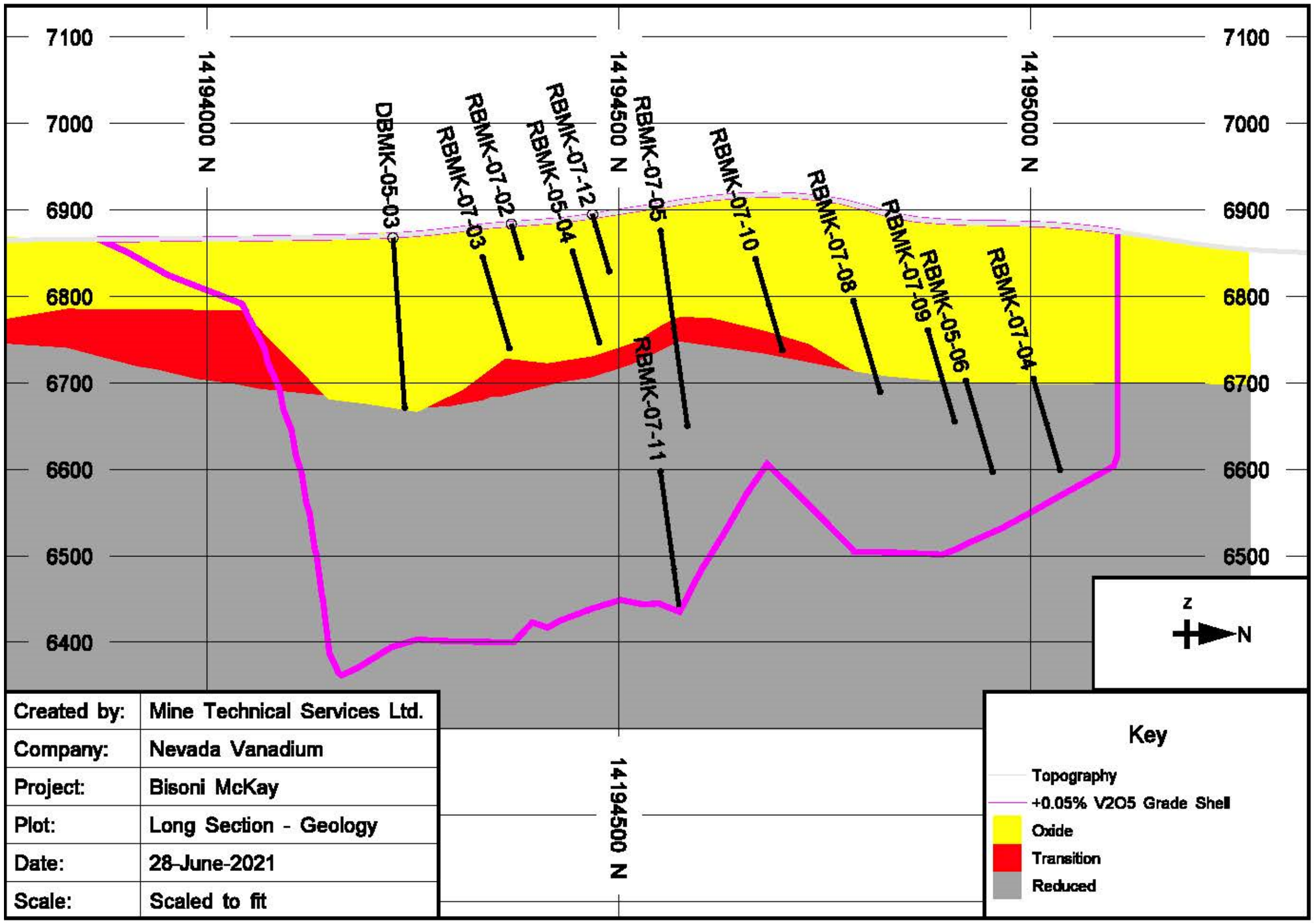


Figure 7-7: Long-Section Across Bisoni–McKay (looking west)



7.4 Mineralization and Alteration

Vanadium mineralization at Gibellini, Louie Hill, and Bisoni–McKay is hosted in siltstone/shale sedimentary rocks. Mineralization is tabular, conformable with bedding, and remarkably continuous in grade and thickness between drill holes.

Alteration of the rocks is limited to oxidation and is classified as one of the three oxide codes: 1 = oxidized, 2 = transitional, and 3 = reduced. Vanadium grades change across these boundaries. In general, the transitional zone reports the highest average grades, the oxide zone reports the next highest average grades, and the reduced zone reports the lowest average grades. At Bisoni–McKay, the oxide zone has the lowest grades, the transition zone is much thinner than at Gibellini, and may or may not be higher in vanadium grade than the reduced zone.

In the oxidized zone, complex vanadium oxides occur in fractures in the sedimentary rocks including metahewettite ($CaV_6O_{16}·H_2O$), bokite ($KAl_3Fe_6V_{26}O_{76}·30H_2O$), schoderite ($Al_2PO_4VO_4·8H_2O$), and metaschoderite ($Al_2PO_4VO_4·6\text{-}8H_2O$). In the reduced sediments, vanadium occurs in organic material (kerogen) made up of fine grained, flaky, and stringy organism fragments less than 15 µm in size (Bohlke et al., 1981).

Other workers found vanadium mineralization to occur within manganese modules (psilomene family) in the shale (Assad and Laguiton, 1973). X-ray diffraction (XRD) mineral identification by SGS Lakefield Research in Ontario, Canada (SGS Lakefield) reported the occurrence of the vanadium mineral fernandinite ($CaV_8O_{20}·H_2O$) (SGS Lakefield, 2007). Other minerals reported to occur at Gibellini are marcasite, sphalerite, pyrite, and molybdenite (Desborough et al., 1984).

7.5 Comments on Section 7

In the opinion of the QP:

- Knowledge of the deposit settings, lithologies, and structural and alteration controls on mineralization is sufficient to support Mineral Resource estimation
- The mineralization style and setting of the Project deposit is sufficiently well understood to support Mineral Resource estimation.

8.0 DEPOSIT TYPES

8.1 Overview

The deposits of the Gibellini Project are examples of the "USGS Shale-Hosted Vanadium" deposit type of Kelley et al. (2017). Vanadium-rich metalliferous black shales occur primarily in late Proterozoic and Phanerozoic marine successions. The term shale is used broadly to include a range of carbonaceous rocks that include marls and mudstones. These fine-grained sedimentary rocks were deposited in inland seas and on continental margins. They typically contain high concentrations of organic matter, reduced sulfur, and a suite of metals including copper, molybdenum, nickel, platinum group elements (PGEs), silver, uranium, vanadium, and zinc.

The vanadium mineralization of the Gibellini, Louie Hill, and Bisoni–McKay areas is hosted in sedimentary rocks. Oxidation of the primary organic and reduced sulfide material in portions of the deposit resulted in the presence of secondary vanadium oxide minerals. The depth and intensity of oxidation is variable across the deposits and accounts for the three primary stratiform facies recognized on the project: oxide, transitional, and reduced. Mineralization is tabular, conformable with bedding, and remarkably continuous in grade and thickness between drill holes.

Desborough et al. (1984) reported that vanadium occurs principally in association with organic matter and that metahewettite is the main vanadium mineral in the oxidized zone. Vanadium mineralization is thought to be the result of syngenetic and early diagenetic metal concentration in the marine shale rocks.

Similarities with the style of mineralization for the Project exist in other known vanadium deposits and occurrences worldwide, notably the black-shale-hosted vanadium deposits of the Guangxi Province in China (Zhang et al., 2015).

The mineralization at the Gibellini manganese–nickel mine forms a pipe-like structure hosted in limestone, is primarily enriched in manganese, zinc, and nickel, and may be hydrothermal or sedimentary in origin, or a combination of the two.

8.2 Comments on Section 8

A shale hosted vanadium model would be suitable for exploration vectoring, and is used for geologic modeling.

9.0 EXPLORATION

9.1 Grids and Surveys

In 1972, Noranda contracted Olympus Aerial Surveys (OAS) of Salt Lake City, Utah, to conduct an aerial photographic survey over the Gibellini Project and Bisoni-McKay deposit to provide a 1:1,200 scale (1″=100′) base map for mapping and sampling activities.

During 2007–2008, topographic contours for Gibellini were digitized by AMEC on 25 ft contour intervals, using a locally-established mine grid coordinate system (Wakefield and Orbock, 2007). The topography encompassed the immediate Gibellini mineralized area. The mine coordinate system was converted to UTM NAD27. Grid coordinate conversion was conducted by RMP using a visual best-fit method by lining up contours and drill holes from one topographic map with the other.

In 2011, aerial photos and graphics for the Gibellini and Louie Hill areas were generated by PhotoSat of Vancouver, Canada. Satellite data were collected as 50 cm stereo satellite photos with a photo pixel size set at 50 cm. Topographic contours were produced at intervals of 1 m, 5 m, 10 m, and 50 m. The topographic photos were delivered to American Vanadium in ASCII XYZ and 3D DWG file formats in both meters and US survey feet. The PhotoSat-produced topography has an overall relative horizontal accuracy of ±6.6 ft (±2 m) over 6.2 miles (10 km). The vertical accuracy is approximately ±1 ft (±30 cm). An example of the contoured files is shown in Figure 9-1.

In 2021, Nevada Vanadium created a topographic surface covering the area of the Bisoni–McKay North A and South B deposits. The surface was sourced from a USGS 10m digital elevation model (DEM) and is projected using the NAD83 datum, UTM Zone 11N data in US feet.

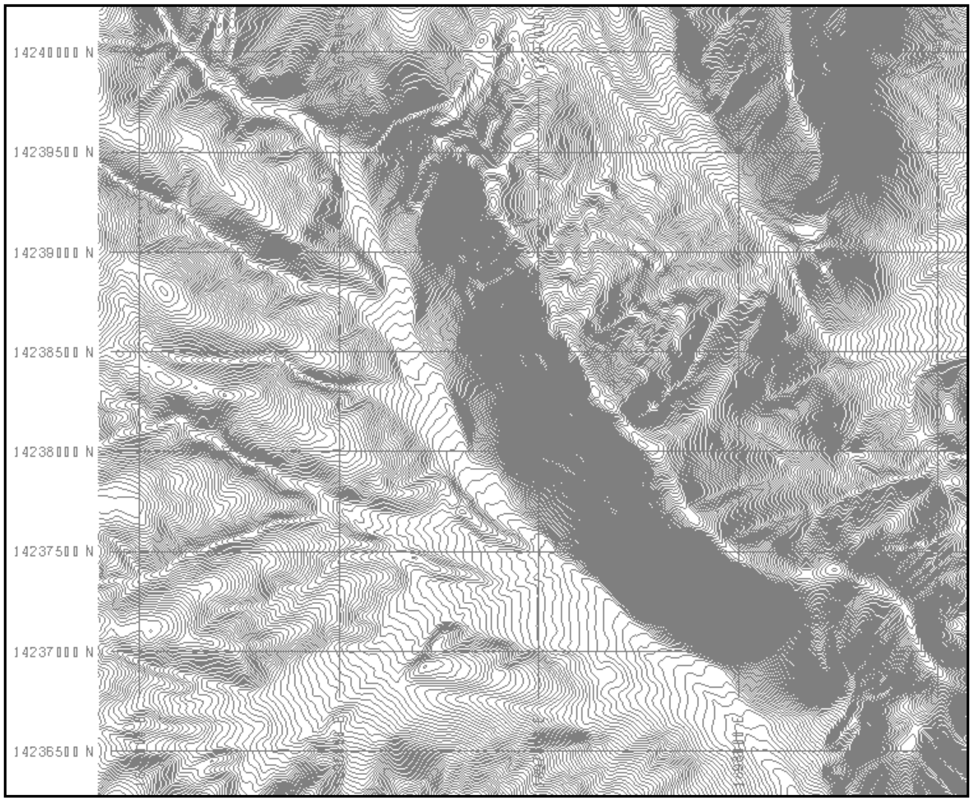
The topography is used in support of the conceptual pit shells used to constrain the Mineral Resource estimates in Section 14.

9.2 Geological Mapping

In 2006, RMP geologists mapped the Gibellini Project area at a scale of 1″ = 200 m (656 ft). Results from this mapping effort are shown earlier in Figure 7-2.

Stina Resources mapped the Bisoni–McKay North A and South B deposit areas in 2006 at a scale of 1″=200′. Results from this mapping is shown in Figure 7-6.

Figure 9-1: Gibellini 2011 Surface Topography



Note: Figure from Hanson et al., 2011

9.3 Geochemical Sampling

RMP geologists collected 20 rock-chip samples from surface outcrops of strong mineralization around the historic Gibellini manganese–nickel mine, returning consistently elevated values of manganese, zinc, nickel, vanadium, molybdenum, cobalt, and copper. An additional 464 rock-chip samples from the Gibellini deposit and surrounding areas confirmed anomalous concentrations and thicknesses of vanadium mineralization.

9.4 Geophysics

During 2010–2011, American Vanadium completed a surface sampling program using a field portable XRF unit (Niton model XL3t) over the Project area. Approximately 1,800 determinations were made using the instrument; however, most of these readings are outside the current mineral claim areas.

9.5 Pits and Trenches

In August 1989, Inter-Globe mapped and sampled nine bulldozed trenches and seven backhoed pits throughout the Gibellini area (Figure 9-2). The purpose of the program was to evaluate the near-surface oxide mineralization (JAA, 1989b). A total of 173 five foot horizontal and vertical channel samples were collected and assayed for V_2O_5. The exact locations of these trenches were not surveyed and so the trench results have not been incorporated into the current resource database. The length-weighted average V_2O_5 assays for the trenches are shown in Table 9-1.

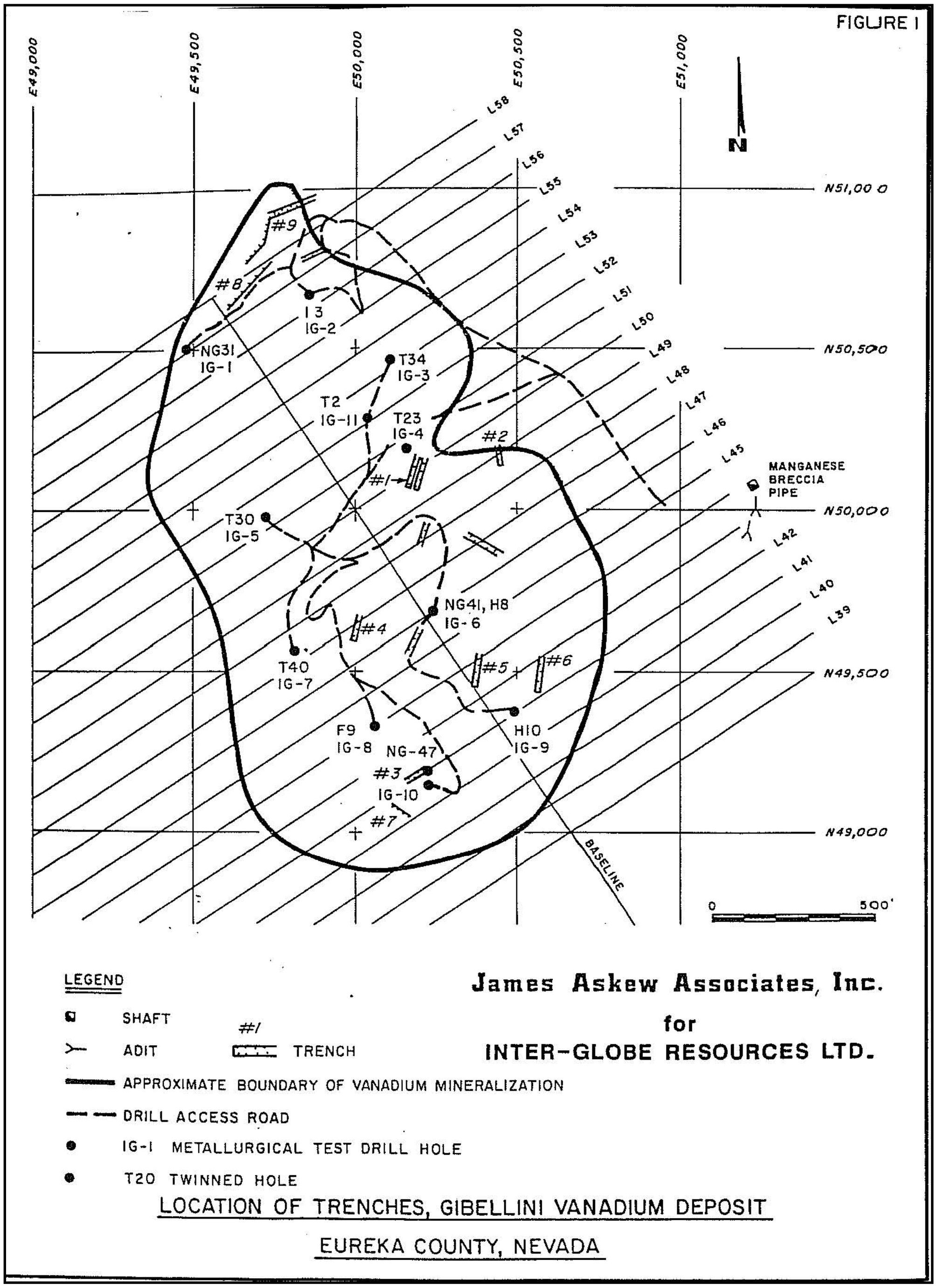
Inter-Globe concluded from this work that:

- Vanadium mineralization occurs in bedrock up to the base of overburden.
- The depth of overburden varies from 0.5 ft to 7.0 ft.
- Most mineralized beds are gently folded and dip at shallow angles.
- Trench V_2O_5 assays compare well on average with assays from the top of the RC holes in the vicinity of the trenches (0.43% V_2O_5 in trenches vs. 0.48% V_2O_5 in RC).

In the 1970s, Hecla completed an extensive set of bulldozed trenches in the Bisoni–McKay area. The Hecla trenches are spaced at irregular intervals and are nominally oriented east-west, perpendicular to the strike of lithology. From 2004 to 2005, Stina Resources mapped and sampled 38 of the Hecla trenches in the North A, South B, and South C areas. Stina Resources reported that few trenches traversed the entire mineralized zone, but the average trench mineralized zone has a true width of 58 ft and an average grade of 0.19% V_2O_5. Figure 9-3 shows the location of Hecla trenches that were resampled by Stina Resources. The length-weighted average V_2O_5 assays for the trenches are shown in Table 9-2.

In 2021, Nevada Vanadium digitized the location and assays for these trenches but has not compiled or evaluated these data. The exact locations of the trench samples were not surveyed, and the quality of the assays was unknown and so the trench results were not incorporated into the Bisoni–McKay resource database.

Figure 9-2: Inter-Globe Gibellini Trench Mapping and Sampling Map



Note: Figure from Hanson et al., 2011

Table 9-1: Length-Weighted Average V_2O_5 Assays for Gibellini Trenches Sampled by Inter-Globe

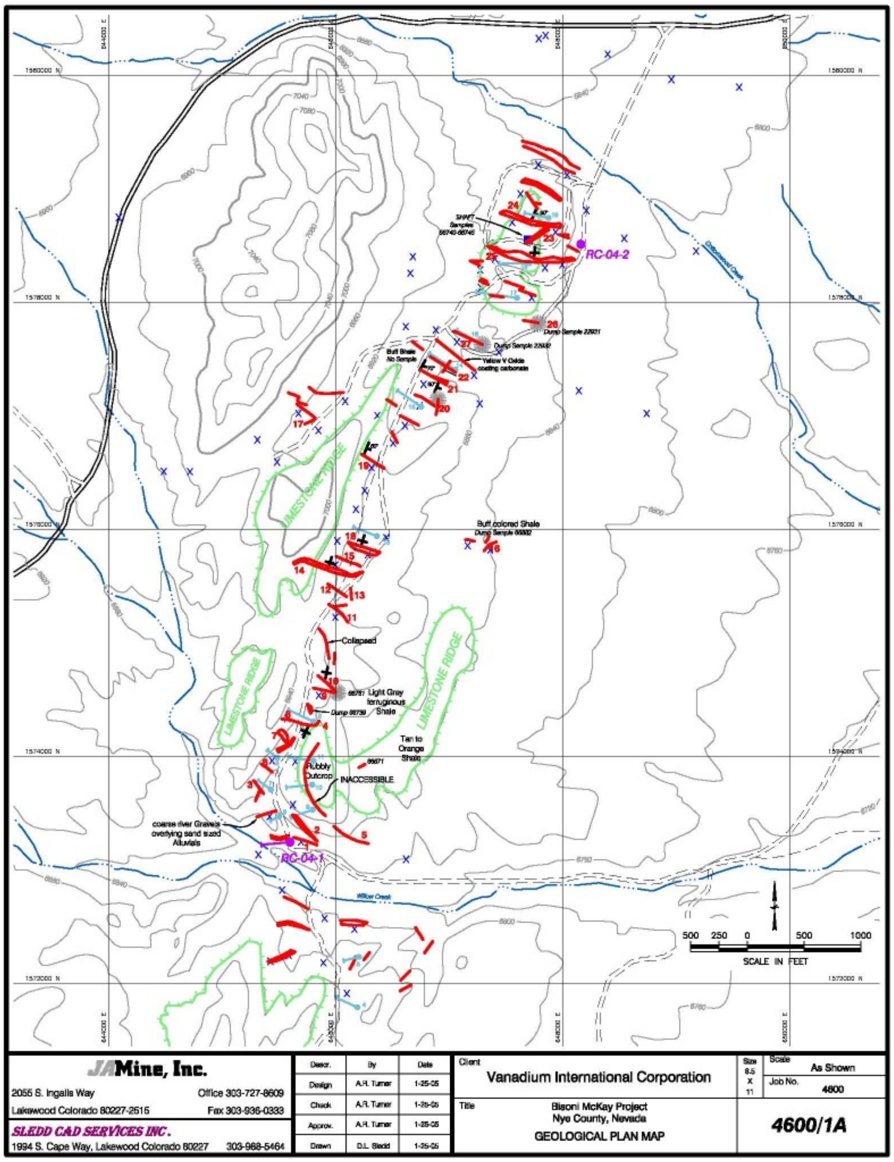
Trench	Length-weighted Assay V_2O_5 in %
BT-1	0.18
BT-2	0.35
BT-3	0.26
BT-4	0.34
BT-5	0.32
BT-6	0.14
BT-7	0.34
BT-8	0.56
BT-9	0.89

Table 9-2: Length-Weighted Average V_2O_5 Assays for Bisoni–McKay Trenches Sampled by Stina Resources

Trench	Length-weighted Assay V_2O_5 in %	Trench	Length-weighted Assay V_2O_5 in %
AS50C	0.42	19	0.16
1	0.11	20	0.17
2	0.09	21	0.21
3	0.15	22	0.13
4	0.10	23	0.21
5	<0.06	24	0.24
6	0.27	25	0.18
7	0.33	26	<0.06
8	0.22	27	<0.06
9	0.16	05-01	0.10
10	0.17	05-02	0.07
11	0.18	05-03	0.08
12	<0.06	05-04	0.12
13	<0.06	05-05	0.27
14	0.16	05-06	0.32
15	0.24	05-07	0.22
16	<0.06	05-08	0.30
17	<0.06	05-09	0.24

Trench	Length-weighted Assay V_2O_5 in %	Trench	Length-weighted Assay V_2O_5 in %
18	0.19	05-10	0.19

Figure 9-3: Stina Resources Trench Mapping and Sampling Map



Note: Trenches shown in red.

9.6 Geotechnical and Hydrological Studies

9.6.1 Geotechnical Studies

Site investigations have been undertaken to:

- Characterize and evaluate subsurface soil and groundwater conditions
- Evaluate potential borrow source materials and locations
- Provide preliminary foundation recommendations
- Identify seismic hazards.

The site investigation consisted of an extensive field program followed by laboratory testwork and a seismic hazard analysis. Additional discussion is provided in Section 10.11.

9.6.2 Hydrological Studies

Enviroscientists conducted a spring, seep, and riparian study to identify surface water resources within the Little Smoky Valley Basin (155A). No springs, seeps, or riparian areas were located within the current Project area or vicinity.

Specific data were collected from the Project area and vicinity. In addition, water quality samples were collected from the Fish Creek ranch located to the north of the Project for comparison to the U.S. Environmental Protection Agency's Primary Drinking Water Standards.

9.7 Comments on Section 9

In the opinion of the QP, the exploration programs completed to date are appropriate to the style of the deposits.

10.0 DRILLING

10.1 Introduction

A total of 335 drill holes (about 73,424 ft) have been completed on the Gibellini Project since 1946, comprising 21 core holes (5,800 ft), 180 rotary drill holes (30,642 ft; note not all drill holes have footages recorded) and 130 RC holes (36,982 ft). Drilling is summarized by operator in Table 10-1. The drill collar location plan for Gibellini and Louie Hill is included as Figure 10-1. The drill collar location plan for Bisoni–McKay is included as Figure 10-2.

10.2 Legacy Drill Campaigns

A total of 35,789 ft of drilling in 173 drill holes was completed at Gibellini in four drilling campaigns by Terteling, Atlas, Noranda, and Inter-Globe. Of this, 120 holes totaling 25,077 ft (70%) were drilled using conventional rotary (rotary) methods and 53 holes totaling 10,712 ft (30%) were drilled using reverse circulation (RC) methods.

Terteling drilled holes in an uneven pattern in the central and northern parts of the vanadium resource area. Atlas drilled the main vanadium resource area in a rough 200 ft square grid pattern oriented parallel to the trend of the main ridge. Noranda re-drilled this same area with holes spaced 200 ft apart on sections oriented at 043° azimuth and spaced 200 ft apart. Inter-Globe drilled 11 metallurgical holes as twins of previous drill holes.

At Louie Hill, Union Carbide reportedly drilled a series of 60 holes in 1956. Noranda completed five RC holes (610 ft) in 1973.

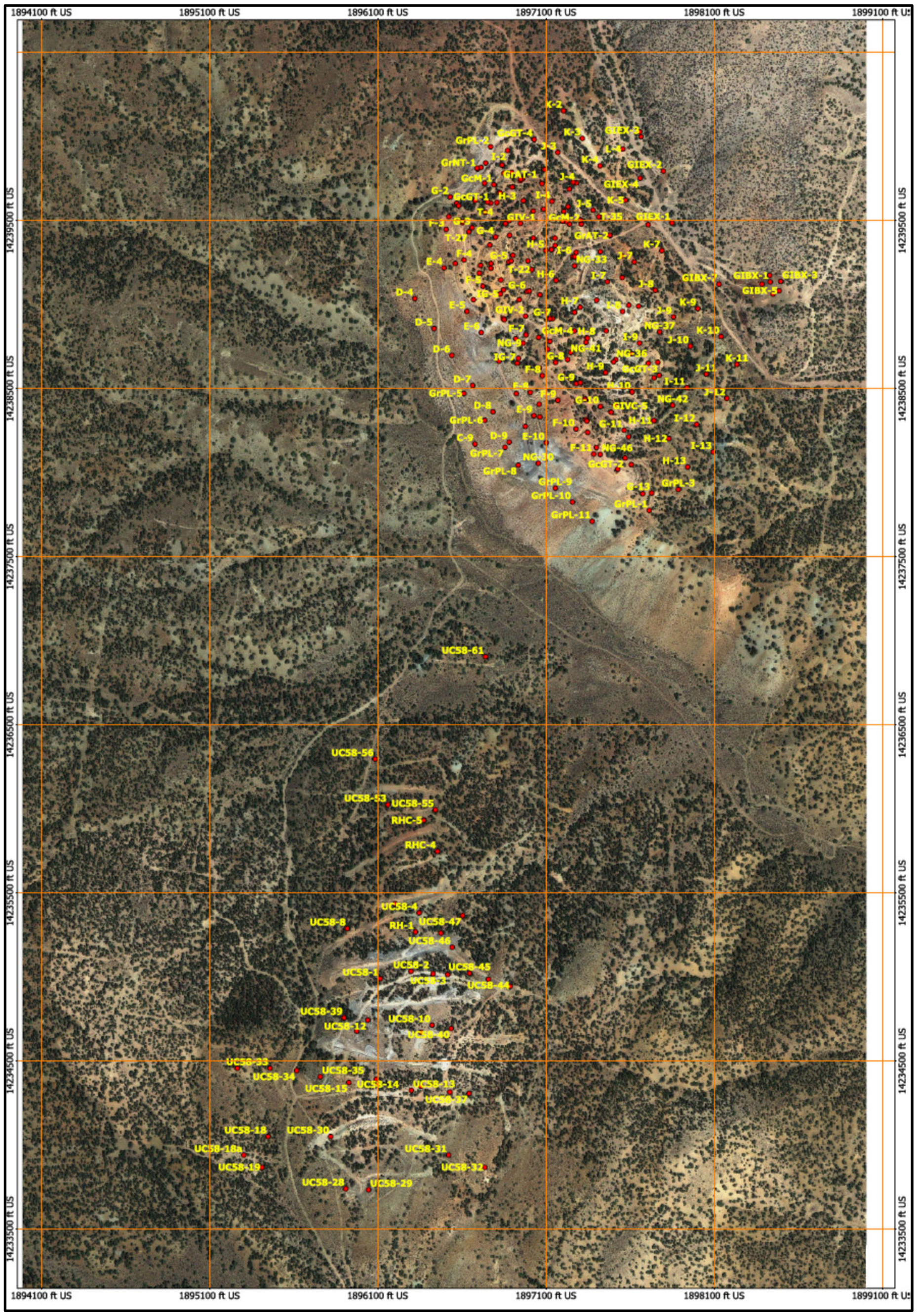
At Bisoni–McKay, a total of 16,594.5 ft in 49 drill holes was completed in four drilling campaigns by Hecla, Vanadium International, and Stina Resources. Hecla's drilling campaign included 19 RC drill holes; six in the North A area, seven in the South B area, and six outside the North A and South B areas. VIC completed two RC drill holes, one in the North A area and one in the South B area. Stina Resources completed 23 RC drill holes and five diamond core drill holes in two campaigns. The 2005 Stina Resources campaign tested both the North A and South B areas where the 2007 campaign focused on the North A area only.

A total of 895.5 ft of drilling in four core drill holes was completed at the Gibellini manganese–nickel mine by the NBMG in 1946.

Table 10-1: Drill Summary Table

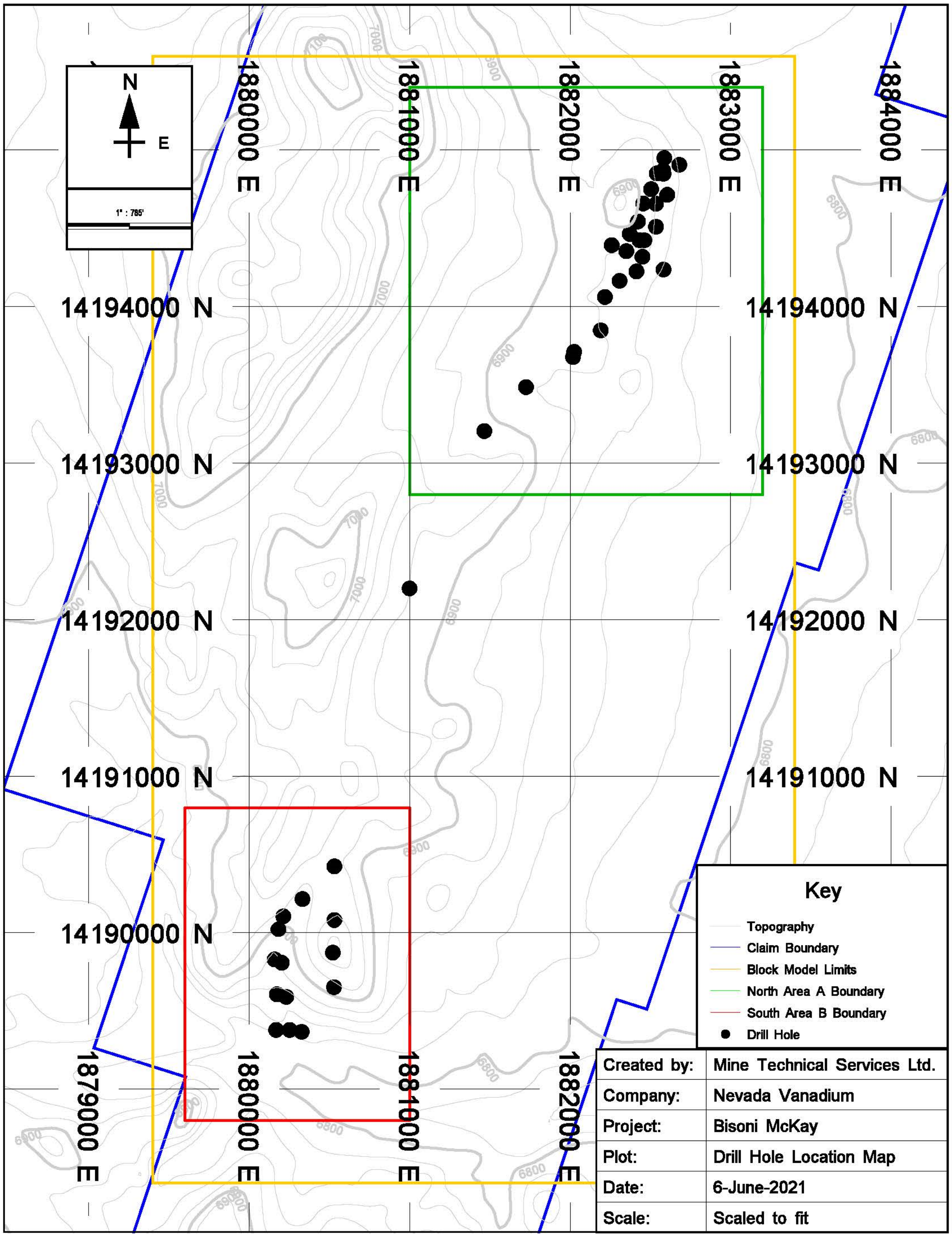
Deposit	Campaign	Timeframe	Rotary Drill Holes	Rotary Drill Footage (ft)	RC Drill Holes	RC Drill Footage (ft)	Core Drill Holes	Core Drill Footage (ft)
Gibellini	Terteling	1964–1965	33	5,695	—	—	—	—
	Atlas	1969	77	17,000	—	—	—	—
	Noranda	1972–1973	10	2,382	42	8,174	—	—
	Inter-Globe	1989	—	—	11	2,538	—	—
	American Vanadium	2007	—	—	4	1,500	5	1,650
	American Vanadium	2008	—	—	—	—	1	300
	American Vanadium	2010	—	—	19	4930	—	—
Louie Hill	Union Carbide	1956	60	5,565	—	—	—	—
	Noranda	1973	—	—	5	610	—	—
	American Vanadium	2007	—	—	3	1,430	—	—
	American Vanadium	2008	—	—	—	—	6	1,200
Bisoni–McKay	Hecla	1970s	—	—	19	5,480	—	—
	Vanadium International	2004	—	—	2	585	—	—
	Stina Resources	2005	—	—	11	3,835	5	1754.5
	Stina Resources	2007	—	—	12	4,940	—	—
Gibellini Mn–Ni mine	Nevada Bureau of Geology and Mines	1946	—	—	—	—	4	895.5
	American Vanadium	2007–2008	—	—	7	1,660	—	—
Exploration	American Vanadium	2007–2008	—	—	4	1,300	—	—
Totals			**180**	**30,642**	**139**	**36,982**	**21**	**5,800**

Figure 10-1: Drill Hole Location Plan, Gibellini and Louie Hill



Note: Figure from Hanson et al., 2011. Drill hole collar identifiers are labelled by company as follows: UC = Union Carbide, C, D, E, F, G, J, K, L = Atlas drill holes; IG = Inter-Globe drill holes; NG = Noranda drill holes; T = Terteling drill holes; Gc, Gr, GIB, GIV = RMP or American Vanadium drill holes.

Figure 10-2: Drill Hole Location Plan, Bisoni–McKay



10.3 American Vanadium/RMP Drill Campaigns

During 2007 and 2008, RMP completed a total of 9,040 ft of drilling in 30 drill holes on the Gibellini Project. Ten of these holes were drilled in the Gibellini area, seven were drilled in the historic Gibellini manganese–nickel mine area, nine were drilled in the Louie Hill prospect area, and four exploration holes were drilled elsewhere on the property.

American Vanadium completed a total of 19 RC drill holes in 2010. Four drill holes were designed to twin Atlas legacy drill holes at Gibellini, four drill holes were designed to twin Noranda legacy drill holes at Gibellini, and eleven drill holes were designed to test the limits of the Gibellini ultimate pit limit from the 2008 PA study.

10.4 Silver Elephant

Silver Elephant has not completed any drilling at Gibellini, Louie Hill, or Bisoni–McKay.

10.5 Drill Methods

10.5.1 Legacy Programs

Gibellini

Documentation of drilling methods employed by the various operators at Gibellini is sparse. Terteling and Atlas are reported to have used conventional rotary tools (Condon, 1975). NBMG graphic logs note the assay of core samples, but no documentation as to core tool diameter is mentioned.

Noranda (Condon, 1975) reports that the first 10 Noranda holes were drilled in 1972, using rotary methods with a vacuum-type drill, a probable pre-cursor to the RC drill rig. In 1973, Noranda drilled 42 holes with a reverse circulation Con-Cor rotary rig. The holes were drilled dry with a 4 ⅞″ diameter long-tooth tricone bit. The Inter-Globe drilling is well documented and employed RC methods with a 5 ¼″ diameter tri-cone bit injecting water to control dust. The drill contractor for the Inter-Globe program was Davis Bros. Drilling from Polson, Montana.

RC samples were collected on 5 ft intervals from all drill campaigns. Many of the Noranda drill holes had no cuttings recovery for the first 5 ft to 10 ft. The water table was noted in some drill logs as occurring at a depth of approximately 200 ft below surface. Cuttings and core recovery was not documented on drill logs other than noting when no sample was returned for a given interval. Several drill logs note the loss of a hole due to poor ground conditions.

Select drill core from the NBMG drill holes were sampled, typically on 1–5 ft intervals. No indication of core recovery was noted on the graphic logs.

Most RC holes were drilled from 50 ft to 350 ft in total length. The average drill hole depth for legacy drill holes at Gibellini is 207 ft. The deepest legacy drill hole at Gibellini was drilled to 395 ft.

Louie Hill

Union Carbide logs indicate that drilling was completed using rotary drilling methods. All holes are assumed to be vertical, though the inclination and azimuth are not expressly stated.

No information exists for the drill hole sampling conducted by Union Carbide. Drill logs state that drilling was conducted by rotary methods, and this would be consistent with tools available at the time the drilling was completed in the late 1950s. No information on tool size, sample splitting, or sample recovery is available for this drilling campaign.

Bisoni–McKay

Hecla logs indicate that drilling was completed using RC drilling methods. All holes were inclined -45° and oriented to the west (270° azimuth). RC drill holes were drilled from 100 to 500 ft in total length and samples were collected on 5-ft intervals. No information on tool size, sample splitting, or sample recovery is available for the Hecla drilling campaign.

Vanadium International drill holes were drilled using an Ingersoll Rand Reverse Circulation drilling rig owned and operated by O'Keefe Drilling of Butte, Montana. A 4-inch diameter hammer bit was employed, and samples were collected on 5-ft intervals down hole. The recovered samples were passed through a cyclone set to reject two thirds of the sample and retain one third.

Stina Resources core drill holes were drilled using an Atlas Copco Diamec U8 APC rig owned and operated by Kettle Drilling, Inc. of Coeur d' Alene, Idaho. Samples were collected on nominal 5-ft intervals. The 2005 Stina Resources RC drill holes were drilled by O'Keefe using the same drill rig and sampling methods as used by Vanadium International in 2004. The 2007 Stina Resources RC drill holes were drilled by O'Keefe using a truck-mounted Rich 650 WS buggy rig with a 5.¾" bit. RC samples were collected on 5-ft intervals with sample material passed through a cyclone set to reject two thirds of the sample and retain one third.

10.5.2 RMP/American Vanadium Programs

RC drilling was conducted by Drift Exploration of Elko, Nevada and supervised by Lonny Hafen of RMP. Drilling was performed dry, with water added to suppress dust. Ground water was encountered in several drill holes, but this was reportedly a rare occurrence.

Core drilling during 2007–2008 was conducted by Morning Star of Three Forks, Montana, using HQ diameter (2.5 in/6.36 cm) tools. For the 2010 drill programs, O'Keefe Drilling completed all of the RC drill holes using a 5 ¾" diameter bit. Morning Star Drilling completed the core drilling at HQ diameter.

10.6 Geological Logging

10.6.1 Legacy Programs

Gibellini

Drill holes from the Terteling, Atlas, Noranda, and Inter-Globe drill campaigns were consistently logged for lithology and rock color. Inter-Globe holes were also logged for alteration mineralogy, stain color, and oxide zone (oxidized, transition, un-oxidized). Logs appear consistent within drill campaigns; however, differences do occur between campaigns. For instance, Atlas logged 90% of the cuttings from their drilling as shale where Noranda, drilling in essentially the same area, logged 54% of the cuttings as siltstone and 36% as shale. For this reason, correlation of log units is difficult on cross sections displaying both Atlas and Noranda drill holes.

Lithological units for the NBMG drill holes were transcribed from graphic logs.

AMEC transcribed lithological logs into codes for entry in the digital resource database using the convention detailed in Table 10-2. Rock color, alteration mineralogy, stain color, and oxide zone were also transcribed into codes and loaded into the resource database.

Table 10-2: Lithology Code Convention for Gibellini Drill Holes

Code	Explanation
1	Claystone, mudstone
2	Shale
3	Silty shale
4	Siltstone
5	Sandy siltstone
6	Silty sandstone
7	Sandstone
8	Alluvial fill

The quality of the geological logging of drill holes at Gibellini is variable by campaign. The logs for the Terteling and Atlas campaigns consist of lithology and rock color codes only. Noranda and Inter-Globe logs also contain detailed descriptions of alteration, mineralogy, and redox (oxide–transition–reduced) contacts.

Louie Hill

Drill logs, including assays, and a drill hole location map showing the Union Carbide drill holes completed in the late 1950s were recovered by American Vanadium from the son of the former president of Atlas, who had explored the area in the 1960s.

Bisoni–McKay

Hecla drill log compilations were included in the technical report completed on the Bisoni–McKay property in 2005 (Turner and James, 2005). Original logs are not available to Silver Elephant. Logging includes a description of the lithology for each interval and the limit of oxidation, including transition zones.

Vanadium International and Stina Resources drill logs from 2004 and 2005 are compiled in the technical reports completed on the Bisoni–McKay property in 2005 and 2006 (Turner and James, 2005; Ullmer and James, 2006). Lithology, color, and oxidation state are consistently logged for all drill holes in these campaigns.

Stina Resources' 2007 drill logs were first completed by hand and then transcribed into digital Microsoft Excel drill logs. Each interval was logged for formation, lithology, and sulfide and oxide intensity (numerical values from 1-4).

MTS compiled lithology and color logging text codes into a numerical coding system for use in geological and resource modeling (Table 10-3, Table 10-4). MTS converted oxidation logs to the numerical system used at Gibellini where 1 = oxidized rock, 2 = transitional, and 3 = reduced.

10.6.2 RMP/American Vanadium Programs

Formation, lithology, alteration, color, structure, and oxidation were logged in Excel spreadsheets for each drill hole of the RMP programs. Lithological logging codes used during the RMP program were included in Table 10-2.

Logging forms also contain the drill hole name, the collar coordinates, the total depth, drill type, hole diameter, and the date drilled. Core recovery and rock mechanics information (fracture density, presence of breccia or shattered zones) were recorded for all core drill holes.

Domaining of the Gibellini deposit is based upon the redox boundaries. Lithology and rock color do not appear to control grade and/or they do not form consistent, mappable, units.

RMP geologists interpreted the position of redox boundaries based upon the lithology, rock color, alteration, mineralogy, and redox contact codes recorded in logs. The QP considers the domains derived from this interpretation to be adequate and reasonable for the purposes of Mineral Resource estimation.

10.7 Collar Surveys

10.7.1 Legacy Programs

Gibellini

Collar locations (easting and northing) for the NBGM, Terteling, and Atlas drill campaigns were digitized from a 1:1,200 scale (1″ = 100′) Noranda base map showing the previous operators drill hole locations in relation to the Noranda drill holes. Drill hole collar locations are recorded in local units established by Noranda where the grid point 50,000E, 50,000N is located at the section corner of Sections 34 and 35, T16N, R52E MDBM and Sections 2 and 3, T15N, R52E MDBM. Noranda collar locations (easting, northing and elevation) were taken directly from the drill logs. These locations were compared with the digitized locations from the Noranda base map to confirm the accuracy of the map locations.

Table 10-3: Lithology Code Convention for Bisoni–McKay Drill Holes

Code	Explanation
100	Alluvium
200	Caliche
300	Clay
400	Shale
500	Mudstone
600	Siltstone
700	Sandstone
800	Limestone
900	Void
1000	Not Logged

Table 10-4: Color Code Convention for Bisoni–McKay Drill Holes.

Code	Explanation
100	White
200	Tan
300	Gray
400	Brown
500	Black
600	Yellow
700	Orange
800	Red
1000	Not Logged

Because drill hole locations were either digitized from a Noranda drill hole location map or taken directly from the drill logs, there is some uncertainty as to the exact location of the drill holes. No records of the original surveys or survey method remain.

AMEC considered the locations to be accurate to ±10 ft. AMEC was able to locate the mine grid in the field and verify the location of several Inter-Globe drill holes using a global positioning system (GPS) instrument, but was unable to locate the exact location of Terteling, Atlas, and Noranda drill holes. Drill sites exist in locations as indicated on maps, but monuments or drill casing at these sites were not evident, likely because they were drilled over 30 years ago.

