Gibellini Vanadium Project
Eureka County, Nevada,
NI 43-101 Technical Report on Preliminary Economic Assessment

Prepared for:
Prophecy Development Corp.

Prepared by:
Mr Kirk Hanson, P.E.
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Mr Edwin Peralta, P.E.
Dr Lynton Gormely, P.Eng.

Report Effective Date:
29 May, 2018

Project Number:
198505

CERTIFICATE OF QUALIFIED PERSON

I, Kirk Hanson, P.E., am employed as a Technical Director Open Pit Mining with Amec Foster Wheeler E&C Services Inc, part of the Wood Group (Wood), at the company office at 10615 Professional Circle, Suite 100, Reno, NV 89521.

This certificate applies to the technical report titled Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment" that has an effective date of 29 May, 2018 (the "technical report").

I am registered as a Professional Engineer in the State of Nevada (# 10640) and in the State of Alaska (#12126). 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 a MBA degree in 2004.

I have practiced my profession for 29 years. I was Chief Engineer 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 11 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 on 23 June, 2008 and again on 17 November, 2010.

I am responsible for Sections 1.1 to 1.4, 1.15 to 1.25; Sections 2.1 to 2.3, 2.5 to 2.6; Section 3; Section 4; Section 5; Section 19; Section 20; Sections 21.1, 21.2.1 to 21.2.4, 21.2.6 to 21.2.9, 21.3.1, 21.3.2, 21.3.4, 21.3.5, 21.4; Section 22; Section 23; Section 24; Sections 25.1 to 25.2, 25.10 to 25.15; and Section 27 of the technical report.

I am independent of Prophecy Development Corp. as independence is described by Section 1.5 of NI 43–101.

I have had involvement with the Gibellini Project since 2008, and have co-authored the following technical reports on the Gibellini Project:

- 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., 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 those sections of the technical report not misleading.

Dated: 25 June, 2018

“Signed and sealed”

Kirk Hanson
PE

CERTIFICATE OF QUALIFIED PERSON

I, Edward J.C. Orbock III, RM SME., am employed as a Principal Geologist and US Manager of Consulting with Amec Foster Wheeler E&C Services Inc, part of the Wood Group (Wood), at the company office at 10615 Professional Circle, Suite 100, Reno, NV 89521.

This certificate applies to the technical report titled Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment" that has an effective date of 29 May, 2018 (the "technical report").

I am a Registered Member of the Society for Mining, Metallurgy and Exploration (RM SME, #4038771). I graduated with a Master's of Science degree in Economic Geology from the University of Nevada, Reno, in 1992 and a Bachelor's of Science degree in Geology from the University of New Mexico, in 1981.

I have practiced my profession for over 31 years since graduation. I have been directly involved in exploration, operations, and resource modeling for precious, base metals and specialty metals projects in North and South America and Africa. I have experience in the geology of, exploration for, and modeling of Mineral Resources for the following sedimentary-type deposits: vanadium and phosphate in Idaho, vanadium in Nevada, Carlin-type precious metals in Nevada, and limestone replacement-skarn-hosted precious metals in Mexico. I also have geological and exploration experience in Mississippi-Valley type lead-zinc deposits in Nevada.

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 on 23 June 2008, 17 November 2010, and again on 7 November, 2017.

I am responsible for Sections 1.1, 1.2, 1.5 to 1.8, 1.10, 1.11, 1.25; Section 2; Sections 3.1, 3.2, 3.3; Section 6; Section 7; Section 8; Section 9; Section 10; Section 11; Section 12; Section 14; Sections 25.1, 25.3, 25.4, 25.6; Sections 26.1, 26.2.1, 26.2.2; and Section 27 of the technical report.

I am independent of Prophecy Development Corp. as independence is described by Section 1.5 of NI 43–101.

I have had involvement with the Gibellini Project since 2007, and have authored or co-authored the following technical reports on the Gibellini Project:

- Orbock, E., 2017: Gibellini Vanadium Project, Nevada, USA, NI 43-101 Technical Report: technical report prepared by Amec Foster Wheeler E&C Services Inc., effective date 10 November, 2017

- 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., 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

- Wakefield, T., and Orbock, E., 2007: NI 43-101 Technical Report Gibellini Property Eureka County, Nevada: technical report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 18 April, 2007.

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 those sections of the technical report not misleading.

Dated: 25 June, 2018

"Signed and sealed"
Edward J.C. Orbock III
RM SME

CERTIFICATE OF QUALIFIED PERSON

I, Edwin Peralta, P.E., am employed as a Senior Mining Engineer with Amec Foster Wheeler E&C Services Inc, part of the Wood Group (Wood), at the company office at 10615 Professional Circle, Suite 100, Reno, NV 89521.

This certificate applies to the technical report titled "Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment" that has an effective date of 29 May, 2018 (the "technical report").

I am registered as a Professional Engineer in the State of Nevada (# 023216) and am a Registered Member of the Society for Mining, Metallurgy and Exploration (RM SME, #04033387). I graduated with a B.S. degree from the Colorado School of Mines in 1995, and with an M.S. degree from the same university in 2000.

I have practiced my profession for 23 years. I have experience in Mineral Reserve estimation, mine planning and design for open pit and underground mining operations, and 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 have not visited the Gibellini Project.

I am responsible for Sections 1.1, 1.2, 1.12, 1.14, 1.25; Sections 2.1, 2.2, 2.3, 2.6; Sections 3.1, 3.2, 3.3; Section 15; Section 16; Sections 18.1, 18.2.1, 18.3 to 18.6, 18.8 to 18.10; Sections 25.1, 25.7, 25.9; Sections 26.1, 26.2.4, 26.2.5, and Section 27 of the technical report.

I am independent of Prophecy Development 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 those sections of the technical report not misleading.

Dated: 25 June, 2018

“Signed and sealed”

Edwin Peralta
PE

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CERTIFICATE OF QUALIFIED PERSON

I, Lynton Gormely, PhD, P.Eng., am employed as a Senior Process Consultant/Principal Process Engineer with Amec Foster Wheeler Americas Ltd, part of the Wood Group (Wood), at the company office at 111 Dunsmuir Street, Vancouver, BC, V6B 5W3, Canada.

This certificate applies to the technical report titled Gibellini Vanadium Project, Eureka County, Nevada, NI 43-101 Technical Report on Preliminary Economic Assessment" that has an effective date of 29 May, 2018 (the "technical report").

I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, registration number 10005. I graduated from the University of British Columbia with a Bachelor of Applied Science degree in 1968 and from the University of British Columbia with a Ph.D. in Chemical Engineering in 1973.

I have practiced my profession for 43 years. I have been directly involved in process engineering design and construction projects for the mining industry for the recovery of base and precious metals. I have experience with the principles of the design of the metallurgical testwork, the design of the process flow sheets, and the selection of the mineral processing equipment.

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 have not visited the Gibellini Project.

I am responsible for Sections 1.1, 1.2, 1.9, 1.13, 1.14, 1.20, 1.21; Sections 2.1, 2.2, 2.3, 2.6; Sections 3.1, 3.2, 3.3; Section 13; Section 17; Sections 18.2.2, 18.7, 18.10; Sections 21.1, 21.2.1 to 21.2.3, 21.2.5, 21.2.6 to 21.2.9, 21.3.1, 21.3.3 to 21.3.5, 21.4; Sections 25.1, 25.5, 25.8, 25.9, 25.12, 25.13, Sections 26.1, 26.2.3; and Section 27 of the technical report.