Louie Hill

Collar locations for Union Carbide drill holes were collected by American Vanadium drill holes using a hand-held GPS. Collar coordinates on the drill logs are recorded in local grid coordinates; however, American Vanadium geologists surveyed the drill holes in UTM meters using the NAD83 datum.

Bisoni–McKay

Collar locations for Hecla drill holes were digitized by Nevada Vanadium from drill hole location maps provided in the 2005 Technical Report (Turner and James, 2005). No original collar surveys are available to Nevada Vanadium. Collar locations were compared to aerial photos and adjusted where necessary to match drill pads in the field. Collar elevations were adjusted to match the topographic elevation at the drill collar location.

Vanadium International and Stina Resources drill hole survey coordinates are listed in the 2005, 2006, and 2008 technical reports (Turner and James, 2005; Ullmer and James, 2006; Ullmer, 2008). No original collar surveys are available to Silver Elephant. Collar locations were compared to aerial photos and adjusted where necessary to match drill pads in the field. Collar elevations were adjusted to match the topographic elevation at the drill collar location.

10.7.2 RMP/American Vanadium Programs

Collar coordinates for the 2007 and 2010 drill holes were obtained in UTM coordinates by RMP personnel using a hand-held GPS unit.

Local grid coordinates for historic drill holes were converted to UTM by RMP by overlaying UTM topography over a local grid topographic map containing the historic drill holes, and digitizing the drill hole coordinates in UTM units using GIS software.

10.8 Down Hole Surveys

10.8.1 Legacy Programs

Gibellini

All Gibellini rotary and RC drill holes were drilled in a vertical orientation. The orientation of Noranda and Inter-Globe drill holes were documented. The orientation of the Terteling and Atlas drill holes were not documented but are assumed to be vertical due to the low dip angle of mineralization. This assumption is supported by the continuity of lithologies and mineralization types between Atlas and other holes, and by results of twin-hole drilling by Inter-Globe. The NBMG core holes were inclined to best intersect known zones of mineralization intersected in the underground workings.

Most drill holes making up the Gibellini Project resource database are relatively short (98% of holes are <350 ft in length) and vertical, and so the QP does not consider the lack of down-hole surveys to be a significant concern. In the QP’s experience, vertical drill holes of 300 ft or less in length are not likely to deviate significantly, in this case, more than 25 ft or the block size being used in the resource model.

Louie Hill

Union Carbide logs from Louie Hill indicate that drilling was completed using rotary drilling methods. All holes are assumed to be vertical, though the inclination and azimuth are not expressly stated. Because most Union Carbide drilling is relatively shallow (total depths are generally between 100–200 ft), the risk of mineralized intercepts being significantly misplaced because of the lack of down-hole surveys is considered by the QP to be small.

Bisoni–McKay

Most of the Bisoni–McKay drill holes are inclined -45° to the west. None of the drill holes are surveyed down-hole; the inclination is indicated either in the drill log or in the description of the drilling in the Vanadium International and Stina Resources technical reports. About half of the inclined drill holes at Bisoni–McKay are >300 ft in length and there is a risk that mineralized intercepts may be misplaced because of the lack of down-hole surveys in the inclined drill holes.

10.8.2 RMP/American Vanadium Programs

All drill holes were drilled in a vertical orientation. None of the holes were surveyed down-hole.

10.9 Recovery

There is no information available on the legacy drilling recoveries for Gibellini and Louie Hill. No information is available on the legacy RC drilling recoveries for Bisoni–McKay. Core recovery for the 2005 Stina Resources campaign at Bisoni–McKay ranged between 91–98%.

While ALS Chemex typically reports the weight of samples received at their sample preparation facilities, the sample weights of the Gibellini Project RC samples were not included in the assay certificates provided to RMP.

Core recovery was logged for the five core holes completed in the Gibellini area. The average recovery from 92 ft to 102 ft was logged as 71%.

Generally, Gibellini and Louie Hill core recovery in the oxidized and unoxidized oxidation types was good to fair, where core recovery in the transition oxidation type was generally very good. In the QP’s opinion, core recovery is generally adequate for the Project, averaging 91.6%. The fine-grained and diffuse nature of mineralization would favor there being no grade bias caused by poor recovery.

10.10 Sample Length/True Thickness

The RC drill holes completed by RMP in the Gibellini area were designed to confirm the geology, and thickness and grade of vanadium mineralization encountered in historical drilling along the length of the Gibellini deposit.

The geology and thickness of vanadium mineralization in all three drill holes closely matches that expected from previous drilling. Vanadium grades are lower in some cases, and higher in other cases.

During the drilling at Louie Hill in 2007, significant thicknesses of vanadium mineralization were encountered in all three drill holes, comparable in thickness and grade to the oxide zone at Gibellini. Higher grade vanadium mineralization, like that of the transition zone at Gibellini, was not encountered at Louie Hill, except for at the surface in the northernmost drill hole.

No confirmation drilling has been completed by Nevada Vanadium at Bisoni–McKay. Legacy drilling at Bisoni–McKay has intercepted similar thicknesses of vanadium mineralization as encountered at Gibellini and Louie Hill. The transition zone at Bisoni–McKay is not as thick as it is at Gibellini.

Mineralized zones at Gibellini and Louie Hill are irregular in shape but generally conform to the stratigraphy of the host shales, modified somewhat by post-mineral oxidation and supergene enrichment.

Mineralization at Gibellini is roughly stratabound, strikes northwest–southeast and dips at low angles to the west. Vertical intersections of mineralization are roughly approximate to the true mineralized thickness. The mineralization is parallel to the orientation of the main ridge in the vanadium Mineral Resource area.

Mineralization at Louie Hill is also stratabound, strikes north-south, and dips at very low angles to the west. Vertical intersections of mineralization are roughly approximate to the true mineralized thickness.

Mineralized zones at Bisoni–McKay generally conforms to the stratigraphy of the host shales and is interpreted to be stratabound. Mineralization strikes north-south to northeast–southwest and dips moderately to steeply to the east. Drilling at Bisoni–McKay is largely oriented perpendicular and the drilled thickness of mineralization roughly approximates the true thickness.

Table 10-5 presents an example of the types of drill intercepts that have been returned for the Project deposit areas in the legacy drill programs. Table 10-6 shows example intercepts from the American Vanadium and RMP drill programs.

Drill hole orientations are indicated on the cross-sections included in Section 7 of this Report.

Table 10-5: Example Drill Intercepts, Legacy Programs

Deposit	Hole ID	From (ft)	To (ft)	Intercept True Width (ft)	Average Grade (% V_2O_5)
Gibellini	C-9	5	25	20	0.24
	D-7	5	25	20	0.29
	D-8	130	160	30	0.20
	D-8	185	195	10	0.24
	D-8	5	105	100	0.41
	E-10	200	205	5	0.11
	E-10	245	260	15	0.25
	E-10	0	190	190	0.29
	F-3	10	40	30	0.39
	G-9	215	280	65	0.23
	G-9	5	160	155	0.33
	H-10	165	170	5	0.18
	H-10	200	285	85	0.26
	H-10	0	110	110	0.28
	I-6	95	155	60	0.28
	I-6	0	75	75	0.31
	IG-1	0	120	120	0.60
	IG-10	0	225	225	0.32
	IG-11	0	90	90	0.25
	J-10	65	85	20	0.16
	J-10	0	50	50	0.22
	K-5	0	40	40	0.23
	NG-10	215	245	30	0.17
	NG-10	100	120	20	0.18
	NG-10	125	200	75	0.26
	NG-10	0	80	80	0.30
	NG-13	180	184	4	0.15
	NG-13	165	175	10	0.17
	NG-13	10	155	145	0.38
	NG-14	320	350	30	0.23
	NG-14	10	300	290	0.25
	NG-45	5	45	40	0.29
	NG-45	105	165	60	0.31
	T-12	95	100	5	0.14

Deposit	Hole ID	From (ft)	To (ft)	Intercept True Width (ft)	Average Grade (% V_2O_5)
Louie Hill	T-12	105	130	25	0.17
	T-12	8	60	52	0.26
	T-12	65	90	25	0.29
	T-2	5	180	175	0.43
	T-20	5	155	150	0.49
	T-21	0	10	10	0.32
	T-21	25	155	130	0.42
	T-22	65	110	45	0.26
	T-22	5	50	45	0.44
	T-26	5	140	135	0.34
	T-40	5	150	145	0.33
	T-41	0	150	150	0.47
	UC58-1	0	125	125	0.37
	UC58-2	0	75	75	0.30
	UC58-2	105	200	95	0.25
	UC58-3	0	95	95	0.40
	UC58-7	0	40	40	0.30
	UC58-7	50	75	25	0.24
	UC58-10	0	100	100	0.29
	UC58-15	0	90	90	0.32
	UC58-23	0	30	30	0.27
	UC58-46	0	40	40	0.52
	UC58-54	0	60	60	0.23
	UC58-59	0	60	60	0.14
	UC58-63	0	90	90	0.31
Bisoni–McKay	BMK-07	10	160	150	0.38
	BMK-15	30	170	140	0.27
	BMK-19	110	250	140	0.51
	RC-04-01	10	60	50	0.33
	DBMK-05-03	83	428	360	0.49
	RBMK-05-01	10	315	305	0.45
	RBMK-05-04	55	205	150	0.51
	RBMK-05-05	17	49	32	0.27
	RBMK-05-09	0	55	55	0.41
	RBMK-07-02	45	245	200	0.33
	RBMK-07-06	180	525	345	0.35

Deposit	Hole ID	From (ft)	To (ft)	Intercept True Width (ft)	Average Grade (% V_2O_5)
	RBMK-07-07	145	240	95	0.33
	RBMK-07-10	200	290	90	0.65
	RBMK-07-12	0	70	70	0.36

Note: Legacy drill hole prefix key: C, D, E, F, G, J, K, L = Atlas drill holes; IG = Inter-Globe drill holes; NG = Noranda drill holes; T = Terteling drill holes; UC58 = Union Carbide drill holes; BMK = Hecla drill holes; RC = Vanadium International drill holes; RBMK/RBMK = Stina Resources drill holes.

Table 10-6: Example Drill Intercepts, RMP and American Vanadium Programs

Deposit	Hole ID	Intercept (ft from–to)	True Width (ft)	Average Grade (% V_2O_5)
Gibellini	GIVC-5	7–83	76	0.32
		98–143	45	0.22
		148–173	25	0.24
		188–212	24	0.25
Louie Hill	RHC-1	7–43	36	0.24
		53–200	147	0.26
	RHC-2	7–106	99	0.19
	RHC-3	10–37	27	0.54
	RHC-4	13–53	40	0.15
	RHC-5	7–56	49	0.16
	RHC-6	7–78	71	0.25
		78–144	66	0.78

10.11 Geotechnical and Hydrological Drilling

10.11.1 Project Site Investigations

Site-wide geotechnical drilling was performed with a number of objectives, including:

- Characterize and evaluate the subsurface soil and groundwater conditions
- Evaluate potential borrow source materials and locations
- Provide preliminary foundation recommendations
- Identify seismic hazards.

To characterize and evaluate the existing soil and groundwater conditions at the site, multiple test pits were excavated, and seven exploratory borings were completed to depths of 45.5 to 101 ft below existing grade. In general, soils encountered typically consist of poorly graded silty and clayey gravels with sand, clayey sands and silty sands with gravels and some cobbles and boulders to the depth explored. Surface soils containing abundant root and rootlets were encountered in all borings and test pits with an average thickness of approximately one ft. Groundwater was not encountered to the maximum depth penetrated of 101 ft during the site investigation.

AMEC completed a borrow source investigation to identify material that could be suitable for use in construction and operation. The borrow source investigation focused on identifying three primary material types:

- A durable non-acid buffering overliner material
- A durable material source for use in manufacturing rip-rap, roadway bedding and surfacing, and drain rock.
- A low permeability underliner material.

Results of the permeability testing indicate that the materials from a rhyolite borrow source could be suitable for use as overliner material provided the material is crushed and or screened to provide the required gradation. The rhyolite borrow source could also be used for manufacturing rip-rap, roadway bedding and surfacing, and drain rock.

10.11.2 Seismic Hazard Analysis

A seismic hazard analysis for the Gibellini Project site was completed. This included the development of design ground motions associated with the maximum credible earthquake (MCE) and the operating basis earthquake (OBE). The ground motions for the MCE were estimated using a deterministic approach and the ground motions for the OBE were estimated using a probabilistic approach.

10.11.3 Gibellini Deposit Investigations

Five vertical and four oriented drill holes (1,011 ft) were completed using wireline triple tube diamond drill core (HQ core size). Rock mass ratings indicate that the majority of rock units encountered (siltstone, mudstone, chert) were of poor rock quality and can be classified as either extremely weak rock or stiff soil. Dolomite and limestone were encountered and are estimated to be of fair rock quality, although limited information is available for these units from the geotechnical drilling.

Exploration drilling did not indicate any instances of shallow or perched groundwater.

10.12 Metallurgical Drilling

A program of metallurgical drilling was performed in 2010. Details of the metallurgical testwork performed are provided in Section 13.

10.13 Potential Infrastructure Site Drilling

RMP drilled six RC drill holes with a total footage of 1,400 ft in an area that had potential to host a heap leach pad, which was located about 1.5 miles east of the Gibellini deposit. Three, 200 ft, holes were drilled along the north edge of the area, a 600 ft drill hole was in the center of the area and two, 200 ft long drill holes were sited at each of the respective south corners of the general area.

Geology consisted of Quaternary alluvium of interbedded coarse conglomerate, medium to coarse sandstone and claystone. The water table was not encountered in the drilling. No anomalous vanadium assays were encountered.

10.14 Sample Storage

No cuttings, assay rejects, or pulps remain from the legacy drilling campaigns at Gibellini and Louie Hill.

Drill core, RC cuttings, assay rejects and pulps remain from the Vanadium International and Stina Resources campaigns at Bisoni–McKay and are securely stored at the Nevada Vanadium office and warehouse in Eureka, Nevada.

10.15 Comments on Section 10

In the opinion of the QP, the quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and infill drill programs completed by RMP and American Vanadium, and the verification performed by American Vanadium on legacy drill data are sufficient to support Mineral Resource estimation as follows:

- RC chip and core logging meets industry standards for exploration of an oxide vanadium deposit
- Collar surveys and re-surveys of legacy drill hole collar locations have been performed using industry-standard instrumentation

- No down hole surveys were performed. The QP does not consider the lack of down-hole surveys to be a significant concern. In the QP's experience, vertical drill holes of 300 ft or less in length are not likely to deviate significantly, in this case, more than 25 ft or the block size being used in the resource model
- Recovery data from RMP and American Vanadium RC and core drill programs are acceptable
- Geotechnical logging of drill core meets industry standards for planned open pit operations
- Drill hole orientations are generally appropriate for the mineralization style, and have been drilled at orientations that are optimal for the orientation of mineralization for the bulk of the deposit area
- Drill hole orientations are shown in the example cross-sections included in Section 7, and can be seen to appropriately test the mineralization
- Drill hole intercepts as summarized in Table 10-5 and Table 10-6 appropriately reflect the nature of the vanadium mineralization encountered in both the legacy and the RMP/American Vanadium drill programs. The tables demonstrate that sampling is representative of the vanadium oxide grades in the deposits, reflecting areas of higher and lower grades
- No material factors were identified with the data collection from the drill programs that could affect Mineral Resource estimation.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Legacy Reverse Circulation Sampling

Noranda collected samples continuously over 5 ft intervals in a cyclone collector (Condon, 1975). Dust loss was reported to be minimal. Samples were split with a Gilson splitter and the rejects were stored for possible metallurgical testing. Color, texture, and other diagnostic features were logged. The average weight of 1,138 samples reported by the assay laboratory for Noranda samples was 59 pounds.

Inter-Globe collected one to five pounds of material for assay on 5 ft intervals. Dust lost was minimized by using water in drilling. All cuttings were directed from the cyclone into one to three, five-gallon buckets, from which samples for assay and samples for metallurgical tests were collected. Samples were split using a Jones riffle splitter. Metallurgical samples were also collected for each interval. The cyclone and splitter were cleaned manually and with compressed air between intervals.

Hecla collected samples continuously on 5 ft intervals. No other information on sample collection of Hecla RC samples is available to Nevada Vanadium.

RC samples from the Vanadium International and Stina Resources programs were collected on 5 ft intervals with sample material passed through a cyclone set to reject ⅔ of the sample and retain ⅓. After logging, samples were bagged in 10″ x 17″ Hubco Sentry, non-woven, polyester bags. Each bag was sealed with an 8″ long locking tie to prevent access prior to sample preparation and analysis. The samples were transported by pick-up truck by Vanadium International and Stina Resources personnel to ALS Chemex Laboratories in Reno, Nevada (ALS Chemex).

AMEC and MTS evaluated rotary and RC drill holes for evidence of down-hole contamination in the form of asymmetric grade decay down-hole or spikes in grade at cyclical intervals. Analyses revealed evidence of possible down-hole contamination in one Atlas drill hole and one Noranda drill hole at Gibellini below intercepts of greater than 1.0% V_2O_5, but AMEC concluded that the width and grade of the possible contamination was not significant enough to warrant adjusting grades assigned to the intervals.

Comparison of RC drill holes with nearby rotary drill holes (less than 20 ft collar separation) found that there was no evidence of significant down-hole contamination in the rotary holes.

11.2 Legacy Core Sampling

Stina Resources core holes were sampled on nominal 5 ft intervals with core cut in halves with a diamond-studded saw where necessary. After logging, samples were bagged in 10″ x 17″ Hubco Sentry, non-woven, polyester bags. Each bag was sealed with an 8″ long locking tie to prevent access prior to sample preparation and analysis. The samples were transported by pick-up truck by VIC and Stina Resources to ALS Chemex. The remaining half of the core was stored in core trays in Eureka, Nevada.

11.3 RMP Reverse Circulation Sampling

Cuttings for each 5 ft interval were collected in five-gallon buckets and split manually, using a riffle splitter. A split (½ of the material from the interval) of the material was bagged for assaying and the remaining material was bagged for archive purposes. Where ground water was encountered, a wet splitter was placed below the cyclone.

A small portion of the cuttings for each interval was retained in a plastic container (RC chip tray) for logging purposes. RC samples were collected in 5 ft intervals.

Sample bags were labeled with sequential sample numbers. Sample bags were transported each day by RMP or drill personnel to the RMP office in Eureka and stored in a secure layout area until ready for dispatch to the assay laboratory. Trucks from ALS Chemex, either from the Winnemucca or Elko sample preparation facilities, picked up samples at the RMP Eureka office.

11.4 RMP Core Sampling

Drill core was transported by RMP personnel to the RMP office in Eureka and stacked in a secure layout area. There, core was photographed, logged, and prepared for shipment to Dawson Laboratories for metallurgical test work. Selective six-inch intervals were removed and sent to ALS Chemex for determination of specific gravity. These intervals were selected to be representative of the oxidation types encountered during drilling. There is some risk that the intervals selected may be more competent than the remaining drill core, and may overestimate the density of the deposit.

Core was sampled on nominal 5 ft intervals, with a minimum of 1 ft and a maximum of 9 ft. The average is 4.5 ft.

11.5 Metallurgical Sampling

Trench samples were collected as bulk samples from the field. Drill core for the 2010 metallurgical testwork programs was supplied as whole core intervals from selected drill holes. Drill core prior to 2010 used in metallurgical testwork was half-core, from selected drill holes.

11.6 Density Determinations

A total of 63 core intervals from the 2007 drilling campaign at Gibellini were submitted by RMP for determination of specific gravity. Intervals were selected from four core drill holes to be representative of the major oxidation zones. Six-inch intervals of whole core were sent to ALS Chemex in Reno, Nevada for determination of dry bulk density by the wax coated water immersion method (ALS Chemex procedure OA-GRA08a).

Specific gravity values were partitioned by oxidation type and average values were computed (Table 11-1). These average values were used to calculate tonnage in the Mineral Resource model.

AMEC used the oxide density data from Gibellini deposit to define density within the Louie Hill model. MTS used the oxide, transitional, and reduced density data from Gibellini deposit to define density within the Bisoni–McKay model. The QP recommends that for density at Louie Hill and Bisoni–McKay a minimum of 30 density determinations be collected per rock type and alteration type, and that the samples are spatially representative of the deposit from surface to the base and spread over the lateral extent of the deposit. These data should then be used to define density in the Louie Hill and Bisoni–McKay block models.

11.7 Analytical and Test Laboratories

The RMP and American Vanadium core and RC samples were analyzed by ALS Chemex, a well-established and recognized assay and geochemical analytical services company that was independent of RMP and American Vanadium. The Sparks (Reno) laboratory of ALS Chemex is ISO 9002-registered; the Vancouver laboratory holds ISO17025 accreditation for selected analytical techniques.

Table 11-1: Summary of Gibellini Density Data

Oxidation Domain	N	Mean	Standard Deviation	Coefficient of Variation
Oxidized	35	1.90	0.24	0.13
Transition	51	1.96	0.27	0.14
Reduced	36	2.26	0.20	0.09

11.8 Sample Preparation and Analysis, Legacy Drill Programs

11.8.1 NBMG

Manganese, nickel, and zinc assays for NBMG drill holes were transcribed by AMEC from graphic drill logs. The original assay certificates are not available from this drill campaign. Neither the assay laboratory name nor the sample preparation or assay methodology is noted on the logs. No evidence of a quality assurance quality control (QA/QC) program is noted on the logs either.

11.8.2 Terteling

The V_2O_5 assays for the Terteling drill holes were transcribed by AMEC from typewritten drill logs. The original assay certificates are not available from this drill campaign. Neither the assay laboratory name nor the sample preparation or assay methodology is noted on the logs. No evidence of a QA/QC program is noted on the logs either.

AMEC compared Terteling assays to assays from Inter-Globe drill holes that were within 20 ft of the Terteling drill holes and found the Terteling assays to be consistently biased high. Inter-Globe V_2O_5 assays contained adequate QA/QC controls and are considered to be acceptably accurate and precise, and so the QP considers comparison against Inter-Globe assays to be an acceptable indicator of assay accuracy. For five drill holes compared (15% of campaign), the average grade of Terteling assays from the mineralized intervals were between 29% and 73% higher than the comparable Inter-Globe assays, with an average difference of 43% higher. The mineralized intervals were, on average, 4% shorter for Terteling drill holes.

11.8.3 Atlas

Vanadium pentoxide assays for Atlas drill holes were transcribed by AMEC from typewritten drill logs. The original assay certificates are not available from this drill campaign. Neither the assay laboratory name nor the sample preparation or assay methodology is noted on the logs. No evidence of a QA/QC program is noted on the logs either.

Comparison of Atlas assays to assays from Inter-Globe drill holes that were within 20 ft of the Atlas drill holes indicated that the Atlas assays were comparable. For four drill holes compared (5% of campaign), Atlas assays were between 14% lower to 18% higher than the comparable Inter-Globe assays, with an average difference of 2% lower. The mineralized intervals were also equivalent, with the total length of the Atlas mineralized intervals equal to 1,105 ft and the total length of the Inter-Globe intervals equal to 1,110 ft.

11.8.4 Noranda

Vanadium pentoxide assays for Noranda drill holes NG-1 to NG-10 were performed by Union Assay Office Inc. (Union) using a direct titration procedure on a 2 g sub-sample. Union was independent of Noranda. It is not known whether Union was accredited by ISO or any standards organization at the time the assays were performed. The sample was oxidized with nitric acid and potassium perchlorate, digested with hydrochloric and hydrofluoric acids, then fumed strongly with sulphuric acid. The filtered solution was then oxidized with potassium permanganate solution and reduced by repeated boiling with hydrochloric acid.

Check assays for all samples for these holes were performed by the Colorado School of Mines Research Institute (CSMRI) in Golden, Colorado and by Noranda's in-house laboratory using similar, but slightly different, procedures. CSMRI was independent of Noranda but Noranda's in-house laboratory was not independent of Noranda. It is not known whether CSMRI or Noranda's in-house laboratory was accredited by ISO or any standards organization at the time the check assays were performed. AMEC plotted the check assays against the original assays and found that the Union assays are biased marginally high (9–4%) compared to CSMRI and Noranda check assays.

Noranda recognized this bias and conducted a study after the initial drill program to determine the source of the bias and to determine the optimum analytical method for V_2O_5. In this study, analytical results for the laboratories were compared on three head-grade samples and three tail-grade samples from the Gibellini deposit (Noranda, 1973). Noranda concluded that the laboratories were reporting essentially equivalent results, but recommended that all samples be fused in sodium peroxide to ensure complete dissolution and oxidation of vanadium prior to analysis. This recommendation was carried out for the remainder of the assaying of Noranda samples.

V_2O_5 assays for Noranda drill holes NG-11 to NG-52 were performed at CSMRI using sodium peroxide fusion and colorimetry as recommended by Dr. Kerbyson of the Noranda Research Centre (Condon, 1975). Sample preparation procedures are not documented. AMEC attempted to contact CSMRI for more information, but found that CSMRI has been defunct for 20 years and that no information remains from the Noranda assays (Dr. L.G. Closs, personal communication).

Comparison of Inter-Globe drill holes within 20 ft of Noranda drill holes found the average length and grade of mineralized intervals to be equivalent. The total length of the mineralized intercepts from three Noranda drill holes (6% of campaign) was 370 ft and the average grade was 0.30% V_2O_5, where the total length of the nearby Inter-Globe holes was 385 ft and the average grade was 0.30%.

11.8.5 Inter-Globe

Inter-Globe assayed samples for V_2O_5 at Skyline Laboratories (Skyline) in Denver, Colorado. Skyline was independent of Inter-Globe. It is not known whether Skyline was accredited by ISO or any standards organization at the time the assays were performed. The original assay certificates are not available from this drill campaign; however, JAA (1989a) describes the sample preparation and assay methodology. Approximately five pounds of drill cuttings were dried as necessary, split in a riffle splitter to generate a 150 g sub-sample, and pulverized in a ring mill (size and percent passing not noted). A 0.1 g aliquot of the pulverized sample was dissolved in hydrofluoric, nitric, and perchloric acids, taken to dryness, diluted in hydrochloric acid, diluted to 5% hydrochloric acid and measured on an inductively coupled argon plasma spectrometer (ICP-ES).

About 15% of the samples were assayed in duplicate by Skyline and sent for check assay at Bondar Clegg (Bondar) in Denver, Colorado. Bondar was independent of Inter-Globe. It is not known whether Inter-Globe was accredited by ISO or any standards organization at the time the assays were performed. Bondar assayed V_2O_5 by four-acid digestion (hydrofluoric, nitric, perchloric, hydrochloric) on a 0.5 g sample followed by atomic absorption spectrometry.

AMEC contacted Skyline for more information on the assay method used, but was told that no information remains from the Inter-Globe assays. The Bondar Clegg company no longer exists.

AMEC plotted Bondar Clegg check assays against the Skyline original assays to determine the accuracy of the Skyline V_2O_5 assays and found them to be acceptable. AMEC also plotted Skyline duplicates to determine the precision of the Skyline V_2O_5 assays and found them to be acceptable.

11.8.6 Union Carbide

No information is available to Silver Elephant concerning the sample preparation and assaying methods employed for the Union Carbide drill campaign. Assays in V_2O_5 (assumed to be in units of percent) are hand entered into the drill logs opposite the drill interval. Where sample numbers are also noted, no information regarding assay laboratory or assay methodology is present.

11.8.7 Hecla

No information is available to Silver Elephant concerning the sample preparation and assaying methods employed for the Hecla drill campaign. Assays in V_2O_5 in units of percent are included in drill log tabulations that are included in the 2005 Technical Report (Vanadium International, 2005). No original assay certificates or information regarding assay laboratory or assay methodology is available to Silver Elephant.

11.8.8 Vanadium International Corp

Vanadium International RC samples from 2004 were sent to ALS Chemex for sample preparation and analysis. ALS Chemex was independent of Vanadium International Corp. Samples were weighed, dried, and crushed to 70% passing 2 mm. A nominal 250 g split was then taken and pulverized to 85% passing 75 µm. Vanadium pentoxide (V_2O_5) was determined by four-acid digestion on a 2.0 g subsample and inductively-coupled plasma atomic emission spectroscopy (ICP-AES) finish (ALS Chemex procedure code ME-ICP61). The lower detection limit for vanadium pentoxide by this method is 2 ppm. An additional 26 elements were reported from this procedure.

11.8.9 Stina Resources

RC and core samples from the 2005 and 2007 Stina Resources drill campaigns were sent to ALS Chemex for sample preparation and analysis. ALS Chemex was independent of Stina Resources. Samples were weighed, dried, and crushed to 70% passing 2 mm. A nominal 250 g split was then taken and pulverized to 85% passing 75 µm. Vanadium was determined by four-acid digestion on a 2.0 g subsample and ICP-AES finish (ALS

Chemex procedure code ME-ICP61). The lower detection limit for vanadium by this method is 1 ppm. An additional 26 elements were reported from this procedure.

11.9 Sample Preparation and Analysis, RMP and American Vanadium

All 2007–2008 drill samples were submitted to ALS Chemex in Winnemucca or Elko Nevada for sample preparation. Assays were performed at the ALS Chemex laboratories in Reno, Nevada and Vancouver, Canada.

Samples were weighed, dried, and crushed to 70% passing 2 mm. A nominal 250 g split was then taken, and pulverized to 85% passing 75 µm.

Vanadium was determined by four-acid digestion on a 2.0 g subsample and ICP-AES finish (ALS Chemex procedure code ME-ICP61a). The lower detection limit for vanadium by this method is 10 ppm. An additional 32 elements are reported from this procedure, including zinc. Gold, platinum, and palladium were determined by standard fire assay on a 30 g subsample (ALS Chemex code PGM-ICP23). Select samples were assayed for uranium and selenium concentrations by X-ray fusion (XRF) (ALS Chemex procedure code ME-XRF05).

Specific gravity was determined by ALS Chemex on whole core samples using the wax-coated water immersion method (ALS Chemex procedure code OA-GRA08A).

Sample preparation and assaying procedures for the 2010 drill campaigns were unchanged from those used during 2007–2008.

11.10 Quality Assurance and Quality Control

11.10.1 Legacy Data in Database

AMEC digitized existing legacy drill hole locations, surveys, logs and assays from paper maps, logs, and assay certificates to generate the Gibellini database. AMEC assembled all the data into a series of database tables (collar, survey, lithology, assay, and redox) in Access. Prior to the creation of the Access database, all drill information was in paper format.

AMEC digitized drill hole collar locations in local grid coordinates for the Terteling, Atlas, and Noranda drill campaigns from a 1:1200 scale base map generated by Noranda. The accuracy of these collar locations is estimated to be ±10 ft. Noranda and Inter-Globe drill hole coordinates were taken from the drill logs. Noranda collar locations were compared with the digitized coordinates and where the drill log and digitized coordinates did not agree within 10 ft in easting or northing, the base map was consulted, and the digitized coordinates were used (NG-8, NG-9, NG-28, and NG-45). NBMG drill hole coordinates were taken from 1:1,200 scale drill hole location maps. Underground workings at the Gibellini manganese–nickel mine (channel sampled by NBMG) were digitized and entered into the database as "pseudo-drill holes".

Assays for the Terteling and Atlas drill campaigns were entered from typed drill logs; the original assay certificates are no longer available from these campaigns. The assays for the Noranda drill holes were entered from both original assay certificates and drill logs. Assays for Inter-Globe drill holes were entered from compiled assay tabulations found in Appendix D of JAA (1989a). Assays for NBMG drill holes were entered from original assay certificates.

Assays for the Hecla drill campaign were transcribed by MTS from drill log tabulations. Assays from the Vanadium International and Stina Resources drill campaigns were entered from original assay certificates.

AMEC entered V_2O_5 assays using a double-data-entry system. Assays were entered into two separate spreadsheets by separate operators. The two data sets were then compared by a third operator and all matching values were entered into the assay table. Assay values not matching were checked against the original certificates or logs, corrected, and loaded into the assay database.

Drill logs for the Noranda and Inter-Globe drill holes were evaluated by an AMEC geologist, transcribed into appropriate codes, and loaded into the Lithology table. Redox boundaries for all drill holes were interpreted from logs by RMP geologists and loaded into the redox table.

All Noranda and Inter-Globe drill holes were drilled in a vertical orientation and so AMEC entered vertical orientations (azimuth = 0 and inclination = -90) for the collar (0 ft) and total depth positions in the Survey table. Terteling and Atlas drill holes were assumed to be vertical and were also given vertical orientations in the Survey table. NBMG drill hole orientations were noted on the maps and were digitized by AMEC accordingly. Underground working traces were digitized by AMEC and are approximations at best. Surveying of these workings to give them accurate three-dimensional coordinates relative to other assay information in the area will be required should the information be required to support additional work programs.

Drill logs for the Hecla, Vanadium International, and Stina Resources drill campaigns were transcribed by MTS from original drill logs or drill log tabulations. None of the drill holes from these legacy drill campaigns were surveyed down-hole. Drill hole orientations were transcribed from drill logs or from written text in Turner and James (2005), Ullmer and James (2006), or Ullmer (2008).

AMEC and MTS conducted data integrity checks of the Gibellini Project digital database (checking for overlapping intervals, data beyond total depth of hole, unit conversion, etc.) and concluded that the resource database is reasonably error-free and acceptable for use in resource estimation.

AMEC and MTS exported separate collar, survey, lithology and assay files for import into MineSight for subsequent geological modeling and resource estimation.

Inter-Globe V_2O_5 assays were found to be accurate and precise based upon check assays and duplicates included in the QA/QC program for the drill campaign. AMEC considered these assays to be acceptable for use in resource estimation, but because no original assay certificates remain from this campaign, AMEC recommended that blocks affected by Inter-Globe assays be assigned a maximum classification of Indicated Mineral Resources.

Inter-Globe V_2O_5 assays from nearby drill holes provide a check of assay accuracy for the Terteling, Atlas, and Noranda assays. No evidence of a QA/QC program was encountered for the Terteling or Atlas campaigns. No evidence of a QA/QC program was encountered for Noranda drill holes NG-11 to NG-52. Inter-Globe assays are considered accurate and comparing grades in nearby drill holes provides a check of the assay accuracy for these holes.

Terteling V_2O_5 assays were found to be biased high an average of 43% relative to Inter-Globe based upon a comparison of mineralized intervals from nearby holes. AMEC recommended that the Terteling drill holes not be used for resource estimation. Because the Terteling drill pattern is adequately covered by both Atlas and Noranda drilling, the impact of not using these holes is minimal regarding adequate drill spacing throughout the deposit.

Atlas V_2O_5 assays were found to be comparable to Inter-Globe assays based upon a comparison of mineralized intervals from nearby holes. However, because the original certificates are not available, the assay laboratory and analytical method are not known, and drill collars cannot be confirmed, the lower confidence in these data require that resources estimated with the Noranda data be classified as no better than Inferred Mineral Resources. Because the Atlas drill pattern is covered by the Noranda drill pattern through the main resource area, the impact of assessing a lower classification to blocks affected by Atlas holes is mainly on the fringes of the deposit.

Noranda V_2O_5 assays were also found to be comparable to Inter-Globe assays based upon a comparison of mineralized intervals from nearby holes. Noranda drill holes NG-1 to NG-10 were part of several QA/QC programs which showed that, although the original assays were biased marginally high compared to the check assay laboratories, the procedure used likely produced low-biased data compared to the best assay procedure for V_2O_5, which was used for Noranda drill holes NG-11 to NG-52. AMEC considered the Noranda assays acceptable for use in resource estimation, but because of the uncertainty in the assays, AMEC recommended that blocks affected by Noranda assays have a maximum classification of Indicated Mineral Resources.

Hecla V_2O_5 assays are of unknown quality because the original certificates are not available, the assay laboratory and analytical method are not known, there is no evidence of an assay QA/QC program, and drill collar locations and orientations cannot be confirmed. The lower confidence in these data require that resources estimated with the Hecla data be classified as no better than Inferred Mineral Resources.

Vanadium International and Stina Resources V_2O_5 assays were transcribed from original assay certificates but there is no evidence of an assay QA/QC program. MTS completed a check assay program in 2021 on pulp and coarse reject material from these campaigns to confirm the quality of the V_2O_5 assays. Evaluation of this work is presented in Section 12 of this Report. Drill locations and orientations were transcribed from drill logs and from written text in Turner and James (2005), Ullmer and James (2006), or Ullmer (2008). Blocks estimated with Vanadium International and Stina Resources data were classified by the QP as no better than Inferred Mineral Resources until further validation work is completed by Nevada Vanadium.

AMEC collected five samples on the Gibellini vanadium deposit from trenches that were previously sampled by Inter-Globe (JAA, 1989b). One sample was collected from trench #4, two samples were collected from trench #8, and two samples were collected from trench #9. Trench samples were collected as horizontal or vertical channels according to the original sampling method. AMEC was unable to duplicate exactly the Inter-Globe sample locations because the sample markers from the sampling carried out 19 years previously were mostly missing or illegible. Samples were assayed for vanadium by ALS Chemex in Reno by a four-acid digestion, ICP determination.

AMEC sampling generally returned V_2O_5 assays of economic grade and in the range expected from Inter-Globe sampling, but the grades are generally lower than Inter-Globe, especially from trench #9. AMEC submitted one standard reference material (SRM) sample with the sample submittal that returned an acceptable result and so considers the ALS Chemex V_2O_5 assay values to be accurate.

The trench assays are not part of the mineral resource model and so the uncertainty in the accuracy of these assays poses no risk to the current Mineral Resource estimate. No QA/QC program was reported to have been included in the Inter-Globe trench program. AMEC recommended that confirmation sampling of the trenches be completed prior to any consideration of inclusion of the trench data for mineral resource estimation. No material from drill samples making up the resource database remains, and therefore AMEC was unable to independently verify these assays with check assays.

11.10.2 RMP and American Vanadium

SRMs, blanks, and duplicates were inserted by RMP with routine drill samples during the 2007–2008 and 2010 drill programs to control assay accuracy and precision.

Evaluation of this work is presented in Section 12 of this Report.

11.11 Databases

Legacy drill data collected from geological logging at Gibellini and Louie Hill were stored in an Access database. This database was stored on an American Vanadium server in Reno. Legacy drill data, in paper format, were stored in the American Vanadium offices at Reno (Hanson et al., 2011).

Geological data from the RMP and American Vanadium programs were collected in Excel format, and subsequently uploaded to the Access database. Collar survey data were recorded as part of the geological data. Analytical data were supplied in digital (CSV) format by ALS Chemex and loaded into the Access database. Assay certificates were supplied in PDF format and were stored in American Vanadium's Reno office (Hanson et al., 2011).

The Gibellini Project database was migrated by Silver Elephant to the GeoSequel sample data management system in January 2021.

Legacy data from Bisoni–McKay were compiled in Excel format by MTS in January 2021 and merged into the Gibellini Project GeoSequel database by Silver Elephant personnel. All original Bisoni–McKay data and documentation is stored in digital format on a file server in the Silver Elephant offices in Reno.

11.12 Sample Security

Sample security procedures for legacy drilling at Gibellini and Louie Hill are unknown. Sample security procedures for legacy drilling by Hecla at Bisoni–McKay is unknown.

Vanadium International and Stina Resources sealed sample bags with an 8″ long locking tie to prevent access prior to sample preparation and analysis and samples were transported by pick-up truck by company staff to ALS Chemex in Reno. Core, RC reject material, and returned assay pulps were stored in a secure facility in Eureka.

RMP drill samples were transported each day by RMP or drill personnel to the RMP office in Eureka and stored in a secure layout area until ready for dispatch to the assay laboratory. Trucks from ALS Chemex, either from the Winnemucca or Elko sample preparation facilities, picked up samples at the RMP Eureka office. A similar procedure was followed for the 2010 American Vanadium program.

RMP and American Vanadium remaining core, RC reject material, and returned assay pulps were stored in a secure facility in Eureka.

11.13 Comments on Section 11

The QP is of the opinion that the quality of the analytical data is sufficiently reliable (also see discussion in Section 12) to support Mineral Resource estimation as follows:

- Documentation of drilling methods employed by the various legacy operators is sparse. No cuttings, assay rejects, or pulps remain from these drilling campaigns
- All legacy data in the Gibellini Project resource database were entered by AMEC and MTS, and accurately represent the source documents
- No records remain for the drill sampling methods employed by NBMG (core), Terteling (rotary), Atlas (rotary), Union Carbide (rotary), and Hecla (RC). Noranda and Inter-Globe collected drill samples on 5 ft intervals. Vanadium International and Stina Resources collected RC drill samples on 5 ft intervals and core drill samples on nominal 5 ft samples

- RC and core methods sampling employed by RMP and American Vanadium are in line with industry norms. RMP collected RC samples on 5 ft intervals. Core was sampled by RMP and American Vanadium on nominal 5 ft intervals, with a minimum of 1 ft and a maximum of 9 ft
- Drill sampling has been adequately spaced to first define, then infill, vanadium anomalies to produce prospect-scale and deposit-scale drill data. Drill hole spacing varies with depth. Drill hole spacing increases with depth as the number of holes decrease and holes deviate apart, and is more widely-spaced on the edges of the Gibellini, Louie Hill, and Bisoni–McKay deposits
- Sample preparation for samples that support Mineral Resource estimation has followed a similar procedure for the RMP and American Vanadium drill programs
- For portions of the legacy data, the names of the laboratories that performed the assays are known; however, no information is available as to the credentials of the analytical laboratories used for the drill campaigns prior to the RMP drilling
- The RMP and American Vanadium core and RC samples were analyzed by reputable independent, accredited laboratories using analytical methods appropriate to the vanadium concentration.

12.0 DATA VERIFICATION

12.1 Introduction

AMEC performed two data verification exercises, one in 2008, and a second during 2011, in support of technical reports on the Project. No additional work has been undertaken on Gibellini or Louie Hill since the 2011 data verification program.

MTS compiled all available drill data for the Bisoni–McKay property into a digital database in 2021, surveyed drill locations in the field, and conducted a verification program of assays from legacy drilling.

Wood completed a review of the available Bisoni–McKay metallurgical test work in 2021 (see discussion in Section 13.6.2). Based on the review and a comparison to the Gibellini metallurgical testwork, Wood was able to provide recovery recommendations for the three Bisoni–McKay material types.

12.2 2008 Verification Program

12.2.1 Legacy Data Review

All legacy data in the Gibellini Project resource database in 2008 were entered by AMEC and accurately represent the source documents. Data quality of the surveys, assays, and geology were reviewed as follows (Hanson et al., 2008):

- AMEC was able to locate the mine grid in the field and verify the location of several Inter-Globe drill holes using a Global Positioning System (GPS) instrument but was unable to locate the exact location of Terteling, Atlas, and Noranda drill holes.
- All drill holes making up the Gibellini Project resource database in 2008 are relatively short (98% of holes are less than 350 ft in length) and vertical, and so AMEC does not consider the lack of down-hole surveys to be a significant concern.
- AMEC conducted data integrity checks of the Gibellini Project digital database in 2008 (checking for overlapping intervals, data beyond total depth of hole, unit conversion, etc.) and concluded that the resource database is reasonably error-free and acceptable for use in Mineral Resource estimation.
- Inter-Globe V_2O_5 assays were found to be accurate and precise based upon check assays and duplicates included in the QA/QC program for the drill campaign. AMEC considers these assays to be acceptable for use in resource estimation, but because

no original assay certificates remain from this campaign, AMEC recommends that blocks affected by Inter-Globe assays be assigned a maximum classification of Indicated Mineral Resources.

- Inter-Globe V_2O_5 assays from nearby drill holes provide a check of assay accuracy for the Terteling, Atlas, and Noranda assays. No evidence of a QA/QC program was encountered for the Terteling or Atlas campaigns. No evidence of a QA/QC program was encountered for Noranda drill holes NG-11 to NG-52. Inter-Globe assays are considered accurate and comparing grades in nearby drill holes provides a check of the assay accuracy for these holes.
- Terteling V_2O_5 assays were found to be biased high an average of 43% relative to Inter-Globe based upon a comparison of mineralized intervals from nearby holes. AMEC recommends that the Terteling drill holes not be used for resource estimation. Because the Terteling drill pattern is adequately covered by both Atlas and Noranda drilling, the impact of not using these holes is minimal regarding adequate drill spacing throughout the deposit.
- Atlas V_2O_5 assays were found to be comparable to Inter-Globe assays based upon a comparison of mineralized intervals from nearby holes. However, because the original certificates are not available, the assay laboratory and analytical method are not known, and drill collars cannot be confirmed, the lower confidence in these data require that resources estimated with the Atlas data be classified as no better than Inferred Mineral Resources. Because the Atlas drill pattern is covered by the Noranda drill pattern through the main Gibellini resource area, the impact of assessing a lower classification to blocks affected by Atlas holes is mainly on the fringes of the deposit.
- Noranda V_2O_5 assays were also found to be comparable to Inter-Globe assays based upon a comparison of mineralized intervals from nearby holes. Noranda drill holes NG-1 to NG-10 were part of several QA/QC programs which showed that, although the original assays were biased marginally high compared to the check assay laboratories, the procedure used likely produced low-biased data compared to the best assay procedure for V_2O_5, which was used for Noranda drill holes NG-11 to NG-52. AMEC considers the Noranda assays acceptable for use in resource estimation, but because of the uncertainty in the assays, AMEC recommends that blocks affected by Noranda assays have a maximum classification of Indicated Mineral Resources.

- The Gibellini trench assays are not part of the mineral resource model and so the uncertainty in the accuracy of these assays poses no risk to the Mineral Resource estimate.
- The quality of the geological logging of drill holes at Gibellini is variable by campaign.
- Redox domain boundaries as interpreted by American Vanadium at Gibellini are acceptable for use in the Mineral Resource model.

12.2.2 RMP Data Review

The fine-grained and diffuse nature of mineralization would favor there being no grade bias caused by poor recovery.