I am independent of Prophecy Development Corp. as independence is described by Section 1.5 of NI 43–101.

I have had 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.

amec foster wheeler

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 those sections of the technical report not misleading.

Dated: 25 June, 2018

"Signed and sealed"
Lynton Gormely
PhD, P.Eng.

IMPORTANT NOTICE

This report was prepared as National Instrument 43-101 Technical Report for Prophecy Development Corp. (Prophecy) by Amec Foster Wheeler E&C Services Inc. (Amec Foster Wheeler). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler's 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 Prophecy subject to terms and conditions of its contract with Amec Foster Wheeler. 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

Amec Foster Wheeler E&C Services Inc. (Amec Foster Wheeler), a Wood company (Wood), was requested to prepare an independent technical report (the Report) on the Gibellini Vanadium Project (the Project), consisting of the Gibellini and Louie Hill vanadium deposits for Prophecy Development Corp. (Prophecy). The Project is located within Eureka County, Nevada.

1.2 Terms of Reference

The Report was prepared to support disclosure by Prophecy of the results of a preliminary economic assessment (PEA) on the Gibellini and Louie Hill vanadium deposits in the news release dated 29 May, 2018 and entitled "Prophecy Announces Positive Preliminary Economic Assessment Study for the Gibellini Vanadium Project".

AMEC E&C Services Inc. (AMEC) is a predecessor company 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). While neither of these two studies are considered by Prophecy 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$).

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.

The water supply source for operations has not been determined. For the purposes of the PEA, it was assumed that water rights could be leased, and that water could be pumped to the Project area from nearby farms and ranches. These farms and ranches are located within 19 miles of the Project, and have water available at water flow rates that range from 1,000 to 3,900 gpm, which is likely to be more than sufficient for Project needs. Water was sourced from wells for exploration purposes, and this water source remains an option for such future work programs.

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

Prophecy holds a 100% interest in the properties discussed in Section 4.4 by way of a lease agreement and staked claims. Claims are in the name of Prophecy's indirectly wholly-owned Nevada subsidiaries, VC Exploration (US), Inc. (VC Exploration) and Vanadium Gibellini Company, LLC (Vanadium Gibellini).

The Gibellini Project ground holdings include:

- 40 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Janelle Dietrich (Ms Dietrich) and the unpatented lode mining claims are leased to Prophecy
- 105 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is VC Exploration
- 209 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Vanadium Gibellini.

Wood was supplied with legal opinion that indicates the annual claim maintenance fees have been paid for the assessment year beginning 1 September, 2017 where claims had assessments due. A number of newly-staked claims will not have annual claim maintenance fees payable until the assessment year beginning 1 September, 2018. 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.

A series of unpatented claims were held by Richard A. McKay, Nancy M. Minoletti, and Pamela S. Scutt (the McKay claims). 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). For the assessment year beginning September 1, 2016, the McKay claimants sought a "Small Miner Waiver," and filed a Small Miner Certification with the US Bureau of Land Management (BLM) on August 30, 2016. However, the McKay claimants failed to file the required proof of labor with the BLM by the required date of December 31, 2017 and the BLM declared the McKay Claims to be abandoned and forfeited. 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 claims is current, and in the names of those two companies.

The McKay Lease is not completely clear as to what happens in situations such as this, where the McKay claimants failed to complete the requirements for the assessment year September 1, 2016 through September 1, 2017, but Prophecy assumed responsibility for maintaining the claims prior to the date such requirements became due. The legal opinion notes that it is unclear whether a court interpreting the McKay Lease would conclude that the McKay claimants abandoned their interest in the lands in question, and therefore have no rights to the claims staked by Prophecy that cover the ground previously held under the McKay claims, or whether they are entitled to payment of royalties or conveyance of record title to such claims.

Prophecy signed a 10-year term mineral lease agreement (the Dietrich Lease) on 22 June, 2017, with the registered owner, Ms Dietrich. The lease can be extended for a second 10-year term with appropriate notice given. Extensions of one-year durations can thereafter be undertaken if mining operations are underway on the Dietrich Lease, or if the Dietrich Lease is needed to support mining operations on adjacent lands. The lease comprises 40 unpatented lode mining claims (Dietrich Claims). The 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.

The Dietrich Lease contains both an advance royalty and a production royalty. Under the advance royalty provision, Prophecy was required to pay Ms Dietrich $35,000 upon execution of the lease. Thereafter, on the anniversary date of the execution of the lease, Prophecy 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 times the average vanadium pentoxide price per pound, up to a maximum of $120,000 annually.

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. Prophecy has agreed to pay a federal tax lien against the Dietrich Claims of $99,027.22. Should Prophecy 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 Prophecy.

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.

The McKay Lease contained an advance royalty and a production royalty. Under the advance royalty provision, Prophecy was required to pay the owners $10,000 upon execution of the lease. Thereafter, on the anniversary date of the execution of the lease, Prophecy 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 during both the initial term and 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, $2,000 times the average vanadium pentoxide price per pound, up to a maximum of $28,000 annually.

The McKay Lease does not specifically set forth what events trigger the payment of the production royalty, but the legal opinion notes that a reasonable interpretation is that payment of such royalty is due upon commencement of commercial mining operations. The production royalty requires Prophecy to pay a 2.5% net smelter return (NSR) royalty. Prophecy has an option to purchase 60% of the production royalty from the owners for $1,000,000.

For the purposes of the financial analysis in Section 22, it was assumed that advance and production royalties would be payable on the ground holdings that constituted the former McKay claims.

A small portion of the planned Gibellini pit falls within the VDT 43 claim, which was staked in March 2018 over a former McKay claim. Wood notes that most of the proposed Louie Hill pit is within the staked ground that overlies former McKay claims.

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.

1.5 Geology and Mineralization

Similarities with the style of mineralization for the Project exist in the USGS manganese nodule model, model 33a of Cox and Singer (1986). Vanadium mineralization is thought to be the result of syngenetic and early diagenetic metal concentration in the marine shale rocks.

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 and Louie Hill black-shale hosted vanadium deposits are the most significant deposits in the district and all occur within the Gibellini Project boundary.

The vanadium-host black shale unit ranges from 175 to over 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. American Vanadium geologists interpreted this zone 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 less than 15 µm in size.

1.6 History

Work completed on the Project prior to Prophecy's involvement was undertaken by a number of companies, including the Nevada Bureau of Mines and Geology (NBMG, 1946), Terteling & Sons (1964–1965), Atlas and TransWorld Resources (1969), Noranda (1972–1975), and Inter-Globe (1989). Rocky Mountain Resources (RMP), later renamed to American Vanadium, conducted work from 2006–2011.

The Nevada Bureau of Mines and Geology completed four core holes in 1946. Work in the period 1964–1989 comprised rotary drilling, trenching, mapping, metallurgical testing, and mineral resource estimation. From 2006 to 2011, work programs included review of existing data, geological mapping, an XRF survey, reverse circulation (RC) and core drilling, additional metallurgical test work, and Mineral Resource estimation.

A preliminary assessment was completed in 2008 and a feasibility study was commissioned in late 2010. Both studies were based on the Gibellini deposit and did not include the Louie Hill deposit. These studies are not considered by Prophecy to be current.

Prophecy has completed no exploration or drilling activities since Project acquisition.

1.7 Drilling and Sampling

A total of 280 drill holes (about 51,265 ft) have been completed on the Project since 1946, comprising 16 core holes (4,046 ft), 169 rotary drill holes (25,077 ft; note not all drill holes have footages recorded) and 95 RC holes (22,142 ft).

All legacy drill and trench data in the Project resource database were entered by AMEC and accurately represent the source documents. Documentation of drilling methods employed by the various legacy operators at Gibellini is sparse. No cuttings, assay rejects, or pulps remain from these drilling campaigns. No records remain for the drill sampling methods employed by NBMG (core), Terteling (rotary), or Atlas (rotary). Noranda and Inter-Globe collected drill samples on 5 ft intervals. American Vanadium has performed drill twins on selected Noranda and Atlas drill holes. 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.

Drill data collected by American Vanadium meets industry standards for exploration of oxide vanadium deposits. No material factors were identified with the drill data collection that could affect Mineral Resource estimation. RC and core sampling methods employed by RMP and American Vanadium were in line with industry norms. Sample preparation for samples that support Mineral Resource estimation followed a similar procedure for the RMP and American Vanadium drill programs. The RMP and American Vanadium core and RC samples were analysed by reputable independent, accredited laboratories using analytical methods appropriate to the vanadium concentration. Drill data were typically verified prior to Mineral Resource and Mineral Reserve estimation, by running a software program check.

Drill sampling was 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. Drill hole locations are more widely-spaced on the edges of the

Gibellini and Louie Hill deposits. The sample data collected are considered to adequately reflect deposit dimensions, true widths of mineralization, and the style of the deposits.

A total of 63 core intervals from the 2007 drilling campaign at Gibellini were submitted by RMP for determination of specific gravity (SG). Specific gravity values were partitioned by oxidation type and average values were computed. These average values were used to calculate tonnage in the mineral resource model. Wood used the oxide density data from the Gibellini deposit to define density within the Louie Hill model.

1.8 Data Verification

AMEC, a predecessor company to Wood, completed a database audit in 2008. Conclusions from that audit were that the data were generally acceptable for Mineral Resource estimation. Data made available after the 2008 review were audited in 2010. Conclusions from that audit were that corrections were required to Noranda and Atlas assay data, and that additional twin holes should be drilled to verify Atlas data.

In the opinion of the QP, who had involvement with both data audits, the quantity and quality of the lithological, geotechnical, collar survey and downhole survey data collected in the exploration and infill drill programs completed by American Vanadium on the Project are sufficient to support Mineral Resource estimation. Legacy data are appropriate for use in estimation, but Atlas assays within the transition domain and Noranda assays within the reduced domain were down-graded.

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.

No processing factors were identified from the completed metallurgical test work that would have a significant effect on extraction.

1.10 Mineral Resource Estimation

Two Mineral Resource estimates were performed, one at Gibellini and the second at Louie Hill. The QP personally undertook the Gibellini Mineral Resource estimate, and reviewed the estimate for Louie Hill that was performed by Mr Mark Hertel, RM SME (a Principal Geologist at AMEC at the time the Louie Hill estimate was performed), and takes responsibility for that estimate.

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 at Gibellini; 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 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 less than 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 Inferred tons 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.

AMEC determined the extent of resources that might have reasonable prospects for eventual economic extraction by applying a Lerchs–Grossmann (LG) pit outline to the block model. Wood reviewed these factors for reasonable prospects for eventual economic extraction, using the 2014 CIM Definition Standards, and updated the assumptions as required.

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 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.

As with the Gibellini estimate, AMEC determined the extent of resources that might have reasonable prospects for eventual economic extraction by applying an LG pit outline to the block model. Wood reviewed these factors for reasonable prospects for eventual economic extraction, using the 2014 CIM Definition Standards, and updated the assumptions as required.

1.10.3 Reasonable Prospects for Eventual Economic Extraction

Mineralization was confined within an LG pit outlines that used the following key assumptions, where applicable:

- Mineral Resource V_2O_5 price: $14.64/lb
- Mining cost: $2.21/ton mined
- Process cost: $13.62/ton processed
- General and administrative (G&A) cost: $0.99/ton processed
- Metallurgical recovery assumptions: 60% for oxide material, 70% for transition material and 52% for reduced material
- Tonnage factors: 16.86 ft^3/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material
- Royalty: 2.5% NSR
- Shipping and conversion costs: $0.37/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 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. Edward J.C. Orbock III, a Wood employee, and an SME Registered Member, is the Qualified Person (QP) for the Mineral Resource estimates. The estimates have an effective date of 28 May, 2018.

Mineral Resources for Gibellini are included as Table 1-1, whereas the Mineral Resources for Louie Hill are included as Table 1-2. Mineral Resources at Gibellini are stated using cut-off grades appropriate to the oxidation state of the mineralization. Oxidation domains were not modeled for Louie Hill.

Table 1-1: Mineral Resource Statement, Gibellini

Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (Mt)	Grade V_2O_5 (%)	Contained V_2O_5 (Mlb)
Measured	Oxide	0.101	3.96	0.251	19.87
	Transition	0.086	3.98	0.377	29.98
Indicated	Oxide	0.101	7.83	0.222	34.76
	Transition	0.086	7.19	0.325	46.73
Total Measured and Indicated			***22.95***	***0.286***	***131.34***
Inferred	Oxide	0.101	0.16	0.170	0.55
	Transition	0.086	0.01	0.180	0.03
	Reduced	0.116	14.80	0.175	51.72
Total Inferred			***14.97***	***0.175***	***52.30***

Notes to accompany Mineral Resource table for Gibellini:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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: \$14.64/lb; mining cost: \$2.21/ton mined; process cost: \$13.62/ton; general and administrative (G&A) cost: \$0.99/ton 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/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: \$0.37/lb. An overall 40º 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 (Mt)	Grade V_2O_5 (%)	Contained V_2O_5 (Mlb)
Inferred	0.101	7.52	0.276	41.49

Notes to accompany Mineral Resource table for Louie Hill:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May 2018. 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: \$14.64/lb; mining cost: \$2.21/ton mined; process cost: \$13.62/ton; general and administrative (G&A) cost: \$0.99/ton processed; metallurgical recovery assumptions of 60% for mineralized material; tonnage factors of 16.86 ft^3/ton for mineralized material, royalty: 2.5% net smelter return (NSR); shipping and conversion costs: \$0.37/lb. For the purposes of the resource estimate, an overall 40º 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.

Wood performed a sensitivity case analysis on the Gibellini estimate to assess the impact of variation in V_2O_5 price on the estimate. The sensitivity case is shown in Table 1-3. Gibellini Measured and Indicated Mineral Resources are relatively insensitive to V_2O_5 price with regards to tons and grade. Very few tons (8.7%) are lost between base case and base case -39%, and grades are slightly higher (5.3%). For Inferred material, the vanadium price does have a large impact on tons and grade, due to most of Inferred being reduced material. As vanadium price drops, cut-off grades increase, and previously economic material is reclassified as waste.

A similar sensitivity evaluation was performed for the Louie Hill estimate, and is indicated in Table 1-4 with the base case highlighted. Louie Hill also shows some insensitivity to metal price with regards to tons and grade.