AMEC reviewed the round robin programs performed to generate the recommended values for the SRMs used in the 2007–2008 drill campaigns and found them to be acceptable. All SRM results fell within acceptable limits and no significant bias was observable in the control charts. In AMEC's opinion, the accuracy of the 2007 ALS Chemex vanadium assays was acceptable to support Mineral Resource estimates.

A total of four blanks were submitted with 1,125 routine samples for an insertion rate of 0.4%. In AMEC's opinion, this insertion rate should be increased to the same rate as the SRMs and duplicate samples. Blanks assayed between 80 ppm and 110 ppm V, which is significantly above the lower detection limit for vanadium of 10 ppm, but significantly below the anticipated cut-off grade. AMEC recommended that RMP generate a new blank sample consisting of material lower grade in vanadium, with an average grade of less than 10 ppm vanadium.

A total of 23 field duplicates were submitted with 1,125 routine samples for an insertion rate of 2.0%. AMEC calculated the precision for vanadium to be ±24% at the 90^{th} percentile. In AMEC's opinion, the precision for 2007 ALS Chemex vanadium assays was acceptable to support mineral resource estimates.

AMEC compared drill hole collar elevations to the electronic topography. Five of the 148 drill hole collars showed elevation differences of greater than 10 ft as they relate to topography, which suggested an incorrect location or an error in the topographic base.

12.3 2011 Verification Program

12.3.1 QA/QC Review

A total of 55 SRMs, 30 duplicates, and 25 blanks were submitted with a total of 1,003 project samples during the 2010 drilling at Gibellini and Louie Hill.

AMEC found the insertion rates of the control samples to be low compared to best practice and recommends increasing the rate of SRMs, duplicates, and blanks to 5% each.

RMP used three SRMs from Minerals, Exploration, and Environment Geochemistry (MEG) located in Washoe Valley, Nevada. The SRMs have a range of grades consistent with what is expected from project samples at Louie Hill. All SRM results for vanadium except four were within 6% of the recommended value of the SRM. AMEC considered the ALS Chemex vanadium data to be acceptably accurate.

Blank samples submitted with the drill samples reported values consistent with the grades expected from the material. AMEC considered the blank material to contain too much vanadium to be useful as a blank, and RMP subsequently produced another blank for use with the Gibellini and Louie Hill projects.

Duplicate data show acceptable precision for field duplicates at the 90th percentile. AMEC considered field duplicate data to be acceptably precise if 90% of the duplicate pairs report absolute relative differences (ARD) less than 30%. The Louie Hill data reported 13% ARD at the 90th percentile.

RMP submitted a total of 61 pulps from 2010 drill samples and submitted them to ACME in Vancouver, Canada. AMEC compared the ACME check assays to the original ALS Chemex assays and found them to be comparable. No significant bias was observed in the check assay data and thus AMEC concluded that the ALS Chemex data are acceptably accurate. No quality control samples were submitted with the batch of pulps submitted to ACME.

AMEC considered the ALS Chemex vanadium assay data for Gibellini and Louie Hill to be acceptably accurate, precise, and free of contamination in the sample preparation process for use in Mineral Resource estimation.

12.3.2 Gibellini Twin Drill Program Review

RMP twinned eight legacy drill holes at Gibellini to verify legacy assay results. AMEC tabulated the cumulative relative grade differences between RMP and legacy Noranda and Atlas drill holes by oxidation state. For example, Atlas drill holes within the oxide domain show a total cumulative footage of 305 ft and weighted average V_2O_5% grade of 0.221. This compares well to RMP twin drill holes totaling 305 ft and a weighted average V_2O_5% grade of 0.223, a relative difference of +1%. AMEC is of the opinion that relative differences that are generally within ±5% confirm the legacy drill results. Relative differences in the 10% range or greater require further investigation, and adjustments to assay grade may be required before use in resource estimation.

AMEC noted two domains with elevated relative differences, Atlas transition at -9% and Noranda reduced at -22% as compared to RMP drill results. All other domains have less than 5% relative differences or just slightly above and no adjustments to the vanadium grades are recommended.

AMEC plotted the Atlas transition domain assay results against RMP drill results on a quintile–quintile plot. AMEC noted that the Atlas transition domain shows different linear trends from 0% V_2O_5 to 0.410% V_2O_5, from 0.410% V_2O_5 to 0.510% V_2O_5, and greater than 0.510% V_2O_5. AMEC recommended that Atlas assays be adjusted as follows:

- From 0% V2O5 to 0.409% V2O5 - adjusted down by 25%
- From 0.410% V2O5 to 0.510% V2O5 - adjusted down by 5%
- Greater than 0.510% V2O5 - adjusted up by 15%.

AMEC recommended that additional twin holes to the Atlas drilling be completed to duplicate approximately 10% of legacy drill holes.

AMEC also plotted the Noranda primary domain assays against American Vanadium drill results using a quintile–quintile plot. AMEC recommended that Noranda reduced assays be adjusted downward by 20%.

12.3.3 Louie Hill Twin Drill Program Review

AMEC's comparison of the legacy Union Carbide data to the American Vanadium assay data at Louie Hill found that the Union Carbide assays are biased about 10% high on average. AMEC reduced the V_2O_5 grades for the Union Carbide drilling by 7% prior to resource estimation. Because of the uncertainty in the drilling methods, sample preparation and assay methodology, and the grade bias when compared to the American Vanadium assays, AMEC limited the classification of resource blocks that depend upon the Union Carbide drill holes at Louie Hill to the Inferred Resources category.

12.4 2021 Verification Program

12.4.1 Bisoni–McKay Legacy Drill Data

MTS compiled all legacy drill data from the Bisoni–McKay property from original documents in January 2021 (MTS, 2021). Collar, geology, survey, and assay information were compiled for 49 drill holes. Trench sampling data were compiled by Silver Elephant but were not included in the resource database due to lack of confidence in location and sampling methods. A summary of the compilation process follows:

- Drill data were compiled from various sources, including drill logs, assay certificates, drill hole location maps, and tabulations of data from prior operators in Microsoft Excel or scanned document (e.g., portable document format (pdf)) format
- Collar locations were converted to UTM NAD83 Zone 11 feet units, consistent with the coordinate system used for Gibellini and Louie Hill
- Where necessary, vanadium assays were converted to vanadium pentoxide percent units (V_2O_5%), consistent with the assay units used for Gibellini and Louie Hill
- Oxidation, color, and lithology logging codes were standardized into a numerical system for use in resource estimation

All data in the Bisoni–McKay resource database were entered by MTS and accurately represent the source documents. A summary of known data quality issues with the legacy surveys, assays, and geology follows:

- No original collar coordinate survey records are available other than those found in the drill logs or tabulations in prior technical reports
- Some collar coordinates were recorded using different units (e.g., feet vs. meters) and some were recorded using different datums (e.g., NAD27 vs. NAD83)
- The drill hole azimuth and dip for some drill holes conflict between the drill logs and the text in the technical reports for the property, based on data in Turner and James (2005), Ullmer and James (2006), and Ullmer (2008)

- No original assay certificates are available for the Hecla drill campaign and the laboratory and assay methodology are unknown
- None of the drill holes were surveyed down-hole
- No evidence of an assay QA/QC program is available for any of the legacy drill campaigns.

MTS and Silver Elephant completed several data verification programs to confirm the data quality of the resource database. MTS and Silver Elephant compared the drill hole collar locations in the database to air photographs and topographic surfaces of the area to confirm the location of drill hole collars. The locations and elevations of some drill holes were modified based on these comparisons.

MTS surveyed five legacy drill holes in the field using a handheld GPS device as a check on the accuracy of the collar coordinates in the database. All five drill holes were identified in the field by the presence of a wooden stake and the relative location of the stake to the closest drill hole on the drill hole location maps from prior technical reports. One of the stakes had the drill hole name clearly marked. Three of the collars surveyed were within four meters of the database coordinates; however, two collars were between 10 m to 29 m away from the database location. The accuracy of the handheld GPS used by MTS is known to be ±10 m accuracy in easting and northing.

MTS selected 127 pulps and 19 coarse rejects from the Vanadium International and Stina Resources legacy drill campaigns and submitted them for check assay at ALS Minerals in Reno, Nevada. The results of the check assays indicate that there is no significant bias in the vanadium pentoxide assays and they are sufficiently accurate to support resource estimation purposes.

In summary, in the QP's opinion, the Bisoni–McKay resource database contains the best location, assay, and geology information available to Silver Elephant and is acceptable for resource estimation purposes. Because of data quality issues identified in the legacy drill data, the QP assigned a maximum classification of Inferred to the Bisoni–McKay Mineral Resource estimate.

The QP recommends that Silver Elephant conduct additional verification work to confirm the accuracy of the location and assay data, including:

- Re-log available drill core and RC cuttings to produce geological information consistent with Silver Elephant logging in the Gibellini and Louie Hill areas

- Complete confirmation drilling in the North A and South B to confirm the thickness and grade of legacy mineralized intercepts.

12.5 Comments on Section 12

The QP considers that a reasonable level of verification has been completed, and that no material issues have been left unidentified from the programs undertaken.

The QP, who participated in, and relies upon this work is of the opinion that the data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in Mineral Resource estimation:

- Sample data collected adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposits
- AMEC completed a database audit for Gibellini in 2008 (Hanson et al., 2008). Conclusions from that audit were that the data were generally acceptable for Mineral Resource estimation
- Data made available for Gibellini and Louie Hill after the 2008 review were audited by AMEC in 2011 (Hanson et al., 2011). Conclusions from that audit were that corrections were required to Noranda and Atlas assay data at Gibellini, and to the Union Carbide assays at Louie Hill. AMEC also recommended that as a result of the audit that additional twin holes should be drilled at Gibellini to verify Atlas data
- Drill data for Gibellini and Louie Hill were verified by AMEC and Wood prior to Mineral Resource estimation by running a software program check
- MTS compiled legacy data for Bisoni–McKay in 2021. Because of data quality issues identified in the legacy drill data, the QP assigned a maximum classification of Inferred to the Bisoni–McKay Mineral Resource estimate. The QP recommends that Silver Elephant conduct additional verification programs including relogging available drill core and cuttings, and a drill program to confirm the thickness and grade of legacy intercepts
- Wood completed a review of the available Bisoni–McKay metallurgical test work in 2021 (see Section 13.6.2). Based on the review and a comparison to the Gibellini metallurgical testwork, Wood provided recovery recommendations for the three Bisoni–McKay material types. Wood noted that the metallurgical information would only support an Inferred confidence classification.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Extensive metallurgical research was carried out by CSMRI, Noranda Research Centre, and Hazen Research from 1972 to 1975 on various aspects of metallurgical testwork on Gibellini mineralization (Condon, 1975). Only the work completed by Noranda was available for review. American Vanadium undertook testwork from 2008–2011.

13.2 Gibellini Metallurgical Testwork

The Gibellini metallurgical testwork spans material obtained by Noranda, to composites sample of core that was accumulated from earlier exploration core drilling, to confirmatory core drilling programs to trench samples leached at coarse sizes, to finally pilot programs where trench samples were taken across the deposit to make a composite of transition and oxide material that has a deposit-type break down of material (~50% oxide/50% transition) from numerous trenches.

The sample testing varied from bottle roll tests, to small diameter columns (approximately six to eight times the diameter to mineralized material size ratio) to large diameter pilot columns. These columns used either single pass solution leaching or continuous solution recycling with batch wise or semi-continuous solvent extraction recovery of vanadium.

13.2.1 Noranda

Three material samples, GI-9583 (oxide), GI-9585 (transition) and GI-9633 (reduced), were taken by Noranda and sent to SGS Lakefield Research Laboratories (SGS Lakefield) in Canada.

The test samples were prepared by mixing an amount of concentrated sulphuric acid with the material and allowing the material to rest (cure) for 24 hours. A second set of samples was prepared in the same manner, but also had manganese dioxide added to them prior to acid addition.

The cured samples were then added to bottles and sufficient water was added to make a 40% solid slurry. The bottles were rolled for 96 hours.

Head Analysis

The vanadium head grade analyses for the three samples are shown in Table 13-1.

The multi-element analysis indicates that there is a slight difference in the samples with GI-9583 having more zinc, aluminum, magnesium and iron than the other two samples. Sample GI-9633 contained more calcium than the other two samples.

X-ray diffraction (XRD) analysis identified a vanadium mineral (fernandinite) in sample GI-9633. XRD analysis also identified mineral species that are in excess of 1%. Since the grade of the samples is low, the lack of identification in the other samples is not unexpected. Other minerals identified were quartz, feldspar, mica, and kaolinite.

Bottle Roll Test Results

Bottle roll test results are presented in Table 13-2 for the tests that used 300lb/st of sulphuric acid, and in Table 13-3 for the bottle roll tests that used the same concentration of sulphuric acid, but also had manganese dioxide added.

The leaching data indicate that GI-9583 behaves differently to GI-9585 and GI-9633. The recovery of this sample was significantly lower than the other samples. The screen analysis showed that all size fractions were leached to a similar extent. The addition of manganese dioxide was probably not required since the recovery was not substantially improved.

Interpretation of Test Results

The data accumulated shows several important factors about the mineralized material:

- The vanadium mineral identified is an oxide mineral
- The recovery from the coarse material is essentially the same as the fine ground material
- The material samples do not appear to be the same
- The amount of acid used may be able to be decreased.

Table 13-1: Vanadium Grades, Material Samples

Sample	%V	$\%V_2O_5$
GI-9583	0.19	0.39
GI-9585	0.30	0.54
GI-9633	0.37	0.66

Table 13-2: Recovery for Tests using 300 lb/st Sulphuric Acid

Sample	-½ inch (%)	-10 mesh (%)	-200 mesh (%)
GI-9583	40.3	38.5	41.7
GI-9585	70.1	66.5	69.9
GI-9633	83.6	85.3	86.5

Table 13-3: Recovery for Tests using 300 lbs/st Sulphuric Acid and Manganese Dioxide

Sample	-½ inch (%)	-10 mesh (%)	-200 mesh (%)
GI-9583	36.5	40.3	38.7
GI-9585	69.9	70.5	68.4
GI-9633	86.7	87.4	85.8

The XRD analysis of the samples identified fernandinite ($CaV_8O_{20}. xH_2O$). This mineral is a mixture of 4^+ and 5^+ vanadium ions. The mixed oxidation state indicates that the mineral would require oxidation to form the soluble vanadate ion.

Since the vanadium minerals are at a concentration below the detection limit, the leaching data would have to be used to determine if the mineral species are similar. From this leaching data, it appears that the samples contain the same, or similar, oxide forms of vanadium.

The recovery for each sample was essentially the same for all three size ranges tested. The fractional analysis shows vanadium recovery from all size fractions, indicating that the mineral is liberated even at a coarse size. This information is important since it indicates that heap leaching could be a viable recovery method.

The data also indicated that leaching at a coarser material sizing may be possible. Data also indicate that it would be valid to use a leaching procedure on pulverized samples to predict the amount of soluble vanadium present. This type of method could be used as an exploration tool and as an ore-control method during mining operations.

It is possible that the amount of acid used was more than would be necessary to achieve dissolution of the material. The reduction of acid required to dissolve the vanadium could enhance future project economics since acid usage is about half of the production cost for the vanadium.

13.2.2 2008 Metallurgical Testwork

Mineralized Material Description

The initial phase of the test program was for Dawson Mineral Laboratories (Dawson) in Salt Lake City, Utah to take the core samples supplied by American Vanadium (then RMP) and prepare the samples. Data generated by Dawson for this showed the sample head grades for the core samples are indicated in Table 13-4.

Test Results

The initial testwork at Dawson was set up to benchmark their procedures with the SGS Lakefield work. The initial work on the same samples as used by SGS Lakefield was to test the effect of acid concentration. These tests showed that the acid concentration could be lowered to 100 kg/t (200 lb/st) sulphuric acid.

The samples tested at SGS Lakefield were surface samples and the Dawson test samples for the columns were core samples. When the initial bottle roll tests were done at 200 lb/st, the recovery was lower than expected. An additional series of tests were done using 300 lb/st and the recovery increased to the levels expected.

Based on these data the columns were set up to use 300 lb/st sulphuric acid on the oxide and transition samples and 350 lb/st on the reduced sample. Additionally, because the reduced sample's grade was lower than expected, a fourth sample was acquired from sampling another RMP core drill hole.

A bottle roll program was set up to test RC cuttings from around the Gibellini deposit area. This testwork indicated that the recoveries for oxide, transitional and reduced material would be as indicated in Table 13-5.

Table 13-4: Head Grades, 2008 Samples

Sample	Head Grade %V	Head Grade % V_2O_5
Oxide	0.139	0.248
Transition	0.185	0.330
Low Grade Reduced	0.104	0.186
High Grade Reduced	0.185	0.330

Table 13-5: Bottle Roll Test Recovery Data

Sample	Recovery (%)
Oxide	34.6
Transition	55.4
Reduced	25.4

This program showed that recovery varied with grade and sample and, at least for bottle roll tests, there was no constant tail relationship.

Two additional tests were performed to determine if increased retention time would affect recovery. The column test data shows higher recovery than the bottle roll test data. Part of the difference is associated with the difference in the assay head and the calculated head of the columns but there also appears to be more overall recovery despite the head differences. These data show the recoveries indicated in Table 13-6.

The initial minus half-inch columns (oxide and transition) did not use 25 g/L acid solution as the column wash solution and this appears to have slightly affected the recovery to the low side as compared to the minus two-inch columns that used 25 g/L throughout the testwork. The columns also showed low acid consumption (see Table 13-7).

Columns almost always show higher reagent usage than used in actuality during heap operations as there are issues associated with wall effects in the columns and lower contact time due to lower bulk density.

Table 13-6: Column Test Recovery Data

Sample	-½" (%)	-2" (%)
Oxide	57.2	59.6
Transition	65.4	72.1
Reduced	52.3	No Column

Table 13-7: Comparison of Acid Consumption, - ½" and 2" Columns

Sample	-½" (lb/st)	-2" (lb/st)
Oxide	119	101
Transition	115	90
Reduced	115	No Column

Since the columns contain the largest samples used, and represent the more rigorous comparison to what would be expected from a heap leach operation, the recoveries derived from the columns are considered to be the most reliable indicator of heap leach recovery. Table 13-8 outlines the recommended study recovery values and acid consumption from the 2008 PA.

The difference between the column results and the bottle roll tests (which are usually considered to perform the more complete leaching) may be due to the longer time of contact of the solution and material (bottle roll 96 hours versus column 46 days) or possibly that the bottle roll test may allow a saturation of the vanadium in solution and therefore inhibit further dissolution.

The recovery rates were derived from the column testwork. The bottle roll tests were excluded due to the solubility and/or leach duration issues identified, and for oxide and transition material the 2" tests were used because they had the 25 g/L solution washing the material throughout the process, while the ½"samples used a lower concentration solution initially, which seemed to inhibit dissolution.

During the bottle roll testing, it was noted that the filtration of the samples was very slow. It was postulated that there were clay or silt particles present and that these particles might adversely affect the percolation of the columns.

Table 13-8: Recommended Study Recovery Values and Acid Consumption

Material	Recovery (% V_2O_5)	Acid Consumption (lb/t)
Oxide	65.0	300
Transition	70.0	300
Reduced	52.3	300

It was recommended that when the samples were contacted with acid that a polymer be used to agglomerate the fines. Samples of polymers were obtained from Hychem and a screening test was done to determine which polymer would work best.

AE 852 appeared to work the best and the addition rate of 0.5 lb/st wash was chosen. No fines migration or plugging were observed during the column tests when the polymer was added to the material prior to being loaded into the columns.

Recommended Additional Work as a Result of the 2008 PA

The 2008 metallurgical testing was done to determine the viability of heap leaching for the Gibellini vanadium material. The previous work indicated the amenability of the Gibellini material to heap leaching; however, the results were not conclusive.

Bottle roll testing does not give a direct relationship to the ability to heap leach. The bottle roll data had as much as 20–30% lower recovery than the column leach data.

One item that might be tested is the longer retention time or lower bottle roll slurry density. The longer time might allow additional leaching to occur. If a lower slurry density was used (30% rather than 40%), this would make sure that all available vanadium minerals would be dissolved (assuming that all possible dissolution of the vanadium was achieved). It was thought that saturation of vanadium may have been reached in the bottle roll test because crystals formed in the column solutions that had to be diluted to be dissolved. Consequently, if vanadium dissolution is a factor, doing additional testwork using a lower slurry density in the bottle roll test may help to get the bottle roll and column results more closely correlated.

AMEC recommended that additional column tests be done to determine if the leaching can be done with different polymers at a lower concentration, if lower amounts of acid can be used to obtain the same recovery, if samples from different parts of the deposit will have the same recovery profile as the samples tested in this program, if the material can be leached without polymer addition, and if the material could be run without crushing (run of mine leaching). The run of mine leach would require that the material be delivered to a process area where it could be contacted with the concentrated acid, so it could be cured. The material would have to be minus six inch for proper material handling.

Testwork was suggested to prove that a lower-cost method of testing (bottle roll tests) could be used to gather additional information for the deposit. The testwork was also recommended to determine if the polymer usage could be decreased and the cost lowered or eliminated. Another purpose of the testwork was to determine if lowering the acid added during curing can still provide sufficient leach recovery. And finally, the program would be used to determine if one or all the stages of crushing could be eliminated and still maintain recovery.

13.2.3 2011 Testwork

American Vanadium instituted a metallurgical drilling program where six core holes were drilled to obtain samples for metallurgical testing. All testwork was performed by McClelland Laboratories (McClelland), of Sparks, NV.

Since the 2008 PA samples were taken across the central portion of the deposit in an east–west direction, which is an easily accessible portion of the deposit, drill holes were set up north and south of these previous holes.

Test Samples

The drill core samples were prepared at McClelland and the head grades for the samples are shown in Table 13-9.

The holes were broken down into oxide and transition composites, and a master composite of the various zones was also composited for testing. In addition to the oxide and transition zones, composites were made for the reduced zone. These samples, north zone reduced and south zone reduced, were tested for future consideration and to test a belief that they would exhibit lower recovery with high acid consumption.

The composite material for the column was undertaken to determine if the composited material behaved in a similar manner to the individual composites. Table 13-10 summarizes the testwork results. The recovery used in the 2011 Feasibility Study is provided in Table 13-11. The acid consumption was assumed to be 37 kg/t across the oxide and transition materials.

Table 13-9: Head Grades, 2011 Testwork Samples

Sample	Initial Assay Grade (% V)	Duplicate Assay Grade (%V)	Triplicate Assay Grade (%V)	Average Assay Grade %V (V_2O_5)
North zone oxide	0.103	0.103	0.103	0.103 (0.184%)
North zone transition	0.151	0.145	0.147	0.148 (0.264%)
South zone oxide	0.163	0.162	0.162	0.162 (0.288%)
South zone transition	0.196	0.190	0.197	0.194 (0.345%)

Table 13-10:Summary of Test Results for 2011 Feasibility Study Samples

Sample	Size Maximum	Test Type	Days	% Recovery V	Calculated Head %V	Acid Consumed (kg/t)
North zone oxide	12.5 mm	Column	86	42.0	0.112	59
	6.3 mm	Column	86	41.5	0.118	65
	6.3 mm	B. Roll	4	18.4	0.114	48
	850 µm	B. Roll	4	20.3	0.118	54
	75 µm	B. Roll	4	21.2	0.113	53
South zone oxide	12.5 mm	Column	86	44.1	0.179	48
	6.3 mm	Column	86	48.4	0.186	39
	6.3 mm	B. Roll	4	16.0	0.169	24
	850 µm	B. Roll	4	19.9	0.166	29
	75 µm	B. Roll	4	17.8	0.180	29
North zone transition	12.5 mm	Column	86	53.8	0.158	34
	6.3 mm	Column	86	55.4	0.157	33
	6.3 mm	B. Roll	4	41.1	0.151	20
	850 µm	B. Roll	4	42.9	0.154	23
	75 µm	B. Roll	4	45.2	0.155	25
South zone transition	19 mm	Column	86	60.3	0.219	50
	9.5 mm	Column	86	62.5	0.208	49
	9.5 mm	B. Roll	4	41.3	0.206	41

Sample	Size Maximum	Test Type	Days	% Recovery V	Calculated Head %V	Acid Consumed (kg/t)
	850 µm	B. Roll	4	43.4	0.221	44
	75 µm	B. Roll	4	54.9	0.195	43
Master composite	19 mm	Column	87	57.3	0.157	45
	75 µm	B. Roll	4	46.8	0.154	55

Table 13-11:Master Composite Comparison

Sample	Composite (%)	Recovery (%)	Acid Consumption (kg/t)	Head Grade (%V)
North zone oxide	9.45	42.0	59	0.115
North zone transition	41.65	53.8	48	0.155
South zone transition	48.90	60.3	50	0.210
Master composite predicted	—	55.9	48	0.168–0.185
Master composite actual	—	57.3	45	0.158

Solvent Extraction Testwork

Solvent extraction scoping testing was done to determine if:

- Di-2-ethyl hexyl phosphoric acid (DEHPA) or Alamine 336 (tertiary amine) would be superior extractants
- Maximum vanadium loading of selected organic
- Isotherm loading curve (McCabe–Thiele) diagrams to determine required stages
- Substitution of tri-octyl phosphorous oxide with Cytec 923
- Test the effectiveness of powdered iron, zinc and ascorbic acid as a reducing agent for DEPHA usage
- Determine the sulfuric acid concentration for optimum stripping of loaded organic.

Column solutions from early-stage leaching were collected and combined to produce a solvent extraction test solution. Due to the potential of producing a limited market product that would contain uranium due to using Alamine 336, it was determined that DEPHA would be the preferred extractant due to the higher selectivity for vanadium.

Initial screening tests showed that powdered iron was the best (least expensive), had no gas evolution and the lowest required amount of material to achieve target oxidation reduction potential (ORP) reductant for the process.

The selected testwork design parameters were:

- SX extraction pH range 1.8 to 2.0
- DEHPA concentration 0.45 M (~17.3% w/w)
- Cytec 923 concentration 0.13 M (~5.4% w/w)
- Orform SX-12 (high purity kerosene as an organic diluent)
- Powdered iron addition 3 to 4 g/L PLS
- Strip solution sulfuric acid concentration 225 to 250 g/L
- Solvent extraction efficiency ~97%
- Solvent extraction strip efficiency ~98%.

Agglomeration Testing

A series of tests on the north zone oxide and south zone transition composites was performed on material crushed to 100% passing 12.5 mm. Two polymers were tested, HYCHEM AF306, a high molecular weight anionic poly acrylamide (recommended by manufacturer and used in DML testing) and C-492 (a poly vinyl alcohol solution). The samples were acid agglomerated (with 25 kg/t sulfuric acid) and allowed to cure for 24 hours. The testing was done using the McClelland method (jigging) as opposed to the Kappes, Cassiday and Associates (KCA) method, which tests the flow of fluids through a bed of agglomerates that have been saturated with water.

Polymer concentrations of 0–60 g/t were tested, and partial degradation was seen in all samples, with the least degradation being seen in the 60 g/t concentration. Previous testwork (DML) used 136 g/t, and it was determined to use this quantity for design requirements. An agglomerated sample (30 g/L sulfuric acid and 0.18 lb/st AF306) was column leached, rinsed and the drained material was sent to the AMEC geotechnical laboratory to do a load permeability test. The material was tested at compressive loads from 0 to 100 ft, and a hydraulic conductivity of 2.99 x 10-4 cm/sec or higher was maintained throughout the testing on the north zone oxide sample and 3.04 x 10-4 cm/sec or higher was maintained on the south zone transition sample. The agglomeration moisture was approximately 10% for the samples.

Testwork Interpretation

The testwork of the north zone oxide and the south transition material showed that all of the material (oxide and transition) was amenable to acid agglomerated heap leaching.

The material had a grade from 0.112–0.210% vanadium. The recovery ranged from 42–60.3% on the coarse sample (-2") and from 41.5–62.5% on the minus ½" sample. The recovery from this material was close to the expected recovery with the average recovery being approximately 1% higher than expected.

The agglomeration testing indicated that HYCHEM AF306 was a better agglomeration aid than C-492. The leached material maintained acceptable solution conductivity even with a static load equivalent to 100 ft of heap. The agglomeration moisture ranged from 9.2 to 12.4%. The expected agglomeration moisture was 10%.

The solvent extraction work showed that iron powder was an effective reductant and that the optimum pH range to the ORP adjustment was 1.8–2.0. The organic make-up for a processing plant should be 0.45 M DEHPA, 0.13 M Cytec 923 and the remainder Orform SX-12. The strip circuit should use 225–250 g/L sulfuric acid and use a HCL wash to remove iron.

13.2.4 Pilot Plant 1 and 2 Testing

The 2011 Feasibility Study recommended that a pilot plant study be done to demonstrate that a locked-cycle would not adversely affect recovery due to recycling of impurities and organic from any solvent extraction step. The pilot plant tests were conducted at McClelland in 2012–2013.

Samples

A series of trenches was excavated and approximately 18 st of material were sent to McClelland for pilot testing. The material was air dried and stage crushed to 2" where a column sample was cut for 12" columns and then the mineralized material was crushed to – ½". A head sample was taken, and material for benchmarking columns and a bottle roll test was also collected. Pilot column 1 contained approximately 4,000 kg of material that was agglomerated with 37 kg/t acid and 0.3 lb/st of HYCHEM AF306.

Head Analysis

Splits from the sample were sent out to five laboratories (including McClelland) for four-acid digestion with an ICP finish.

As shown in Table 13-12, the head assays were substantially higher than the estimated head grade of 0.160% V in the Mineral Resource estimate; thus, the tests are expected to be more representative of results obtained in an optimized mining plan.

Column Tests

The crushed and agglomerated material was allowed to cure at least one day (sample preparation and agglomeration took two days) prior to loading in the column. The material was loaded into a 36″ column. When the column was wetted, the column subsided, causing temporary damage to the irrigation equipment. The drip tubes separated, and the solution was added to only part of the column. This partial wetting of the column caused the initial low recovery seen in the test data.

A total of 199 days of active solution application was done on pilot column 1.

Due to the issues with the solution application, a second pilot column (pilot column 2) was started in a 44″ column.

The solution application and material subsidence were closely monitored, and no application issues occurred during this test. Supporting column tests were done on -2″ material and -½″ material in an open circuit to compare with results from the closed circuit. Additionally, a bottle roll test on -75 µm material for four days and 30 days was done to determine if a longer leach time would show recovery closer to the column recovery (see Table 13-2).

Leaching on the second pilot column was continued for 198 days. The column washing was continued after the resting column drained. The washing was started initially with surging of the column (adding for three to four days and draining for four to five days. A resting period of 53 days followed, and the washing restarted continuously from day 488 until it was completed on the 526th day.

The open circuit columns showed higher recovery than the closed-circuit columns. The 30-day bottle roll showed 6.6% more recovery and was 2% above the average column recovery. It appears that the pulverized sample leached for 30 days, is a better prediction of final recovery than the four-day bottle roll test.

Table 13-12:Gibellini Bulk Sample Leach Results

Crush Size 100% Passing	Test Type	Time (days)	% Recovery Vanadium (%)	Head Grade (%V)	Acid Consumption (kg/t)
50 mm (2")	Column, open circuit	123	76.6	0.299	44
12.5 mm (½")	Column, open circuit	123	80.2	0.313	36
12.5 mm ((½")	Column, closed circuit	199	68.3	0.284	42
12.5 mm (½")	Column, closed circuit	198	74.0	0.313	48
12.5 mm (½")	Bottle roll	4	67.1	0.286	37
1.7 mm (-10 m)	Bottle roll	4	66.3	0.286	33
-75 µm	Bottle roll	4	67.6	0.279	31
-75 µm	Bottle roll	30	74.2	0.298	27

The difference in recovery is probably due to removal of vanadium from the matrix by acid leaching over the extended period due to apatite or dolomite dissolution.

The pilot plant test used continuous solvent extraction and recycling of the raffinate back to the column. The continuous solvent extraction unit was used on accumulated PLS and run discontinuously to match its capacity to the production rate of PLS. The organic for the solvent extraction was 0.45M DEHPA, 0.13 M Cytec 923 and the remainder was Orform SX-12. The SX was operated on a 1:1 aqueous phase to organic phase (A to O) ratio.

The solvent extraction design appears to require three stages of extraction and three stages of stripping with an HCl wash on the barren organic to remove iron. Due to the potential for iron loading, it is necessary to control the free acid to the range where ferrous (Fe^{+2}) is the predominant iron species and ORP to a point where the vanadyl (VO^{+2} or V^{+4}) is the predominant vanadium species.

The final pregnant strip solution was 6.1% vanadium, 250 g/L sulfuric acid with approximately 2% Fe and Al. The solution oxidized using sodium chlorate ($NaClO_3$) to convert the V^{+4} to V^{+5}, then precipitated using ammonia to make ammonium metavanadate (AMV). To make a vanadium product for the steel industry, this AMV would be calcined (ammonia driven off) and heated to above 700°C (the fusion temperature of V_2O_5). This fused V_2O_5 would then be cooled on a casting wheel, pulverized and packaged.

Solvent Extraction and Ion Exchange Resin Testwork

The iron and aluminum impurities in the pregnant strip solution make the vanadyl solution unusable as an electrolyte for vanadium flow batteries.

To be able to meet the specifications, American Vanadium researched the potential of using ion exchange resins in conjunction with solvent extraction. Laboratory testing showed that cationic resins would load the vanadium, iron and aluminum while allowing the phosphorous and other anions to pass through. Using an acidic stripping of the resin (10 to 50 g/L sulphuric acid) stripped the metals off into a solution that could have the ORP modified to above 400 millivolts so the Fe^{3+} removal was minimized. DEHPA solvent extraction of this solution allowed preferential capture of vanadium in the organic and the subsequent pregnant strip solution contained decreased amounts of other cations.

The testwork started with screening both cationic and anionic resins. It was determined that C-211 (Siemens Water Technology) was the best resin. Initially, ammonia precipitation was done on the resin discharge, but the iron concentration was too high. Additional solvent extraction testing was done on the sample and it was determined that a large-scale test using the pregnant strip solution from pilot plant 1 and 2 would be done.

The resin testwork with solvent extraction produced the required reduction of impurities and it was determined that three stages of solvent extraction would produce a vanadium flow battery grade electrolyte. Additional bench scale testwork was done with a 500 ml column. This testwork included numerous loading, unloading sequences to produce sufficient solution to use solvent extraction shake tests to produce sufficient material to complete the full three phases of solvent extraction recovery. The resultant final strip solution met or exceeded (Fe was <10 ppm) the Gildemeister specifications shown in Table 13-13.

Table 13-13:Gildemeister's Electrolyte Specification

Specification Vanadium electrolyte solution

Client	Gildemeister Energy Solutions	Date	7/1/2011

Electrolyte formula / calculation			
substance	**unit**	**amount**	
V_{Gesamt}	mol/l	1.6	
V^{3+} / V^{4+}	-	1 : 1	
$V_2(SO_4)_3$	mol/l	0.4	
$VOSO_4$	mol/l	0.8	
H_2SO_4 free	mol/l	2	196 g/l
H_3PO_4	mol/l	0.05	

Specified values and limits				
parameter	**unit**	**specified value**	**limits (min./max.)**	**conditions**
V_{total}	wt. %	6.1	+/-0.2	20°C
density	kg/l	typical. 1.355	1.34 - 1.37	20°C
V^{4+} / V_{Gesamt}	%	50	47 - 52	-
filtration test 0,45 µm		no visible particles		homogenous, representative sample

impurities:		
element	**unit**	**limits (max.)**
Ca	ppm	<200
Mg	ppm	<200
Ni	ppm	<200
Cu	ppm	<1
Al	ppm	<300
Fe	ppm	<300
Cl	ppm	<300

classification hazardous materials
UN3264
corrosive, acidic, inorganic N.O.S
(Vanadium electrolyte solution)
8, II

packaging
UN IBC - container, 1000 l
(no outlet at the bottom)

agreements
10 liters samples per batch in advance
delivery upon approval of the samples by the client
shipping with MSDS

With these data in hand, a large-scale test was set up using the pregnant strip solution from pilot plant 1 and 2. The strip solution was loaded onto the resin and stripped off using a load cycle (1.75 L) of pregnant strip solution, followed by two volumes of 20 g/L H_2SO_4 stripping, followed by a single volume deionized water wash, then the cycle was repeated. The solution was loaded in 13 cycles (a total of about 23 L of pregnant strip solution) and the subsequent (two acid washes plus water wash) solution collected, and the solution free acid diluted to between 20 and 25 g/L sulphuric acid. The resulting solution was just over 100 L. This solution was then run through a solvent extraction system with 0.45 DEHPA, 0.13 Cytec 923, and the remainder SX-12.

The loaded organic was stripped using a solution with between 225 to 250 g/L sulphuric acid. Unfortunately, the ORP of this phase and the next phase was not measured and modified as is the norm with the PLS SX system. What occurred was that the SX did recover vanadium and rejected most other cations except iron, which was in the ferric form and loaded along with the vanadium. In three stages of extraction only 46% of the vanadium was recovered and even though the iron content was reduced, the reduction was not sufficient to meet electrolyte specifications. When data were finally available, it was noted that the ORP of the resin column solution was over 600 millivolts.

The final solvent extraction was run with the solution ORP being modified with SO_2 (in the form of sodium metabisulfite, $NaHSO_3$). This extraction showed 97% extraction and a similar level of stripping as was anticipated. The organic make-up for phase 2 and phase 3 was 0.75 M DEHPA, 0.20 M Cytec 923 with the remainder SX-12.

It is anticipated when the next phase of pilot column work is done, that the electrolyte purification may only take one or possibly two stages of solvent extraction to produce an electrolyte-grade solution. The strip circuit also contained a 10% HCl wash stage used to remove iron from the stripped organic.

In addition to running the solvent extraction recovery during a future pilot testing stage, work would be undertaken for chemical grade V_2O_5 production by oxidation of the solution using $NaClO_3$. This oxidized solution would then be treated with NH_4OH (in the plant with anhydrous ammonia), heat and time to produce AMV. The AMV would then be dried and calcined to remove the ammonia and produce a non-fused V_2O_5 powder. Another product to be produced during this test phase would be vanadyl sulfate crystals. It is well known that 6% vanadyl sulfate solution will crystallize if the solution temperature is dropped to 0°C (32°F). This product would be screened and dried for study of the impurities and re-dissolution properties.

American Vanadium patented this electrolyte purification process.

Vanadyl Sulfate Production

Vanadyl sulfate was formed from the dissolution of chemical grade V_2O_5, sulfuric acid and SO_2 gas placed in an electrowinning cell where it was converted to V^{+3} from V^{+4}. This conversion was done to test the conversion of a vanadyl sulphate solution, which will be produced directly in the solvent extraction circuit. The conversion was done in an electrowinning cell that had two graphite electrodes and two compartments were separated by a membrane (Nafion N438) that allowed electrons to pass. The electricity was supplied by a battery charger.

The solution color changed from a deep blue solution to a solution that was emerald green (this is an indication of conversion from V^{+4} to V^{+3}). The unit was operated at 12 volts direct current at about 11 amps. It took 16 hours to convert the V^{+4} to V^{+3}, which was close to the time it was calculated to convert 10 L of 5.9% V solution (1.15 M).

Additional Work Requirements

Due to operating and environmental requirements, additional pilot tests should be undertaken. These tests will differ from the original pilot tests.

Pilot column 3 should be operated to generate the gypsum precipitate that is expected to be produced when lime is used to bring the SX feed range to a pH of between 1.8 to 2.2. Additionally, SO_2 should be used as a reductant substituting for the powdered iron used previously. The gypsum precipitate formed during the operation of column 3 should be used in the agglomeration of an additional column, pilot column 4, as the return of the gypsum formed in the pH modification should be filtered and sent to the agglomeration to be combined with the mineralized material being agglomerated.

Pilot column 4 should also use lime and SO_2. The solvent extraction for columns 3 and 4 should be run in the same manner as pilot columns 1 and 2. The vanadium recovered should be tested for production of V_2O_5, as well as added value products such as vanadyl sulfate crystals, V_2O_3 and V^{+3}/V^{+4} electrolyte. These pilot columns should be used to produce solution for end-product testing and to demonstrate the present flowsheet, which will differ from the flowsheet tested in pilot columns 1 and 2. Pilot columns 3 and 4 should also test the use of anionic resin to remove uranium from the raffinate.

13.2.5 Interpretation of Metallurgical Testing Programs

The samples tested represent the deposit material as they are from a variety of locations across the deposit. Some of the testing has been done on surface samples and some tests were done on size ranges that are not the present process design.

The various metallurgical testwork programs have shown consistent recovery of the various mineralized material types with the variation being tied mostly to the grade and the time the sample has been leached.

A grade recovery curve was developed using the equation:

Recovery% = (Grade (%V) x 187.21) + 16.8

This is shown in Figure 13-1.

There were 25 data points included from the various tests and when the actual test recovery versus the projected recovery was compared, 47% of the actual recoveries were above the projected recovery. Since these samples represent a mixed sampling of parameters, that is, that samples with ¼" size (three samples), $^3/_8$" (four samples) and ¾" (five samples) were included with the ½" column test samples, the variation seen is reasonable. When the other size range samples were removed from the data set and only ½" material tests were used, the recovery curve equation (shown in Figure 13-2) is:

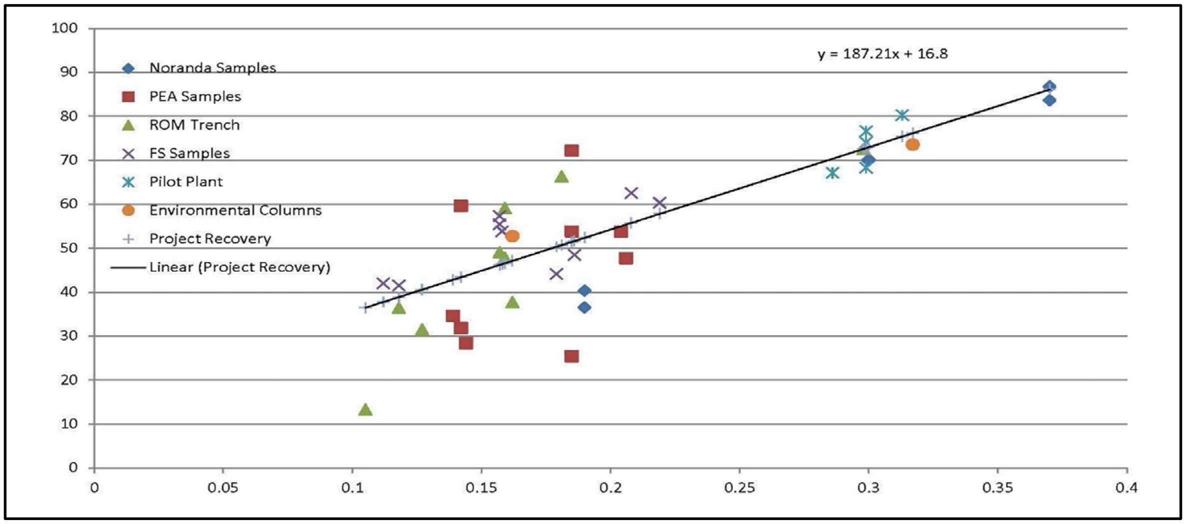
Recovery = (Grade(%V) x 148.18) + 26.92

The recovery is consistent from surface to subsurface sample, from the north, center or south of the deposit and appears to back up the consistency seen geologically when the grade is modeled. The recoveries obtained on the small scale and the large scale agree as well as the recovery determined by the three various metallurgical laboratories.

The pilot column testwork shows that DEHPA/Cytec 923 extraction and recovery works well with about 97% extraction recovery and 99% stripping recovery. Vanadium in strip solution grades can be brought up to 6.0% V or higher (crystallization did occur if recycling allowed to go too high).

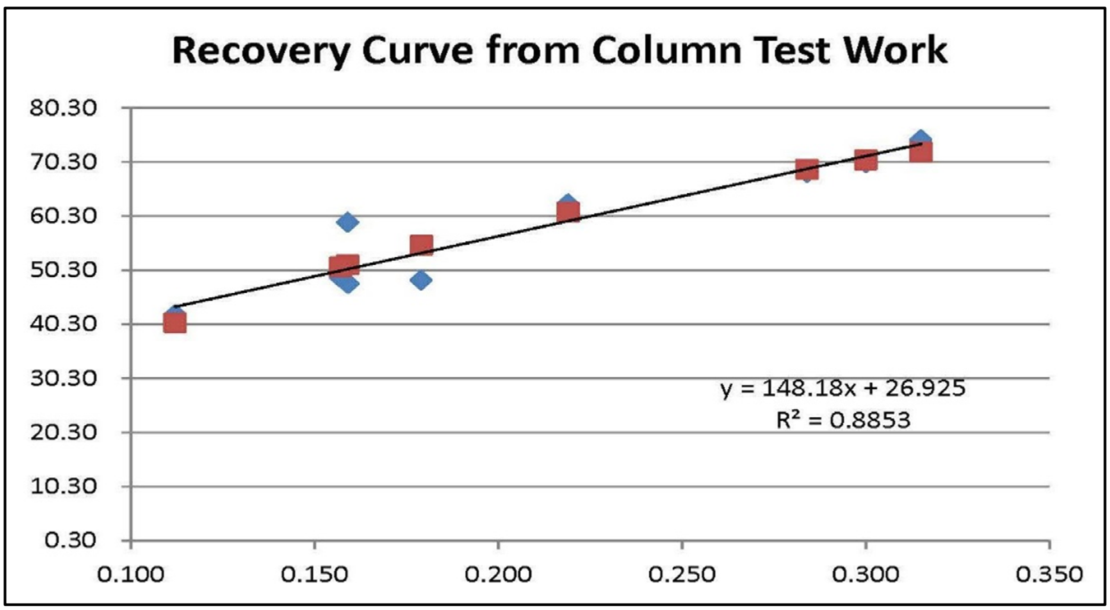
Use of ion exchange and solvent extraction to purify vanadyl solution produced in the solvent extraction circuit has been shown to be feasible. Precipitation of vanadium from an oxidized solvent extraction strip solution with ammonia was shown to be feasible, so that V_2O_5 production is possible.