Table 1-5 and Table 1-6 provide a sensitivity to changes in V_2O_5 cut-off grade for Gibellini and Louie Hill, respectively.

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, 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.

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 PEA based on these Mineral Resources will be realized.

The PEA mine plan assumes production at 3 Mst/a from two open pits, at Gibellini and Louie Hill. The estimated life of mine is approximately 13.5 years. Figure 1-1 shows the material movement plan. The last year of operation is not a full year.

The pit designs are based on pit shells obtained using the Lerchs–Grossmann (LG) algorithm for pit optimizations in MineSight® mining software. 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. For the pit design, 40° overall slope angles were assumed based on dry conditions.

Table 1-3: Sensitivity of Gibellini Mineral Resource to Variations in Metal Price Assumptions (base case is highlighted)

V_2O_5 Price $/lb	Measured and Indicated Mt	Grade V_2O_5	Mlb V_2O_5	Inferred Mt	Grade V_2O_5	Mlb V_2O_5	Description
18.46	23.28	0.283	131.87	16.74	0.167	56.07	Base Case +21% Price
16.55	23.14	0.284	131.68	15.96	0.171	54.52	Base Case +12% Price
14.64	22.95	0.286	131.34	14.97	0.175	52.30	Base Case Mineral Resource Price
12.73	22.41	0.290	130.17	12.38	0.181	44.71	Base Case -15% Price (Cash Flow)
10.82	21.87	0.295	128.91	9.21	0.192	35.38	Base Case -35% Price
8.91	20.95	0.301	126.26	2.14	0.220	9.41	Base Case -64% Price

Note: Footnotes provided for Table 1-1 are also applicable to this table.

Table 1-4: Sensitivity of Louie Hill Mineral Resource to Variations in Metal Price Assumptions

V_2O_5 Price $/lb	Measured and Indicated Mt	Grade V_2O_5	Mlb V_2O_5	Inferred Mt	Grade V_2O_5	Mlb V_2O_5	Description
18.46	—	—	—	7.67	0.273	41.82	Base Case +21% Price
16.55	—	—	—	7.63	0.274	41.75	Base Case +12% Price
14.64	—	—	—	7.52	0.276	41.49	Base Case Mineral Resource Price
12.73	—	—	—	7.40	0.278	41.21	Base Case -15% Price (Cash Flow)
10.82	—	—	—	7.04	0.285	40.13	Base Case -35% Price
8.91	—	—	—	6.27	0.301	37.68	Base Case -64% Price

Note: Footnotes provided for Table 1-2 are also applicable to this table.

Table 1-5: Sensitivity of Gibellini Mineral Resource to Variations in Cut-off Grade (base case is highlighted)

Cut-off (V_2O_5)	Measured and Indicated Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)	Inferred Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)
variable	22,953	0.286	131,344	14,974	0.175	52,305
0.25	13,782	0.350	96,367	463	0.271	2,511
0.35	5,549	0.433	48,017	3	0.381	20

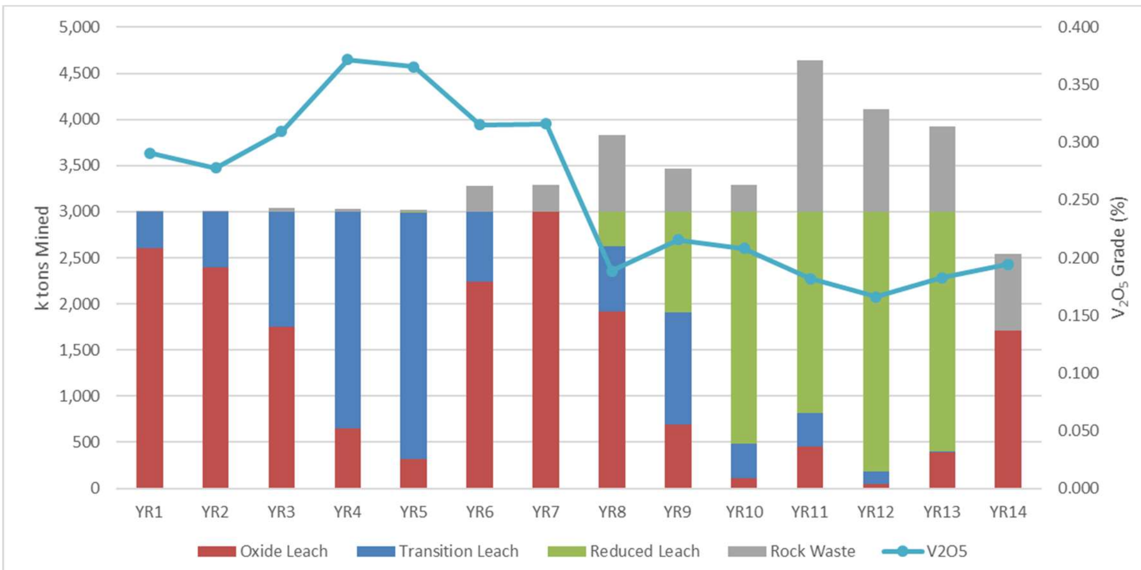
Note: Footnotes provided for Table 1-1 are also applicable to this table.

Table 1-6: Sensitivity of Louie Hill Mineral Resource to Variations in Cut-off Grade (base case is highlighted)

Cut-off (V_2O_5)	Measured and Indicated			Inferred		
	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)
variable	—	—	—	7,523	0.276	41,494
0.25	—	—	—	3,993	0.352	28,119
0.35	—	—	—	1,536	0.451	13,842

Note: Footnotes provided for Table 1-2 are also applicable to this table.

Figure 1-1: Mine Material Movement Plan



Note: Figure prepared by Wood, 2018.

Five pit phases were developed for the Project. Phase I, Phase III and Phase IV are mined from the Gibellini deposit and Phase II and Phase V are mined from the Louie Hill deposit.

The haul roads are designed to accommodate 100 ton haul trucks with a maximum gradient of 10% and an overall width of 85 ft. Access into the final pit bottoms are gained via a section of single lane road 50 ft wide.

Two waste rock storage facilities (WRSF) were designed for a total capacity of 6.8 Mst.

1.13 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 technologies in the mining industry. The most notable examples are the multiple copper, nickel, and cobalt 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 proposed Gibellini process applies the same acid heap leaching and solvent extraction technology to recover vanadium. However, instead of electrowinning to produce a final product, the process will use an acid strip followed by precipitation to produce a final product.

The processing method envisioned will feed mineralized material from the mine via loader to a hopper that feeds the screening and crushing plant. The screen will send any material greater than a third-inch and less than four inches in size to the cone crusher (plus four-inch material will be sent to stockpile for further treating).

The crushed material will recycle to the screen feed belt, thus crushing in closed circuit. The minus half-inch mineralized material will be fed to the agglomerator where sulfuric acid, flocculent (agglomeration aid) and water will be added to achieve proper agglomeration. The agglomerated mineralized material will be transported to a stacker on the leach pad, which will stack the mineralized material to a height of 15 ft. Once the material is stacked and sufficient material accumulated to distribute sprinklers onto the leached material, solution will be added to the leach heap at a rate of 0.0025 gallons per minute per square foot. The solution will be collected in a pond and this pregnant leach solution (PLS) will be sent to the process building for metal recovery.