Figure 13-1: Recovery Data, All Samples



Note: Figure prepared by Scotia, 2018. PEA = 2008 PA; FS = 2011 feasibility study, ROM = projected run-of-mine. Y-axis shows recovery in percent; X-axis shows vanadium head grade, in percent.

Figure 13-2: Recovery versus Grade Curve



Note: Figure prepared by Scotia, 2018. -Y-axis shows recovery in percent; X-axis shows vanadium head grade, in percent.

13.3 Recovery Estimates

No Gibellini samples showed anomalously low recovery, while the pilot columns (mixture of oxide and transition material) showed almost exactly the predicted recovery of 71.38% (average pilot column grade 0.300% V and 71.30% average recovery).

Therefore, an average recovery of 60% for oxide, 70% for transition, and 52% for reduced material is supportable for the Gibellini deposit, and the recoveries can be considered conservative.

13.4 Metallurgical Variability

Figure 13-3 shows the various core holes, RC holes and trenches where test samples were taken. When the various samples are viewed as a whole, the Gibellini deposit-wide coverage is good, with only the extreme north and south side of the pit missing samples. In general, since the recovery versus grade line has such good correlation and the samples represented in this graph are from trench and core samples, it is considered the deposit is well represented by the various samples. The RC samples indicate that the material represented by the RC holes is leachable to the same extent as the core and trench samples. These samples show lower recovery, but since only bottle roll tests of relatively short duration were done, the lower recovery is expected.

13.5 Louie Hill

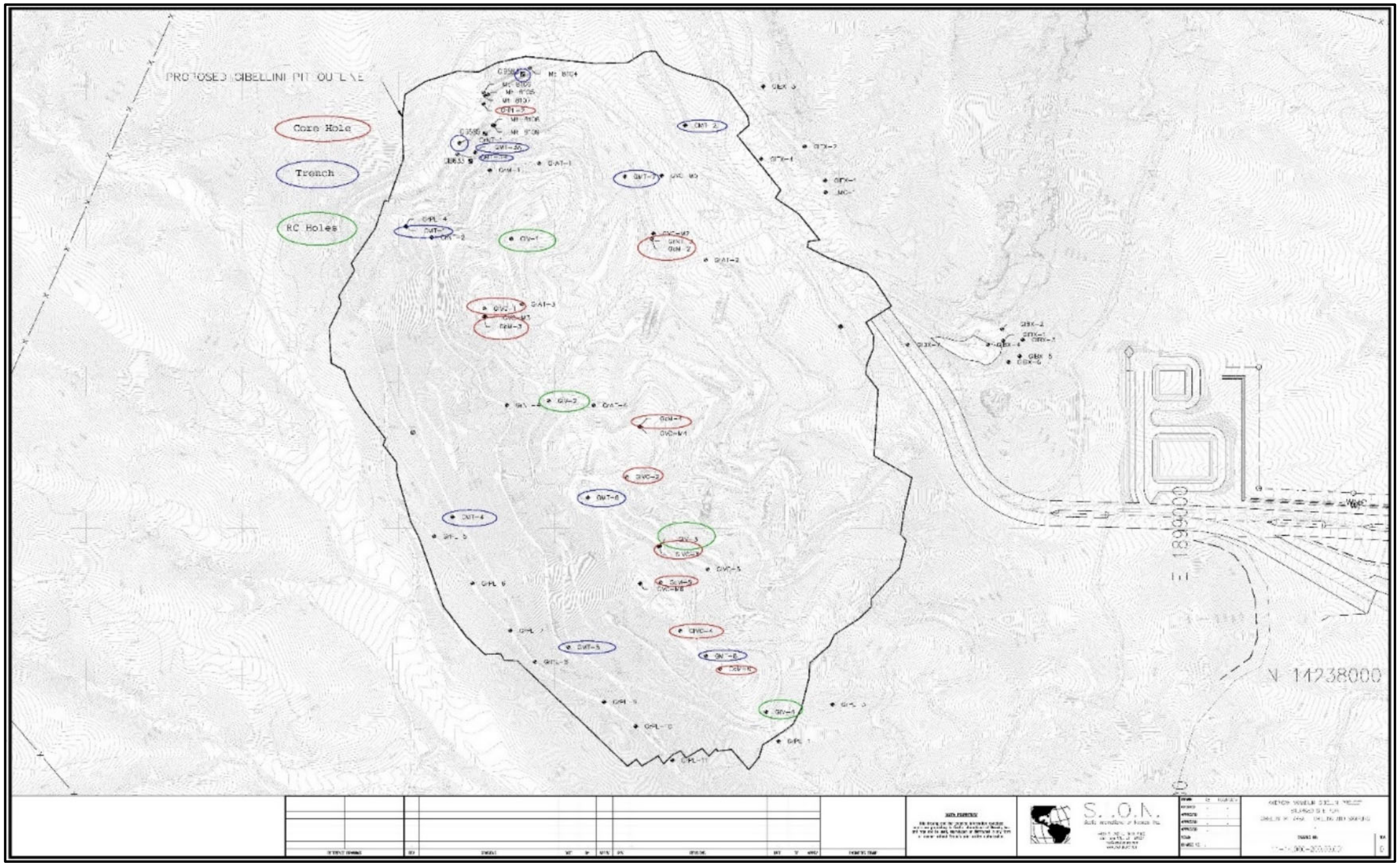
Screening testwork was performed by McClelland in 2013 on Louie Hill material. Three column tests (oxide, transition, and reduced) were performed on mineralized material composites from Louie Hill. The composite samples were collected from previously-drilled core holes. The grade of the composites was lower than similar composites from Gibellini, and the acid consumption for the Louie Hill composites was higher than seen from Gibellini composites.

Overall recovery indications for Louie Hill were 65.8% for oxide and 60.5% for transition material based on column test head results. Acid consumptions were 100 kg/t for oxide and 114 kg/t for transition.

Due to the limited testwork at Louie Hill, the recoveries and acid consumption from the more comprehensive Gibellini test program are adopted for Louie Hill.

Additional metallurgical testwork will be required to support of more detailed deposit evaluations.

Figure 13-3: Metallurgical Testwork Sample Locations, Gibellini Deposit



13.6 Bisoni–McKay

13.6.1 Overview

Scoping-level metallurgical testwork was carried out by Hazen Research on Bisoni–McKay samples in 2006. The purpose of the testwork was to examine potentially suitable front-end processing options that included magnetic separation, direct leaching, acid pugging and curing, and roasting experiments.

A series of acid pugging and curing tests were then conducted on pulverized samples from the oxide, transition and reduced mineralization. The oxide tests were carried out at varying water and acid additions, curing times, and curing temperatures. Two tests were then performed on the transition and reduced mineralization samples. The leach residues were examined using optical microscopy, and the electron microprobe indicated that the residual vanadium remained in the organic material which is largely impervious to acid attack and dissolution ambient leach conditions.

The testwork results indicated a similar leach response and acid consumption to the equivalent Gibellini mineralization. Overall recovery indications for Bisoni–McKay at a scoping level of study were 65% for oxide, 56% for transition and 50% for reduced mineralization (see discussion in Section 12.6.2).

Due to the very limited testwork conducted at Bisoni–McKay, the acid consumption from the more comprehensive Gibellini test program is adopted for Bisoni–McKay.

Additional metallurgical testwork will be required to support more detailed deposit evaluations.

13.6.2 Bisoni–McKay Metallurgy Review

Wood completed a data gap analysis for the mineral processing and metallurgical testing aspects of the Bisoni–McKay mineralization in April 2021, to determine if sufficient data were available to support classification of a Mineral Resource estimate for the Bisoni–McKay area based on an assumption that a heap leach process similar to Gibellini could be used (Wood, 2021).

A comparison of the vanadium mineralization for Gibellini and Bisoni–McKay was summarized and described in the 2016 technical report (Ullmer and Benzten, 2016). In addition, the Bisoni–McKay drill logs were reviewed for indications of differences in mineralogy as compared to Gibellini. The Bisoni–McKay intervals are logged as shale or mudstone with only the color of the intervals being described as variations, which is a function of the degree of oxidation. The average vanadium grades by rock type and color as compared against Gibellini appear similar and no particular differences in mineralogy are evident from the information available.

The metallurgical testwork for Bisoni–McKay was preliminary in nature and intended to identify possible treatment routes, whereas the Gibellini testwork is fairly advanced and was focused on developing the heap leach process. While there are differences in the tests conducted which do not necessarily allow direct comparison of leach results, it is possible to compare the relative response of the samples to the particular testing conditions.

The conclusions and recommendations from the technical memorandum are summarized as follows:

- The leach response for the pugging, cure and leach tests conducted on the Bisoni–McKay oxidized zone does not compare well with the Gibellini column tests. For the purposes of reasonable prospects of eventual economic extraction, the maximum extractions on the Bisoni–McKay oxide mineralization should be assumed to be similar to Gibellini, so the recommended recovery to be applied is 65%
- The leach recovery for the Bisoni–McKay transition zone is lower than Gibellini. The Bisoni–McKay test results represents the highest practical extraction so the recommended extraction for purposes of reasonable prospects of eventual economic extraction is 56%
- The leach recovery for Bisoni–McKay reduced zone is similar, although slightly lower than the Gibellini reduced mineralization recovery. A recovery of 50% can be applied to the Bisoni–McKay reduced mineralization for the purposes of reasonable prospects of eventual economic extraction
- The costs for the Bisoni–McKay resource are expected to be similar to Gibellini, so the Gibellini costs can be applied for the purposes of reasonable prospects of eventual economic extraction.

Metallurgical testwork data will only support an Inferred classification. Additional support for confidence category upgrades from the perspective of the metallurgical modifying factors will require supporting testwork.

13.7 Deleterious Elements

The acid leaching did not mobilize any elements during leach that would be deleterious to the solvent extraction recovery.

The major elements mobilized were aluminium, phosphorus and iron. Of these, iron loads at the pH and Eh conditions associated with solvent extraction and iron may be used as a reductant to reduce vanadate (leached species) to vanadyl (extracted species). A HCl wash may need to be included in any future process to eliminate iron build-up on the recirculating organic phase.

The reagent suite selected for solvent extraction is designed to exclude uranium if any should be mobilized in the leaching reactions.

13.8 Comments on Section 13

In the opinion of the QP, the following conclusions are appropriate:

- Metallurgical testwork and associated analytical procedures were performed by recognized testing facilities, and the tests performed were appropriate to the mineralization type
- Samples selected for testing were representative of the various types and styles of mineralization at the Gibellini deposit. Samples were selected from a range of depths within the deposit. Sufficient samples were taken to ensure that tests were performed on sufficient sample mass
- The process recovery for the 2011 column testwork showed a slow ascending trend of between 0.1% and 0.4% per day, which was consistent with the trend seen in the 2008 column testwork
- Metallurgical parameters appropriate for use for determining reasonable prospects for eventual economic extraction and in the 2021 PEA are:
  - Gibellini and Louie Hill recovery: 60% for oxide, 70% for transition, and 52% for reduced mineralization
  - Bisoni–McKay recovery: 65% for oxide mineralization
  - Gibellini, Louie Hill and Bisoni–McKay acid consumption: 80 lb/st

- Recoveries may increase beyond the above levels if extended duration leaching results from additional washing or leaching by solutions percolating from subsequent lifts
- The acid leaching did not mobilize any elements during leach that would be deleterious to the solvent extraction recovery predictions.

Wood notes that commercial heap leaching and SX recovery of vanadium ores has not been done before; nonetheless, heap leaching and SX recovery are common technologies in the mining industry. The most notable examples are the multiple copper heap leach projects that use an acid-leach solution to mobilize the metal followed by recovery in a SX plant, which is then followed by electro-winning. The Gibellini process would apply similar acid heap leaching and SX technology to recover vanadium. However, instead of electro-winning, the future Gibellini process would use an acid strip followed by precipitation to produce a final product.

During the 2011 testwork, American Vanadium identified a calcium boundary at 2.5% calcium. Calcium content may affect acid consumption in heap leaching. American Vanadium contoured this shape and identified that none of the metallurgical holes penetrated it; consequently, the metallurgical columns were in relatively benign material. American Vanadium also noted that the 2.5% calcium contour extended into the base of the transition mill feed material, particularly in the south–central portion of the deposit. This is a potential project risk to be considered in any future development plan, due to the elevated calcium levels and likely elevated acid consumption for this material.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The QP personally performed the Bisoni–McKay Mineral Resource estimate and reviewed the estimates for Gibellini and Louie Hill that were performed by Mr. E.J.C. Orbock III, RM SME and Mr. Mark Hertel, RM SME (Principal Geologists at AMEC at the time the Gibellini and Louie Hill estimates were performed) respectively, and is responsible for those estimates.

14.2 Gibellini

14.2.1 Basis of Estimate

A total of 43,785 ft of drilling in 195 drill holes by four operators, Atlas, Noranda, Inter-Globe and RMP were available for geological domain modeling. A sub-set of this database totaling 39,384 ft of drilling, in 174 drill holes, was available for resource estimation.

Twenty-one drill holes totaling 5,201 ft were drilled for metallurgical, geotechnical and condemnation studies and were not used in grade estimation. The twenty-one drill holes consist of 11 core holes for metallurgical testing totaling 2,801 ft, four oriented core holes for geotechnical studies totaling 1,000 ft, and six RC condemnation drill holes totaling 1,400 ft.

Thirty-three rotary drill holes totaling 5,695 ft from a fifth operator, Terteling, were excluded from this study due to a high-grade bias (Wakefield and Orbock, 2007). There is sufficient drill hole coverage from the other operators to compensate for not using the Terteling drill hole assays.

Twin drilling analysis performed by AMEC indicates that Atlas assays within the transition domain and Noranda assays within the reduced domain should be down-graded (Wakefield and Orbock, 2007).

A three-dimensional MineSight (MineSight) block model was created to estimate the V_2O_5% resource. The model is rotated at -34° from north so the long axis is oriented at 326° azimuth. Topography was loaded into the model and blocks were coded. Block size was 25 ft x 25 ft x 20 ft.

14.2.2 Geological Models

RMP geologists coded drill hole samples based on the three oxidation states: oxidized, transition, and reduced. Oxidation domains were interpreted from drill logs based on color, assay grades, and lithology. The oxide domain was classified based on low V_2O_5 grades and lithology logged as broken, tan to white, sandy siltstone. Drill hole intervals were classified as transition if assay grades were high and drill hole logs showed a lithological change from sandy siltstone to dark gray shale. The reduced domain was interpreted based on a drop in grade and lithology logged as hard black shale.

RMP developed oxidation envelopes around drill holes projected onto cross and long sections spaced 100 ft apart. AMEC imported RMP oxidation envelopes into MineSight. From these envelopes, AMEC created polylines between the oxide-transition boundary and transition-reduced boundary. Oxidation polylines were then linked to the adjacent section to create a three-dimensional (3D) surface to code the block model. Blocks and composites were set to a default code of reduced, then all blocks and composites above the reduced-transition surface were set to transition, and finally all blocks and composites above the transition-oxide surface was set to oxide. Proper assignment of the oxidation state was visually confirmed by AMEC by inspecting drill hole composites and blocks in cross sections, long sections, and in bench plans on the computer screen.

RMP developed mineralized envelopes or "grade polygons" to control the limits of grade interpolation in combination with oxidation state domains. Grade polygons were drawn around drill holes projected onto cross-sections spaced 100 ft apart with assay grades equal to or greater than 0.050% V_2O_5. AMEC imported RMP assay grade polygons into MineSight and adjusted the polygons to match composite lengths. Grade polygons were wireframed to create a 3D grade domain solid in order to code composites and blocks. Composites and blocks were coded based on 50% or greater length or volume, respectively, within the grade domain. Within the 0.050% V_2O_5 grade domain, the total number of composites coded is 3,106 and total number of blocks coded is 55,168. Proper assignment of the grade domain code was confirmed by AMEC by inspecting composites and blocks in cross-sections, long-sections, and bench plans on the computer screen. Volume comparison of the grade domain solid versus the volume of the tagged blocks shows approximately four-tenths of a percent difference.

14.2.3 Composites

Assays from Gibellini were composited along the trace of the drill hole to 10 ft fixed lengths. Oxidation boundaries were treated as a hard boundary during composite construction. Composites with a length of less than 5 ft were not used in grade interpolation. AMEC confirmed that the composites were properly calculated by manually compositing a few selected assays and comparing composite values to MineSight results.

14.2.4 Exploratory Data Analysis

Noranda drilling shows the highest average grade at 0.296% V2O5, whereas RMP has the lowest average grade at 0.122% V_2O_5. Noranda concentrated their drilling to the central portion of the vanadium occurrence and tested only the higher-grade oxide and transition zone. Approximately 99.7% of the sample intervals are 5 ft in length. Eighteen assay intervals are shorter than and eight assay intervals are greater than 5 ft, but none exceeds 15 ft.

AMEC investigated and developed assay statistics based upon oxidation domains. The transition domain shows a mean grade 50% higher than that of the oxide domain and more than three times that of the reduced domain. The transition domain shows much higher mean grade at 0.344% V_2O_5 as compared to oxide and reduced at 0.229% V_2O_5 and 0.106% V_2O_5 respectively.

AMEC found that the grade discontinuity between major lithologies was minor and that grade interpolation should not be restricted across lithological boundaries. AMEC ran contact plots for vanadium grades by oxidation domain with the additional assay data collected since the 2008 PA. Contact analysis between the oxidation domains continue to show a large grade disparity between domains. AMEC has treated the domain contacts between the oxidation states as hard boundaries for grade estimation.

14.2.5 Density Assignment

Tonnage factors were calculated from specific gravity measurements and assigned to the blocks based on oxidation domain (Table 14-1).

Table 14-1: Block Model Tonnage Factor

Oxidation Domain	Average S.G. (gm/cm³)	Tonnage Factor (ft³/st)
Oxide	1.90	16.86
Transition	1.96	16.35
Reduced	2.26	14.18

14.2.6 Grade Capping/Outlier Restrictions

Capping limits for Gibellini were investigated using a Monte-Carlo risk simulation methodology in the 2008 PA which showed the suggested capping levels were not much higher than the mean grades. The assay distribution, at a cut-off grade above 0.1% V_2O_5, displays a normal distribution, is not heavily skewed, and lacks a long grade tail. Monte-Carlo risk simulation would be more appropriate for skewed distributions.

Using all assays above 0.05% V_2O_5, the 90–100 decile shows a total metal content of 6.6%. The 99–100th percentile show a total metal content of 1.3%. This suggests that capping is not warranted. AMEC did not cap assays, but capped three high-grade composites greater than 1.5% V_2O_5 to 1.5% V_2O_5. AMEC allowed all composites to interpolate grade out to 110 ft and capped composites greater than 1% V_2O_5 to 1% V_2O_5 beyond 110 ft.

Comparing an uncapped and unrestricted kriged model to the capped and outlier restricted kriged model, indicates that approximately 0.2% of the metal has been removed.

14.2.7 Variography

AMEC used Sage2001 to construct and model experimental variograms using the correlogram method and henceforth referred to as variograms. AMEC developed and reviewed variograms for each of the oxidation domains within the grade shell and a set of variograms that included all data within the grade shell. The variograms from each of the oxidation domains were considered poorer quality than the variograms produced by using all composites within the grade shell. AMEC expects that the cause is due to using a smaller number of composites for each of the oxidation domains. AMEC is of the opinion that the quality of the variograms for all composites within the grade shell is very good and supports their use in resource classification.

Spherical models with two structures were fitted to the V_2O_5 experimental variograms. The nugget effects were established using down-the-hole variograms where the short-range variability is well defined.

14.2.8 Estimation/Interpolation Methods

Within Grade Shells

Only composites from RMP, Noranda, Inter-Globe, and Atlas were used for grade interpolation. Hard contacts were maintained between oxidation domains – oxide blocks were estimated using oxide composites; transition blocks were estimated using transition composites; and reduced blocks were estimated using reduced composites. A range restriction of 110 ft was placed on grades greater than 1% V_2O_5 for each of the domains.

Ordinary kriging (OK) was used to estimate vanadium grade into blocks previously tagged as being within the 0.05% V_2O_5 grade domain solid. Two kriging passes were employed to interpolate blocks with vanadium grades.

A larger first pass interpolation required a minimum of eight composites, a maximum of 12 composites and no more than four composites per drill hole. A second pass using a smaller search distance was allowed to overwrite the first pass but required a minimum of eight composites, a maximum of 16 composites, and no more than four composites per drill hole. Passes one and two used a quadrant search with a maximum number of four composites per quadrant.

Outside of Grade Shells

AMEC interpolated blocks for grade that were outside of the grade shell using only composites external to the 0.05% V_2O_5 grade shell. These composites generally contain values of less than 0.05% V_2O_5. Block model tabulation indicates that there were no oxide or transition blocks above the resource cut-off grades, and only 2,645 st, classified as Inferred, of reduced material above a cut-off grade of 0.088% V_2O_5 averaging 0.120% V_2O_5 were interpolated.

14.2.9 Block Model Validation

The block model was validated using:

- Visual inspection
- At a zero cut-off grade, comparing the means of the OK grade to a nearest-neighbor (NN) grade for blocks identified as potentially being Measured and Indicated Mineral Resources
- Evaluating degree of smoothing in the kriged block model estimates
- Swath plots.

No potential biases were noted in the model from the validations.

14.2.10 Classification of Mineral Resources

AMEC calculated the confidence limits for determining appropriate drill hole spacing for Measured and Indicated Mineral Resources. The statistical criterion used by AMEC for Measured Mineral Resources is that a quarterly production (0.75 Mst) should be known to at least within ±15% with 90% confidence. A drill hole grid spacing of 110 ft gives a 90% confidence interval of ±6% on a quarterly basis.

Mineral Resources were classified as Measured when a block is located within 85 ft to the nearest composite and two additional composites from two drill holes are within 120 ft. Drill hole spacing for Measured Mineral Resources would broadly correspond to a 110 x 110 ft grid.

The statistical criterion used by AMEC for Indicated Mineral Resources is that a yearly production (3 Mst) should be known to at least within ±15% with 90% confidence. A drill hole grid spacing of 220 ft gives a 90% confidence interval of ±6% on an annual basis. Mineral Resources were classified as Indicated when a block is located within 170 ft to the nearest composite and one additional composite from another drill hole is within 240 ft. Drill hole spacing for Indicated Mineral Resources would broadly correspond to a 220 x 220 ft grid.

Visual checks on cross section and plan show good geological and grade continuity at this distance. However, tighter drill grid spacing may be required to define high grade zones, mill feed material and waste contacts, structural offsets, and to define final pit limits. AMEC recommended that a maximum drill grid spacing of less than 220 ft be maintained for Indicated Mineral Resources.

AMEC was of the opinion that continuity of geology and grade is adequately known for Measured and Indicated Mineral Resources for grade interpolation purposes.

Classification of Inferred Mineral Resources required a composite within 300 ft from the block.

14.2.11 Reasonable Prospects of Economic Extraction

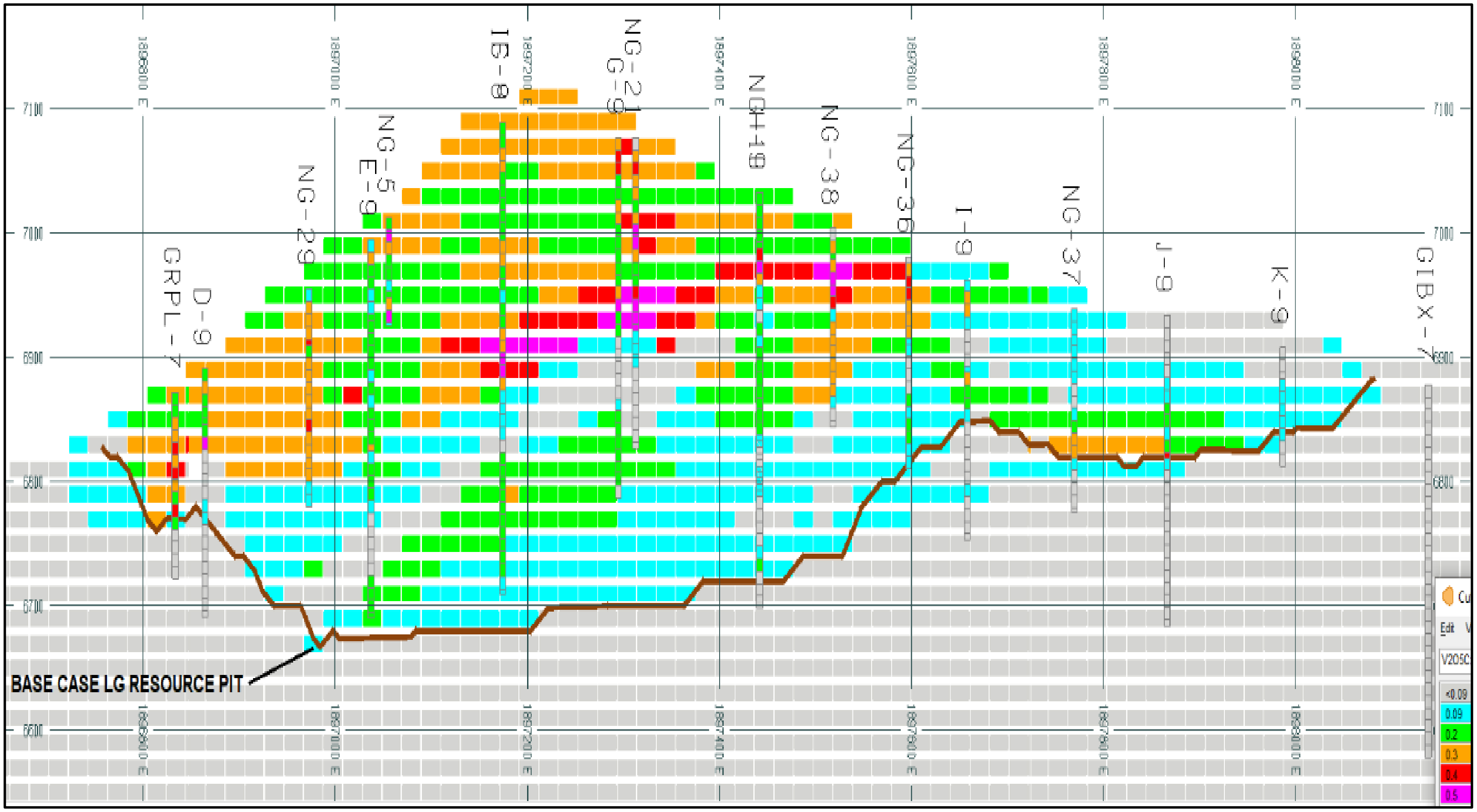
The 2011 resource estimate that was updated in 2018, was constrained within a conceptual pit shell that used the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.

During the 2021 PEA mine planning exercise (see Section 16), mineralization was confined within an updated conceptual Lerchs–Grossmann (LG) pit outline that used the following key assumptions: Mineral Resource V_2O_5 price: $11.50/lb (15% price uplift on pricing used in the 2021 PEA exercise); mining cost: $2.90/st mined; process cost: $13.75/st processed; general and administrative (G&A) cost: $1.00/st processed; metallurgical recovery assumptions: 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors: 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% NSR; shipping and conversion costs: $0.625/lb V_2O_5; and overall 40° pit slope angle assumption.

Wood compared the two estimates within the two conceptual pit shells, using the 2021 PEA mine plan estimate prior to any mining optimization considerations, and noted that there were no material differences due to the updated 2021 parameters. As a result, the Mineral Resource estimate is reported using the 2018 parameter inputs.

Figure 14-1 shows a cross section view of Gibellini blocks and composites color coded by V_2O_5 grades that lie within the Mineral Resource LG pit.

Figure 14-1: Gibellini Cross-Section NonOrtho 10518521



Note: Figure prepared by Wood, 2018. Looking northwest. Figure shows V_2O_5 color-coded blocks and composites within Mineral Resource LG pit.

14.3 Louie Hill

14.3.1 Basis of Estimate

The drill hole database used in developing the Mineral Resource estimate totaled 7,665 ft in 58 drill holes, and was closed as of 1 May 2011. Union Carbide contributed 49 drill holes to the database with a total of 706 V_2O_5% assays. Nine drill holes drilled by American Vanadium with a total of 547 V_2O_5% assays were also included.

A three-dimensional MineSight block model was created to estimate the V_2O_5% resource. The model is un-rotated. Topography was loaded into the model and blocks were coded. Block size was 25 ft x 25 ft x 20 ft.

14.3.2 Geological Models

American Vanadium supplied AMEC with geological interpretations on 10 cross-sections and three long-sections. The cross-sections are spaced at 300 ft and long-sections are spaced at 200 ft. The sections were comprised of lithology, fault, and mineralization interpretations. AMEC recommended that oxidation states be modeled in the next iteration of modeling at Louie Hill.

AMEC reconciled the cross-sections in plan and used the mid-bench poly-lines to code the block model for mineralization percent. Block codes for mineralization were then used to code composites as being mineralized or non-mineralized.

14.3.3 Composites

Assays from Louie Hill were composited down-the-hole to 20 ft fixed lengths. AMEC confirmed that the composites were properly calculated by manually compositing a few selected assays and comparing composite values to MineSight results.

14.3.4 Exploratory Data Analysis

AMEC coded the Louie Hill composites as mineralized if they were within the mineralized envelope, and as non-mineralized if outside of the mineralized envelope. The envelope was defined by American Vanadium and supported by AMEC probability plot data.

Using all composite data, the probability plot shows two distinct domains, a mineralized domain and a non-mineralized domain, split at 0.2% V_2O_5. AMEC coded the composites for the two domains and ran the probability plots by domain. Back tagging the mineralization code from the blocks to the composites appropriately separated the two domains. A hard boundary was used to separate the domains.

Box plots show two populations with low coefficients of variation (CV calculated as standard deviation/mean) of 0.57 for mineralized and 0.757 for non-mineralized. The low CV values indicate that estimating the block grades for the two domains should not be problematic.

14.3.5 Density Assignment

As no density measurements have been completed to date on mineralization from Louie Hill, the Gibellini data were used in the Louie Hill estimate.

14.3.6 Grade Capping/Outlier Restrictions

AMEC did not consider that grade capping was warranted at Louie Hill. Assay grades were continuous and did not show high grade outliers.

14.3.7 Variography

AMEC ran the Louie Hill variograms using Sage2001® software. First a down hole variogram was run and modeled for obtaining the nugget value. All variograms were run using all composites as there were insufficient data to run composites by individual domain.

Grade interpolations were limited to blocks within a 0.05% V_2O_5 mineralized domain that was constructed on 100 ft-spaced cross sections and wireframed into a solid. Composites within the grade domain were assigned a unique domain code and composites external to the grade domain were given a unique domain code.

A set of variograms were run at increments of 30º vertically and horizontally to obtain an anisotropy ellipsoid for OK grade estimation. The anisotropy ellipsoid defined by the variogram analysis was used to define the 3D search ellipsoid and composite weighting used in the OK grade estimation of V_2O_5%.

14.3.8 Estimation/Interpolation Methods

OK was used to estimate V_2O_5% grades into blocks tagged as mineralized and non-mineralized domains. Hard contacts were maintained between the domains. A range restriction of 200 ft was placed on grades greater than 0.15% V_2O_5 for blocks within the non-mineralized domain. The range restriction was only used for blocks outside of the mineralized domain. Blocks within the non-mineralized domain were not considered as having resource potential; hence no metal was lost in the resource due to the 200 ft range restriction. The sparse mineralization found within the non-mineralized domain does not have the continuity required for resource classification.

Two kriging passes were employed to interpolate grades into the mineralized domain blocks. Blocks that contained both percentages of mineralized and non-mineralized material were weight averaged for a whole block V_2O_5 percentage grade.

For the mineralized domain a less restrictive first pass interpolation required a minimum of three composites, a maximum of twelve composites and no more than three composites per drill hole. A second pass was allowed to overwrite the first pass but required a minimum of four composites, a maximum of twelve composites, and no more than three composites per drill hole. The first pass used search distances of 2,000 ft along the long axis, 410 ft along the short axis, and 200 ft along the vertical axis. The second pass restricted the search to 1,500 ft, 310 ft, and 150 ft, for the long, short, and vertical axes respectively.

14.3.9 Block Model Validation

AMEC constructed an NN model to compare to the OK grade block model. NN grade interpolation also honored the interpolation parameters as applied to the OK grade model. For all blocks classified as Inferred, the V_2O_5% OK estimation matched the NN grade estimation very well.

A relative percentage value of less than 5% difference between the means is an acceptable result and indicates good correlation between the two models; the mean grades of the two models show less than 3% difference for Inferred blocks.

14.3.10 Classification of Mineral Resources

Because of the uncertainty in the drilling methods, sample preparation, assay methodology, and the slight grade bias of the Union Carbide assays as compared to the American Vanadium assays, AMEC limited the classification of resource blocks to the Inferred Resources category.

Additional infill, deeper, and step-out drilling is recommended at Louie Hill to test for possible higher-grade transition zone below the oxide domain, contacts between mineralization and waste, location of structural offsets, and further twin sampling of Union Carbide drill holes. When additional drill data is available, AMEC recommended that a drill hole spacing study be completed that applies confidence limits for calculation of drill spacing required for Measured and Indicated Mineral Resource confidence classifications.

14.3.11 Reasonable Prospects of Economic Extraction

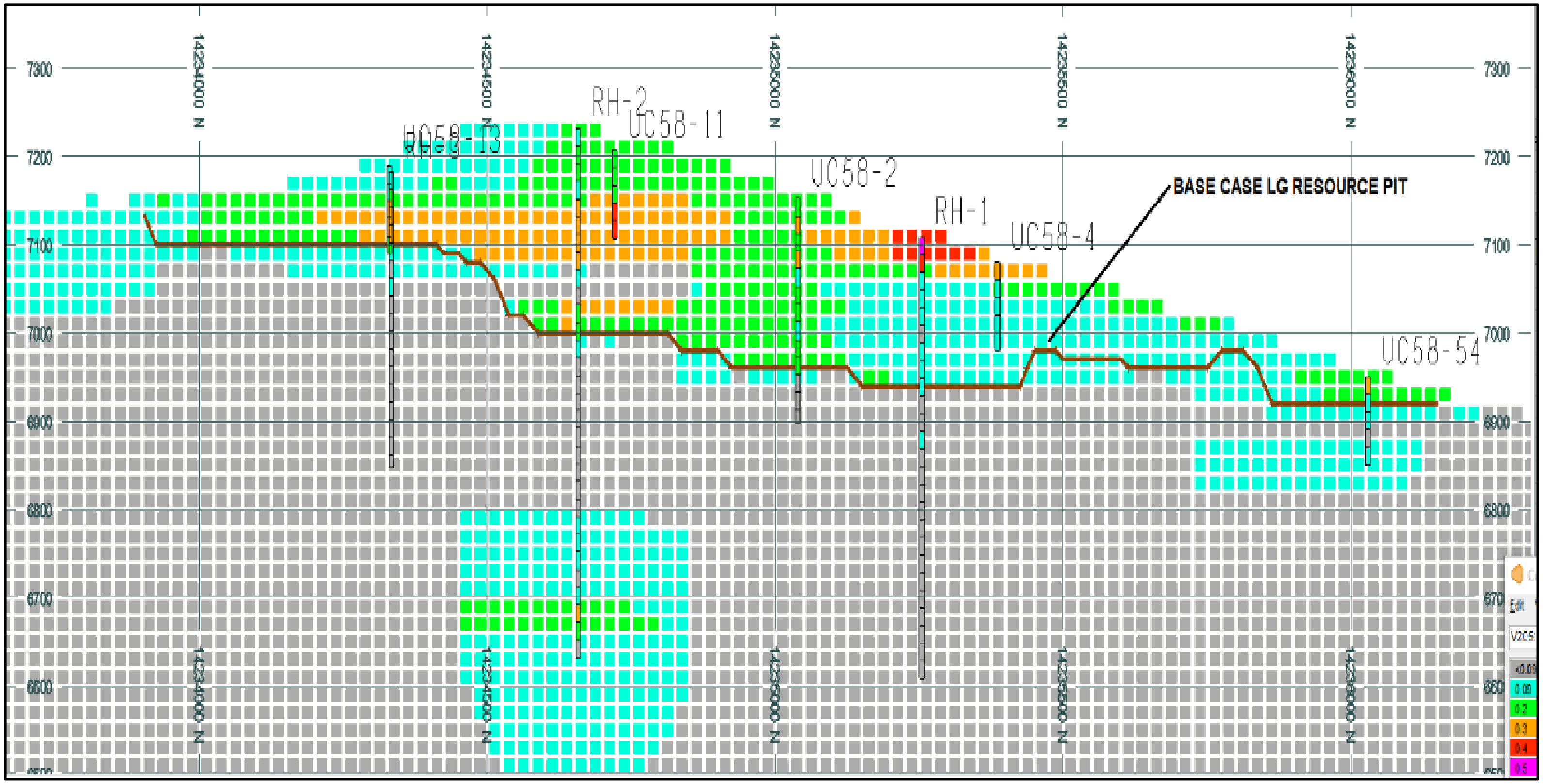
The 2011 resource estimate that was updated in 2018, was constrained within a conceptual pit shell that used the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.

During the 2021 PEA mine planning exercise (see Section 16), mineralization was confined within an updated conceptual Lerchs–Grossmann (LG) pit outline that used the following key assumptions: Mineral Resource V_2O_5 price: $11.50/lb (15% price uplift on pricing used in the 2021 PEA exercise); mining cost: $2.90/st mined; process cost: $13.75/st processed; general and administrative (G&A) cost: $1.00/st processed; metallurgical recovery assumptions: 60% for oxide material; tonnage factors: 16.86 ft^3/st for oxide material; royalty: 2.5% NSR; shipping and conversion costs: $0.625/lb V_2O_5; and overall 40° pit slope angle assumption.

Wood compared the two estimates within the two conceptual pit shells, using the 2021 PEA mine plan estimate prior to any optimization, and noted that there were no material differences due to the updated 2021 parameters. As a result, the Mineral Resource estimate is reported using the 2018 input parameters.

Figure 14-2 shows a cross section view of Louie Hill blocks and composites color coded by V_2O_5 grades that lie within the Mineral Resource LG pit.

Figure 14-2: Louie Hill Cross-Section 1896300E



Note: Figure prepared by Wood, 2018. Looking West. Figure shows V_2O_5 color-coded blocks and composites within Mineral Resource LG pit.

14.4 Bisoni–McKay

14.4.1 Basis of Estimate

MTS compiled all legacy drill data from the Bisoni–McKay property from original documents in January 2021. The resource database at Bisoni–McKay includes 14,984.5 ft of drilling in 43 drill holes from four drilling campaigns. Twenty-eight drill holes are in the North A area and 15 are located in the South B area (refer to Figure 10-2). A further six drill holes are located outside these two areas and are not included in the resource database. One drill hole in the North A area is missing logs and assays for the first 450 ft of the 500 ft total length. Assays were set to missing for this interval for purposes of resource estimation.

A 3D MineSight block model was created for geological and resource modeling. The model is un-rotated and the block size is 25 ft x 25 ft x 20 ft. The topographic surface was used to code each block with the percent area of the block under the surface.

14.4.2 Geological Models

Geologic mapping of the surface of the North A and South B areas was conducted by Stina Resources in 2005. MTS digitized the surface geology for use in geological modeling (refer to Figure 7-6). Mapping by Stina Resources indicates that Devonian Woodruff Formation shale outcrops occur as down-dropped fault blocks (grabens) flanked by ridges of Devonian Devils Gate limestone in upthrown blocks (horsts). Surrounding rocks are interpreted to be part of the Mississippian Webb Formation. Stina Resources mapped an anticlinal axis on the western edge of the graben in North A area (yellow line in Figure 7-6). There is approximately a 400 ft thickness of prospective Woodruff Formation shales in the Bisoni–McKay area. MTS did not geologically map the Bisoni–McKay property but did visit the North A and South B areas and observed that the geological setting appears to be very similar to those at Gibellini and Louie Hill.

Stina Resources also interpreted geology on cross sections through both areas. MTS used the geological interpretations as a guide in its geological modeling.

For the North A area, MTS generated a series of 18 cross sections oriented perpendicular to the strike of mineralization and parallel to the nominal historical drill orientation at azimuth 290°. MTS created grade polygons around drill holes projected onto cross sections spaced 100 ft apart with assay grades equal to or greater than 0.05% V_2O_5. Oxidation-type polygons were also created on these cross-sections.

In the South B area, MTS generated a series of eight cross sections at azimuth 090°, spaced between 200 and 250 ft apart and oriented perpendicular to the strike of mineralization and parallel to the nominal orientation of the historical drill holes. MTS created grade and oxidation type polygons on these sections.

MTS then linked the grade and oxidation polygons to create 3D surfaces or domain solids to code the block model.

14.4.3 Composites

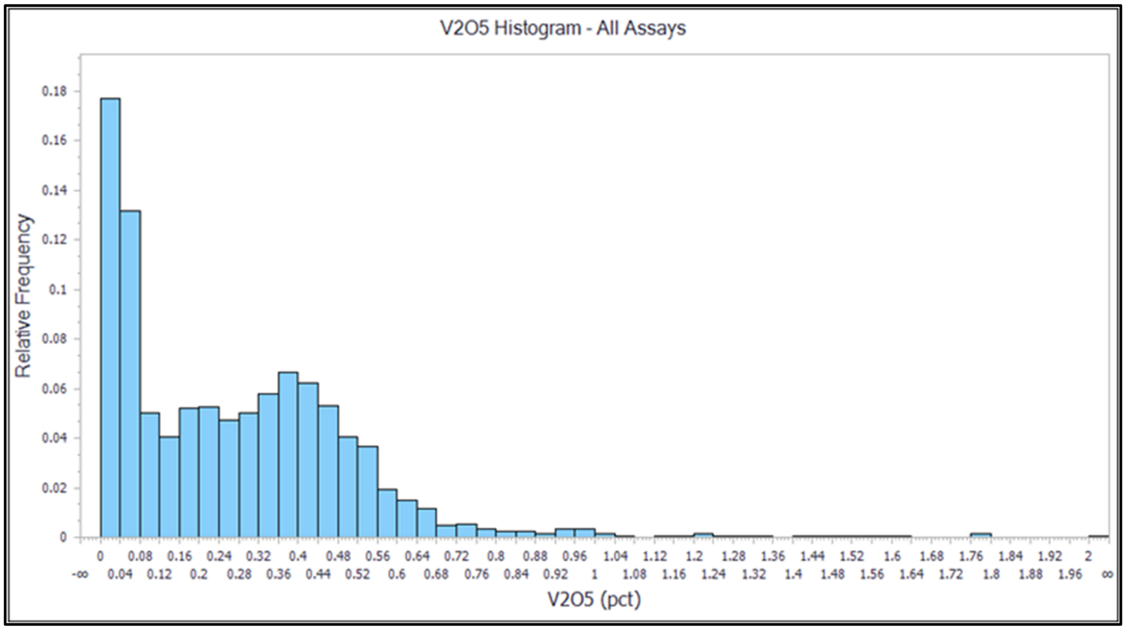
MTS composited assays to 20 ft fixed lengths. The composite length is based primarily on the anticipated mining bench height of 20 ft. The compositing process reduced the number of data from 3,115 to 841, the maximum grade from 3.120% to 1.275% V_2O_5, and the CV from 0.89 to 0.80. The average grade of the composites (0.265% V_2O_5) remained very similar to the average grade of the assays (0.266% V_2O_5). The QP confirmed the compositing process by manually calculating the composited grade for a few drill hole intervals. Lithology and color codes were also composited based on majority code.

14.4.4 Exploratory Data Analysis

MTS reviewed the V_2O_5 assays using histograms, cumulative frequency plots, box plots, and contact plots comparing several categorical variables. The histogram and basic statistics for all V_2O_5 assays are provided as Figure 14-3. The histogram of V_2O_5 assays shows a low-grade population from 0.0 to 0.12% V_2O_5 and a strong gaussian (normal) population centered on 0.40% V_2O_5. The maximum assay is 3.12% V_2O_5, but 99% of the assays are less than 1.0% V_2O_5. The coefficient of variation (CV) is 0.9 for the entire population, indicating that the data are not strongly skewed. A CV below 1.0 is one measure typically used by resource estimators to indicate that the data population is adequate for use in resource estimation.

Boxplots comparing V_2O_5 grade by drill type, oxidation type, and campaign were generated and evaluated. The boxplot by drill type shows that the average V_2O_5 grade of the RC assays is higher than the average V_2O_5 grade of the core assays; however, the core drill holes are clustered in two places and so this apparent bias in V_2O_5 grade is likely related to drill location and not to sample quality.

Figure 14-3: Histogram and Basic Statistics of Bisoni–McKay V_2O_5 Assays



Note: Figure prepared by MTS, 2021.

The boxplot by oxidation type shows that there is a slight increase in average grade in the transitional and reduced material types relative to the oxidized material. There is not a strong enrichment in V_2O_5 grade in the transitional material as was recognized at Gibellini. The mean grade of the transitional and reduced material is very similar. This may be due in part because MTS used the original logging to define oxidation type whereas oxidation type at Gibellini was defined partly based on V_2O_5 grade. There appears to be a much smaller transitional zone at Bisoni–McKay than at Gibellini. MTS created contact plots comparing grades at the contact between oxide and transitional, transitional and reduced, and oxide and reduced. The contact plots clearly show that grade changes at the contacts are gradational and there are no abrupt V_2O_5 grade changes at the contacts.

The boxplot by drill campaign shows that the average grade of the 2004 Vanadium International drill campaign assays is significantly lower than the other campaigns, which have fairly similar statistical characteristics. In the QP's opinion, the low bias of the 2004 campaign assays is most likely due to the drill holes from that campaign being collared away from the main mineralized zones.

The Hecla (1970s) campaign has a slightly lower average grade than the 2005 and 2007 campaigns, and this is likely partially due to some Hecla drill holes being located outside of the two main mineralized zones.

14.4.5 Density Assignment

No density data are available for the Bisoni–McKay area. MTS assigned density to the block model based on the density factors by oxidation type used for the Gibellini resource model. The rocks and geologic setting are very similar and the QP considers it reasonable to use the Gibellini values until Nevada Vanadium is able to complete a drill program and acquire core samples for determination of density factors for use at Bisoni–McKay. The density values from the 2018 Gibellini technical report (Hanson et. al, 2018) are shown in Table 14-1.

14.4.6 Grade Capping/Outlier Restrictions

MTS reviewed the V_2O_5 assays for extreme values to determine whether capping of the assays was warranted to prevent inappropriate influence of high-grade values in the resource model. MTS reviewed cross-sections, investigated histograms and cumulative frequency plots, and performed decile analysis and concluded that capping is not warranted. Results from decile analysis of Bisoni–McKay assays show that 27% of the metal is contained in the top decile (90–100%) of assays which is below the threshold of 40% used as a rule-of-thumb by practitioners to indicate that capping is warranted. Furthermore, a relatively equal proportion of assays is represented in each of the top 10 percentiles (90-100%), indicating a relatively even distribution in the high-grade part of the assay population.

In the QP's opinion geological and grade continuity between drill holes is good, the CV of the assays is less than one, and outliers do not represent an unusually large proportion of the population, therefore capping is not warranted for the Bisoni–McKay assays.

14.4.7 Variography

MTS created downhole variograms for the North A and South B areas using the declustered composites within the mineralized domain and using lag distances of 20 ft to investigate the expected variance in the downhole direction. There is low variability at short distances downhole, indicating good continuity in the downhole direction. The nugget effect (variability at zero distance) is about 10% of the sill for North A and 20%

for South B. The good continuity is confirmed by visual inspection of cross-sections where the V_2O_5 grade downhole is relatively consistent and not highly variable.

MTS generated horizontal directional variograms at 15° intervals from azimuth 000° to 165°. For the North A Area, the variogram at azimuth 030° shows the highest continuity (longest range) of V_2O_5 grade and was selected as the principal direction. This direction closely matches the known strike of mineralization in the North A area.

MTS then generated directional variograms for the North A area with the azimuth fixed at 030° and varying the dip between -90° and 90° at 10° intervals. The variogram at azimuth 030° and dip -40° shows the highest continuity. This dip (to the east) also makes sense geologically as the dip of mineralization in cross section is roughly 45° near the fold axis of North A area, but then the becomes less steep (flattens out) on the east boundary of mineralization. Surface mapping by previous operators mostly note dips from 60–70°, but continuity of mineralization in cross sections suggests that dips are not that steep at depth.

MTS investigated the variogram in the minor direction, but the variograms do not behave well as there is a lack of pairs perpendicular to mineralization as many cross sections only have one or two drill holes on them.

The anisotropy ellipsoid defined by the variogram analysis was used to define the 3D search ellipsoid and composite weighting used in the OK grade estimation of V_2O_5%.

Insufficient data exist to generate reasonable variograms for the South B area. This is likely because there are only 15 drill holes in the area. For estimation in the South B area, MTS used a north–south-(azimuth 000°) oriented search ellipse with the same search distances as used for North A area.

14.4.8 Estimation/Interpolation Methods

Estimation of V_2O_5 in the North A area was completed by OK and inverse distance (ID) methods using soft boundaries between oxidation types and hard boundaries between the mineralized and unmineralized domains. The parameters used for OK estimation are shown in Table 14-2. Estimation within the mineralized domain was completed in two passes using OK. The first pass estimated blocks using search ellipse distances determined from variography and the second pass estimated blocks using an extended minor axis (Y) distance and a minimum of one composite. A third pass estimated blocks in the unmineralized domain using ID (Table 14-3).

Table 14-2: OK Estimation Parameters

Ordinary Kriging Parameter	Unit	North A Area Estimation Pass 1	North A Area Estimation Pass 2
Data		20 ft composites	20 ft composites
Search ellipse distances (X, Y, Z)	ft	350, 150, 100	350, 350, 100
Search ellipse rotation (X, Z, Y)	degree	015, -30, 0	015, -30, 0
Minimum number of composites	#	2	1
Maximum number of composites	#	12	12
Maximum number of composites per hole	#	2	2
Block restrictions		mineralized domain	mineralized domain

Table 14-3: ID Estimation Parameters

Inverse Distance Parameter	Unit	North A Area Estimation Pass 3	South B Area Estimation Pass 1	South B Area Estimation Pass 2
Data		20 ft composites	20 ft composites	20 ft composites
Search ellipse distances (X, Y, Z)	ft	500, 500, 500	350, 150, 100	500, 500, 500
Search ellipse rotation (X, Z, Y)	degree	000, 0, 0	000, 0, 0	000, 0, 0
Inverse distance power		2	2	2
Minimum number of composites	#	1	2	1
Maximum number of composites	#	12	12	12
Maximum number of composites per hole	#	2	2	2
Block restrictions		unmineralized domain	mineralized domain	unmineralized domain

MTS estimated resources for the South B area using the ID method. The parameters used for ID are shown in Table 14-3.

14.4.9 Block Model Validation

MTS performed several checks for local and global bias in the OK and ID models, including visual inspection, swath plots, volume, and tonnage checks, and comparing mean grades. A NN model was created to facilitate comparisons.

Visual inspection on cross sections and level plans confirmed that block grades closely correspond to composite grades and the trend of mineralization matches the strike and dip based on surface mapping and drill hole logging. Mineralized blocks are generally restricted to the mineralized domain.

The OK and ID grades generally follow the NN grades very closely for Easting, Northing, and Elevation swath plots at both areas. Some deviations between the average model grades are seen in the southernmost part of the North A area where the drilling is very sparse and more drilling in this area will be required to improve the model in this area. Some differences are also seen at the edges of the model and these differences are attributed to edge effects.

As a check on volume and tonnage, MTS checked the estimated volume and tons from the block model against the volume and tonnage reported from the +0.5% V_2O_5 grade shell. These checks confirmed that the volume and tons in the mineralized domain for the North A and South B areas are reasonable.

MTS also checked for global bias by comparing the global means of the declustered composites, and the OK, ID, and NN block grades at a zero cut-off grade within the grade shells. Global means for all estimation methods are within 10% relative difference of the global mean for the declustered composites. Therefore, there is no global bias in the estimates.

14.4.10 Classification of Mineral Resources

All Mineral Resources at Bisoni–McKay are classified in the Inferred category. Based only on data spacing, some proportion of Mineral Resources could be classified as Indicated, but the data quality issues with the legacy drill data discussed in this Report preclude the QP from classifying the Mineral Resources above the Inferred category. A work plan to increase the confidence of the Mineral Resources at Bisoni–McKay in included in Section 26.

14.4.11 Reasonable Prospects of Economic Extraction

Mineralization was confined within an LG pit outline that used the following key assumptions: Mineral Resource V_2O_5 price: $11.50/lb; mining cost: $2.90/st mined; process cost: $13.75/st processed; general and administrative (G&A) cost: $1.00/st processed; metallurgical recovery assumption: 65% for oxide material, 56% for transition material and 50% for reduced material; tonnage factor: 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% NSR; shipping and conversion costs: \$0.625/lb V_2O_5; and an overall 40° slope angle.

Figure 14-4 shows a cross section view of Bisoni–McKay blocks and composites color coded by V_2O_5 grades that lie within the Mineral Resource LG pit.

14.5 Mineral Resource Statement

Mr. Todd Wakefield, an SME Registered Member, is the Qualified Person (QP) for the Mineral Resource estimates. The estimates have an effective date of 5 June 2021.

Mineral Resources are reported using the 2014 CIM Definition Standards.

Mineral Resources for Gibellini are included as Table 14-4, the Mineral Resources for Louie Hill are included as Table 14-5, and the Mineral Resources for Bisoni–McKay are included in Table 14-6.

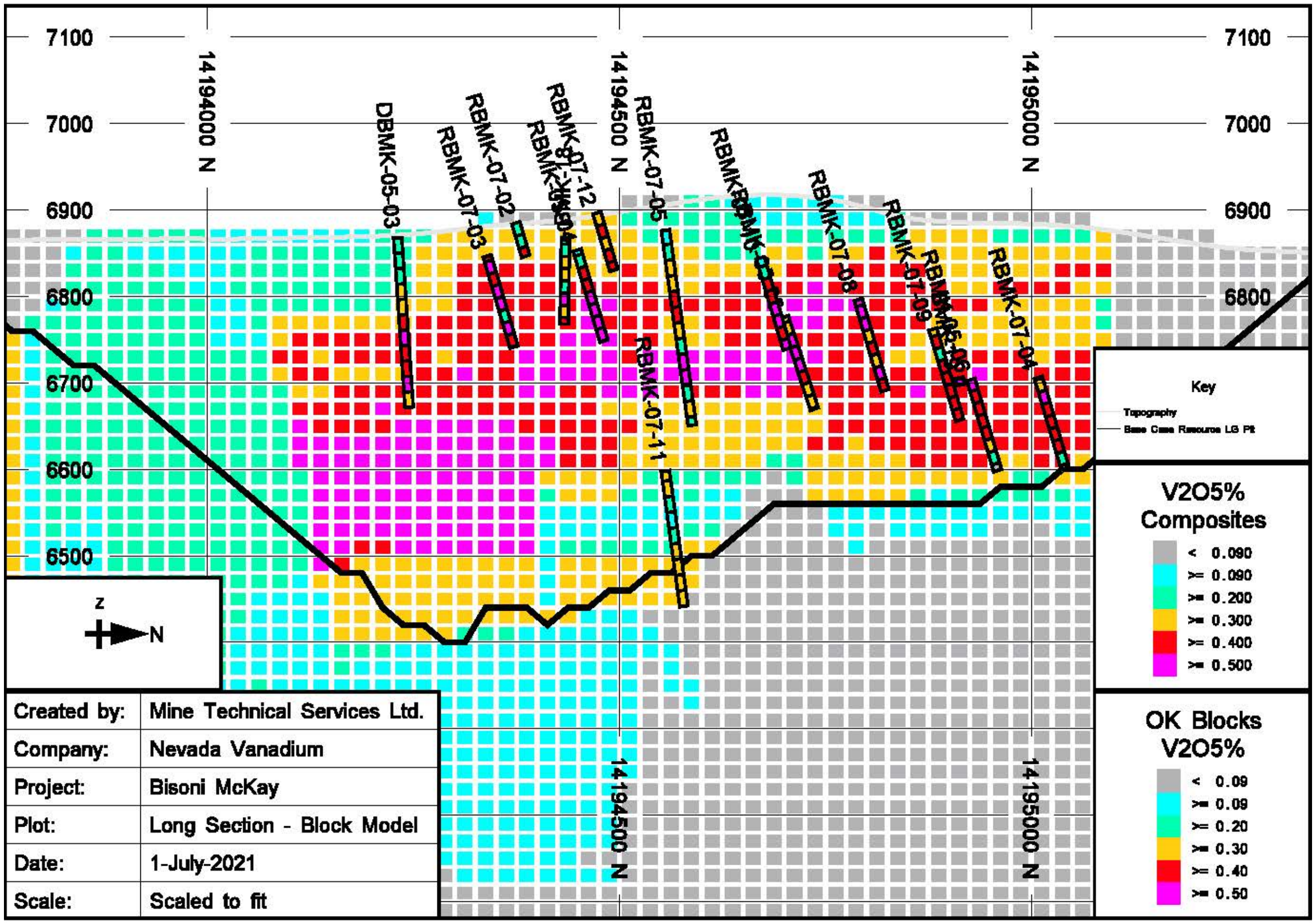
Mineral Resources are stated using cut-off grades appropriate to the oxidation state of the mineralization.

14.6 Factors That May Affect the Mineral Resource Estimates

Factors which may affect the conceptual pit shells used to constrain the Mineral Resources, and therefore the Mineral Resource estimates include changes to the following assumptions and parameters:

- Commodity price assumptions
- Metallurgical recovery assumptions
- Pit slope angles used to constrain the estimates
- Lithology and faulting models for Louie Hill and Bisoni–McKay deposits
- Assignment of oxidation state values
- Assignment of SG values
- Input values to the LG shells used to constrain the Mineral Resource estimates.

Figure 14-4: Bisoni–McKay Long-Section



Note: Figure looks west.

Table 14-4: Mineral Resource Statement, Gibellini

Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
Measured	Oxide	0.101	3,960	0.251	19,870
	Transition	0.086	3,980	0.377	29,980
Indicated	Oxide	0.101	7,830	0.222	34,760
	Transition	0.086	7,190	0.325	46,730
Total Measured and Indicated			***22,950***	***0.286***	***131,340***
Inferred	Oxide	0.101	160	0.170	550
	Transition	0.086	10	0.180	30
	Reduced	0.116	14,800	0.175	51,720
Total Inferred			***14,970***	***0.175***	***52,300***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021. The resource model was prepared by Mr. E.J.C. Orbock III, RM SME.
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Mineral Resources are reported at various cut-off grades for oxide, transition, and reduced material.
4. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.
5. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

Table 14-5: Mineral Resource Statement, Louie Hill

Confidence Category	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
Inferred	0.101	7,520	0.276	41,490
Total Inferred	***0.101***	***7,520***	***0.276***	***41,490***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021. The resource model was prepared by Mr. Mark Hertel, RM SME.
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Oxidation state was not modeled.
4. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $14.64/lb; mining cost: $2.21/st mined; process cost: $13.62/st processed; general and administrative (G&A) cost: $0.99/st processed; metallurgical recovery assumptions of 60% for mineralized material; tonnage factors of 16.86 ft^3/st for mineralized material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40° pit slope angle assumption was used.
5. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

Table 14-6: Mineral Resource Statement, Bisoni–McKay

Area	Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (kton)	Grade V_2O_5 (%)	Contained V_2O_5 (klb)
North Area A	Inferred	Oxide	0.107	6,970	0.29	39,720
		Transition	0.124	1,500	0.33	9,900
		Reduced	0.139	9,080	0.39	70,580
Total North Area A	Inferred	All	Variable	17,540	0.34	120,210
South Area B	Inferred	Oxide	0.107	1,470	0.28	8,160
		Transition	0.124	320	0.40	2,540
		Reduced	0.139	510	0.30	3,100
Total South Area B	Inferred	All	Variable	2,300	0.30	13,810
Total	***Inferred***	***All***	***Variable***	***19,850***	***0.34***	***134,020***

Notes:

1. The Qualified Person for the estimate is Mr. Todd Wakefield of Mine Technical Services Ltd. The Mineral Resources have an effective date of 5 June 2021.
2. Mineral Resources are reported at various cut-off grades for oxide, transition, and reduced material.
3. Mineral Resources are reported within a conceptual pit shell that uses the following assumptions: Mineral Resource V_2O_5 price of $11.50/lb; mining cost: $2.90/st mined; process cost: $13.75/st; general and administrative (G&A) cost: $1.00/st processed; metallurgical recovery assumptions of 65% for oxide material, 56% for transition material and 50% for reduced material; tonnage factors of 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.625/lb. An overall 40° pit slope angle assumption was used.
4. Rounding as required by reporting guidelines may result in apparent summation differences between tons, grade and contained metal content. Tonnage and grade measurements are in US units. Grades are reported in percentages.

14.7 Comments on Section 14

Mineral Resources take into account geological, mining, processing and economic constraints, and have been confined within appropriate LG pit shells, and therefore are classified in accordance with the 2014 CIM Definition Standards.

The Gibellini resource model has a known error that has effectively reduced the overall grade for Measured and Indicated Mineral Resources by approximately 1%. An adjustment to Atlas's transition assays between zero percent and 0.410% V_2O_5 was implemented twice. AMEC re-ran the model with the correction, and the results indicated an approximate error of 1%. AMEC was of the opinion that this error was not material to the estimate; a review conducted by Wood of the model in support of the current Mineral Resource estimate also concluded that the error is not material. The QP concurs with this view.

15.0 MINERAL RESERVE ESTIMATES

This section is not relevant to this Report.

16.0 MINING METHODS

The mine plan is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2021 PEA based on these Mineral Resources will be realized.

16.1 Overview

Based on the geometry and the depth of both Gibellini and Louie Hill deposits, surface mining methods are considered most economically amenable.

The 2021 PEA mine plan assumes production at 3 Mst/a from two open pits, at Gibellini and Louie Hill. Table 16-1 provides the subset of the Mineral Resource estimate within the PEA mine plan for Gibellini; Table 16-2 summarizes the subset of the Mineral Resource estimate within the 2021 PEA mine plan for Louie Hill. These Mineral Resource sub-set tables were estimated using updated constraining pit shells, prior to optimization steps, that were based on: Mineral Resource V_2O_5 price: \$11.50/lb; mining cost: \$2.90/st mined; process cost: \$13.75/st processed; general and administrative (G&A) cost: \$1.00/st processed; metallurgical recovery assumptions: 60% for oxide material, 70% for transition material and 52% for reduced material; tonnage factors: 16.86 ft^3/st for oxide material, 16.35 ft^3/st for transition material and 14.18 ft^3/st for reduced material; royalty: 2.5% NSR; shipping and conversion costs: \$0.625/lb V_2O_5; and overall 40° pit slope angle assumption.

16.2 Pit Optimization Inputs

The pit designs are based on pit shells obtained using the Lerchs–Grossmann (LG) algorithm for pit optimizations in Whittle mining software.

Pit optimization inputs were jointly established by Wood and Silver Elephant staff at the start of the evaluation.

A summary of the key optimization inputs that formed the basis for the Gibellini and Louie Hill pit optimization work is given in the following subsections.

Table 16-1: Subset of the Gibellini Mineral Resource Estimate within the 2021 PEA Mine Plan

Leach Material	Domain	Cutoff (V_2O_5 %)	Tonnage (kst)	Grade (V_2O_5 %)	Contained V_2O_5 (klb)
Measured	Oxide	0.135	3,890	0.253	19,684
	Transition	0.135	3,944	0.378	29,824
Indicated	Oxide	0.135	6,246	0.240	30,024
	Transition	0.135	7,056	0.316	44,624
Total Measured and Indicated		***0.135***	***21,136***	***0.294***	***124,156***
Inferred	Oxide	0.135	116	0.174	403
	Reduced	0.135	5,183	0.163	16,919
Total Inferred		***0.135***	***5,299***	***0.163***	***17,323***

Table 16-2: Subset of the Louie Hill Mineral Resource Estimate within the 2021 PEA Mine Plan

Leach Material	Domain	Cut-off (V_2O_5 %)	Tonnage (kst)	Grade (V_2O_5 %)	Contained V_2O_5 (klb)
Inferred	Oxide	0.155	6,963	0.282	39,315
Total Inferred		***0.155***	**6,963**	**0.282**	**39,315**

16.2.1 Financial and Economic Inputs

Optimization financial and economic inputs are shown in Table 16-3. For the Gibellini Project V_2O_5 price, Wood used multiple sources to arrive at a study price of $10/lb (See Section 19).

For the 2021 PEA, sulfuric acid and flocculant costs are based on recent supplier quotes. Diesel and electrical power costs are based on updated project costs. All other consumable costs were escalated from 2011 quotes to Q1 2020.

Table 16-3: Financial and Economic Inputs to Pit Shells

Description	Inputs
Metal price cash flow	\$10.00/lb V_2O_5
Royalties (% and basis)	2.5% on the metal price
Planning periods	Annual periods
Discount rate for financial analysis	5% **7% - base rate** 10%

16.2.2 Mine Model

The resource models for both Gibellini and Louie Hill discussed in Section 14 were used without adjustments for mine planning. Mining loss and dilution are accounted for in the block size, so no additional dilution or losses were applied.

The mine model inputs are summarized in Table 16-4.

16.2.3 Mining Inputs

Open pit mining optimization inputs for the Project are based on an open pit bulk mining method. Contract mining is assumed for a contractor using a small equipment fleet (Table 16-5).

16.2.4 Surface Topography

The surface topography is from 2010 satellite ortho-photo imageries reduced by PhotoSat using their stereo satellite elevation data processing methods. The area topography, covering the block model boundaries for Gibellini and Louie Hill deposits is shown in Figure 16-1.

16.2.5 Process & Metallurgical Inputs

Process design inputs are based on acid heap leaching crushed vanadium ores with dilute sulfuric acid and using a solvent extraction plant to recover the vanadium. Production rates are assumed at 3 Mst leached per year.

Process inputs are summarized in Table 16-6 and the metallurgical inputs is summarized in Table 16-7.

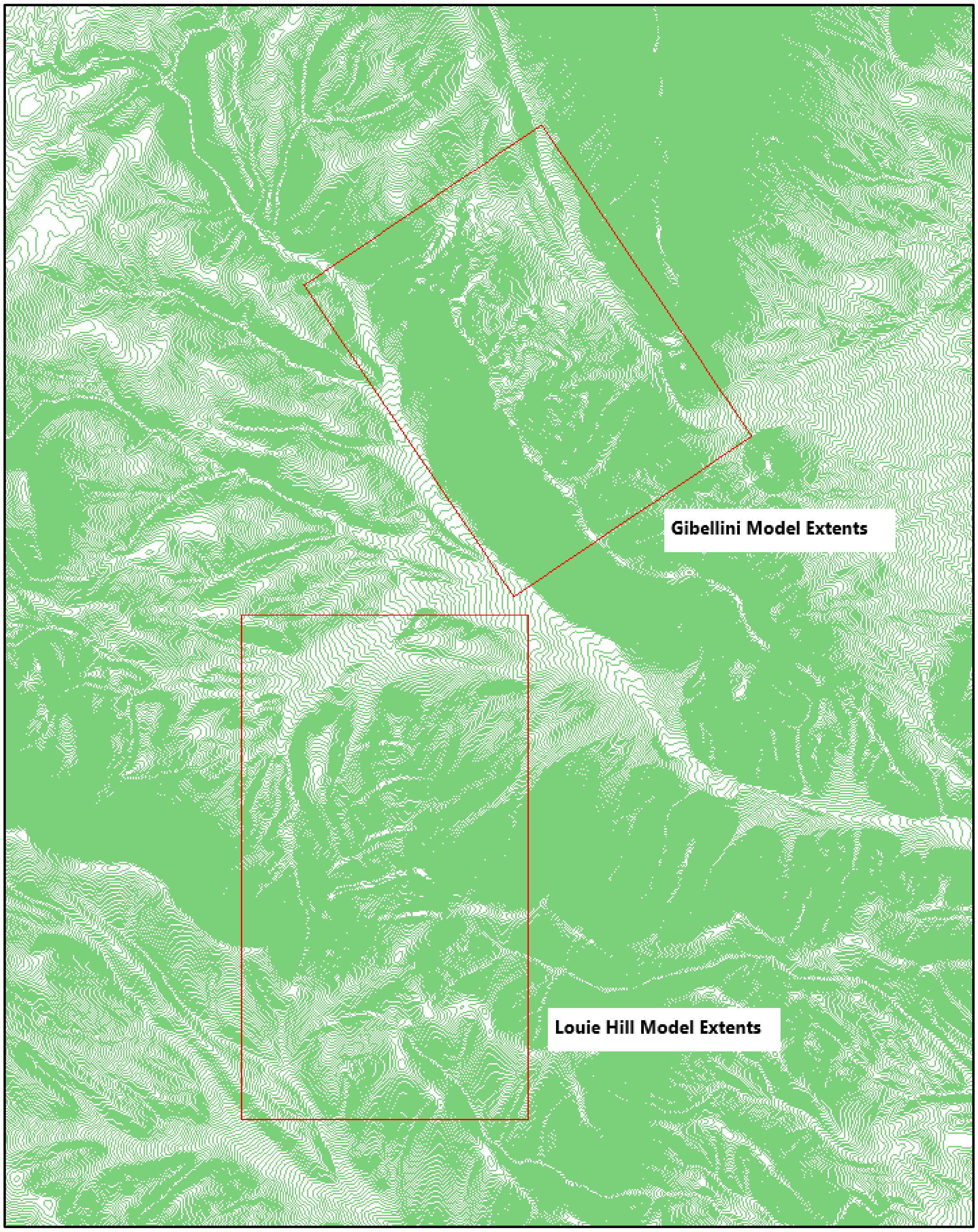
Table 16-4: Mine Model Inputs

Description	Inputs
Mine planning model	2017 Resource Model
Measured, Indicated, and Inferred (MII) classification for limits and scheduling	MII
Material in-situ tonnage	Oxide = 16.9 ft^3/st (1.9) Transition = 16.4 ft^3/st (1.96) Reduced = 14.2 ft^3/st (2.26), Undefined = 16.4 ft^3/st (1.96)
Leach feed material types	Oxide Transition Reduced
Block size x, y, z (E, N, elev)	25 x 25 x 20 ft
Losses (%)	Accounted for in resource model
Dilution (%)	Accounted for in mine model

Table 16-5: Mining Inputs

Criteria	Inputs
Mining method	Bulk open pit, contract mining
Average mining cost ($/t)	Total mining cost = $2.90/t
Capital	Not included in pit optimization.
Sustaining capital	Not included in pit optimization due to contract mine basis and short mine life
Design pit slope parameters	Overall 40° slope angle assumption

Figure 16-1: Gibellini 2010 Surface Topography



Note: Figure prepared by Wood, 2021

Table 16-6: Process Inputs

Criteria	Inputs
Process type	Crushed acid heap leach
Production rate	3 Mst/a or 8,220 st/d
Process plant design/feed basis (direct, batch, via stockpile)	100% direct loader feed to primary hopper with a 992
Stockpile reclaim cost	100% reclaimed from stockpile at $0.60/st
Process operating cost	$11.42/st
Process sustaining cost	$0.75/st
G&A cost at design capacity	$1.00/st, $3 million annual spend
Closure cost at design capacity	$0.98/st processed

Table 16-7: Metallurgical Inputs

Criteria	Inputs
Process recoveries	Crush heap leach Oxide = 65% Transition = 56% Reduced = 50%
Shipping and conversion costs	$0.625/lb V_2O_5

16.3 Pit Optimization Results

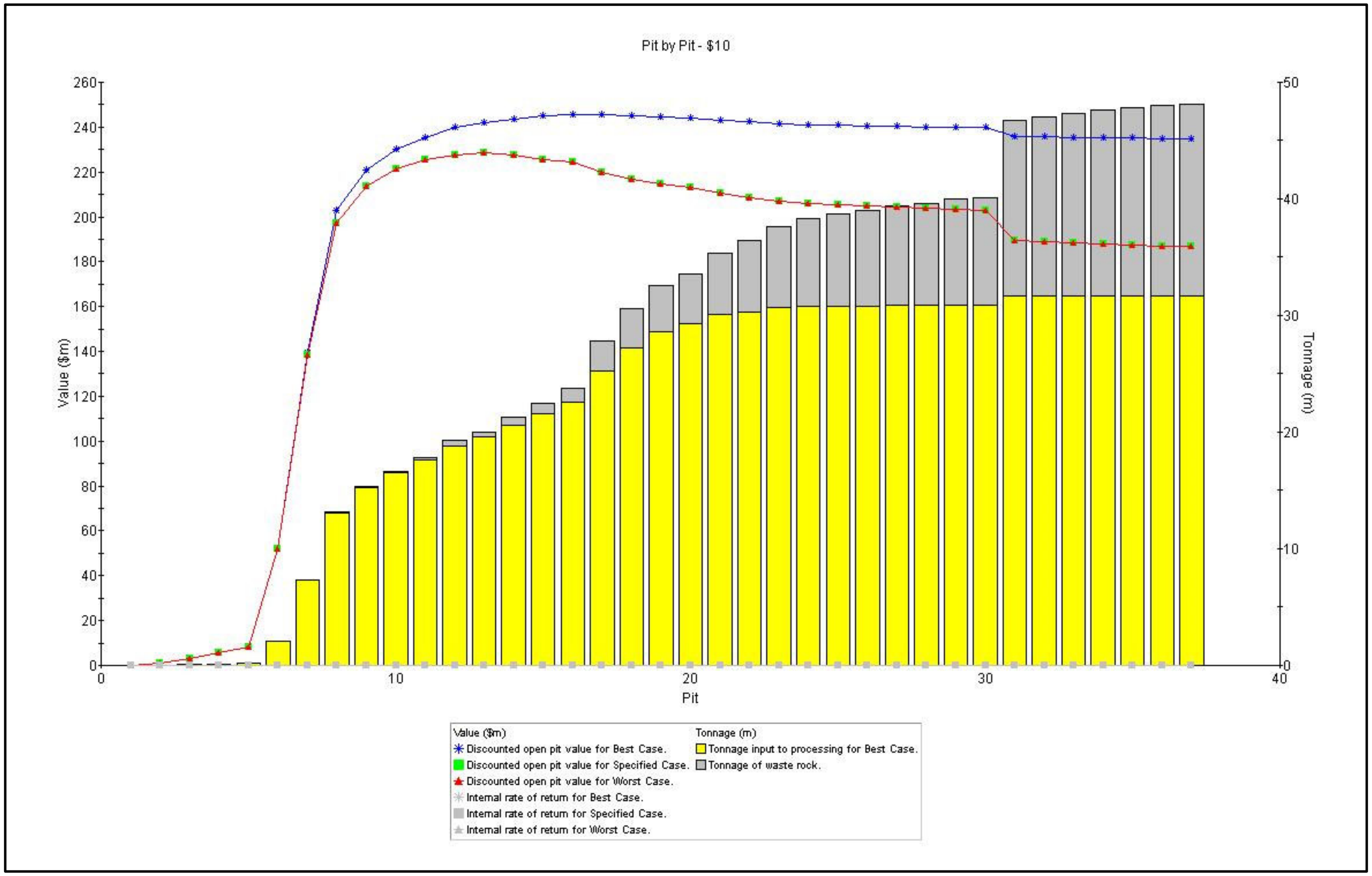
Pit optimizations were undertaken using Whittle mining software at a range of V_2O_5 prices while keeping all other mining economic parameters constant. The resulting pit-by-pit grade–tonnage graphs of the Gibellini deposit pit optimization are shown in Figure 16-2 while the results of the pit optimization for the Louie Hill deposits are in Figure 16-3.

16.4 Open-Pit Design

16.4.1 Pit and Mine Design Criteria

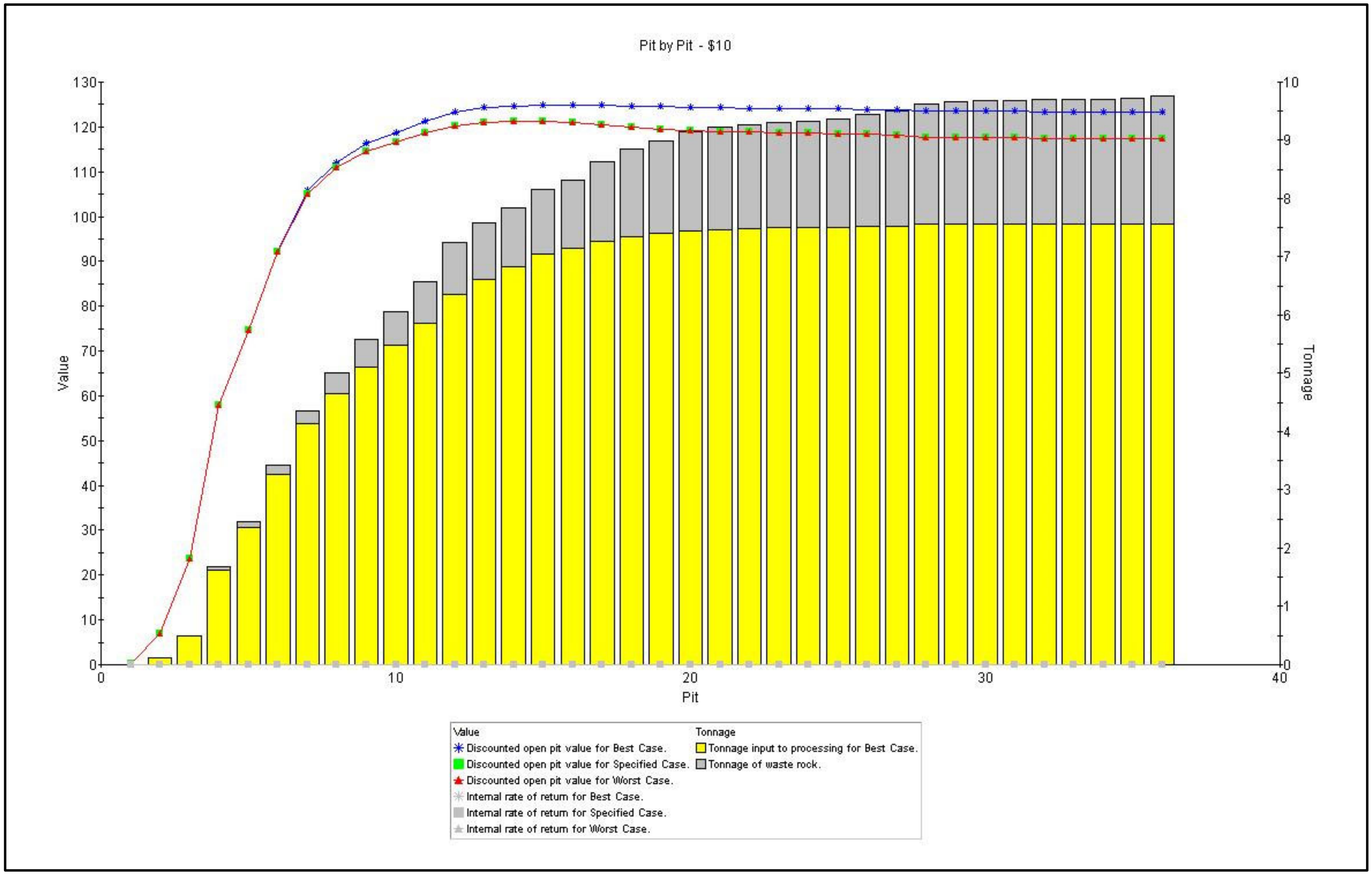
General pit and mine design criteria are shown in Table 16-8.

Figure 16-2: Gibellini Pit Optimization Results



Note: Figure prepared by Wood, 2021. Pit 17 is base scenario, $10, revenue factor 1.

Figure 16-3: Louie Hill Pit Optimization Results



Note: Figure prepared by Wood, 2021. Pit 16 is base scenario, $10, revenue factor 1.

Table 16-8: Pit and Mine Design Criteria

Criteria	Inputs
Design pit slope parameters (IR angles by sector and single/double bench configuration)	OSA, double bench (40 ft)
Waste dump slope assumptions (overall angle, lift height and face angle)	3.0 OSA with 80 to 40 ft benches
Maximum dump height	No limit
Max mine development rate	Maximum vertical advance per phase per year is ten 20 ft benches.
Ramp width	85 ft two-way traffic and 50 ft one-way traffic to accommodate up to 100-st trucks.
Minimum mining width	75 ft in pit bottom and 100 ft on benches.
Swell (in dump) (%) (after compaction)	32%
Annual production rate	Base: open pit @ 3 Mst/a leach feed
Bench height	20 ft – double bench
Grade control	Blast hole drilling and blast hole assaying

16.4.2 Geotechnical and Hydrological Considerations

For the pit design, Wood incorporated geotechnical recommendations published in the Gibellini Vanadium Project Feasibility Level Pit Slope Design (Orman, 2012). Single and double benches of 20 and 40 ft, respectively were utilized. A 40° overall slope angle (OSA) was assumed for the 2021 PEA study based on dry conditions for the pit optimizations and the preliminary assessment pit design geometry recommendations.

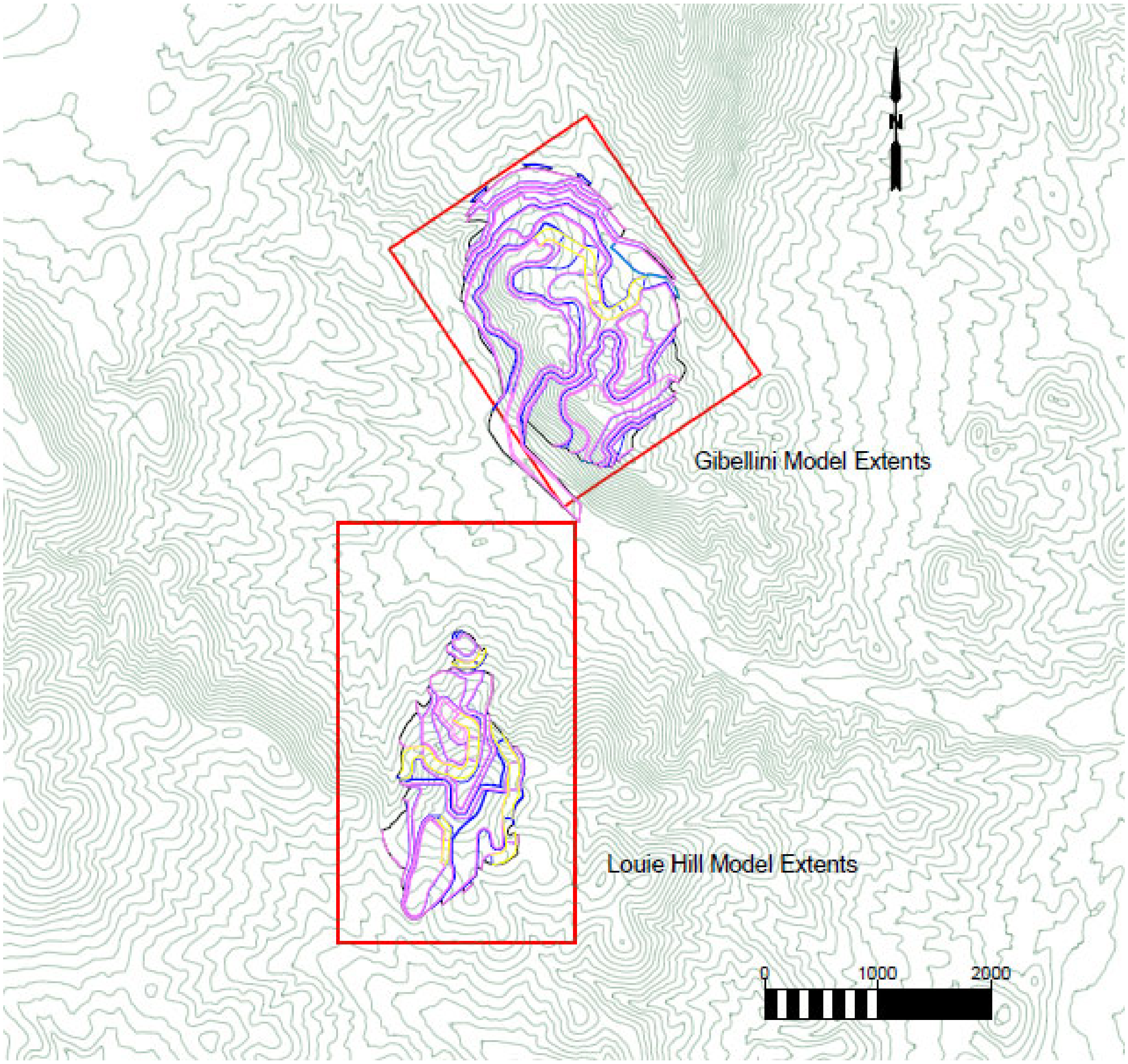
A slot cut was placed in the southwest corner of the Gibellini pit to facilitate drainage from the pit bottom. The pit bottom is limited to an elevation of 6,740 ft above sea level to avoid interaction with the known perched water table.

16.4.3 Ultimate Pit Design

The ultimate pit designs are based on $10.00/lb V_2O_5 pit shells.

Figure 16-4 shows a plan view of the ultimate pits.

Figure 16-4: Ultimate Pits Gibellini and Louie Hill



Note: Figure prepared by Wood, 2021

16.4.4 Pit Phases

Five pit phases were developed for the Project. Phases I, II and III are mined from the Gibellini deposit and Phases IV and Phase V are mined from the Louie Hill deposit. The Gibellini pit will be mined first in its entirety based on the confidence categories of the resource estimate, and the preliminary nature of the Louie Hill pit, as opposed to having the pits based on optimized grade.

The phases were selected from the different resulting pit optimization shells and based on operational parameters such as bench advance and pushback widths. Table 16-9 provides a summary of the forecast tons and V_2O_5 grade by phase.

16.5 Haul Roads

The haul roads in the 2021 PEA concept are designed to accommodate 100-st haul trucks with a maximum gradient of 10% and an overall width of 85 ft. Access into the final pit bottoms will be gained via a section of single-lane road that will be 50 ft wide. A typical ramp cross-section is shown in Figure 16-5. Temporary roads will be developed to access the upper benches of both pits.

Mining at the Gibellini pit will start at elevation 7120 ft on the northernmost area of the deposit and mining in the Louie Hill pit will start at elevation 7220 ft. The deepest bench of Gibellini will be at elevation 6740 ft to remain above the local water table and facilitate pit drainage. At Louie Hill, the deepest bench to be mined will be at elevation 6920 ft.

16.6 Waste Rock Storage Facilities

Two waste rock storage facilities (WRSFs) were designed for a total capacity of 4.1 Mst. Only non-acid generating (NAG) material will be placed on waste dumps. All potentially-acid generating (PAG) material will be included with the mineralized material and stacked on the heap leach pad.

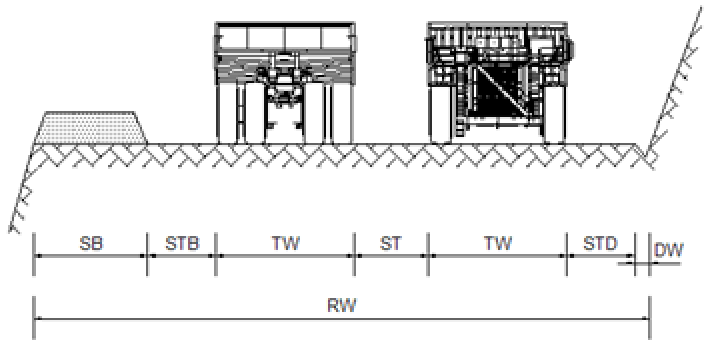
Waste material from the Gibellini pit will be stored in a planned East WRSF that will have a maximum capacity of 2.5 Mst. An additional 2 Mst of inert waste material from the slot-cut area of the Gibellini pit will be used as construction material for the Louie Hill haul road.

Waste from the Louie Hill pit is currently all classified as NAG and will be stored on a planned West WRSF and have a capacity of 1.6 Mst. This material can also be used as construction material or backfill within the Gibellini pit if needed.

Table 16-9: Phase Summary

Phase	Pit	V_2O_5 (klb)			Leach (kst)			Waste	Total Mineralized Material			Leach & Waste
		Oxide	Transition	Sulfide	Oxide	Transition	Sulfide	(kst)	V_2O_5 (klb)	(kst)	Grade V_2O_5 (%)	(kst)
1	Gibellini	29,303	30,919	153	5,201	3,583	53	192	60,374	8,837	0.342	9,029
2	Gibellini	18,211	36,050	3,336	4,186	5,559	1,032	191	57,597	10,777	0.267	10,968
3	Gibellini	2,598	7,479	13,430	865	1,858	4,097	4,173	23,507	6,821	0.172	10,994
4	Louie Hill	25,856	—	—	3,717	—	—	268	25,856	3,717	0.348	3,985
5	Louie Hill	13,459	—	—	3,246	—	—	1,312	13,459	3,246	0.207	4,558
Total		***89,426***	***74,448***	***16,919***	***17,215***	***11,000***	***5,183***	***6,136***	***180,794***	***33,397***	***0.271***	***39,533***

Figure 16-5: Typical Ramp Cross-Section



SB:	Safety Berm	3.7 m	12.25 ft
STB:	Space Between Truck and Safety Berm	3.0 m	9.92 ft
TW:	Truck Width	6.1 m	19.85 ft
ST:	Space Between Trucks	3.0 m	9.92 ft
TW:	Truck Width	6.1 m	19.85 ft
STD:	Space Between Truck and Ditch	3.0 m	9.92 ft
DW:	Ditch Width	1.0 m	3.28 ft
RW:	Ramp Width	25.9 m	85.00 ft

Note: Figure from Hanson et al., 2011

The locations of the WRSFs are shown in Figure 16-6. This figure also shows both planned pits and the proposed access roads.