The PLS will be treated with iron to convert all of the vanadium in solution from the vanadate (VO^{3-}) form to the vandyl (VO^{+2}) form, which will be preferentially loaded onto the organic phase in the extraction phase of treatment. Solvent extraction mixers–settlers will be used to recover the vanadium onto the organic phase and to produce a vanadium depleted aqueous solution (raffinate). The raffinate will then be returned to the leach pad to continue to leach the vanadium remaining in the heap material. The loaded organic phase from the extraction will then be contacted in a separate set of mixer–settlers (the strip circuit). Here the vanadium will be pulled from the organic phase into the new aqueous phase. The stripped organic will then be returned to the extraction circuit where it will be re-loaded with vanadium. The stripped vanadium solution will then be oxidized to vanadate with sodium chlorate and ammonia will be used to form ammonium metavanadate (AMV). Sulfuric acid will be added to the AMV and a precipitate will be formed. This precipitate will be settled in a thickener and the thickened material will be sent to a centrifuge. The thickener overflow will be recycled back to the strip circuit where it will be loaded with vanadium again.

Approximately 130 million pounds of V_2O_5 will be produced from Gibellini leaching operations at an average recovery of 62% (oxide: 60%, transition: 70% and reduced: 52%).

Metal produced from leaching operations will generally increase from the first quarter of Year 1 to Year 5 as lower grade and lower recovery oxide ores are supplanted by higher grade and higher recovery transition ores. Following Year 5, the overall deposit grade drops; consequently, metal production likewise drops. The majority of the metal will be produced within the same reporting period as it is placed on the leach pad.

1.14 Project Infrastructure

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 Gibellini pit and WRSF and the Louie Hill pit and WRSF 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 leach pad would be developed in four phases with a total planned capacity of 40.7 Mt. Individual lifts of leach material will be placed by a radial stacker. The process pond system will be located to the east of the leach pad and will consist of a pregnant leach solution (PLS) pond and a storm pond. The PLS will be collected from the leach pad and pumped to the pond system. 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.

The power supply for the Gibellini Project site is assumed to be at 24.9 kV and would be supplied from a planned substation to be located near Fish Creek Ranch. This substation would tap and step-down the 69 kV supply carried by the 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 water supply source for future operations has not been determined. For the purposes of the PEA, it was assumed that water rights could be leased, and that water could be pumped to the Project area from nearby farms and ranches.

1.15 Environmental Considerations

During the period 2008 to 2011, American Vanadium contracted Enviroscientists to oversee a baseline data program to support a Plan of Operations (PoO) and Nevada Reclamation Permit Application (collectively the Plan) document and future National Environmental Policy Act (NEPA) analysis, which was submitted in December 2012, and revised in February 2013 and November 2014.

The baseline data program completed by American Vanadium included studies to document the existing conditions of biological resources, cultural resources, surface water resources, ground water resources, and waste rock geochemical characterization.

On May 9, 2018, Prophecy submitted a PoO, prepared by SRK Consulting US (Inc) (SRK) to the BLM's Mount Lewis Field Office. A Reclamation Permit Application also prepared by SRK, was submitted to the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation (BMRR).

The following steps are envisaged in support of Project permitting:

- Identification of baseline studies and data that will require updates
- Compilation of an environmental report for submission to the BLM
- Preparation of a Water Control Pollution Permit for submission to the BMRR.

Once these studies have been reviewed and accepted by the relevant regulatory authorities, Prophecy expects to trigger a Notice of Intent (NOI) from the BLM. This Report assumes that an environmental impact statement (EIS) will be required.

1.16 Closure and Reclamation Planning

Prophecy will need to meet BLM 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. Prophecy 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 for the Plan has not been completed with BLM, reclamation bonding estimates have not been completed or approved by the authorizing agencies (BLM and NDEP).

Prophecy will be required to submit updated plans for closure and reclamation of the disturbed lands as part of any updated Reclamation Permit application, as well as plans for temporary closure due to planned or unplanned conditions as part of any Water Pollution Control Permit application.

Based on the conceptual mine plan, closure costs are estimated by Wood to be $40 M. This assumes a mine life of 13.5 years and an annual process rate of 3 Mst.

1.17 Permitting Considerations

Prior to commencing any mining operations on public lands administered by the BLM, a Plan of Operations describing how Prophecy will prevent unnecessary and undue degradation of the land and reclaim the disturbed areas must be submitted to the BLM. Concurrently, Prophecy will need to apply for issuance of a Reclamation Permit to NDEP–BMRR.

It is assumed for the purposes of this Report that the BLM will require an EIS to be prepared by a third-party contractor. 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. There is currently an Executive Order that requires 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*". It is Wood's understanding that the Nevada BLM has determined that mining projects are considered infrastructure projects. This may 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 Nevada Bureau of Mining Regulation and Reclamation (BMRR) will need to issue a Mining Reclamation Permit and a Water Pollution Control Permit (WPCP).

1.18 Social Considerations

Prophecy 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.

1.19 Markets and Contracts

Prophecy commissioned a vanadium market survey by Merchant Research & Consulting Ltd (Merchant) to determine an appropriate vanadium price forecast for use in the PEA. Based on the demand pricing forecast from Merchant's report, Wood adopted a long-term price of $12.73 per pound of V_2O_5 sold.

No supply contracts are in place; however, Prophecy proposes to ship a bagged product to a conversion company for conversion into a saleable product.

1.20 Capital Cost Estimates

The PEA capital cost estimate is based on the 2011 FS capital estimate adjusted for inflation and the inclusion of a 25% contingency to reflect the level of study. All costs are escalated to Q1 2018. Sustaining capital costs are likewise based on the 2011 FS adjusted for inflation and contingency; however, unlike the 2011 FS, the PEA sustaining costs account for the inclusion of Louie Hill and supporting infrastructure and three leach pad expansions to accommodate the larger PEA resource base.

CostMine's Mining Cost Service was referenced to escalate Gibellini project costs from end-of-year (EOY) 2011 to Q3 2017. The escalation for surface mining over this time period was 9.1% whereas for milling it was 9.6%. An additional 0.5% escalation was added to account for Q4 2017 to bring the average total escalation for mining and milling to 10.1%. The 2011 FS contingency of 12.6% was replaced with a 25% contingency.

Mining capital costs are minimal due to the assumption of contract mining operations. Mine capital costs are estimated at $1.7 M.

Process capital accounts for the majority of the initial capital expenditure and include material handling, heap leach system and the process plant. Process capital costs are estimated at $49.9 M.

Infrastructure costs include provision for site preparation, roads, water supply, sanitary system, on-site electrical, communication facilities, non-process-related buildings, and contact water ponds. Infrastructure capital costs are estimated at $15.9 M.

Off site infrastructure costs include costs for the off-site power system and water system. Also included in the estimated $8.6 M for off site infrastructure is $0.9 M for first fills.

Indirect costs include construction indirect costs, sales tax, overhead and profit, and 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 FS. Indirect costs are estimated at $17.4 M of the initial capital expenditure.

Sustaining capital costs are estimated at $32.4 M. The majority of the sustaining capital costs are for expanding the leach pads from the initial 10 Mt capacity to approximately 40.1 Mt in three 10 Mt expansions. The expansions occur a year prior to loading in Year 3, Year 6, and Year 9. Approximately $2.1 M is estimated in Year 5 for building the infrastructure to support Louie Hill development. Approximately $1.9 M is estimated for replacing mobile equipment, primarily in the process area. It is assumed that 50% of the initial mobile equipment is either replaced or rebuilt.