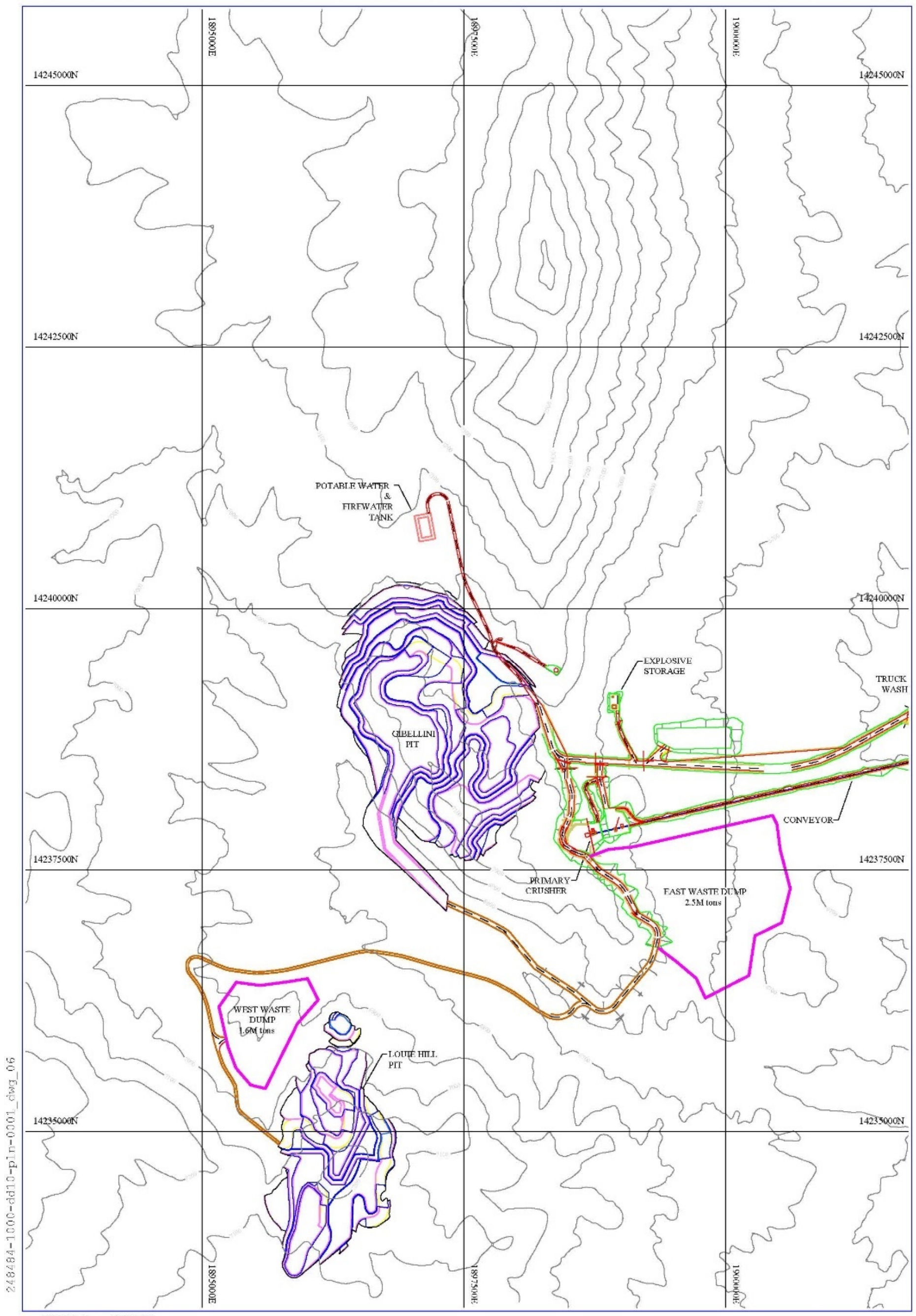
16.7 Production Plan

Wood used an MS Excel-based model to produce a mining schedule that:

- Feeds material to the heap leach process at a constant 3 Mst/a
- Limits bench advance to 10 benches per year per mining area.

Mining will begin at the Gibellini pit which contains more than 80% of the total leach material. Table 16-10 summarizes the annual mine schedule. The proposed mine material movement is shown in Figure 16-.

Figure 16-6: Conceptual Layout Plan, Proposed Gibellini and Louie Hill Pits and Waste Rock Storage Facilities



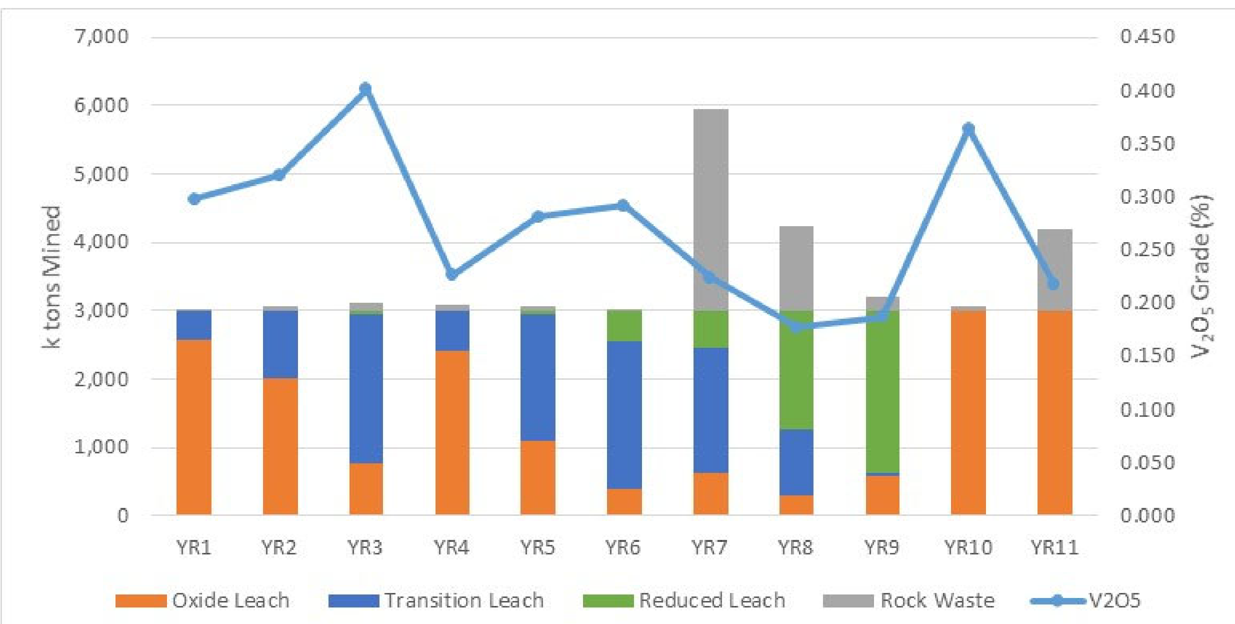
Note: Figure prepared by Wood, 2021. Note waste dump = WRSF.

Table 16-10:Proposed Mine Production Schedule

Period	Total (kt)	Rock Waste (kst)	Oxide Leach (kst)	Transition Leach (kst)	Reduced Leach (kst)	Total Leach Material (kst)	V_2O_5 (%)	Contained V_2O_5 (klb)	Start Elev. (ft)	End Elev. (ft)
YR1	3,002	2	2,573	424	2	3,000	0.298	17,877	7120	6980
YR2	3,072	72	2,025	974	1	3,000	0.320	19,221	6980	6920
YR3	3,117	117	766	2,185	50	3,000	0.401	24,059	7100	6800
YR4	3,096	96	2,423	577	0	3,000	0.227	13,602	7060	6920
YR5	3,081	81	1,096	1,862	42	3,000	0.281	16,881	6920	6880
YR6	3,011	11	395	2,158	447	3,000	0.292	17,519	6880	6820
YR7	5,943	2,943	641	1,817	542	3,000	0.224	13,447	7060	6740
YR8	4,232	1,232	308	960	1,732	3,000	0.178	10,657	6880	6800
YR9	3,203	203	591	44	2,365	3,000	0.187	11,214	7220	6740
YR10	3,067	67	3,000	—	—	3,000	0.364	21,857	7140	7040
YR11	4,191	1,191	3,000	—	—	3,000	0.218	13,057	7200	6980
YR12	518	121	397	—	—	397	0.177	1,405	6980	6920
Total	***39,533***	***6,136***	***17,215***	***11,000***	***5,183***	***33,397***	***0.271***	***180,794***		

Note: kst = 1,000 short tons; klb= 1,000 pounds

Figure 16-8: Mine Material Movement Plan



Note: Figure prepared by Wood, 2021

16.8 Mine Operations

Contract mining is assumed for mining both Gibellini and Louie Hill based on the following assumptions:

- Drilling and blasting is required with an assumed powder factor of 0.25 lb explosive per short ton of rock
- Conventional truck and loader operation with an assume fleet of 100 st trucks and 14 yd^3 loaders
- Haul road, pit, and WRSFs maintained using a convention fleet of support equipment inclusive of graders, track dozers, and water trucks
- Owner-supplied truck shop and office facilities
- Contract mining assumes 20 hours per day, four day a week operation using two mining crews
- Leach material will be direct fed into the primary crusher for crushing and agglomeration. A small day-stockpile will be utilized to balance feed flow into the crusher when necessary.

The Owner will be responsible for the following:

- Blast hole sampling and grade control
- Surveying
- Short-range and long-range planning.

16.9 Fleet Requirements

The mine plan assumption is that all mining will be performed by contractors. No Owner fleet equipment will be required.

The actual equipment fleet will be determined by the contractor to best achieve the mine plan. An example of a representative fleet type with nominal peak unit numbers is provided in Table 16-11.

Table 16-11:Representative Equipment List

Description/Equipment	Make	Model	Nominal Peak Requirements
Drilling			
Blasthole drill	Atlas Copco	DM45	1
Blasting			
ANFO truck	International	4900	1
Skid steer loader	Caterpillar	226	1
Hauling			
Haul Trucks	Caterpillar	777	6
Loading			
Wheel Loader	Caterpillar	992G	2
Crusher Rehandle			
Wheel Loader	Caterpillar	988F	1
Support			
Dozer	Caterpillar	D10R	2
Water truck	Caterpillar	773B	1
Motor grader	Caterpillar	16H	1

16.10 Comments on Section 16

The QP notes:

- Pit optimization was done on the available resource block models. The 2021 PEA pit optimizations were unincumbered by property boundaries, existing surface infrastructure, and groundwater levels.
- The ultimate pit design was smoothed for ramp access. Internal mining phases utilized whittle shells without smoothed designs in the production schedule.
- The development progression for Gibellini and Louie Hill has been completed by the level of development of each property rather than by highest grade. As such, the Gibellini area is the most advanced with respect to mine planning and permitting and will be developed first while additional drilling and permitting is completed on Louie Hill

- Approximately 30% of the total estimated pounds of V_2O_5 in the 2021 PEA mine plan is in the Inferred category. 12% of the total estimated pounds at Gibellini and 100% of the Louie Hill are Inferred category.
- The slot-cut placed in the southwest corner of the Gibellini pit has been incorporated for drainage and hydrological purposes. It is expected to be placed into inert material and as such, will be suitable for construction and roadbuilding purposes
- The equipment list shown is conceptual. The actual mining equipment fleet will be determined by the contractor to best achieve the mine plan.

17.0 RECOVERY METHODS

17.1 Introduction

The design for the process plant is based on processing the mined material through a heap leach operation using heap-leach technology and standard proven equipment.

Commercial heap leaching and solvent extraction recovery of vanadium mineralization has not been done before; nonetheless, heap leaching and solvent extraction recovery are common technology in the mining industry. The most notable examples are the multiple copper heap leach projects that use an acid leach solution to mobilize the metal followed by recovery in a solvent extraction plant, which is then followed by electro-winning. The Project process applies the same acid heap leaching and solvent extraction technology to recover vanadium. However, instead of electro-winning, the Project process will use an acid strip followed by precipitation to produce a final product.

17.2 Process Flowsheet

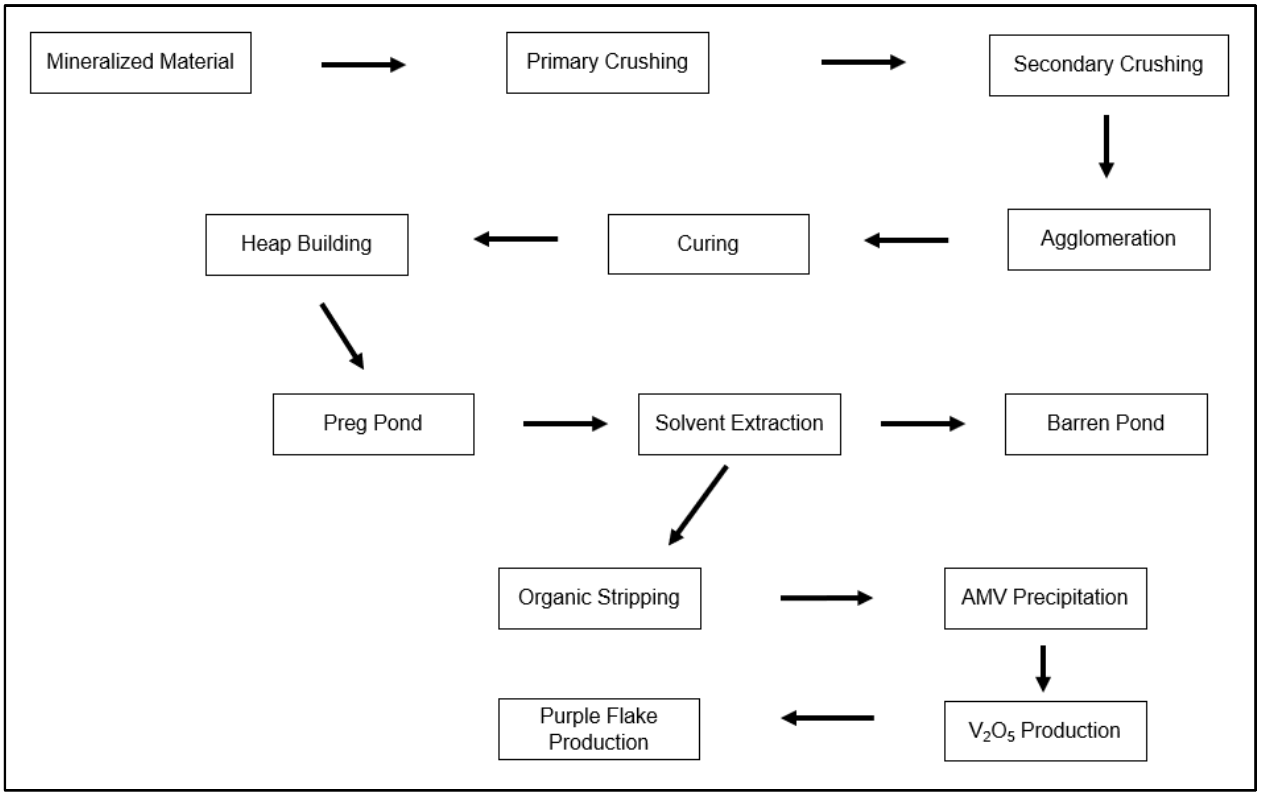
A process flowsheet is included as Figure 17-1.

17.3 Plant Design

17.3.1 Crushing

Run-of-mine (ROM) feed will be fed through a stationary grizzly screen into the dump pocket. The mineralized material will be dumped by truck or may be fed via a front-end loader. The mineralized material will be withdrawn from the ROM dump pocket and fed to the wobbler feeder by an apron feeder. Fines will drop through the openings of the wobbler feeder and the oversize material (plus 2 inches) will be directed to the primary jaw crusher, where it will be reduced from a feed size of approximately 17 inches to a product size of 80% passing 2.6 inches. The fines will be combined with the jaw crusher discharge on the primary crushing discharge conveyor. The combined material will be transferred via an overland conveyor to the coarse ore stockpile stacker. The stacker will discharge the material onto the coarse ore stockpile. The primary crushing conveyor may divert from primary crusher discharge conveyor to an emergency loadout pile in the case of an extended conveyor shutdown on the overland conveyor.

Figure 17-1: Flowsheet Design Schematic



Note: Figure prepared by Wood, 2018

Table 17-1: Conceptual Major Equipment List

Item	Quantity	Size
Jaw crusher	1	32" x 20" ; 100 hp
Primary apron feeder	1	48" x 14'
Wobbler feeder	1	48" x 14'
Grizzly	1	17" square openings
Emergency loadout stacker	1	123' length x 30"
Overland conveyor	1	3878' length x 30"
Coarse mill feed material stockpile radial stacker	1	130' length x 30"
Reclaim apron feeder	1	48" x 14'
Reclaim conveyor	1	171' length x 30"
Secondary cone crusher	1	300hp ; 0.6" CSS
Secondary conveyors (total length)	4	767' x 30"
Agglomerator	1	10' dia. x 30' length ; 75 hp
Discharge, transfer & stacking conveyors (total length)	33	2,860' length x 30"
Gypsum filter press	2	
Extraction mixer settler	4	26' x 67' ; 1,560 ft^2
Stripping mixer settler	3	7' x 24' ; 147 ft^2
HCl wash mixer settler	1	7' x 24' ; 147 ft^2
Uranium recovery filter	1	
Clay filter	1	
AMV precipitation tank	1	
AMV thickener	1	20' diameter
AMV centrifuge	1	
Multi-hearth furnace	1	6 MBTU/h ; 10'9" x 6 hearth
Hammer mill	1	
Cooling screw	1	
Casting wheel	1	
V_2O_5 packaging plant	1	
Process tanks	32	

Note: AMV = ammonium metavanadate

17.3.2 Stockpile and Reclaim

The coarse ore stockpile will provide approximately 10,000 st of live capacity and 64,000 st of total capacity. Material will be taken from the stockpile through a single draw hole onto a feeder supplying the reclaim conveyor. Dozers will push dead storage material towards the draw hole as necessary. An emergency loadout chute has been provided over the reclaim conveyor where a loader can take material from the coarse ore stockpile and load it onto the reclaim conveyor if the feeder is shutdown.

17.3.3 Secondary Crushing and Screening

The reclaim conveyor will discharge onto a double deck clay vibrating screen. The screen oversize material will be directed to the screen oversize conveyor, which will then discharge to the surge bin ahead of the secondary crusher. The screen undersize will discharge onto the agglomerator feed conveyor. The secondary crusher feeder will feed material to the secondary cone crusher, where screen oversize material will be reduced from a size of approximately 5 inches to a product size of around ½ inch. The secondary crusher will discharge onto the secondary crusher discharge conveyor will feed the material to the double deck vibrating classification screen. Screen oversize material (plus ½ inch) will combine with screen oversize from the clay screen onto the screen oversize conveyor. The screen undersize, around ½ inch, discharges onto the agglomerator feed conveyor.

17.3.4 Agglomeration and Heap Leach

The agglomerator feed conveyor will transport the crushed product to the agglomerator. Sulfuric acid and flocculant will be pumped to the agglomerator. Fresh water will be added to bring the agglomerator product discharge up to 7% moisture. The agglomerated product will discharge onto the agglomerator discharge conveyor. The agglomerated ore will be transferred via a network of conveyors to the heap pad stacker that will be used to load ore onto the pad.

The stacked mineralized feed on the pad will be allowed to cure for a minimum of 24 hours (normally about seven days). Once sufficient material is accumulated to permit distribution of sprinklers onto the leached material, sulfuric acid solution will be distributed to the heap at a rate of 0.0025 gal/min/ft^2. The solution will percolate through the ore to dissolve and carry away the vanadium.

The vanadium will be leached out from the mineralized material by the acidic solution as it percolates through the stacked material. Vanadium is soluble in sulfuric acid in both the V^{+4} and V^{+5} valence states and as such would add a greenish–yellow color to the PLS. Minor amounts of uranium will also leach and react with the acid to form an ionic uranyl sulphate complex ($UO_2(SO_4)^{3-4}$) with the uranium in the +6-oxidation state. The uranium is a contaminant in the vanadium product and will be removed ahead of the vanadium recovery.

The solution will flow to the leach pad low point where it will be collected in the intermediate leach solution (ILS) pond and pregnant leach solution (PLS) pond. Intermediate leach solution is recycled back to the leach pad. Pregnant solution will be pumped from the PLS pond by the PLS pumps to the process building for recovery.

17.3.5 Gypsum Removal

The PLS solution will be pumped from the PLS pond to the reduction tank where SO_2 solution will be added by the reductant pumps to convert any vanadium cations in the five valent form, (VO_2^+) to the four valent vanadyl (VO^{2+}). The acidic solution (pH between 1.2–1.5) will then flow to the pH adjustment tank where the pH of the solution will be adjusted to 2.2–2.4 by the addition of milk of lime from the lime mix distribution pumps. The solution will then be pumped to the gypsum filters. The precipitated gypsum will discharge to the repulp tank where it will be re-pulped to a higher density prior to being pumped to the agglomerator. The gypsum filter filtrate will discharge to the solvent extraction (SX) feed tank and be pumped to the solvent and extraction circuit by the SX feed pumps.

17.3.6 Solvent Extraction

The mixer settlers will consist of single-stage mixing operating in counter-current in which organic comes into the last mixer–settler and PLS comes into the first mixer–settler. The circuit will consist of four stages of extraction, three stages of stripping and one stage of washing or scrubbing.

The first phase of the SX circuit will be where the vanadium along with small amounts of uranium are transferred from the aqueous phase to the organic phase. The PLS will flow consecutively through the mixer–settler tanks from the first to the final extraction mixer settle, and the organic will flow counter-current to the aqueous and extract the vanadium from the aqueous phase. The vanadium depleted raffinate will be recycled back to the heap leach as lixiviant.

The organic, which is now loaded with vanadium, will advance from the extraction circuit to the vanadium strip circuit, where the organic will be contacted with a strip liquor. The loaded organic will advance from the first to the final strip mixer settler, contacting the strip liquor that will flow counter-current to the organic. The organic, now stripped of vanadium, will advance to a washing circuit where dilute HCl will strip off ferric that remains loaded on the organic. The organic will report to a stripped organic tank and will then be returned to the extraction circuit.

A side stream of approximately 10% of the organic will be treated in a uranium strip circuit that will remove uranium from the stripped organic. The uranium will be precipitated, processed and packaged for shipment.

17.3.7 Precipitation

The pregnant strip solution will advance to an oxidation tank where sodium chlorate will be added to oxidize the vanadium ions from the V^{4+} to the V^{5+} valency state. The liquor will flow to precipitation reactors where anhydrous ammonia addition for pH control will result in AMV precipitation from the solution. The precipitate slurry will overflow the precipitation reactors to a thickener. The thickener overflow and centrifuge centrate will report to a barren liquor tank. A portion of the barren liquor will be acidified with sulfuric acid to a concentration of 225–250 g/L and will be recycled back to the strip circuit as strip solution. The thickener underflow will advance to a centrifuge for additional washing and dewatering.

The centrifuge solids will advance to a multi hearth furnace for drying, calcining and melting. The furnace will operate above 700ºC and will calcine the AMV in an oxidizing environment to vanadium pentoxide (V_2O_5). The molten V_2O_5 will flow to a casting wheel to cool down to 90ºC into a crystalline form. The casting wheel will discharge to a hammer mill that will crush the V_2O_5 prior to it being packaged.

17.4 Energy, Water, and Process Materials Requirements

17.4.1 Reagents

The following reagents will be required during processing operations:

- Sulfuric acid
- Polymer
- Kerosene

- Diethyl-hexa phosphoric acid (DEHPA)
- Tri-octyl phosphorous oxide (Topo)
- Hydrochloric acid
- Anhydrous ammonia
- Sodium hydroxide
- Sodium chlorate
- Sulfur dioxide and/or powdered iron
- Diesel
- Propane.

17.4.2 Water

Process water will gravity feed from the make-up pond to the raffinate tank located in the process area at an approximate flow rate of 300 gal/min. Water will also be pumped from the make-up pond to a 10,000 gal water truck on average 12.5 times/day. This water will be pumped at a flow rate of 800 gal/min from a submersible pump. During construction, water will be supplied to construction trucks.

17.4.3 Electrical and Power

Power for the process route is assumed to be supplied from a new distribution line to be constructed to the Project.

Electrical and power requirements for the process area were incorporated in both the capital cost allocations and operating cost allocations in Section 21 of this Report.

17.5 Comments on Section 17

The QP notes:

- The design for the process plant is based on processing the mined material through a heap leach operation using heap-leach technology and standard proven equipment. Commercial heap leaching and solvent extraction recovery of vanadium ores has not been done before; nonetheless, heap leaching and solvent extraction recovery are common technology in the mining industry

- The process design is based on the metallurgical testwork and is appropriate to the crush and recovery characteristics defined for the different oxidation states of the mineralization
- Reagent requirements have been appropriately established for the operational throughput
- Process water requirements have been appropriately considered in the design process. Water is assumed to be sourced from wells
- Power for the process route is assumed to be supplied from a new distribution line to be constructed to the Project.

18.0 PROJECT INFRASTRUCTURE

18.1 Introduction

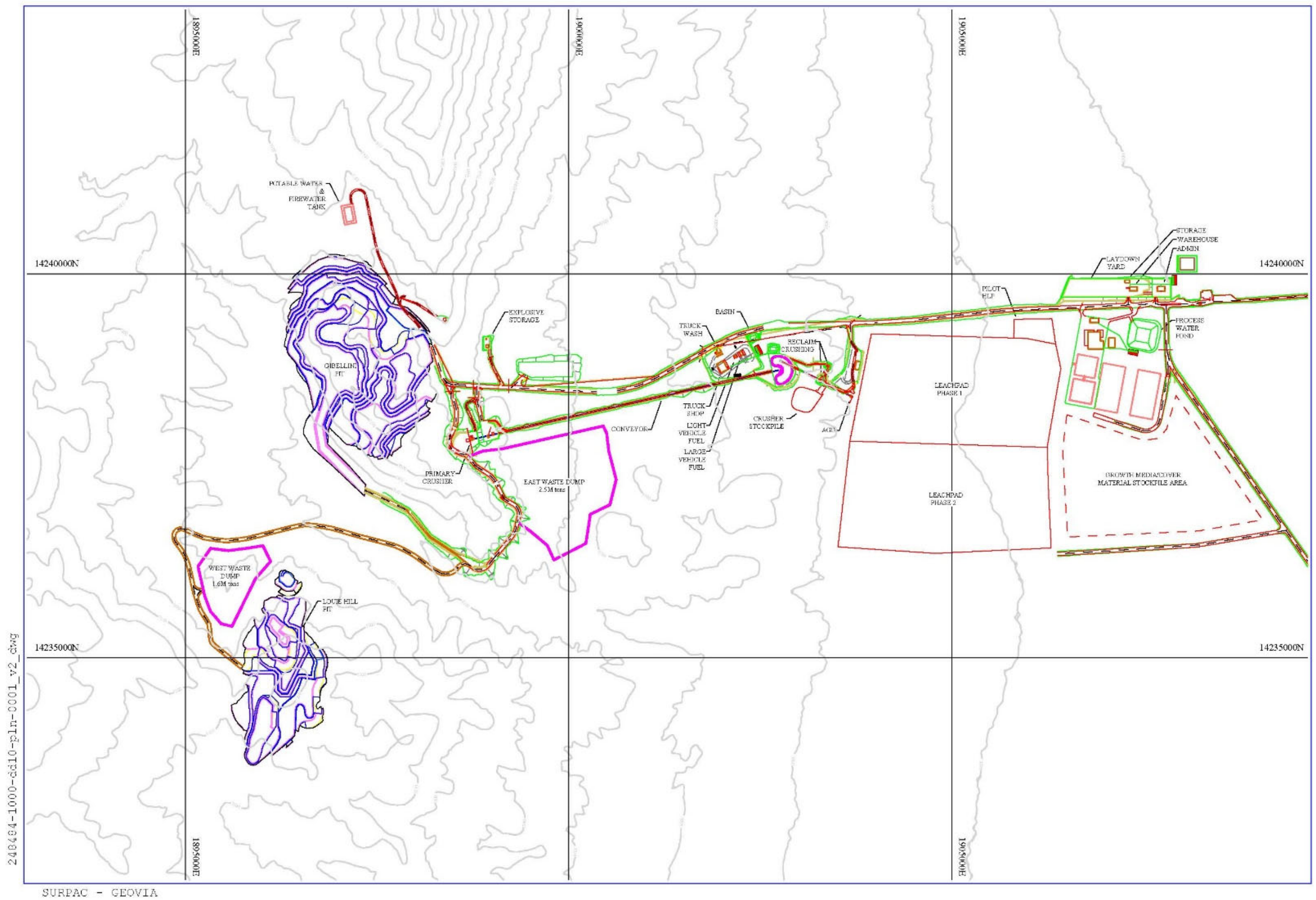
Infrastructure to support the Gibellini Project will consist of site civil work, site facilities/buildings, a water system, and site electrical potentially including an on-site photovoltaic (PV) energy and large-scale battery storage system (an alternative being evaluated in the BLM EIS). These are indicated in Figure 18-1. Site civil work includes designs for the following infrastructure:

- Light vehicle and heavy equipment roads
- Stormwater diversion and detention ponds
- Growth media stripping and stockpiling
- Evapo-transpirative (ET) borrow cover
- Mine facility platform and the crusher platform
- WRSF foundation.

Site facilities will include both mine facilities and process facilities:

- The mine facilities will include the main office building, truck shop and warehouse, truck wash, fuel storage and distribution, mine to leach pad conveyor, and miscellaneous facilities
- The process facilities will include the process office building and assay laboratory and the product storage building
- Both the mine facilities and the process facilities will be serviced with potable water, fire water, power, propane, communication, and sanitary systems.

Figure 18-1: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2021

18.2 Site Infrastructure

18.2.1 Mine Facilities

The key facilities required in support of the mining operation include:

- Main office building for the G&A staff, the Owner's mining staff, and the contract mine supervisor
- Truck shop and warehouse sized for 100-st haul trucks
- Truck wash includes a light vehicle bay and a heavy equipment bay
- Fuel storage and distribution
- Mine to heap leach pad conveyor
- Miscellaneous facilities include ready line, hazardous waste storage pad, change pad, class III landfill, and explosives storage facility.

18.2.2 Process Facilities

The key facilities required in support of the processing operations include:

- Process offices and assay laboratory
- Primary and secondary crusher, conveyor, agglomerator and radial belt stackers
- Heap leach pad and ponds
- Vanadium and uranium production building
- Product storage building.

18.3 Road and Logistics

Access to site will be provided from the Eureka County roads to the site access road. Within the site, heavy equipment roads will connect the Gibellini pit and waste rock storage facilities (WRSFs) and the Louie Hill pit and WRSFs to the main facilities and processing areas.

18.4 Camps and Accommodation

All mine personnel are expected to commute from Eureka or other towns located in the region. No onsite camps or accommodations are anticipated.

18.5 Stockpiles

Stockpiles are discussed in Section 20 of this Report.

18.6 Waste Rock Storage Facilities

There will be two WRSFs for the Project, with a total capacity of 4.1 Mst (refer to proposed locations in Figure 16-6). Only NAG material will be placed on the WRSF. All mineralized waste will be placed on the heap leach pad. The planned WRSF at the proposed Gibellini pit will accommodate 2.5 Mst of waste, and the Louie Hill WRSF will accommodate 1.6 Mst. The remainder of waste material from the Gibelllini slot cut, totaling 2 Mst, is assumed to be inert and suitable for road building and construction purposes, or will be used at closure on the final pit floor.

18.7 Leach Pad and Pond

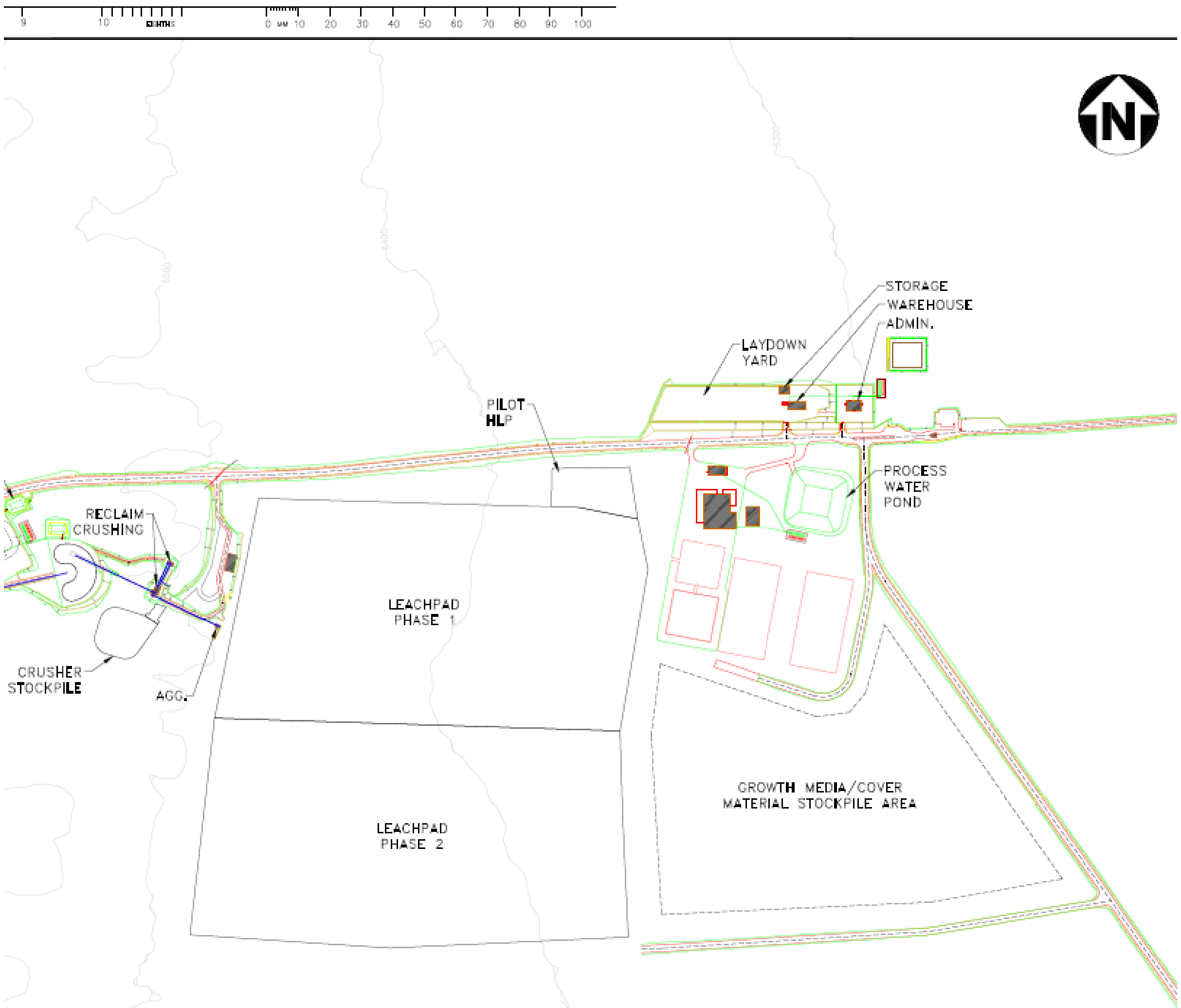
The Gibellini heap leach facility will leach minus half-inch crushed and polymer agglomerated vanadium mineralized material from the Gibellini and Louie Hill pits.

The leach pad will be developed in two phases, an initial phase of 16.7 Mst and an expansions, with a total planned capacity of 33.4 Mst (Figure 18-2).

Individual lifts of leach material will be placed by a radial stacker. Setbacks will be incorporated into the stacking plan at each lift level to achieve a three horizontal to one vertical (3:1) overall slope. Because of the friable nature of the mineralized material, agglomeration will be critical to the percolation characteristics of the leach materials. Heavy equipment access to the placed leach material will be with low ground pressure dozers. Barren solution application is expected to be 0.0025 gal/min/ft^2 with a total solution flow to the pad of 1,500 gal/min.

The design concept for the leach pad liner system includes a composite lining system consisting of a geosynthetic–clay liner overlain by an 80 mil polyethylene (HDPE) geomembrane liner. The HDPE geomembrane liner will be covered with a cushioning/drainage layer of liner cover material or overliner.

Figure 18-2: Heap Leach Pad Design Layout



Note: Figure prepared by Wood 2021

The Gibellini Project process ponds would work together as a system with process and stormwater being contained in the system as a whole. Under normal operating conditions, solution would discharge directly from the heap leach pad through a piping network that discharges into either the PLS pond or the intermediate leach solution (ILS) pond depending upon solution grade. Solution would be pumped directly from each pond into the processing plant.

During upset conditions, such as a power loss or storm event, solution would fill the PLS pond and the ILS pond, which would be connected with a spillway, first before discharging into the event pond. Both the PLS pond and the ILS pond would have spillways that discharge into the event pond.

A spillway would also connect the event pond to the process solution evaporation (PSE) pond that in turn discharges into the overflow PSE pond to provide extra containment flexibility. It is anticipated that a minimum water ballast would be maintained in the PLS pond and ILS pond and the remaining maximum operating inventory may be split between the PLS pond and the ILS pond in varying percentages at the discretion of the Operator.

The selected design requirements for the Gibellini Project pond system include process solution storage for ballast/operating inventory and solution storage for a 48-hour power outage split between the PLS pond and ILS pond with an anticipated return flow rate of 1,500 gal/min. The design solution application rate is 0.0025 gallons per minute per square foot (gal/min/ft^2). The facilities will be separated from the natural up gradient watersheds by storm water diversion systems designed to safely pass the 100-year, 24-hour precipitation event and withstand a 500-year, 24-hour storm event. Storm water considerations are assumed to be dictated by direct precipitation falling on the facilities.

A lined make-up water pond will be used to store freshwater for use in leaching activities and for construction water and dust control. It will be constructed northwest of, and up gradient from the leach pad.

18.8 Water Supply

The water supply source for future operations has been leased from the Fish Creek Ranch.

18.9 Water System

The mine design assumes an average water requirement of 500 gal/min, of which 40 gal/min would be potable, and the remainder non-potable.

Peak water requirements are projected to occur during the summer when both water for mine dust suppression and construction are required. To address peak usage, a 10.7 Mgal make-up water pond would be built. The make-up water pond's capacity is designed at five days of peak usage and to contain a 100-year, 24-hour storm event.

Potable water and fire water will be stored in two separate tanks. The potable water tank will have a 120,000 gal capacity. The fire water tank will have a 250,000 gal capacity.

18.10 Power and Electrical

Gibellini operations will be supported with a utility interconnection.

A 69 kV distribution line was constructed from a substation at Newark Valley to Fiore Gold's Pan Mine. It follows State Route 379 to Fish Creek Ranch then turns east to the Pan Mine.

The utility power supply for the Gibellini Project site is assumed to be a new three-phase, 24.9 kV overhead distribution line. The line would be installed by Mt. Wheeler Power from a planned substation to be located near the Fish Creek Ranch. This substation would tap and step-down the 69 kV supply carried by the existing line to the Pan Mine to 24.9 kV and place it on a line to the Gibellini Project.

Negotiations with the power utility, Mt. Wheeler Power, would need to be undertaken to secure any future power supply contract and transmission line to the site.

The proposed 24.9 kV distribution line route will be approximately 6.5 miles from the utility connection point to the Gibellini Project. The Mt. Wheeler Power transmission line would terminate at a new substation on site. The substation would have an incoming circuit breaker, disconnect switches, and protective equipment for the distribution of electrical power on site at 24.9 kV.

Electrical rooms would be distributed around the site and located as close as possible to the major electrical loads. Process control for the plant would use a network of programmable logic controllers and human-machine-interface (HMI) equipment. The degree of instrumentation would be the minimum required for safe operation of the plant and efficient control of the process using a minimum number of operators.

The anticipated electrical load for the Gibellini mine site is as follows:

- Connected load: 3,726 kVA
- Annual energy consumption: 10,906 MWh
- Average load: 1,245 kW
- Power factor: 95%

Site emergency power will be provided with a standby power generator rated for the maximum power required in the event of a utility power failure.

18.11 Comments on Section 18

The QPs note the following:

- Heap leach pad design is based on appropriate geotechnical testwork; stormwater considerations are dictated only by direct precipitation falling on the facilities
- Infrastructure to support the Gibellini Project consists of site civil work, site facilities/buildings, a water system, and site electrical
- Infrastructure considerations are appropriate to the mining method and processing method
- Water will be leased from the Fish Creek Ranch
- Leach pads will have a total capacity of 33.4 Mst and will be designed/built in two phases
- Two WRSFs will be required, one at Gibellini (2.5 Mst) and the second at Louie Hill (1.6 Mst). Inert waste rock from Gibellini pit will be used for road base and construction. All mineralized waste material will be placed on the heap leach pad.
- A renewable photovoltaic (PV) energy and large battery storage system is being studied for the project. The system configuration would consist of a 5.3 MVAac/4.2 MWac PV system and a 6.3 MW battery with 12.6 MWh of energy capacity. The battery storage strategy will continue to develop through detailed designs to incorporate the renewable energy production and plan consumption.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Commodity Price Projections

Multiple sources were utilized to arrive at the study price of $10.00 per pound V_2O_5 sold including consensus pricing from recently-published technical reports, three-year average pricing published by the European market, and the July 20th, 2021 spot price from the Europe market (see Table 19-1). The average price of the three sources is $9.82/lb V_2O_5 which was rounded up to a study price of $10.00/lb V_2O_5.

The consensus price is the average V_2O_5 price from seven technical reports filed between 2014 and 2020. The average price of the seven technical reports is $10.10/lb V_2O_5 and the average price of the three technical reports filed in 2020 is $9.89/lb V_2O_5 (Figure 19-1).

Pricing published by the Europe market from July 20th, 2018 to July 20th, 2021 for vanadium pentoxide is shown in Figure 19-2. The average over the three year pricing period is $10.15/lb V_2O_5.

Vanadium pentoxide pricing has been trending up during 2021 reaching a spot price of $9.20/lb V_2O_5 on July 20th, 2021 (Figure 19-3).

19.2 Contracts

Silver Elephant proposes to ship bagged products in one ton supersacks to end users. The final products included:

- Fused vanadium pentoxide (V_2O_5)
- High-grade vanadium pentoxide (V_2O_5)
- Wet yellowcake (uranium)

No value is placed on the wet yellowcake product in the 2021 PEA. Both the fused vanadium pentoxide and high-grade vanadium pentoxide are assumed to sell at the study price of $10.00/lb vanadium pentoxide less shipping and marketing costs of $0.54/lb. Point of sale is assumed at Carlin, Nevada.

Mining will be undertaken using contract mining services.

No contracts are in place.

Table 19-1: V_2O_5 Metal Price Sources

Source	$/lb V_2O_5
Average V_2O_5 price technical reports (2014–2020)	10.10
Average V_2O_5 price three-year trailing, European Market (2018–2021)	10.15
Spot price July 2nd, 2021 US$ V_2O_5 European Market	9.20
Average	***9.82***

Figure 19-1: Consensus Pricing

Note: Figure prepared by Silver Elephant, 2021.

Figure 19-2: Historical Vanadium Pentoxide Pricing

Note: Figure prepared by Silver Elephant, 2021.

Figure 19-3: Vanadium 2021 Pricing and Pricing Trend

Note: Figure prepared by Silver Elephant, 2021.

19.3 Comments on Section 19

Wood used multiple sources to arrive at the study price of $10.00 per pound V_2O_5 sold including consensus pricing from recently published technical reports, 3 year average pricing published by the Europe market, and the July 20th, 2021 spot price from the Europe market. The average price of the three sources is $9.82/lb V_2O_5 which was rounded up to a study price of $10.00/lb V_2O_5. Wood believes that the PEA study price of $10.00/lb V_2O_5 is reasonable and supported by multiple sources.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

As all permitting to date has been done in the name of Nevada Vanadium, that name, rather than Silver Elephant, is used in this Report section.

Exploration level activities on private land in Nevada are regulated by Nevada Division of Environmental Protection (NDEP) Bureau of Mining Regulation and Reclamation (BMRR; collectively the NDEP–BMMR), and by the BLM or USFS on public land. For exploration projects on public land creating less than five acres of disturbance, a NOI and reclamation bond is required by the BLM or the USFS. For projects proposing disturbance of over five acres, a PoO and NEPA compliance is required by the land management agency along with a reclamation permit issued by NDEP–BMRR. Regulatory authority for the reclamation permit requirement is set forth in Sections 519A.010 through 519A.290 of the Nevada Revised Statute (NRS) and Sections 519A.120 through 519A.345 of the Nevada Administrative Code (NAC). Additional regulation regarding surety, trust funds for fluid management and enforcement are provided in Sections 519A.350 through 519A.392/

The Project is located on public lands administered by the BLM through the Mount Lewis Field Office located in Battle Mountain, Nevada.

On June 28, 2019, Nevada Vanadium submitted a PoO, to the BLM's Mount Lewis Field Office. In addition, a Reclamation Permit Application was submitted to the NDEP–BMMR.

The following steps have been completed in support of Project permitting:

- Baseline studies have been completed and accepted by the BLM
- The PoO and NDEP Reclamation Permit Application was submitted to the BLM and NDEP and accepted as complete. The permit will be issued following approval of the PoO through the NEPA process
- Supplemental Environmental Reports have been completed and accepted by the BLM
- A NOI was published in the Federal Register on July 14, 2020, that formally began the Environmental Impact Statement analysis

- The Water Pollution Control Permit (WPCP) application with the Engineering Design Report was submitted to the NDEP-BMRR and is under review
- The Air Quality Permit application was submitted to NDEP-BAPC, and the final permit issued.

20.2 Baseline Studies

Baseline studies were completed by Nevada Vanadium and accepted by BLM using the validated data developed during the American Vanadium permitting effort. These baseline studies were used by Nevada Vanadium as the basis for the current permitting. The BLM agreed that the format of the baseline reports would be updated to current standards and the only data collection required would be to validate the previous data. With the issuance of Secretarial Order 3355, the baseline reports were also modified to include preliminary impact analyses for each resource area creating Enhanced Baseline Reports (EBRs) that were used in the development of the PoO. The PoO was written to specifically avoid or minimize environmental impacts. A series of Environmental Protection Measures were developed in the EBRs for impacts that could not be avoided but could be minimized by applying management controls. These EBRs were then carried into the PoO and are included in the EIS documents.

Table 20-1 summarizes the baseline studies and Supplemental Environmental Reports completed by Nevada Vanadium (baseline reports) and the EIS contractor, ICF, for the Project area.

20.2.1 Biological Resources

Cedar Creek completed the updated baseline biological studies for the project area included in the 2019 PoO area. The baseline study included vegetation community and wildlife habitat mapping, noxious weed and invasive species surveys, BLM Special Status Species surveys, greater sage-grouse presence and absence surveys, pygmy rabbit presence and absence surveys, migratory bird and raptor surveys, acoustic bat surveys, golden eagle habitat analysis, and an Ecological Site Inventory analyzing rangeland health indicators. No leks or golden eagle nests were found within the Project boundary. One sage grouse lek is located about two miles southwest of the property, which will require annual monitoring.