The total capital cost estimate for the Project is shown in Table 1-7.

1.21 Operating Cost Estimates

The PEA operating cost estimate is based on the 2011 FS operating cost estimate adjusted for inflation. For mining, CostMine's Mining Cost Service was referenced to escalate Project operating costs from EOY 2011 to 2016. Six percent was added to the inflated cost to account for 2017 and 2018. Adjustments were made by cost area inclusive of: fuel, maintenance parts and supplies, labor, tires, and explosives. Process and G&A operating costs from the 2011 FS were likewise adjusted for inflation by area. For sulfuric acid, which accounts for over half the process operating costs, an indicative 2018 quote for $143/t acid was used. Process costs account for 76% of the total operating costs followed by mining at 18% and G&A at 6%.

Mine operating costs are estimated to average $2.34/t mined over the forecast LOM. Mine operating costs account for both the contracting mining costs of $2.06/t and the mine owner mine management, engineering, ore control and geology cost of $0.28/t. Process operating costs are estimated to average $11.54/t leached, which is an 8% decrease compared to the 2011 FS process costs. The reduction in process costs are primarily the result of the decreased sulfuric acid costs. G&A operating costs are estimated at $0.99/t, which is a 15% increase over the 2011 FS costs, primarily as a result of higher labor costs. Overall, operating costs average $15.26/t leached over the LOM (Table 1-8).

1.22 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 Reserve 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 PEA based on these Mineral Resources will be realized.

Table 1-7: Project Capital Cost Estimate

Cost Description	Total (US$000s)
Open Pit Mine	
Open pit mine development	1,412
Gibellini incremental WRSF	212
Mobile equipment	111
Infrastructure-On Site	
Site prep	2,431
Roads	1,391
Water supply	2,007
Sanitary system	61
Electrical - on site	2,052
Communications	165
Contact water ponds	174
Non-process facilities - buildings	7,583
Process Facilities	
Mill feed handling	15,380
Heap leach system	20,037
Process plant	14,441
Off-Site Infrastructure	
Water system	4,495
Electrical supply system	3,227
First fills	860
Subtotal Total Direct Cost	*76,039*
Construction indirect costs	4,254
Sales tax / OH&P	4,236
EPCM	8,879
Subtotal Prior to Contingency	*93,409*
Contingency	23,352
Total Project Cost	***116,761***

Table 1-8: Operating Costs

Operating Costs	US$/ton
G&A	0.99
Mine	2.72
Processing	11.54
Total Cash Operating Costs	***15.26***

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 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 2018 USD.

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 \$12.73 V_2O_5 price
- The Project is scheduled to leach at a three million ton per year rate with average recoveries for oxide, transition, and reduced material estimated at 60%, 70%, and 52% respectively
- Transportation and selling costs are estimated at \$0.75/lb V_2O_5 sold
- The metal price used for the economic analysis is \$12.73/lb V_2O_5
- Prophecy will pay a production royalty for Gibellini of 2.5% of the NSR until royalty payments reach a total of \$3 million, where the royalty decreases to 2%. No royalties apply to Louie Hill
- Over the Project life, working capital nets to zero
- Tax calculations within the financial model were reviewed and updated by Dale Matheson Carr-Hilton Labonte LLP, Chartered Professional Accountants (DMCL), who are taxation experts. The tax model is reflective of the new tax law passed by congress in 2017 and effective starting 2018
- 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.

Based on Wood's financial evaluation, the Gibellini Project generates positive before and after tax financial results. The pre-tax NPV at a 7% discount rate (the base case rate) is \$411.4 million and the IRR is 56.5% (Table 1-9). Before-tax payback for the Project is estimated at 1.62 years. The after-tax NPV at a 7% discount rate is \$338.3 million and the IRR is 50.8% (Table 1-10). After-tax payback for the Project is estimated at 1.72 years.

Table 1-9: Before-Tax Cash Flow

Annualized Cash Flow Before Tax	Units	Value
Cash flow	M US$	721.6
NPV @5%	M US$	480.5
NPV @7%	M US$	411.4
NPV @10%	M US$	327.8
IRR	%	56.5%
Payback - years from startup	Years	0.62

Table 1-10: After-Tax Cash Flow

Annualized Cash Flow After Tax	Units	Value
Cash flow	M US$	601.5
NPV @5%	M US$	396.9
NPV @7%	M US$	338.3
NPV @10%	M US$	267.7
IRR	%	50.8%
Payback - years from startup	Years	0.72

The LOM cash operating costs, all-in-sustaining cost (AISC), and break-even price are provided in Table 1-11. Figure 1-2 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.

1.23 Sensitivity Analysis

A sensitivity analysis was completed over the ranges of ±30% 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 1-3, Figure 1-4, and Figure 1-5 respectively.

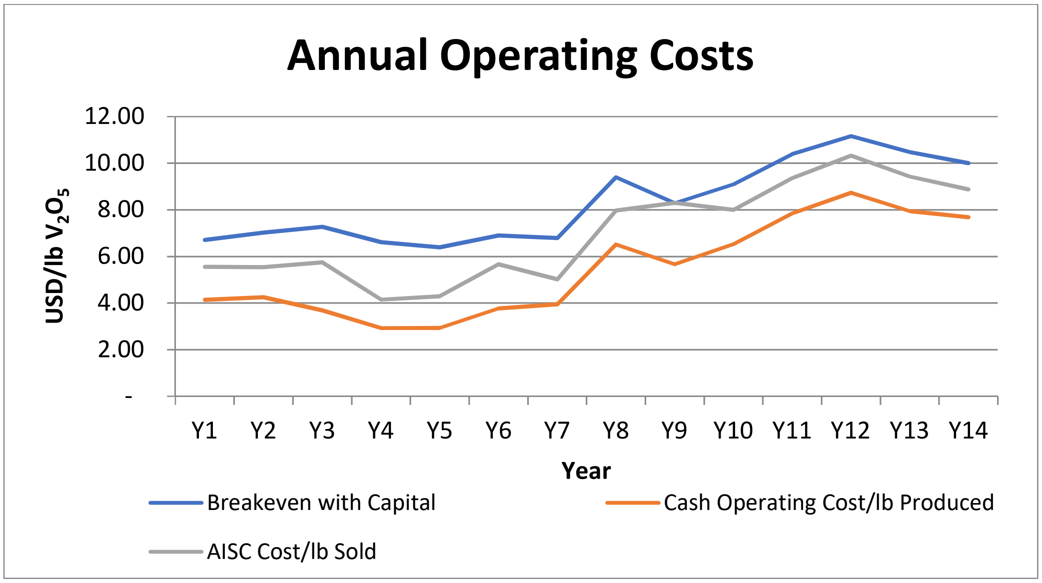
Based on the sensitivity work, the Gibellini Project is most sensitive to metal price and grade, followed by operating costs. The Project is least sensitive to capital costs.

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.

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

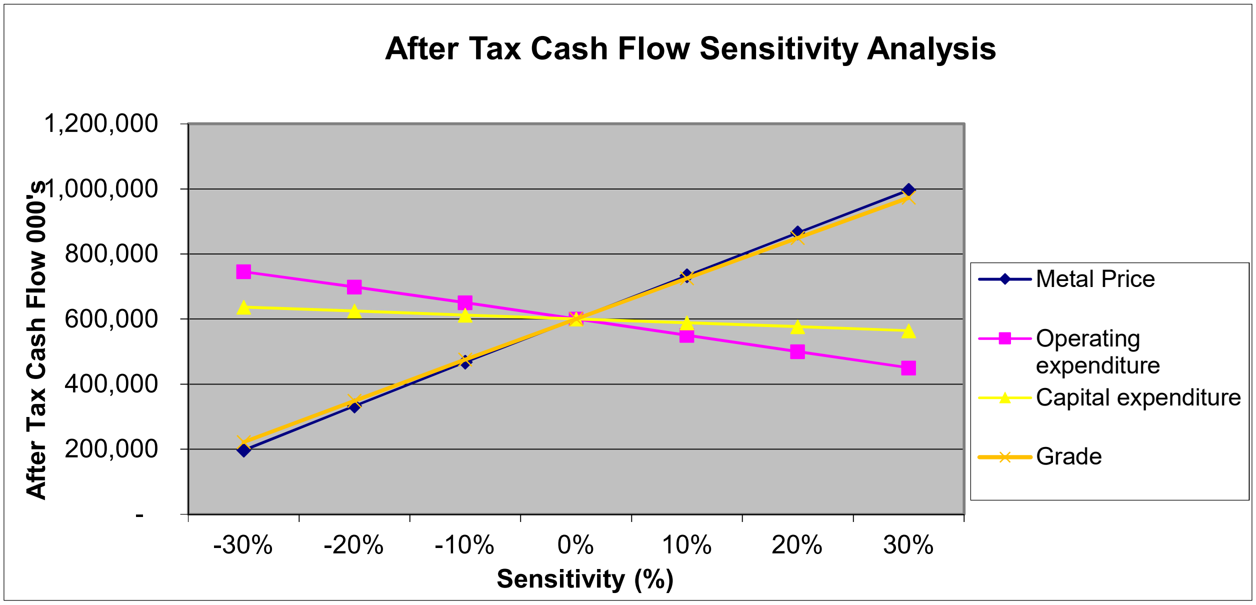
Item	Units	Value
Operating cash cost	US$/lb V_2O_5	4.77
All-in sustaining cost	US$/lb V_2O_5	6.28
Breakeven price	US$/lb V_2O_5	7.76

Figure 1-2: Annual Operating Costs (USD/lb V_2O_5)



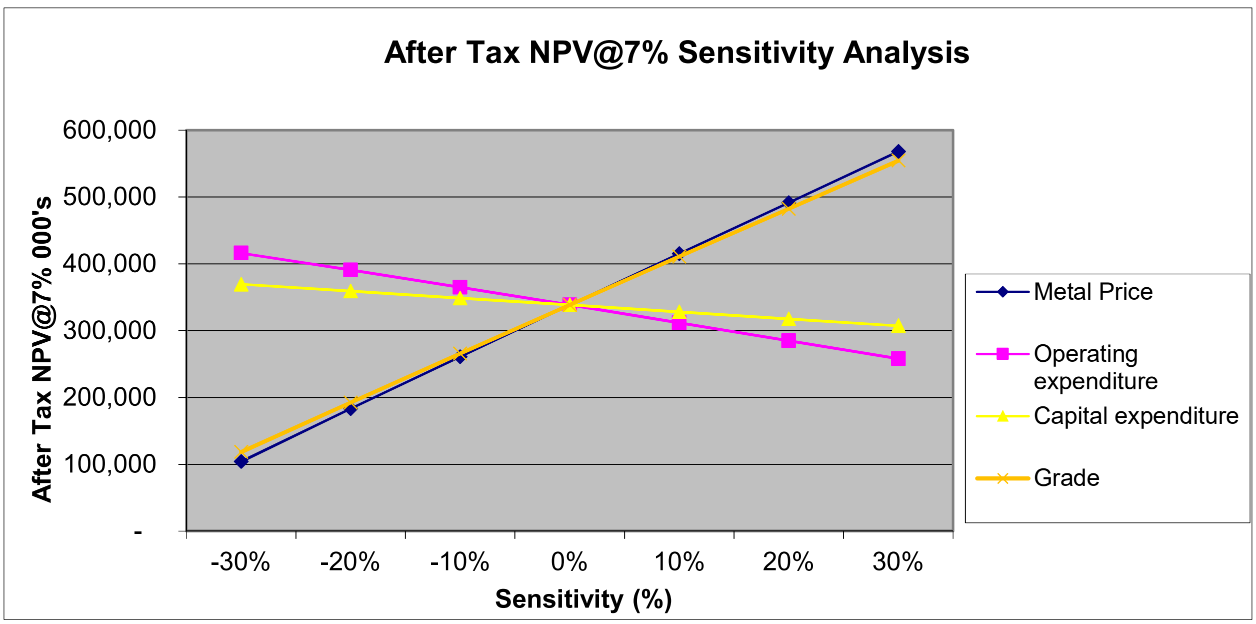
Note: Figure prepared by Wood, 2018.

Figure 1-3: After Tax Cash Flow Sensitivity



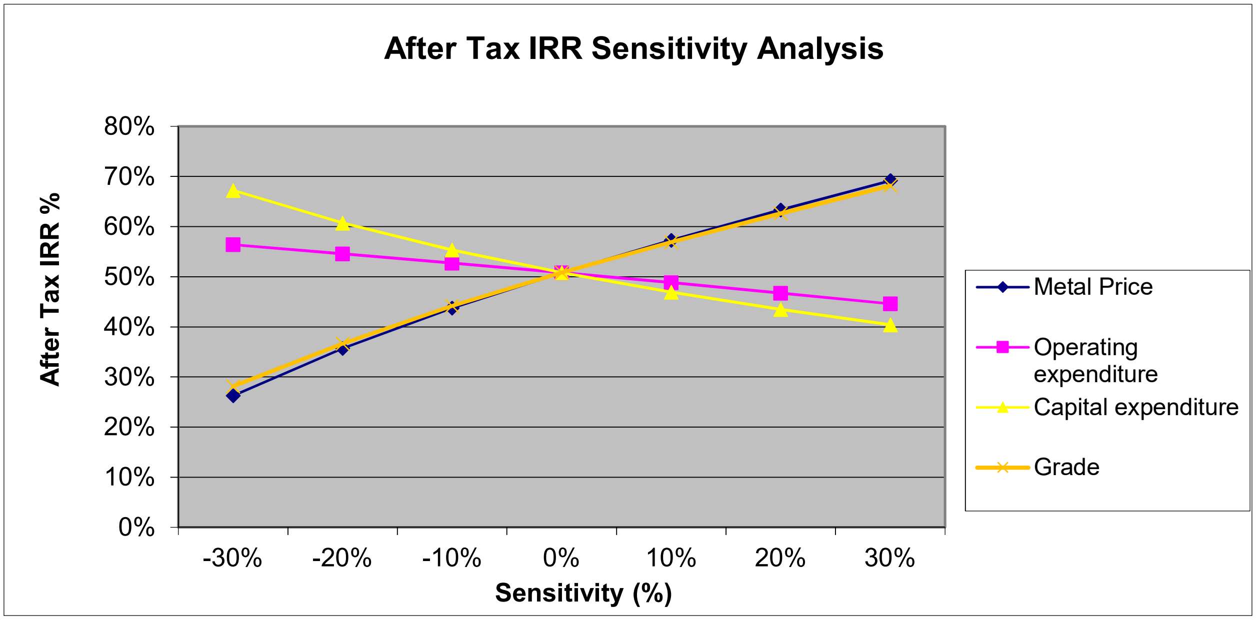
Note: Figure prepared by Wood, 2018.