Table 20-1: Nevada Vanadium Environmental Baseline Studies

Study	Resources Surveyed	Status
Cultural Resources	Class III Cultural Resource Inventory for the Proposed Gibellini Mine in the Fish Creek Range (2011-2019). Results confidential.	Updated 2019
Biological Survey Report	Gibellini Project Biological Survey Report • Vegetation • Special Status Plant Species • Noxious Weeds • General Wildlife • Greater Sage Grouse and Habitat Assessment • Pygmy Rabbit and Habitat Assessment • Migratory Birds and Raptors • Bats • Fish Creek Springs Tui Chub • Threatened, Endangered and Candidate Wildlife Species	Updated 2019
Waste Rock and Ore Characterization	Gibellini Vanadium Project Materials Characterization – Revised 2019 • Acid base accounting • Meteoric water mobility procedures • Whole rock geochemistry • Mineralogy	Updated 2019
	Gibellini Vanadium Project Baseline Geochemistry Report • Static Testing • Confirmatory Mineralogy and Kinetic testing	Updated 2019
Surface Water Survey Report	Memorandum: Results of the Baseline Spring, Seep, and Riparian Evaluation for the Gibellini Project; Eureka County, Nevada (NVN-088878)	Completed November 2011, Revised 2019
Groundwater Survey Report	Technical Memorandum: Production Well and Monitoring Well Development, Testing and Sampling Gibellini Project	Completed June 2011, updated 2019
Visual Resources Survey Report	Analysis of impacts to visual resources done directly by EIS contractor as a Supplemental Environmental Report (SER)	Completed August 2020

Study	Resources Surveyed	Status
Paleontology Survey Report	A review of baseline paleontological conditions with a review of Potential Fossil Yield Classification (PFYC) for Gibellini Project.	Completed March 2020
Transportation Survey Report	A review of transportation resources and potential impacts from the project activities incorporated directly into SER report	
Socioeconomics and Environmental Justice	A review of socioeconomics and environmental justice baseline conditions and potential impacts incorporated directly into SER	Completed September 2020
Recreation and Wilderness Areas	A review of recreation and wilderness baseline conditions and potential impacts incorporated directly into SER.	Completed July 2020
Air Quality Survey Report	Report on baseline air quality conditions and modeling of air quality impacts from proposed mine plan.	Completed October 2019
Wild Horses	Review of baseline wild horse conditions and analysis of potential impacts.	Completed March 2020
Noise	Review of baseline noise conditions and modeling of potential noise levels from proposed operations on nearest sage grouse lek.	Completed March 2020
Geology	Review of baseline geologic conditions and assessment of potential impacts to geologic resources.	Completed March 2020
Soils	Review of baseline soils conditions and analysis of available soil resources to reclaim the mine plan.	Completed March 2020

The revised PoO prepared by Nevada Vanadium includes environmental protection measures and project design features to avoid or minimize the potential for significant impact to biological resources. Additional protection measures and mitigation may be identified during the NEPA process.

20.2.2 Cultural Resources

Kautz Environmental performed several Class III Cultural Inventories on behalf of NVC. These inventories included the project area and two potential access road alternatives that were part of Nevada Vanadium's projected development plan. Cultural surveys have been approved by the BLM and are currently under review by the Nevada State Historic Preservation Office (SHPO).

Following the SHPO review, a Memorandum of Understanding will be developed between BLM, SHPO and Nevada Vanadium. This MOU will identify the steps necessary to proceed with mitigation of the sites eligible for listing on the National Register of Historic Places (NRHP) that will be directly impacted by project construction. A treatment plan will be developed that, once approved by SHPO, will guide the mitigation of the sites under the oversight by the BLM. The above steps are required to be in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA).

20.2.3 Surface Water Resources

Enviroscientists conducted a spring, seep, and riparian study in 2011 to identify surface water resources within the Little Smoky Valley Basin (155A), the main hydrographic basin which the Project area falls within. This information was updated by SRK Consulting in 2014 and then revised by Newfields in 2019 during the preparation of the Enhanced Baseline Report for Water Resources. No springs, seeps, or riparian areas were identified during the study within the Project area.

Streams in hydrographic basin 155A are predominantly ephemeral, with limited perennial and intermittent drainages to the north and south of the Project area. The closest perennial drainage is Fish Creek, located about five miles north of the Project area. Fish Creek Springs is the primary surface water resource within hydrographic basin 155A with an average discharge of 5,400-acre ft/a. Most of the water discharging from the Fish Creek Springs is captured and used for agricultural irrigation on the Fish Creek Ranch, which has the water right for the entire volume discharged by Fish Creek Springs. Water not captured for Fish Creek Ranch irrigation flows downstream in Fish Creek and infiltrates before reaching County Road 379. There are no downstream surface water users of Fish Creek Springs other than Fish Creek Ranch. Water quality in Fish Creek is variable as it is a mix of Fish Creek Springs flow and agricultural return flow. The water flow is appropriated by the Fish Creek Ranch for agricultural use.

Fish Creek Springs was characterized as calcium bicarbonate water type. Data collected between 1967 and 1981 from the two gaging stations associated with Fish Creek Springs revealed a range in temperature from 0.1ºC to 21ºC, neutral to slightly basic pH values ranging from 6.7 to 7.9, and low total dissolved solids (TDS) of less than 375 mg/L. Metal concentrations in Fish Creek Springs were generally below applicable water quality criteria.

The Project area contains only ephemeral drainages that generally flow in a southeast direction from the alluvial fan formed by the foothills of the Fish Creek Range to the north. Some ephemeral drainages within the transmission line corridor flow northwest to north. Surface water may flow intermittently within the Project area following precipitation events and snowmelt but would infiltrate quickly into the basin sediments. Water quality data are not available for any of the ephemeral drainages in the analysis area.

In 2014 and 2019, the U.S. Army Corps of Engineers (USACE) determined that the 25 ephemeral drainages in the mine and exploration areas are intrastate isolated waters with no apparent interstate or foreign commerce connection. Therefore, these drainages were determined not to be Jurisdictional Waters of the U.S.

20.2.4 Ground Water Resources

Ground water resources are described in both the EBR and the SER for water resources. Confirmation sampling was done in 2018 to validate the previous water level and quality data, and the data are included in the revised EBR and SER. A summary of the ground water resource data is provided in the following sub-sections.

Well Installation

In January and February 2011, RMR contracted a hydrogeologist who oversaw the drilling and construction of two test production wells, two monitoring wells associated with the production wells, monitoring wells up-gradient and downgradient of the proposed heap leach pad area, and monitoring wells around the perimeter of the proposed Gibellini open pit. Well logs also indicate the drilling of a monitoring well located near Fish Creek Ranch Road, northeast of the proposed mine site.

After these wells were installed by RMR, American Vanadium installed several more monitoring wells between November 2013 and January 2014. The well logs and water quality data are included in the EBR and previous historic water baseline reports.

Aquifer Testing

Based on aquifer testing by Schlumberger Water Services (SWS) of the two test production wells in June 2011, these wells did not yield sufficient water to serve as production wells for the Project as envisaged in the 2011 Feasibility Study.

However, the wells would likely be used as part of future baseline and ground water monitoring programs.

The Project water supply will come from the Fish Creek Ranch water system. A lease is in place for 650 gal/min based on the make up water demand of 500 gal/min with an additional 30% (150 gal/min) leased that will remain in the irrigation canal that drains to Fish Creek and be allowed to infiltrate. This is based on the conventional assumption that 30% of center pivot irrigation is lost to infiltration. By allowing this 150 gal/min to infiltrate, there will be no net impact on the groundwater basin water balance.

Groundwater Flow Direction

In June 2011, SWS measured water levels in the seven Gibellini wells and the 8-Mile well located south of the Gibellini Project. Groundwaters flow to the east and northeast with groundwater elevations ranging from 6,059 ft amsl to 6,004 ft amsl.

Water Chemistry

A full description of groundwater monitoring results is provided in the Water Resources EBR. A summary of the water quality is provided below.

Baseline groundwater quality sampling in the alluvium of production test and monitoring wells between 2011 and 2014, and in 2019 revealed pH values between approximately 7.0 and 8.0, TDS concentrations between 190 mg/L and 450 mg/L, and metal concentrations that are typically less than the applicable water quality criteria. The baseline alluvial water quality data set includes exceedances of some applicable water quality criteria in one or more samples for TDS, aluminum, arsenic, iron, lead, and manganese.

In the area of the planned Gibellini Pit, the screened intervals of monitoring wells GHM-6 and GHM-7 are within the bedrock and have revealed poor quality water underlying the open pit area with neutral pH and a calcium–magnesium sulfate water type that is different than the alluvial wells outside the pit area. The pit area bedrock groundwater quality typically exceeded the applicable water quality criteria for a combination of the following constituents: arsenic, antimony, iron, manganese, nickel, selenium, sulfate, and TDS.

The groundwater quality in the alluvium down-gradient of the proposed Gibellini Pit area is generally good and is below Nevada water quality standards with slight exceedances in arsenic, iron, manganese and selenium. The difference in groundwater quality, the low permeability of the Chainman Formation, the 600 ft difference in groundwater elevation between the bedrock under the open pit and the alluvium, and the lack of groundwater in the down-gradient bedrock well GHM-1 indicates isolation and compartmentalization of the bedrock groundwater below the pit within both vertical and horizontal fault structures and limited hydraulic connection to the alluvial groundwater system.

Ground Water Monitoring and Reporting Program

Ground water monitoring and sampling was performed to establish seasonal baseline conditions and will continue throughout the LOM and during mine closure to monitor any changes to the ground water chemistry. The results will be reported to the appropriate agencies on a regular basis.

20.2.5 Geochemical Considerations

Standard geochemical tests consisting of multi-element analyses, static acid base accounting (ABA) tests, net acid generating tests, and meteoric water mobility procedure (MWMP) tests required by the NDEP were completed on identified material types. ABA tests revealed that most samples were not acid generating, exhibiting net neutralizing potential (NNP) values greater than zero. A limited number of samples from the primary and transition mineralized zones were classified as potentially acid generating (PAG), with NNP values less than zero. Oxide zone samples were generally alkaline. Of the waste samples, 16% were PAG, and 84% were non-PAG. Most samples from the pit were classified as mineralized. The Project is anticipated to produce 24 Mst of mineralized material and 2 Mst of waste rock.

The ABA test data were found to correlate well to estimates of acid neutralizing potential (ANP) and acid generating potential (AGP) based on calcium, magnesium, and sulfur chemical assays. Additionally, 740 estimates of ANP and AGP from assay data supplement the conventional ABA analyses. The geochemical characterization indicated that an NNP value of zero and pyritic sulfur >0.2% is appropriate for discriminating between PAG waste rock (values below zero and pyritic sulfur >0.2%) and non-PAG (values greater than zero) for the site materials. The proposed classification criterion of NNP values below zero tons of $CaCO_3$/kst for discriminating PAG materials differs from the general guidance of NDEP (neutralization potential ratio of less than 1.2) and BLM (neutralization potential ratio of less than 3.0 or NNP less than 20 st of $CaCO_3$/kst), but it is supported by the site data.

The vanadium content and NNP values would be used to discriminate ore from waste rock. PAG waste rock would be placed within the lined, zero-discharge heap leach pad, rather than in the WRSFs. Conversely, neutralizing rock mined would be placed in the WRSFs, regardless of vanadium grade (due to high acid consumption that reduces vanadium recovery). Samples with NNP values >100 st of $CaCO_3$/kst will be classified as waste, regardless of their vanadium content.

The average uranium concentration of mineralized material and waste rock was determined to be 12.7 mg/kg with a median value of 12.2 mg/kg. This equated to an average uranium-238 concentration of 4.3 picocuries per gram (pCi/g). Radium-226 can conservatively be assumed to be in equilibrium with the uranium-238. Therefore, the radium-226 concentration is below the NAC Section 459.184(1)(b) exemption level of 5 pCi/g of radium-226 and is not subject to licensing or regulation as radioactive material. The thorium concentrations in the mineralized material and waste rock are less than the uranium value, with an average concentration of 4.4 mg/kg, equating to a thorium-232 concentration of 0.5 pCi/g. As with uranium and radium-226, radium-228 can conservatively be assumed to be in equilibrium with thorium-232. A radium-228 concentration of 0.5 pCi/g is typical of background concentrations in the State of Nevada. Radium-226 background concentrations are typically about 1 pCi/g.

The concentrations of soluble metals varied widely in MWMP and humidity cell tests. Metals that were elevated in at least some samples included aluminum, iron, arsenic, antimony, cadmium, copper, nickel, selenium, vanadium, and zinc. Metal levels were generally highest at low pH, except for selenium, nickel, vanadium, and zinc, which also had high concentrations in some alkaline pH samples. Elevated levels of aluminum and iron in some circumneutral MWMP tests were likely the result of migration of soil particles from the test apparatus. This would have led to an erroneous overestimation of the solubility of aluminum and iron, which are immobile at circumneutral pH values. The radioactivity of leachate was assessed using measurements of alpha and beta radiation, radium, and uranium from MWMP tests. All but a few samples were lower than the applicable water quality criteria for alpha and beta radiation, radium, and uranium, and the average values were lower than the regulatory drinking water values for each of these constituents, overall indicating that radioactive constituents do not leach at levels of concern.

Humidity cell tests (HCT) were run on each of the material types associated with the deposit. Two additional samples of leached ore were also evaluated using HCTs. HCTs with NNP values less than zero with pyritic sulfur >0.2% were found to become acidic during the tests, whereas samples with higher NNP values remained non-acid and produced smaller amounts of sulfate and metals. The HCTs support the use of an NNP value of zero and pyritic sulfur >0.2% to discriminate between PAG and non-PAG material. Also, the HCTs provided useful information about metal mobility, which paralleled the findings of the MWMP tests. The PAG materials tended to produce acidic leachate with high metal concentrations. Although the non-PAG materials leached metals at lower concentrations than the PAG materials, some of the non-PAG leachate did exceed NDEP Profile I reference values for a variety of metals.

20.3 Environmental Considerations/Monitoring Programs

Nevada Vanadium will conduct groundwater quality monitoring once the WPCP permit is issued. There are currently no active environmental monitoring programs associated with the proposed Project. Upon completion of permitting, various waste rock management, process fluid management, and other monitoring/sampling programs will be implemented.

Monitoring programs have been developed based on requirements of the regulatory agencies and the associated permits/approvals issued by those agencies. Some of the major permits required would include, WPCP, Reclamation Permit, Air Quality Operating Permit, NEPA Record of Decision, and various other federal, state and local permits and approvals.

Reclamation bonds associated with the reclamation permit must be posted prior to the start of project construction and will be reviewed and updated every three years to assess adequacy of the bond to cover current reclamation costs.

20.4 Key Environmental Issues

The NEPA environmental impact assessment process is focused on key environmental issues that were identified during agency and public scoping and guide the preparation of the NEPA document. Key issues currently being analyzed are the management of the uranium secondary product as well as long term closure management of the process facilities. The BLM has worked closely with the cooperating regulatory agencies to document the measures developed to avoid, minimize or mitigate potential impacts resulting from these issues.

20.5 Proposed Mining Activities

The Project is a proposed vanadium mine located along the eastern slope of the Fish Creek Mountains in Eureka County, Nevada, which would be developed and operated by Nevada Vanadium.

A full Project description is provided in the PoO.

20.5.1 Surface Disturbance

Total surface disturbance for the Proposed Action would include 806 acres of public land.

20.5.2 Stockpiles

To avoid any risk of acid generation from the mineralized material that could impact groundwater, a compacted low permeability ($1X10^{-6}$ cm/sec) soil-lined temporary coarse ore stockpile would be constructed west of the heap leach pad area. The crushed coarse ore stockpile would have a capacity of approximately 64,000 st of primary crushed material. Stormwater diversion channels would divert surface water run-on from the ore stockpile while runoff from direct precipitation would be conveyed into the compacted soil-lined pond north of the stockpile pad. Existing ground underneath the stockpile would be cleared and grubbed of 12 in of growth media and then lined with a 12-in soil liner prior to construction of the structural fill. Structural fill material would be excavated from the surrounding area and compacted in lifts to form the base of the stockpile. Four feet of overliner rock would be placed on the finished grade to protect the liner, minimize rutting, and to control dust.

An emergency loadout area would be developed between the primary crusher and overland conveyor, which would only be used if the overland conveyor is down for maintenance and the coarse ore stockpile has been depleted. Water runoff from the stockpile area would be pumped to the pond located near the coarse ore stockpile or the lined heap leach pad area. During ground clearing and grubbing operations, an average depth of 12 inches of growth media would be stripped, salvaged, and stockpiled. Growth media stockpiles would be placed in designated areas within the Project area to the nearest associated mine component. The growth media stockpile associated with the WRSFs would be placed southeast of the facility and down slope of the stormwater diversion structures. Growth media stockpiles would be sized to accommodate the amount of growth media obtained from nearby surface disturbance areas associated with various mine components. Growth media would be hauled and placed in growth media stockpiles, which would range in height from 40–80 ft. Growth media stockpiles would have 3H:1V slopes instead of the natural angle of repose (1.5H:1V) slopes. A total of 1,789,300 yd^3 of growth media would be needed for reclamation and 1,892,500 yd^3 would be available within the Project area, which would be salvaged and stockpiled. The greatest amount of growth media would be required to provide three feet of evapo-transpiration cover on the heap leach pad, which would require 975,000 yd^3 of growth media. Stockpiles will be constructed and operated to minimize meteoric water run-off and will be closed and reclaimed according to NAC 519A.010-415 and approved reclamation plans.

20.5.3 Waste Rock Storage Facilities

WRSFs will be designed and operated in accordance with NAC 445A.350-447. Waste rock will be managed in accordance with an approved Adaptive Waste Rock Management Plan (AWRMP), which will be based on the PAG characteristics of the waste rock.

The WRSF would be constructed in two phases due to the very low volume of waste rock generated during the first four years of mining. The Phase 1 portion of the WRSF would include 250,000 st of waste rock and the Phase 2 portion of the WRSF would include 2.25 Mst of waste rock. The Phase 1 portion of the WRSF would be built as a buttress for the final facility and would be constructed at the final reclamation slope of 3H:1V to allow for concurrent reclamation.

As each successive lift of the WRSF is completed, the face would be regraded. Once regraded, the lift would be covered with approximately 12 inches of growth media. The area would be subsequently seeded with an appropriate and BLM approved seed mixture.

An AWRMP has been developed for the Project, which specifies that PAG material would be deposited in the lined heap leach pad and remaining high carbonate waste rock would be deposited in the WRSF. This will provide additional capacity within the permitted footprint, if needed, for future expansion.

WRSFs will be reclaimed in accordance with NAC 519A.010-345. Reclamation measures may include the following:

- Regrading to enhance stability, reduce susceptibility to erosion and facilitate revegetation success

- Revegetation
- Diverting run-off from precipitation events and snowmelt
- Implementing measures to stabilize, manage, control or treat mine-impacted waters.

20.5.4 Heap Leach Facilities

Based on the type of deposit currently being explored, vanadium recovery will be accomplished through sulfuric acid leaching on engineered heap leach pads. Crushing, screening, and agglomeration of mineralized material is anticipated. Milling of the mineralized material is not currently planned, thus no tailings storage facilities will be required. Heap leach pads and process fluid recovery systems will be designed and operated in accordance with NAC 445A.350-447. The facility will be designed and operated to conform with NDEP-BMRR zero discharge standards of performance, which requires the containment of all process fluids (NAC 445A.385).

The heap leach pad would leach crushed and polymer-agglomerated vanadium mineralized material from the pit. The rectangular-shaped heap leach pad would be approximately 2,850 x 2,500 ft. The heap leach pad would be developed in two phases. Phase 1 would cover approximately 3.5 M ft^2 and Phase 2 would cover approximately 3.6 ft^2. Based on ½ -inch minus crushed material and using a tonnage factor of 23.5 ft^3/st, Phases 1 and 2 would accommodate approximately 30 Mt of mineralized material placed to an ultimate height of 150 ft. Each phase would be sized to accommodate approximately 15 Mst of crushed mineralized material.

Lifts of leach material would be placed by a radial stacker to an approximate height of 15 feet. Setbacks have been incorporated into the stacking plan at each lift level to achieve a 3-ft horizontal to 1-ft vertical (3H:1V) overall slope. Due to the friable nature of the mineralized material, agglomeration is critical to the percolation characteristics of the leach materials. Low ground pressure dozers and other small process equipment would be used to spread the mineralization. The barren solution application rate would be approximately 0.0025 gal/min/ft^2. Solution would be applied over a large enough area to maintain an operational flow rate of approximately 1,500 gal/min through the system.

After processing is complete, spent mineralized material on the heap leach pads will be stabilized in conformance with NAC 445A.430 and approved closure plans. Closure of the heap leach facilities will be in accordance with NAC 445A.350-447 and approved closure plans. Reclamation of the heap leach facilities will be in accordance with NAC 519A.010-290 and approved reclamation plans.

20.5.5 Water Management

Process water would be managed for this Project in accordance with requirements in the WPCP, issued by NDEP–BMRR. The facility will be designed and operated to conform with NDEP–BMRR zero discharge standards of performance, which requires the containment of all process fluids (NAC 445A.385). Stormwater will be managed in accordance with the Mining General Stormwater Permit (Stormwater General Permit NVR300000). No pit lake following cessation of mining is anticipated, based on depth to groundwater and hydrogeologic evaluations.

Long-term water management is addressed in the closure plan included in the PoO and is also summarized in SER 1. A heap leach drain-down estimator (HLDE) model was developed to estimate drain-down curves and the water management plan is based on this model.

20.6 Closure Plan

Nevada Vanadium will need to meet BLM and NDEP objectives for post mining land uses. Major land uses occurring in the Project area include mineral exploration and development, livestock grazing, wildlife habitat and dispersed recreation.

Following closure, the Project area will support the multiple land uses of mineral exploration and development, livestock grazing, wildlife habitat, and recreation. Nevada Vanadium will work with the agencies and local governments to evaluate alternative land uses that could provide long-term socioeconomic benefits from the mine infrastructure. Post-closure land uses will be in conformance with the BLM Battle Mountain Resource Management Plan and Eureka County Land Use Plan.

Because the NEPA process based on the PoO has not been completed with BLM, reclamation bonding estimates have not been completed or approved by the authorizing agencies (BLM and NDEP). Key aspects of the reclamation plan include the following:

- Long-term goals for reclamation of exploration disturbances are to:
  - Ensure public safety
  - Provide physical and chemical stability of the site

- Establish a productive vegetative community based on the post-exploration land uses of selected wildlife habitat, domestic grazing, dispersed recreation activities, and mineral exploration and development

- With these goals in mind, reclamation activities are designed to:
  - Stabilize the disturbed areas to a safe condition, and
  - Protect both disturbed and undisturbed areas from unnecessary and undue degradation.

As much as practicable, concurrent reclamation will be practiced during operations. Reclamation will consist of recontouring disturbed areas to return those areas to a productive post-mining land use. Disturbed areas will then be seeded with a BLM-approved seed mix.

Nevada Vanadium has submitted updated plans for closure and reclamation of the disturbed lands as part the Reclamation Permit application, in accordance with NAC 519A.270. Additionally, Nevada Vanadium has submitted a plan for temporary closure due to planned or unplanned conditions described in NAC 445A.444, as part of the WPCP application. These conditions include planned seasonal closure, planned periods of interruption of active beneficiation or operation, closure due to unforeseen weather events, system component failure, or stoppage of facility operation due to litigation. Also, as part of the permit application, Nevada Vanadium has submitted tentative plan for permanent closure of the production facilities (NAC 445A.398), which must include the following:

- Procedures for characterizing spent process materials as they are generated
- The procedures to stabilize all process components with an emphasis on stabilizing spent process materials and the estimated cost for the procedures.

Based on the conceptual mine plan, closure costs are estimated by Wood to be approximately US$40 million. This assumes a mine life of 13.5 years and the average mine production would be approximately 3.3 Mt of mineralized material and waste per year.

20.7 Permitting Considerations

20.7.1 Permit Requirement Assumptions

The review of permit requirements for the project assumes the specific development scenario outlined in the 2021 PEA which is based on the following assumptions:

- New Project activities would occur on unpatented claims and public lands administered by the BLM
- NDEP will concur that the Project can be operated and closed in a manner protective of human health and the environment through the issuance of the state permits.
- A Record of Decision is received form the BLM following completion of the EIS.

20.7.2 Permitting Requirements

Anticipated environmental and other permits associated with the proposed project would include those identified in Table 20-2.

The permits with the longest lead times are discussed individually in the following sub-sections.

BLM Plan of Operations/NDEP Reclamation Permit

Prior to commencing any mining operations on public lands administered by the BLM, a PoO describing how Nevada Vanadium will prevent unnecessary and undue degradation of the land and reclaim the disturbed areas must be submitted to the BLM. Concurrently, Nevada Vanadium will need to apply for issuance of a Reclamation Permit to NDEP–BMRR. Both the PoO and Reclamation Permit application were submitted on June 28, 2019. The final approval of the PoO will be included in the Record of Decision for the EIS. It is anticipated that this approval will be received prior to the end of 2021.

The EIS process can take between one and 10 years, with an average of 3.4 years, depending on the complexity and nature of the proposed action and variability among the BLM offices.

Table 20-2: Key Required Permits and Licenses

Permits and Authorizations	Regulatory Agency
Plan of Operations/Record of Decision	Bureau of Land Management
Explosives Permit	U.S. Department of the Treasury, Bureau of Alcohol, Tobacco, and Firearms
Surface Disturbance Permit and Class II Air Quality Operating Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Air Quality
Water Pollution Control Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Mining Regulation and Reclamation
Mining Reclamation Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Mining Regulation and Reclamation
Industrial Artificial Pond Permit	Nevada Department of Conservation and Natural Resources, NDOW
Class III Waiver Landfill Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Solid Waste
General Discharge Permit (Stormwater)	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Water Pollution Control
Hazardous Materials Storage Permit	State of Nevada, Fire Marshall Division
Hazardous Waste Identification Number	United States Environmental Protection Agency
Septic Treatment Permit Sewage Disposal System Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Water Pollution Control
Potable Water System Permit	Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Safe Drinking Water
Radioactive Materials License	Nevada Department of Health and Human Services, Nevada State Health Division, Radiological Health Section
Dam Safety Permit	State of Nevada Division of Water Resources
Local Permits	

Permits and Authorizations	Regulatory Agency
County Road Use and Maintenance Permit/Agreement	Eureka County Building Planning Department

BLM permitting started under Secretarial Order 3355 that required specific consolidations of the timeframe for infrastructure projects, specifically that "*each bureau should have a target to complete each Final EIS for which it is the lead agency within 1 year from the issuance of Notice of Intent to prepare an EIS*". New NEPA guidance went into effect on September 14, 2020, which limits the time frame for approval of NEPA documents and puts limits on the number of pages for NEPA documents. The NEPA process was started under Secretarial Order 3355 and time and page limits were built into a Nevada BLM Instructional Memorandum, this is assumed to be the governing document. This will result in less time needed to complete the NEPA process. The Project is located on lands within the jurisdiction of the Mount Lewis Field Office of the Battle Mountain District which regularly processes exploration and mining plans of operations and NEPA documents.

The BMRR will need to issue a Mining Reclamation Permit and a WPCP. The PoO document described above fulfills the requirements of the application for the Mining Reclamation Permit. Application review takes the BMRR approximately 180 days from submittal but will be issued concurrent with the BLM PoO approval. The BLM and the BMRR will jointly agree on the reclamation bond amount.

Water Pollution Control Permit

An application for issuance of a WPCP must include the following:

- Assessment of area of review
- Meteorology report, analysis of samples
- Engineering design report, specifics of fluid management system
- Proposed operating plans, including plans for temporary closure and tentative plans for permanent closure.

A WPCP application has been submitted to NDEP-BMRR. By statute, NDEP-BMRR is allowed a minimum of 180 days to issue a permit. It is likely that the timeline for issuance of a permit will extend to 240 days or longer.

Nuclear Regulatory Commission Materials License

Written confirmation was received from the Nuclear Regulatory Commission (NRC) that since Nevada Vanadium will not be producing uranium as a primary product that the permitting will be under the jurisdiction of the Nevada Department of Health (NDOH). The applicable permit application and supporting documents have been submitted to NDOH. Several rounds of comments have been responded to and a draft permit is expected in Q3 2021.

Anticipated Permitting Time

Table 20-3 presents a summary of the estimated time that it takes to prepare and submit additional permit applications, agency processing and issuance of the permit.

These timelines are variable depending on changes in regulations, changes in regulatory staff assigned to the project, and other unforeseen delays.

In addition to the approvals discussed in this section, Nevada Vanadium must notify the Mine Safety and Health Administration (MSHA) prior to the commencement of mining operations. Notification can be completed with the mine registry form that will be submitted to the Nevada Division of Minerals (NDOM). In addition to the notification of operations, the facility must also submit a training plan to MSHA for approval 30 days prior to operations and obtain a Mine Identification number.

20.8 Social and Cultural Considerations

Nevada Vanadium will take all the necessary steps to engage the local community to create awareness regarding the Project. During the NEPA process, the public will have multiple opportunities to engage and comment on the project and express support or concerns.

The BLM will coordinate with local Native American tribes and interested parties throughout the permitting and NEPA process. The NEPA document will analyze how the Project will affect the social and economic values of the community.

Additional coordination between Nevada Vanadium and local governments, local Native American tribes, and interested parties will occur throughout the planning and permitting phase, operating phase, and closure phase of the Project to ensure that the Project addresses social and cultural considerations.

Table 20-3: Estimated Timeframes for Major Permits

Permit/Approval	Duration of Permitting
Air Quality Permit – Class II Operating Permit	100 days
Water Pollution Control Permit	180–240 days
Reclamation Permit	180 days
NDOW Industrial Artificial Pond Permit	30 days
Class III Landfill Waiver	30 days
NSFM Hazardous Materials Storage Permit	35 days
Explosives Permit	60 days
Hazardous Waste Generator Filing Status	20 days
NDEP-BSDW Domestic Water Supply Permit	45 days

The underground mine workings previously associated with the original Niganz manganese–nickel mine have not been secured according to the standards outlined in the State of Nevada Regulations for Dangerous Conditions Created by Abandonment of Mines as contained in NAC Chapter 513.200 through 513.390. To eliminate or reduce any threat to the public safety and the environment, the BLM, NDOM, or the NDEP will require the old workings be secured and stabilized.

The Niganz mine workings have been classified as historic sites which may be eligible for inclusion on the National Register of Historic Places. Designation of the historic mine workings as potential cultural resource sites will require the implementation of a cultural resource mitigation program to evaluate the impacts of a mine development project on the historic mine workings. It should be noted, the Project has been designed to avoid these historic workings and the only work necessary would be securing the openings to the underground workings for public safety.

The relatively small number of workforce members required for the anticipated mining facilities will likely be drawn from the regional workforce and will not substantially change the regional workforce numbers with a large influx of workers. No substantial impact to the communities in terms of housing, schools or infrastructure are anticipated.

20.9 Comments on Section 20

Based on the above discussion, the following comments are provided:

- The Project is mid-way through the permitting stage. There do not appear to be any significant impediments to obtaining environmental or operating permits
- Because the Project is in its early stages, Nevada Vanadium does not yet have appropriate permits in place for operations. There is a reasonable expectation that the company can obtain the necessary permits. However, Nevada Vanadium is proposing a mineral extraction process that is not in common use in Nevada, and the regulatory agencies are unfamiliar with the process. It may take additional testing to satisfy the regulatory agencies that the mine can be operated and closed in a manner protective of human health and the environment. Nevada Vanadium may be required to design the facility with a higher level of engineering and agency oversight to satisfy the regulatory agencies
- An EIS must be completed, and a Record of Decision issued prior to BLM authorization of mining and processing activities. Preparation of the document and required public participation in the process may cause delays in commencement of operation
- The closure costs seem reasonable, and appear to cover what is regulatorily required, pursuant to pertinent sections of NAC 519A 40 CFR 3809. Because the Plan is yet to be approved, the reclamation bond has not yet been determined. At the time the bond is approved, appropriate mechanisms for funding will be in place. Working through the regulatory comments and coordinating between the multiple agencies that will be involved to secure the major permits could affect the permitting timeline to some degree but effects would be minimized as permitting efforts were front-loaded in the proposed Project development to de-risk the Project financing.

21.0 CAPITAL AND OPERATING COSTS

21.1 Introduction

Capital and operating costs for the 2021 PEA are based on suppling 3 Mt of crushed and agglomerated leach material annually from two open pits, Gibellini and Louie Hill. Initial mine development is focused on Gibellini, with Louie Hill following nine years later. During the capital period, an initial leach pad having a capacity of 16.7 Mt is constructed followed by one expansion of approximately 16.7 Mt. Total initial capital is estimated at $147 million (Figure 21-1).

Sustaining capital is estimated at $25.2 million. Figure 21-2 provides a distribution of sustaining cost expenditures.

Operating costs average $16.12/st leached. Figure 21-3 provides a distribution of the operating costs.

21.2 Capital Cost Estimates

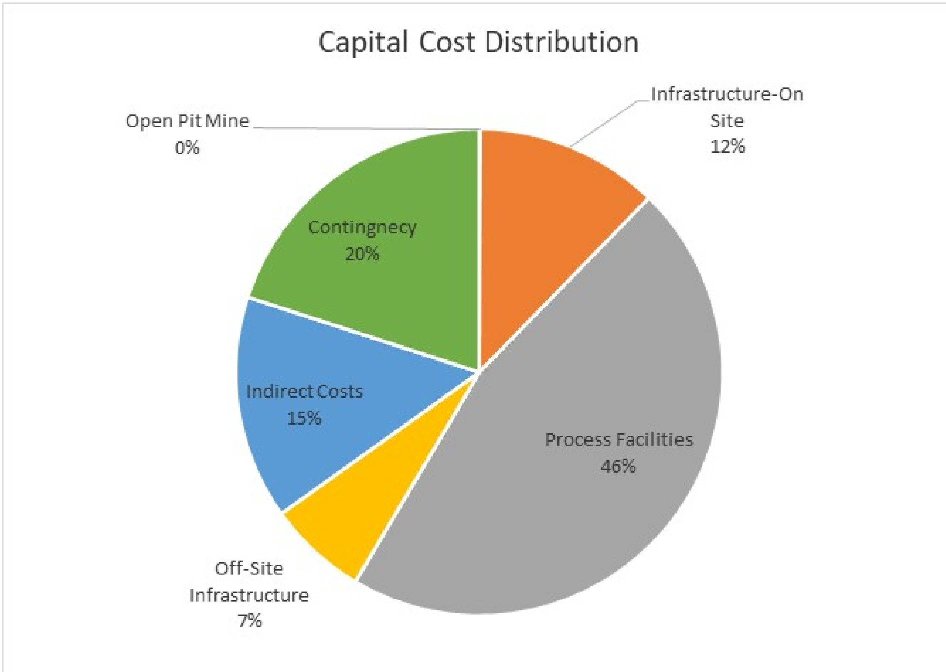
21.2.1 Basis of Estimate

The 2021 PEA capital cost estimate is based on the 2011 Feasibility Study capital estimate adjusted for inflation and a 25% contingency to reflect the level of study. All costs are escalated to Q1 2021. Sustaining capital costs are likewise based on the 2011 Feasibility Study adjusted for inflation and inclusive of contingency; however, unlike the 2011 Feasibility Study, the 2021 PEA sustaining costs account for the inclusion of mineralized material from Louie Hill, supporting infrastructure, and an additional leach pad expansions to accommodate the larger 2021 PEA resource base.

21.2.2 Escalation

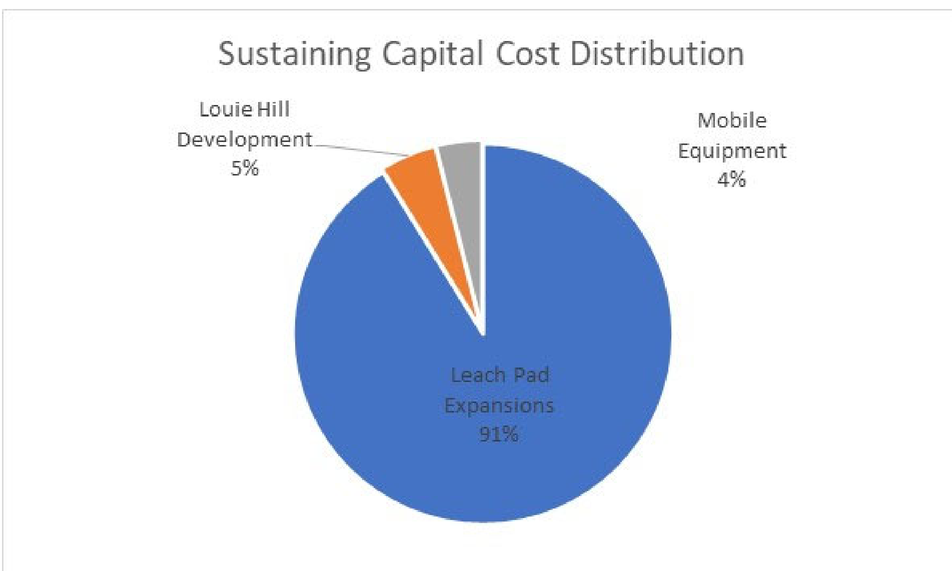
CostMine's Mining Cost Service was referenced to escalate Gibellini Project costs from Q2 2011 to Q1 2021. The escalation for surface mining over this time period was 21.3% whereas for processing it was 24.5%.

Figure 21-1: Capital Cost Distribution



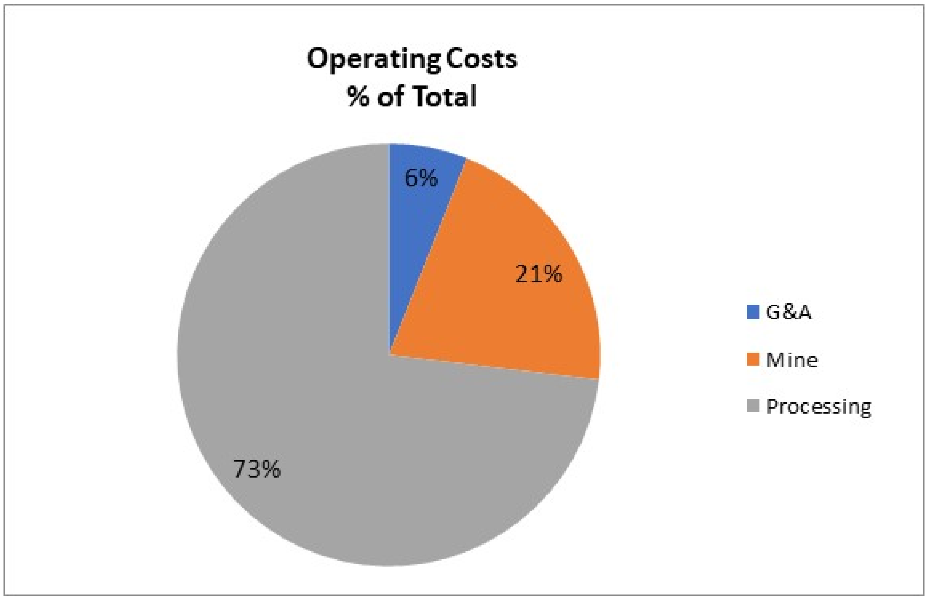
Note: Figure prepared by Wood, 2021.

Figure 21-2: Sustaining Capital Cost Distribution



Note: Figure prepared by Wood, 2021.

Figure 21-3: Operating Cost Distribution



Note: Figure prepared by Wood, 2021.

21.2.3 Mine Capital Costs

The Gibellini mine capital costs are minimal due to the use of contract mining, no pre-strip requirements, and minimal development requirements. The contract miner is assumed to supply the initial mine equipment fleet with the owner supplying the mine facilities inclusive of the truck shop, wash bay, mine offices, and tire change area. These facilities are accounted for in the non-process facilities and buildings portion of the capital estimate.

Initial development ahead of Year 1 for mining includes $122,000 for ancillary mobile equipment to support the Owner's mining team of engineers, supervisors, and geologists.

21.2.4 Process Capital Costs

Process capital accounts for the majority of the initial capital expenditure and is estimated at $67.9 million. It includes:

- Material handling system
- Heap leach system
- Process plant.

21.2.5 Infrastructure Capital Costs

On-site infrastructure costs are estimated at $17.9 million and include the following:

- Site preparation
- Roads
- Water supply
- Sanitary system
- Electrical (on site)
- Communications
- Contact water ponds
- Non-process facilities (buildings).

Off-site infrastructure costs are estimated at $9.7 million and include the following:

- Water system
- Electrical supply system
- First fills.

21.2.6 Indirect Costs

Indirect costs account for $21.9 million of the initial capital expenditure and include:

- Construction indirect costs
- Sales tax, and overhead and profit (OH&P)
- Engineering, procurement and construction management (EPCM).

Indirect costs were estimated as a percentage of the total direct costs based on the percentages derived from the 2011 Feasibility Study (Table 21-1).

Table 21-1: Indirect Costs Percentages

Description	Percentage (%)
Construction Indirect Costs	5.6
Sales Tax/OH&P	5.6
EPCM	11.7

21.2.7 Contingency

The 2011 Feasibility Study contingency of 12.6% was replaced with a 25% contingency to more appropriately reflect the current level of study, the study basis being Mineral Resources, and the uncertainty associated with additional Project costs due to changes in permitting, regulatory, and design requirements.

The contingency on the initial capital is estimated at $29.4 million.

21.2.8 Capital Cost Summary

The capital cost estimate for the Gibellini Project as envisaged in the 2021 PEA is shown in Table 21-2.

21.2.9 Sustaining Capital

Sustaining capital costs are estimated at $25.2 million (Table 21-3).

The majority of the sustaining capital costs are incurred as a result of expanding the leach pad from the initial 16.7 Mt capacity to approximately 33.4 Mt in one 16.7 Mt expansion. The expansion occurs a year prior to loading in Year 5.

Approximately $1.2 million is estimated in Year 8 for building the infrastructure to support Louie Hill development. The Louie Hill infrastructure will include:

- Haul road to Louie Hill
- Storm water controls for Louie Hill open pit, WRSF, and roads.

Approximately $1.0 million is estimated for replacing mobile equipment, primarily in the process area. It is assumed that over the approximate 11.1 year mine life, 50% of the initial mobile equipment will be either replaced or rebuilt.

Table 21-2: Project Capital Cost Estimate

Project Capital Cost Estimate Cost Description	Total ($000s)
Open Pit Mine	
Mobile equipment	122
On Site Infrastructure	
Site preparation	2,740
Roads	1,577
Water supply	2,263
Sanitary system	69
On-site electrical	2,325
Communications	187
Contact water ponds	186
Non-process facilities - buildings	8,594
Process Facilities	
Material handling	21,730
Heap leach system	22,033
Process plant	24,167
Off-Site Infrastructure	
Water system	5,095
Electrical supply system	3,657
First fills	975
Total Direct Cost	95,720
Construction indirect costs	5,355
Sales Tax/OH&P	5,333
EPCM	11,178
Contingency	29,396
Total Project Cost	***146,982***

Table 21-3: Sustaining Capital Costs

Description	Total ($000s)
Leach pad expansions	23,069
Haul road to Louie Hill	814
Storm water controls Louie Hill pit/WRSF/roads	386
Equipment annual allowance	971
Total sustaining capital	***25,240***

21.3 Operating Cost Estimates

21.3.1 Basis of Estimate

The 2021 PEA operating cost estimate is based on the 2011 Feasibility Study operating cost estimate adjusted for inflation and supplemented with recent quotes for mine contract rates and acid pricing. For mining, contract quotes (seven in total) from recent 2019–2020 projects were used to benchmark costs for Gibellini.

Process and general and administrative (G&A) operating costs from the 2011 Feasibility Study were adjusted for inflation by area using the InfoMine Costing Service.

For sulfuric acid, which accounts for over half the process operating costs, an indicative supplier quote of $150/st acid based on historical pricing for 2020, obtained in May 2021, was used.

21.3.2 Mine Operating Costs

Mine operating costs are estimated to average $2.84/st mined over the LOM inclusive of a $2.62/st contract mine cost, $0.27/st Owner's cost, and a $0.05/st haul cycle reduction.

Table 21-4 provides a summary of the mine contract quotes used to estimate the Gibellini contract mine cost. To arrive at a contract cost of $2.62/st, both the high and the low contract costs were excluded, and the remaining quotes were averaged. The contract mine costs were reduced by $0.05/st to account for a reduction in haul lengths due to the addition of an overland crusher in the 2021 PEA.

Table 21-4: Mine Operating Costs

Contractor Quote	Tonnes/year (million)	Operating Cost ($/tonne)	Capital Costs ($/tonne)	Total ($/tonne)	Total ($/st)	Selected ($/st)
Contractor Quote 1	13.8	3.06	0.01	3.07	2.79	2.79
Contractor Quote 2	13.8	3.73	0.04	3.77	3.42	
Contractor Quote 3	13.8	2.77	0.03	2.80	2.54	2.54
Contractor Quote 4	13.8	2.60	0.03	2.63	2.38	
Contractor Quote 5	13.8	2.93	0.01	2.94	2.67	2.67
Contractor Quote 6	13.8	2.71	—	2.71	2.46	2.46
Contractor Quote 7	15.5	2.90	—	2.90	2.63	2.63
Average	***14.0***	***2.96***	***0.02***	***2.98***	***2.70***	***2.62***

The mine contract costs are inclusive of all costs to drill, blast, load, and haul both waste and leach material to the WRSF and the mineralized material stockpile respectively. Mine costs are also inclusive of support equipment used to maintain the mine roads, pit working area, WRSF, and mill feed stockpile area. The Owner's costs account for mine management, engineering, grade control and geology costs.

Compared to the estimated 2011 Feasibility Study mining cost of $2.42/st, the 2021 PEA mining cost estimate of $2.62/st is 8.3% increase.

21.3.3 Process Operating Costs

Process operating costs are estimated to average $11.79/st leached, which is an approximate 6% decrease compared to the 2011 Feasibility Study process cost estimate of $12.51/st. The reduction in process costs is primarily the result of the decreased reagent costs, which are partially offset by increased labor costs. Both the sulfuric acid price and sulfuric acid consumption are lower in the 2021 PEA assumptions, when compared to the 2011 Feasibility Study forecasts:

- The sulfuric acid price forecast decreased from $163/st to $150/st
- The sulfuric acid consumption predictions decreased from 85 lb/st to 80 lb/st.

Table 21-5 provides a comparison between the 2011 and 2021cost assumptions.

Table 21-5: Process Operating Costs

Cost Area	2011 (US$/ton)	2021 (US$/ton)	% Change
Sulfuric acid	6.91	6.00	-13
Other reagents	2.01	1.91	-5
Variable	1.99	2.02	1
Labor	1.32	1.62	23
Mobile Equipment	0.28	0.24	-14
Total	***12.51***	***11.79***	***-6***

21.3.4 General and Administrative Operating Costs

G&A operating costs are estimated at $0.97/st, which is a 13% increase over the 2011 Feasibility Study costs of $0.86/st.

The increase is primarily a result of higher labor costs.

21.3.5 Operating Cost Summary

Operating costs are anticipated to average $16.12/st leached over the LOM (Table 21-6).

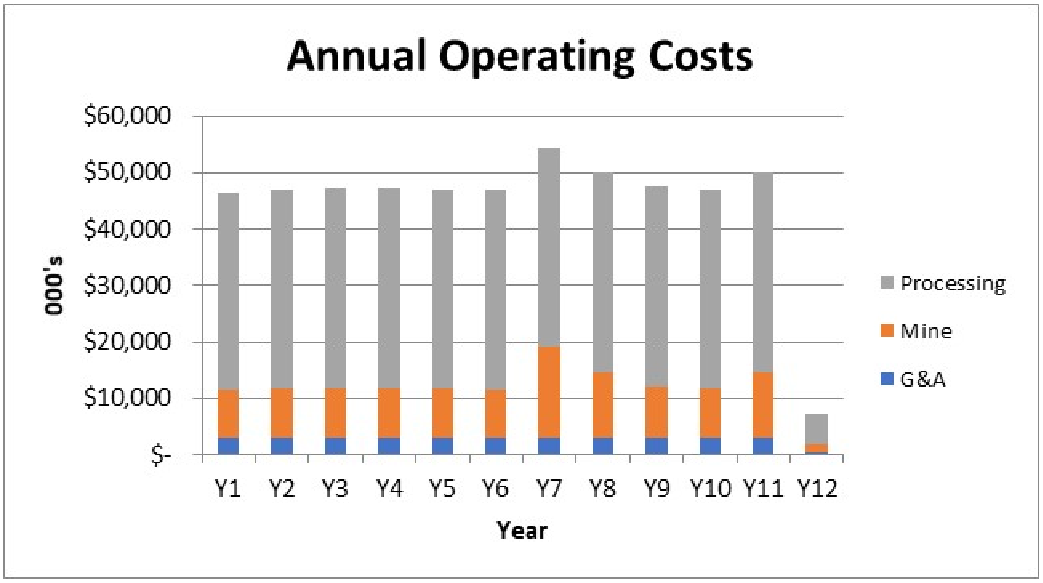
Process costs account for 73% of the total operating costs followed by mining at 21% and G&A at 6% (refer to Figure 21-3).

Annual operating costs average $48 million and vary primarily with mine stripping requirements. Figure 21-4 provides an overview of the forecast annual operating costs.

Table 21-6: Operating Costs

Operating Costs	US$/st	US$/ lb of V_2O_5 Recovered
G&A	0.97	0.28
Mine	3.36	0.98
Processing	11.79	3.44
Total Cash Operating Costs	***16.12***	***4.70***

Figure 21-4: Annual Operating Costs (US$ x 1,000)



Note: Figure prepared by Wood, 2021.

21.4 Comments on Section 21

The QPs note:

- Mine operating costs are based on recent contract mine quotes utilizing a similar equipment fleet and operating in a similar environment. Wood believes that they are reasonable benchmarks for Gibellini mining costs
- Process operating costs are sensitive to sulfuric acid price, which in turn is sensitive to transportation costs. Any increase in diesel price will significantly increase the transportation costs; thereby, increasing the sulfuric acid price. Sulfuric acid is also sensitive to regional demand

- The recent increase in mine development and general development activity in northern Nevada could limit the availability of construction and operation labor. The labor costs could be higher than anticipated in the 2021 PEA forecast.

22.0 ECONOMIC ANALYSIS

22.1 Cautionary Statement

The results of the economic analysis represent forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking information includes Mineral Resource estimates; commodity prices; the proposed mine production plan; projected recovery rates; use of a process method, that although well-known and proven on other commodity types like copper, has not been previously brought into production for a vanadium project; infrastructure construction costs and schedule; and assumptions that Project environmental approval and permitting will be forthcoming from County, State and Federal authorities.

The economic analysis is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA based on these Mineral Resources will be realized.

22.2 Methodology Used

Financial analysis of the Gibellini project was carried out using a discounted cash flow (DCF) approach. This method of valuation requires projecting yearly cash inflows, or revenues, and subtracting yearly cash outflows such as operating costs, capital costs, royalties, and taxes. The resulting net annual cash flows are discounted back to the date of valuation and totalled to determine the net present value (NPV) of the project at selected discount rates.

The internal rate of return (IRR) is expressed as the discount rate that yields an NPV of zero.

The payback period is the time calculated from the start of production until all initial capital expenditures have been recovered.

This economic analysis includes sensitivities to variation in operating costs, capital costs, grade, and metal price. Note that grade and metal price are multiplicative; consequently, the two sensitivity lines are coincidental, with one overlying the other.

All monetary amounts are presented in US$.

It should be noted that, for the sake of discounting, cash flows are assumed to occur at the end of each period. All cash flows are discounted to the start of project construction, which is assumed to occur over a two-year period. All pricing is stated in constant Q1 2021 US$.

22.3 Financial Model Parameters

22.3.1 Mineral Resource and Mine Life

The Project mine plan is based on Measured, Indicated, and Inferred Mineral Resources contained within pits designed at a $10.00 V_2O_5 price. The subset of the Mineral Resource estimate within the PEA mine plan is 33.4 Mt of leach material grading 0.271% V_2O_5 (see material breakdown in Section 16). The projected mine life is approximately 11.1 years.

22.3.2 Metallurgical Recoveries

The Project is scheduled to leach at a 3 Mst/a rate with average recoveries for oxide, transition, and reduced material estimated at 60%, 70%, and 52% respectively. A summary of recovered metal is shown in Table 22-1.

22.3.3 Transportation and Refining Terms

Transportation costs of $0.106/lb shipped from the 2011 Feasibility Study were escalated by 18% (using data from Mine Cost Service) to bring the costs current. To reflect a point of sale at Carlin, Nevada instead of Butler, Pennsylvania, the adjusted costs were reduced by $0.085/lb resulting in a transportation cost of $0.04/lb for the 2021 PEA.

Selling costs are estimated at 5% of the product price within the financial analysis which results in a $0.50/lb selling cost. The selling cost covers the brokerage fee to market and sell the V_2O_5 product. In total, transportation and selling costs are estimated at $0.54/lb V_2O_5 sold.

22.3.4 Metal Prices

Metal price used for the economic analysis is $10.00/lb V_2O_5, as discussed in Section 19.

22.3.5 Capital Costs

Capital cost assumptions are as outlined in Section 21.

Table 22-1: Recovered Metal

Description	Units	Value
Material leached	Mst	33.4
Leach grade	%V2O5	0.271
V_2O_5 lbs contained	Mlbs	180.8
Average recovery	%	63.4
V_2O_5 lbs recovered	Mlbs	114.6

22.3.6 Operating Costs

Operating cost assumptions are as outlined in Section 21.

22.3.7 Royalties

Silver Elephant is required to pay a production royalty (Dietrich Royalty) for Gibellini of 2.5% of the NSR until royalty payments reach a total of $3 million, at which time the royalty decreases to 2%.

Silver Elephant is required to pay a production royalty (McKay Royalty) for Louie Hill of 2.5% of the NSR until royalty payments reach a total of $1 million, at which time the royalty decreases to 1.0%.

22.3.8 Working Capital

Working capital is the capital required to fund operations prior to receiving revenue from the finished product. It is defined as the current assets minus the current liabilities. The financial model estimates working capital by subtracting 45 days of direct operating costs from 30 days of revenue. Over the project life, working capital nets to zero.

22.3.9 Taxes

Tax calculations within the financial model were reviewed and updated by Dale Matheson Carr-Hilton Labonte LLP, Chartered Professional Accountants, who are taxation experts. The tax model is reflective of the tax law passed by congress in 2017 and effective starting 2018. Following is a summary of tax rates within the financial model:

- Federal corporate tax at 21%

- No alternate minimum tax
- Bonus depreciation applied
- Nevada net proceed tax of 5%
- 22% depletion allowance.

22.3.10 Closure Costs and Salvage Value

Reclamation and closure costs have been estimated by Wood and are incorporated within the financial model as an accrual against V_2O_5 production. Closure costs are estimated at $40.0 million.

22.3.11 Financing

The financial model presents an unlevered case where no financing is assumed.

22.3.12 Inflation

The financial analysis assumes constant real Q1 2021 dollars.

22.4 Economic Analysis

Based on Wood's financial evaluation, the Gibellini Project generates positive before and after-tax financial results. The before-tax NPV at a 7% discount rate (the base case rate) is $153.8 million and the IRR is 28.0% (Table 22-2). Before-tax payback for the Project is estimated at 2.40 years.

The after-tax NPV at a 7% discount rate is $127.9 million and the IRR is 25.4% (Table 22-3). After-tax payback for the Project is estimated at 2.49 years.

Cash flows on an annualized basis are shown in Table 22-4, with the 7% discount rate base case highlighted.

The LOM cash operating costs, all-in-sustaining cost (AISC), and break-even operating costs are shown in Table 22-5 and on an annualized basis in Figure 22-1.

The break-even price includes: selling costs, royalties, cash costs, taxes (local, state, and federal), working capital, and sustaining and capital costs. The sustaining and capital costs are proportioned over total metal produced and accounted for on an annual pro rata basis.

Table 22-2: Before-Tax Cash Flow

Annualized Cash Flow Before Tax	Units	Value
Cash flow	M US$	304.8
NPV @5%	M US$	187.4
NPV @7%	M US$	153.8
NPV @10%	M US$	113.3
IRR	%	28.0
Payback - years from startup	Years	2.40

Table 22-3: After-Tax Cash Flow

Annualized Cash Flow After Tax	Units	Value
Cash flow	M US$	260.8
NPV @5%	M US$	157.5
NPV @7%	M US$	127.9
NPV @10%	M US$	92.3
IRR	%	25.4
Payback - years from startup	Years	2.49

Table 22-4: Annualized Cash Flow

Cash Flow (000's)	Total	PP2	PP1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Revenue ($ 000's)																	
V_2O_5 Revenue	1,145,676	—	—	109,152	122,967	162,931	86,381	112,524	118,235	89,262	64,089	61,214	129,993	79,215	8,704	1,009	—
Transportation and Selling	61,696	—	—	5,878	6,622	8,774	4,652	6,060	6,367	4,807	3,451	3,296	7,000	4,266	469	54	—
Royalty Payment Dietrich	17,713	—	—	2,582	2,327	3,083	1,635	2,129	2,237	1,689	1,213	818	—	—	—	—	—
Total Net Revenue	1,061,505	—	—	100,693	114,018	151,074	80,095	104,335	109,631	82,766	59,425	56,675	119,918	73,825	8,111	940	—
Cash Operating Costs ($ 000's)																	
G&A	32,390	—	—	2,899	2,899	2,907	2,899	2,899	2,899	2,907	2,899	2,899	2,899	2,907	477	—	—
Mine	112,308	—	—	8,674	8,854	8,972	8,915	8,877	8,696	16,234	11,834	9,189	8,841	11,732	1,490	—	—
Processing	393,692	—	—	34,860	35,349	35,363	35,348	35,347	35,343	35,359	35,331	35,328	35,351	35,367	5,346	—	—
Total Cash Operating Costs	538,390	—	—	46,434	47,102	47,242	47,163	47,123	46,938	54,500	50,064	47,415	47,091	50,007	7,312	—	—
Total Cash Costs ($ 000's)																	
Total Cash Operating Costs	538,390	—	—	46,434	47,102	47,242	47,163	47,123	46,938	54,500	50,064	47,415	47,091	50,007	7,312	—	—
Property Tax	2,031	474	998	58	56	55	53	52	50	49	47	46	44	43	7	—	—
Holding Fees	4,055	295	294	619	(857)	445	444	444	444	445	444	444	444	80	70	—	—
Total Cash Costs	544,476	768	1,292	47,110	46,301	47,742	47,660	47,618	47,432	54,994	50,555	47,905	47,579	50,130	7,389	—	—
Total Production Costs ($ 000's)																	
Total Cash Costs	544,476	768	1,292	47,110	46,301	47,742	47,660	47,618	47,432	54,994	50,555	47,905	47,579	50,130	7,389	—	—
Reclamation & Closure Accrual	40,000	—	—	3,534	3,593	3,593	3,593	3,593	3,593	3,593	3,593	3,593	3,593	3,593	535	—	—
Depreciation	166,162	—	—	138,546	269	366	366	23,483	366	366	1,469	269	220	220	220	—	—
Depletion Allowance	164,291	—	—	—	25,084	33,236	14,238	14,820	24,119	11,906	1,904	2,454	26,382	9,941	—	207	—
Total Production Costs	914,928	768	1,292	189,191	75,247	84,938	65,857	89,515	75,510	70,859	57,521	54,221	77,774	63,884	8,144	207	—
Before-Tax Operating Income ($ 000's)																	
Net Revenue	1,061,505	—	—	100,693	114,018	151,074	80,095	104,335	109,631	82,766	59,425	56,675	119,918	73,825	8,111	940	—
Production Costs	914,928	768	1,292	189,191	75,247	84,938	65,857	89,515	75,510	70,859	57,521	54,221	77,774	63,884	8,144	207	—
Total Before-Tax Operating Income	146,577	(768)	(1,292)	(88,498)	38,771	66,136	14,238	14,820	34,121	11,906	1,904	2,454	42,144	9,941	(32)	733	—
Income from Operations ($ 000's)																	
Nevada Net Proceeds Tax	13,247	—	—	2,458	1,724	3,097	502	1,657	1,437	326	—	—	1,827	218	—	—	—
Federal Corporate Tax	30,781	—	—	—	1,628	2,778	1,597	3,112	7,165	2,500	400	515	8,850	2,088	—	147	—

Cash Flow (000's)	**Total**	**PP2**	**PP1**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**	**Y11**	**Y12**	**Y13**	**Y14**
+ Depreciation	166,162	—	—	138,546	269	366	366	23,483	366	366	1,469	269	220	220	220	—	—
+ Depletion Allowance	164,291	—	—	—	25,084	33,236	14,238	14,820	24,119	11,906	1,904	2,454	26,382	9,941	—	207	—
Total Net Operating Income	433,001	(768)	(1,292)	47,590	60,772	93,864	26,743	48,354	50,003	21,352	4,877	4,661	58,069	17,797	188	793	—
Capital Cost - ($ 000's)																	
Initial	146,982	69,526	77,455	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sustaining	25,240	—	—	49	49	146	146	23,263	146	146	1,249	49	—	—	—	—	—
Total Capital	172,221	69,526	77,455	49	49	146	146	23,263	146	146	1,249	49	—	—	—	—	—
Working Capital ($ 000's)																	
Working Capital	—	—	—	2,468	1,195	2,850	(5,806)	1,997	458	(3,140)	(23)	—	3,990	(3,990)	—	92	(92)
Cash Flow Before Tax ($ 000's)	304,808	(70,295)	(78,748)	47,532	62,881	96,743	34,502	27,863	58,002	27,174	4,050	5,128	64,756	24,093	188	847	92
NPV @ 5%	187,406	(66,947)	(71,426)	41,060	51,732	75,801	25,746	19,802	39,258	17,516	2,486	2,998	36,058	12,777	95	408	42
NPV @ 7%	153,807	(65,696)	(68,781)	38,800	47,971	68,976	22,990	17,352	33,757	14,781	2,059	2,436	28,752	9,998	73	307	31
NPV @ 10%	113,344	(63,904)	(65,081)	35,711	42,948	60,070	19,476	14,298	27,058	11,524	1,561	1,797	20,633	6,979	50	203	20
IRR	28.0%																
Payback - Years from Startup	2.40																
Cash Flow After Tax ($ 000's)	260,780	(70,295)	(78,748)	45,073	59,528	90,868	32,404	23,094	49,399	24,347	3,650	4,612	54,078	21,787	188	700	92
NPV @ 5%	157,535	(66,947)	(71,426)	38,936	48,974	71,197	24,180	16,412	33,435	15,694	2,241	2,697	30,113	11,554	95	337	42
NPV @ 7%	127,942	(65,696)	(68,781)	36,793	45,414	64,788	21,592	14,382	28,751	13,243	1,856	2,191	24,011	9,041	73	254	31
NPV @ 10%	92,275	(63,904)	(65,081)	33,864	40,659	56,422	18,291	11,851	23,045	10,325	1,407	1,617	17,231	6,311	50	168	20
IRR	25.4%																
Payback - Years from Startup	2.49																

Table 22-5: Key Costs and Breakeven Price (LOM)

Item	Units	Value
Operating cash cost	US$/lb V_2O_5	4.70
All-in sustaining cost	US$/lb V_2O_5	6.04
Breakeven price	US$/lb V_2O_5	7.71

22.5 Sensitivity Analysis

A sensitivity analysis was completed over the ranges of ±45 percent for capital costs, operating costs, grade, and metal price (V_2O_5). Note that sensitivity to grade and metal price are coincidental and follow the same trend.

Based on the sensitivity work, the Gibellini Project is most sensitive to fluctuations in metal price and grade followed by changes in operating costs. The Project is least sensitive to variations in capital costs.

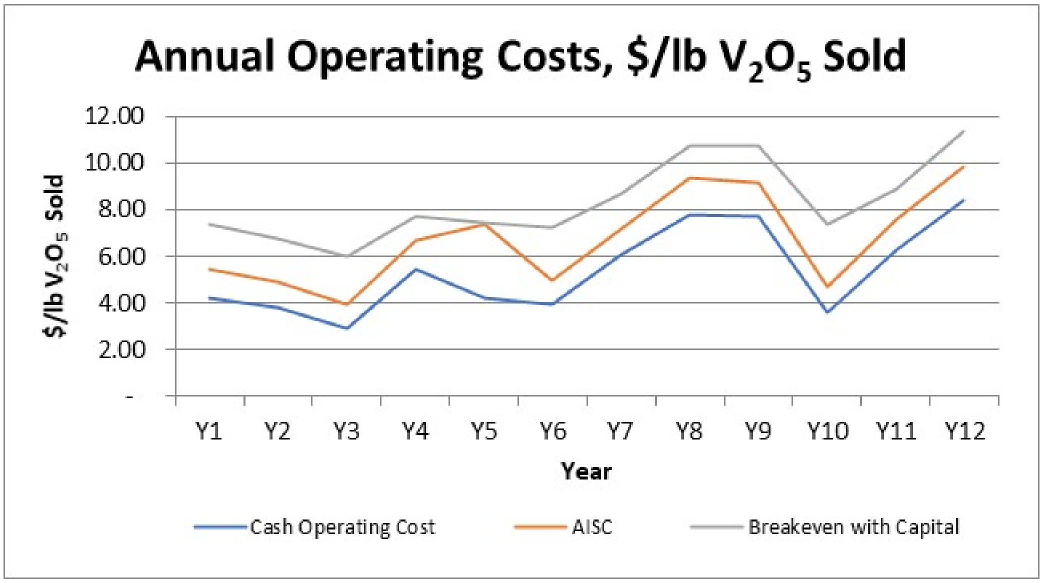
Spider graphs showing the Project's sensitivity to capital costs, operating costs, grade, and metal price were completed for the Project's before-tax cash flow, before-tax NPV@7%, before-tax IRR, after-tax cash flow, after-tax NPV@7%, and after-tax IRR. Each is displayed in Figure 22-2 through Figure 22-7.

Table 22-6 to Table 22-9 provide after-tax sensitivity of the IRR, NPV and cash flows to variations in the V_2O_5 price, V_2O_5 grade, capital cost estimate, and operating cost estimate. The base case is highlighted in each table.

22.6 Comments on Section 22

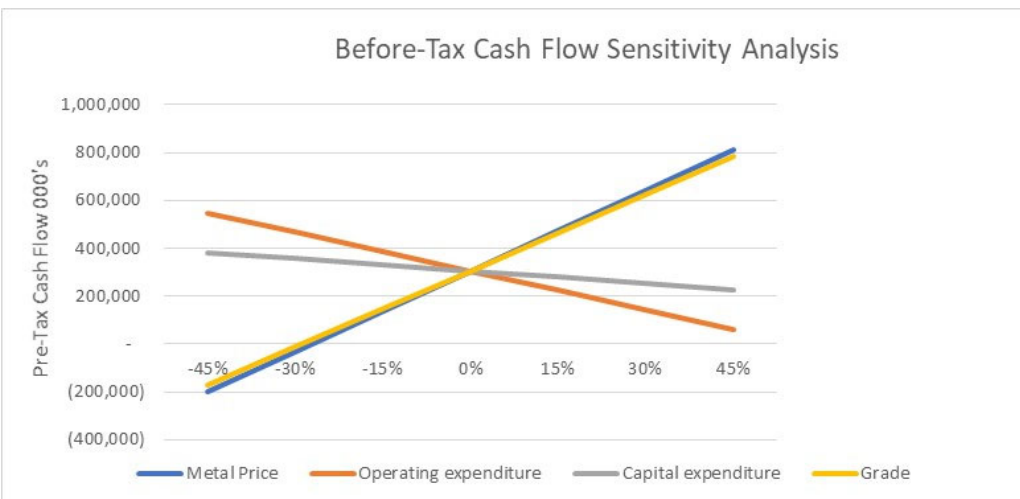
In the opinion of the QPs, under the assumptions detailed in this Report, the Project has been shown to have a positive after-tax NPV@7%.

Figure 22-1: Annual Operating Costs (USD/lb V_2O_5)



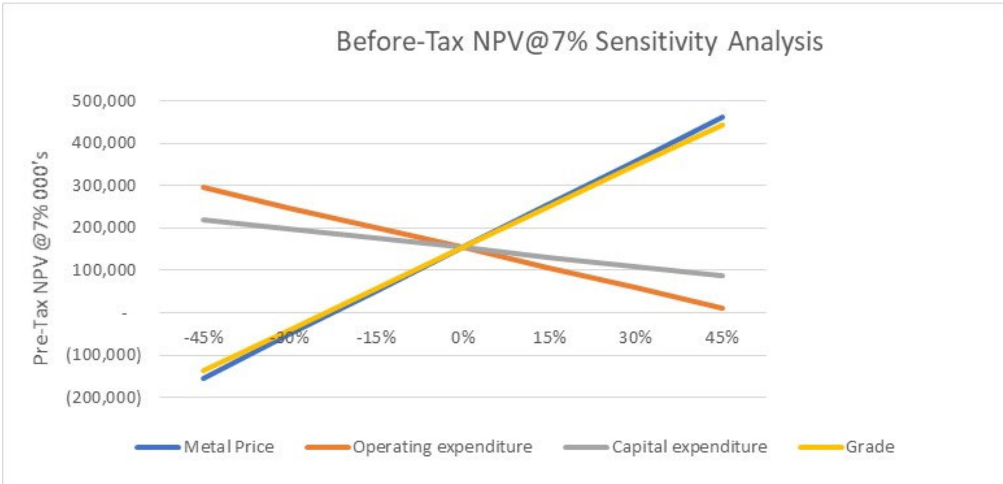
Note: Figure prepared by Wood, 2021.

Figure 22-2: Pre-Tax Cash Flow Sensitivity



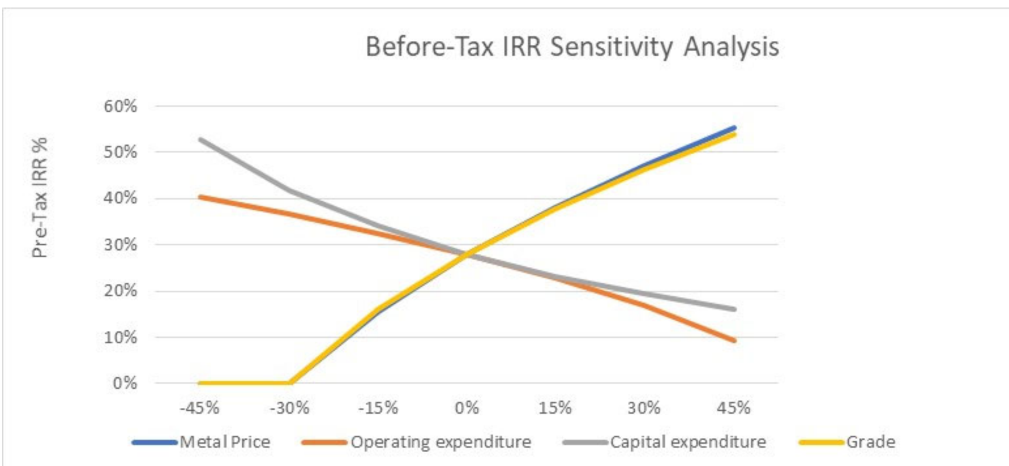
Note: Figure prepared by Wood, 2021.

Figure 22-3: Pre-Tax NPV@7% Sensitivity



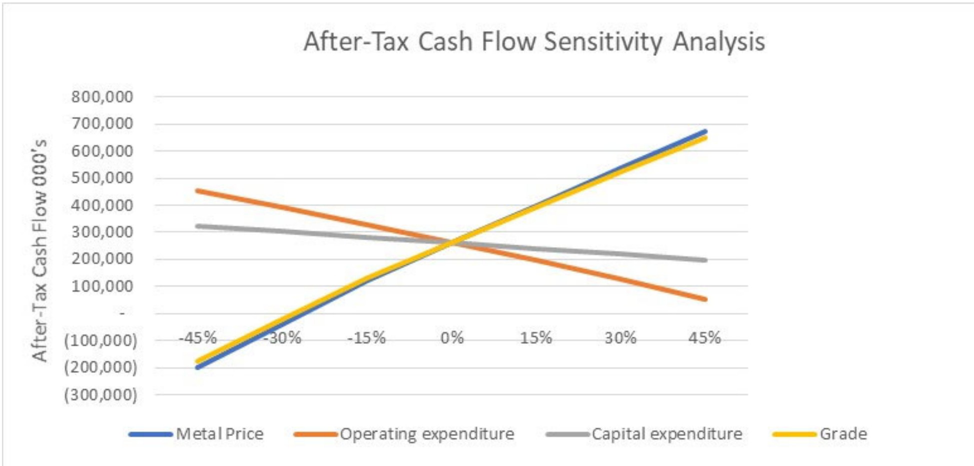
Note: Figure prepared by Wood, 2021.

Figure 22-4: Pre-Tax IRR Sensitivity



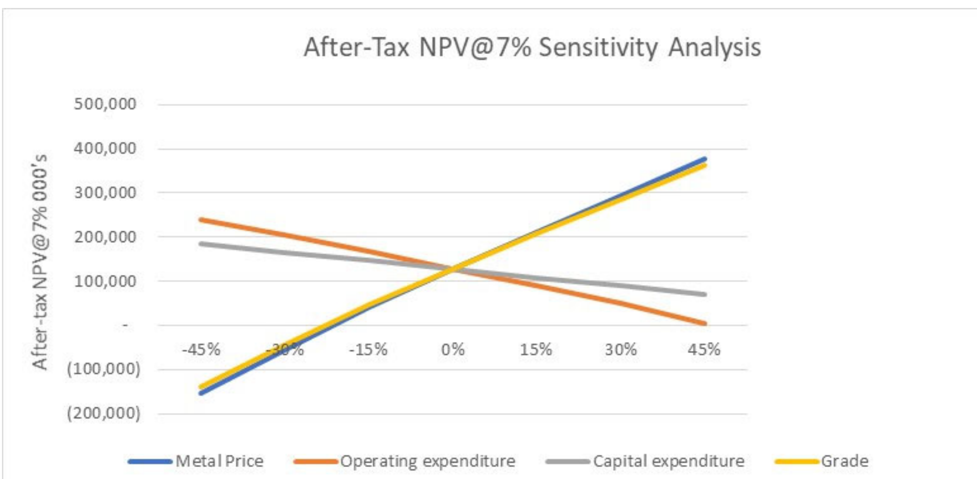
Note: Figure prepared by Wood, 2021.

Figure 22-5: After-Tax Cash Flow Sensitivity



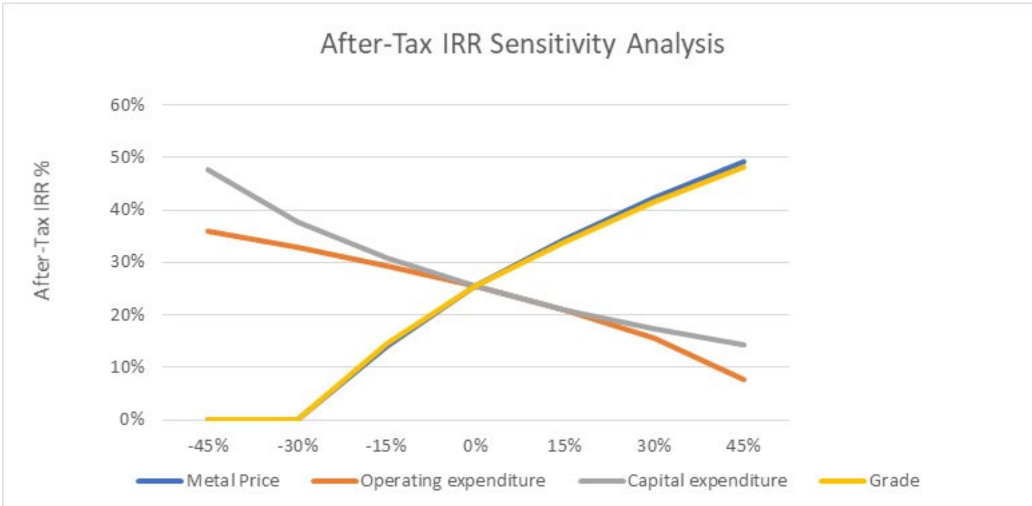
Note: Figure prepared by Wood, 2021.

Figure 22-6: After-Tax NPV@7% Sensitivity



Note: Figure prepared by Wood, 2021.

Figure 22-7: After-Tax IRR Sensitivity



Note: Figure prepared by Wood, 2021.

Table 22-6: After-Tax IRR, NPV and Cash Flow Sensitivity to V_2O_5 Price

V_2O_5 Price Change (%)	V_2O_5 Price (US$/lb)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
45	14.50	49	377.0	671.5
30	13.00	42	295.4	536.8
15	11.50	34	212.3	399.7
Base Case	10.00	25	127.9	260.8
-15	8.50	14	42.1	122.3
-30	7.00	0	(55.8)	(38.9)
-45	5.50	0	(155.1)	(202.0)

Table 22-7: After-Tax IRR, NPV and Cash Flow Sensitivity to V_2O_5 Grade

Grade Change (%)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
45	48	363.8	649.7
30	41	286.6	522.2
15	34	207.7	392.2
Base Case	25	127.9	260.8
-15	15	46.9	130.0
-30	0	(45.2)	(21.4)
-45	0	(139.0)	(175.5)

Table 22-8: After-Tax IRR, NPV and Cash Flow Sensitivity to Capital Costs

Capital Cost Estimate Change (%)	After-Tax IRR (%)	After-Tax NPV (US$ M @ 7%)	After-Tax Cashflow (US$ M)
45	14	69.2	197.5
30	17	89.2	218.6
15	21	108.6	239.7
Base Case	25	127.9	260.8
-15	31	146.9	281.9
-30	38	165.8	303.0
-45	48	184.7	324.1

Table 22-9: After-Tax IRR, NPV and Cash Flow Sensitivity to Operating Costs

Operating Cost Estimate Change (%)	After-Tax IRR (%)	After-Tax NPV (US$ M @ 7%)	After-Tax Cashflow (US$ M)
45	8	3.6	50.6
30	15	49.2	128.5
15	21	89.2	195.3
Base Case	25	127.9	260.8
-15	29	166.4	326.7
-30	33	203.7	390.7
-45	36	239.9	452.6

23.0 ADJACENT PROPERTIES

This section is not relevant to this Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to this Report.

25.0 INTERPRETATION AND CONCLUSIONS

25.1 Introduction

The QP notes the following interpretations and conclusions, based on the review of data available for this Report.

25.2 Mineral Tenure, Surface Rights, Water Rights, and Royalties and Agreements

- Information from legal experts supports that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources
- Claims are held in the names of Jacqualeene Campbell, VC Exploration (US), Inc, and Nevada Vanadium LLC
- Royalties are payable on the Dietrich Lease and on the 2018 MSM Replacement Claims
- Royalties are payable on the McKay Lease at Louie Hill
- There has been no legal survey of the Project claims. Under Nevada law, each unpatented claim is marked on the ground, and does not require survey
- No surface rights are currently held. Mineral deposits are located on land administered by the BLM
- An agreement is in place with Mr. John C. Gretlein with regard to water rights held by Mr. Gretlein for irrigation purposes, and has a 10-year duration from 2018
- To the extent known to the QP, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property that have not been discussed in this Report.

25.3 Geology and Mineralization

- Knowledge of the deposit settings, lithologies, mineralization style and setting, and structural and alteration controls on mineralization is sufficient to support Mineral Resource estimation.

25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

- In the opinion of the QP, the quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and infill drill programs completed by RMP and American Vanadium, and the verification performed by numerous parties, including the QP, on legacy drill data are sufficient to support Mineral Resource estimation
- The quality of the analytical data is sufficiently reliable to support Mineral Resource estimation
- The QP, who participated in, and relies upon the data verification performed, is of the opinion that the data verification programs undertaken on the data collected from the Project adequately support the geological interpretations, the analytical and database quality, and therefore support the use of the data in Mineral Resource estimation.

25.5 Metallurgical Test Work

- Metallurgical test work on the Gibellini deposit and associated analytical procedures were performed by recognized metallurgical testing facilities, and the tests performed were appropriate to the mineralization type
- Due to the limited testwork at Louie Hill and Bisoni–McKay, the recoveries and acid consumption from the more comprehensive Gibellini test program are adopted for Louie Hill and Bisoni–McKay
- Samples selected for testing were representative of the various types and styles of mineralization at the Gibellini deposit. Samples were selected from a range of depths within the deposit. Sufficient samples were taken to ensure that tests were performed on sufficient sample mass
- Additional metallurgical testwork, including variability testing, will be required to support more detailed deposit evaluations for Louie Hill and Bisoni–McKay
- Commercial heap leaching and SX recovery of vanadium ores has not been done before; nonetheless, heap leaching and SX recovery are common technologies in the mining industry. The Gibellini process assumed in 2011 applied the same acid heap leaching and SX technology to recover vanadium. However, instead of electro-

winning to produce a final product, the Gibellini process is assumed to use an acid strip followed by precipitation to produce a final product

25.6 Mineral Resource Estimates

- The Mineral Resource estimates for Gibellini, Louie Hill, and Bisoni–McKay, which have been estimated using RC and core drill data, have been performed to industry best practices, and conform to the requirements of the 2014 CIM Definition Standards
- Factors which may affect the Mineral Resource estimates include commodity price assumptions, metallurgical recovery assumptions, pit slope angles used to constrain the estimates, assignment of oxidation state values and assignment of SG values.

25.7 Mine Plan

- The mine plan is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA based on these Mineral Resources will be realized
- Based on the geometry and the depth of both Gibellini and Louie Hill deposits, surface mining methods are considered to be suitable. Approximately 30% of the total estimated pounds of V_2O_5 is contained in the Inferred category
- Contract mining is assumed for mining both Gibellini and Louie Hill. No Owner fleet equipment will be required
- Mining will begin at the Gibellini pit which contains more than 80% of the total leach material. Five pit phases were developed for the Project. Phases I, II and III are mined from the Gibellini deposit and Phases IV and Phase V are mined from the Louie Hill deposit.

25.8 Recovery Plan

- The design for the process plant is based on processing the mined material through a heap leach operation using heap-leach technology and standard proven equipment

- The process design is based on the metallurgical testwork and is appropriate to the crush and recovery characteristics defined for the different oxidation states of the mineralization
- Commercial heap leaching and solvent extraction recovery of vanadium ores has not been done before; nonetheless, heap leaching and solvent extraction recovery are common technology in the mining industry. The most notable examples are the multiple copper heap leach projects that use an acid leach solution to mobilize the metal followed by recovery in a solvent extraction plant, which is then followed by electro-winning. The Project process applies the same acid heap leaching and solvent extraction technology to recover vanadium. However, instead of electro-winning to produce a final product, the Project process will use an acid strip followed by precipitation to produce a final product
- The process will include primary and secondary crushing, agglomeration, heap leaching, solvent extraction and electrowinning.

25.9 Infrastructure

- Infrastructure to support the Gibellini project will consist of site civil work, site facilities/buildings, a water system, and site electrical
- The mine facilities will include the main office building, truck shop and warehouse, truck wash, fuel storage and distribution, and miscellaneous facilities. The process facilities will include the process office building and assay laboratory and the product storage building. Both the mine facilities and the process facilities will be serviced with potable water, fire water, power, propane, communication, and sanitary systems
- All mine personnel are expected to commute from Eureka or other towns located in the region. No onsite camps or accommodations are anticipated
- The leach pad will be developed in two phases, an initial phase of 16.7 Mst and an expansions, with a total planned capacity of 33.4 Mst
- Two WRSFs were designed for a total capacity of 4.1 Mst. All PAG material will be included with the mineralized material and stacked on the heap leach pad..

25.10 Environmental, Permitting and Social Considerations

- The Project is located on public lands administered by the BLM through the Mount Lewis Field Office

- On June 28, 2019, Nevada Vanadium submitted a PoO, to the BLM's Mount Lewis Field Office. In addition, a Reclamation Permit Application was submitted to the NDEP–BMMR
- No key environmental issues have been identified at this stage in the permitting and planning process. The agency scoping and preparation of the NEPA document will include the identification of issues that will guide the analysis to appropriately address any concerns or questions that may arise in relationship to the implementation of the proposed action
- Nevada Vanadium will need to meet BLM and NDEP objectives for post mining land uses. Major land uses occurring in the Project Area include mineral exploration and development, livestock grazing, wildlife habitat and dispersed recreation. Following closure, the Project Area will support the multiple land uses of livestock grazing, wildlife habitat and recreation. Based on the conceptual mine plan, closure costs are estimated by Wood to be $40 million
- About 24 major permits will be required prior to construction and operations
- Nevada Vanadium will take all the necessary steps to engage the local community to create awareness regarding the Project. During the NEPA process, the public will have multiple opportunities to engage and comment on the project and express support or concerns.

25.11 Markets and Contracts

- Multiple sources were used to arrive at the study price of $10.00 per pound V_2O_5 sold including consensus pricing from recently-published technical reports, three-year average pricing published by the European market, and the July 20th, 2021 spot price from the Europe market. The average price of the three sources is $9.82/lb V_2O_5 which was rounded up to a study price of $10.00/lb V_2O_5
- Silver Elephant proposes to ship bagged products in one ton supersacks to end users. Mine products will include:
  - Fused vanadium pentoxide (V_2O_5)
  - High-grade vanadium pentoxide (V_2O_5)
  - Wet yellowcake (uranium)
- No contracts are in place. Mining will be undertaken using contract mining services.

25.12 Capital Cost Estimates

- The 2021 PEA capital cost estimate is based on the 2011 Feasibility Study capital estimate adjusted for inflation and a 25% contingency to reflect the level of study. All costs are escalated to Q1 2021. Sustaining capital costs are likewise based on the 2011 Feasibility Study adjusted for inflation and inclusive of contingency; however, unlike the 2011 Feasibility Study, the 2021 PEA sustaining costs account for the inclusion of mineralized material from Louie Hill, supporting infrastructure, and an additional leach pad expansions to accommodate the larger 2021 PEA resource base
- Capital and operating costs for the 2021 PEA are based on suppling 3 Mst of crushed and agglomerated leach material annually from two open pits, Gibellini and Louie Hill
- Initial mine development and permitting is focused on Gibellini, with Louie Hill following eight years later
- During the capital period, an initial leach pad having a capacity of 16.7 Mst is constructed followed by an expansion of approximately 16.7 Mst
- Total initial capital is estimated at $147.0 million
- Sustaining capital is estimated at $25.2 million.

25.13 Operating Cost Estimates

- The 2021 PEA operating cost estimate is based on the 2011 Feasibility Study operating cost estimate adjusted for inflation and supplemented with recent quotes for mine contract rates and acid pricing
- Mine operating costs are estimated to average $2.84/st mined over the LOM inclusive of a $2.62/st contract mine cost, $0.27/st Owner's cost, and a $0.05/st haul cycle reduction
- Process operating costs are estimated to average $11.79/st leached, which is an approximate 6% decrease compared to the 2011 Feasibility Study process costs
- G&A operating costs are estimated at $0.97/st, which is a 13% increase over the 2011 Feasibility Study costs of $0.86/st
- Process costs account for 74% of the total operating costs followed by mining at 19% and G&A at 7%

- Operating costs are anticipated to average $16.12/st leached over the LOM
- Annual operating costs average $48 million and vary primarily with mine stripping requirements.

25.14 Economic Analysis

- The economic analysis is partly based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the 2021 PEA based on these Mineral Resources will be realized
- The before-tax NPV at a 7% discount rate (the base case rate) is $153.8 million and the IRR is 28.0%. Before-tax payback for the Project is estimated at 2.4 years
- The after-tax NPV at a 7% discount rate is $127.9 million and the IRR is 25.4%. The after-tax payback for the Project is estimated at 2.49 years
- The Gibellini Project is most sensitive to metal price and grade followed by operating costs. The Project is least sensitive to capital costs.

25.15 Conclusions

Under the assumptions presented in this Report, the 2021 PEA shows a positive economic outcome.

26.0 RECOMMENDATIONS

26.1 Introduction

Initial recommendations are envisaged as a single-stage program.

The work phase consists of additional testwork and studies, totalling approximately $3,883,000 to $5,391,000.

26.2 Recommendations for Work Phase

26.2.1 Claim Surveys

Although all of the leased claims have claim markers, they have not been surveyed. Prior to any future mining studies, the claim outlines should be legally surveyed so as to support open pit designs and potential sites for infrastructure. The survey should be performed by a licenced surveyor.

The total cost to carry out this program of work is projected to be approximately $8,000 to $11,000.

26.2.2 Gibellini and Louie Hill Geology, Block Modelling, and Mineral Resource Estimation

The recommendations pertain to geology, block modelling, and Mineral Resource estimation, as follows:

- Additional condemnation drilling is recommended for infrastructure sites that could be used for buildings and waste rock storage facilities
- Oxidation domains for Louie Hill should be developed
- The Reduced mineralization for Louie Hill should be re-classified with respect to resource confidence categories once metallurgical test work data on projected recoveries from this material are available
- Twin drill an additional four to five Atlas drill holes through the transition zone and evaluate the results in conjunction with the previous completed twins
- Test and evaluate the potential for high-angled structures to carry elevated vanadium grades by drilling a series of angled drill holes
- Conduct an infill drill program at Louie Hill.

The total cost to carry out this program of work is projected to be approximately $1,225,000 to $1,780,000, depending on the amount of condemnation and angled drilling that may be required.

26.2.3 Bisoni–McKay Geology, Block Modeling, and Mineral Resource Estimation

The recommendations pertain to geology, drilling, block modeling, and Mineral Resource estimation on the Bisoni–McKay property area, as follows:

- Map the surface geology of the Bisoni–McKay property area in sufficient detail to support infill and exploration drill programs
- Map and resample legacy trenches
- Organize and categorize core, coarse reject, and pulp reject from legacy drilling campaigns
- Relog available legacy core and cuttings using the Gibellini logging system
- Submit coarse rejects (one for every 50 ft drilled) from portions of drill holes in the Stina Resources 2007 campaign that were not included in the 2021 check assay program
- Conduct confirmation and infill drill programs at Bisoni–McKay
- Collect a minimum of 30 core samples from each oxidation type to estimate bulk density values for use in resource estimation.

The total cost to carry out this program of work is projected to be approximately $1,500,000 to $2,200,000, depending on the amount of drilling required to adequately delineate the North A and South B deposit areas.

26.2.4 Metallurgical Testwork and Process

The following recommendations are made for Louie Hill and Bisoni–McKay:

- Reduced material testing on Louie Hill mineralization should be reviewed, and additional work done to see if better recovery for the reduced material is possible
- A sampling and testing program for the Louie Hill and Bisoni–McKay deposits is advisable to bring the level of understanding of this material to the same level as for Gibellini

- Complete geochemical characterizations of the Louie Hill and Bisoni–McKay deposit materials.

The total cost to carry out this program of work is projected to be approximately $1,000,000 to $1,200,000, depending on the amount of metallurgical testwork required for Louie Hill and Bisoni–McKay.

26.2.5 Mining

The following recommendations are made from the mining perspective:

Gibellini

- A labor and housing survey to determine availability to attract and house employees in the area compared to sourcing employees from surrounding areas. This may effect mine shift schedules and should feed into a trade-off study for contract mining versus Owner mining
- Additional mine waste characterization to identify non acid-generating material from acid generating materials
- Drill and blast study to determine blast pattern to achieve the primary crusher's P80 product size distribution
- Trade-off to further evaluate the use of a conveyor versus truck haulage
- A study to evaluate the potential to reduce waste mining by reviewing/eliminating the Gibellini pit slot cut requirements.

Louie Hill

- Geotechnical characterization of Louie Hill rock mass quality and pit slopes recommendations

These programs are estimated at about $150,000 to $200,000.

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