Figure 1-4: After Tax NPV@7% Sensitivity



Note: Figure prepared by Wood, 2018.

Figure 1-5: After Tax IRR Sensitivity



Note: Figure prepared by Wood, 2018.

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)
30	16.55	69	568.0	996.0
20	15.28	63	491.3	864.4
10	14.00	57	415.2	733.2
Base Case	12.73	51	338.3	600.4
-10	11.46	44	261.0	467.2
-20	10.18	36	183.1	333.2
-30	8.91	26	103.9	196.9

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

V_2O_5 Grade Change (%)	V_2O_5 Grade (% V_2O_5)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	0.34	68	554.4	972.8
20	0.31	63	482.4	849.0
10	0.28	57	410.7	725.4
Base Case	0.26	51	338.3	600.4
-10	0.23	44	265.6	475.0
-20	0.21	37	192.2	348.9
-30	0.18	28	118.3	221.6

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

Change in Capital Costs (%)	Capital Cost Estimate (US$ M)	After-tax IRR %)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	151.8	40	307.2	564.3
20	140.1	43	317.6	576.3
10	128.4	47	328.0	588.4
Base Case	116.8	51	338.3	600.4
-10	105.1	55	348.6	612.5
-20	93.4	61	358.9	624.6
-30	81.7	67	369.3	636.8

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

Change in Operating Costs (%)	Operating Cost Estimate (US$/lb)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	6.20	45	257.9	450.2
20	5.72	47	284.8	500.3
10	5.25	49	311.6	550.4
Base Case	4.77	51	338.3	600.4
-10	4.29	53	364.8	650.0
-20	3.82	55	390.7	698.4
-30	3.34	56	416.0	745.4

To test the lower bound of the project value, an iteration was completed to determine at which price the after tax NPV@7% equals zero. Based on this iteration, it would take a vanadium price of $7.33/lb V_2O_5.

A sensitivity was completed assuming that the 2.5% McKay NSR royalty was in place. With the McKay NSR royalty in place, the Project's pre-tax NPV@7% would drop by $3.6 million.

1.24 Interpretation and Conclusions

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

1.25 Recommendations

Recommendations are envisaged as a single-stage program.

The recommended work phase would consist of additional drilling, metallurgical testwork and mining-related studies, totalling approximately $863,000 to $1.041 million.

2.0 INTRODUCTION

2.1 Introduction

Amec Foster Wheeler E&C Services Inc (Amec Foster Wheeler) a Wood company (Wood) was requested to prepare an independent technical report (the Report) on a preliminary economic assessment (PEA) completed for the Gibellini Vanadium Project (the Project) for Prophecy Development Corp. (Prophecy). The Project is located within Eureka County, Nevada (Figure 2-1).

2.2 Terms of Reference

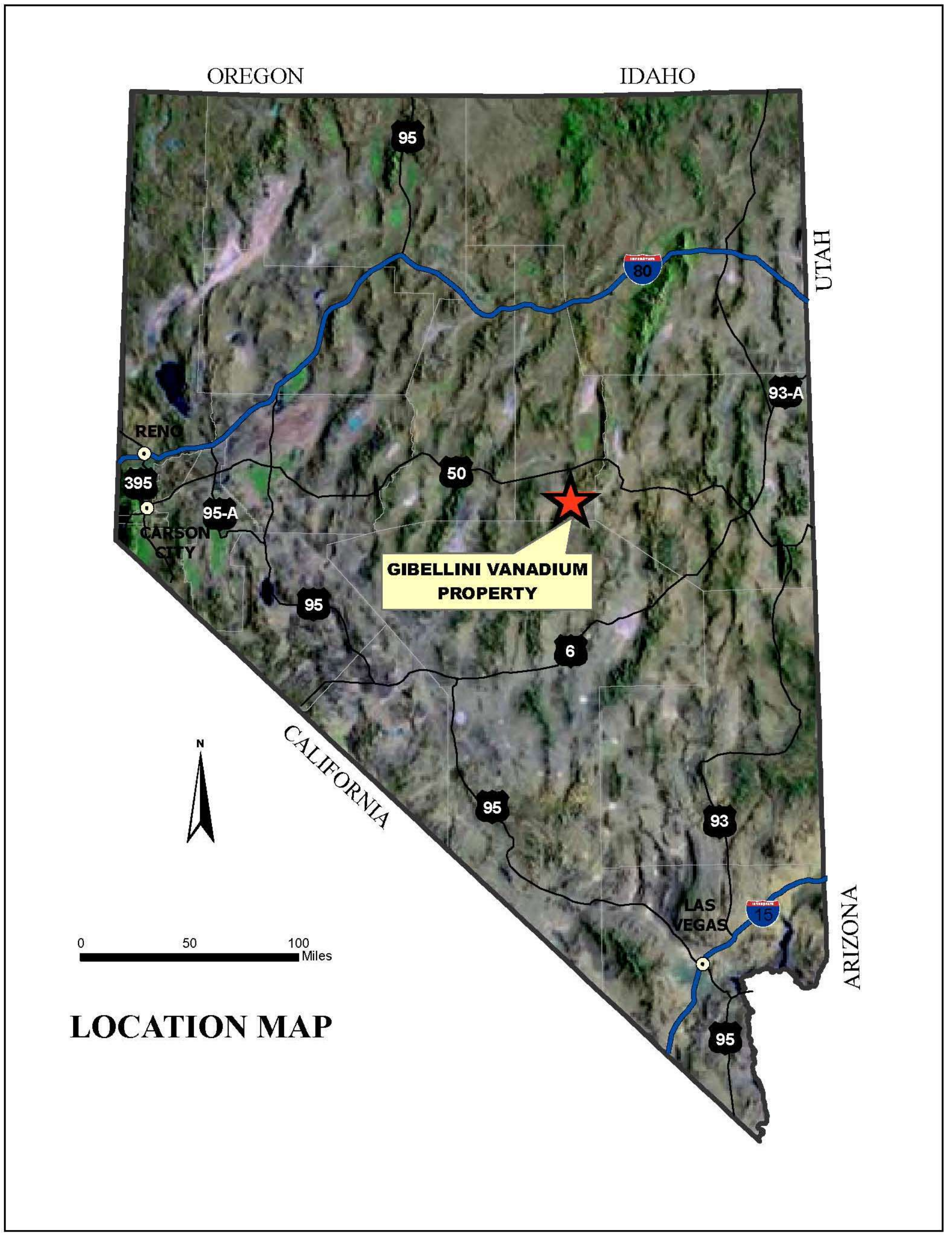
The Report was prepared to support disclosure by Prophecy of the results of a preliminary economic assessment (PEA) on the Gibellini and Louie Hill vanadium deposits in the news release dated 29 May, 2018 and entitled “Prophecy Announces Positive Preliminary Economic Assessment Study for the Gibellini Vanadium Project”.

Mineral Resource and Mineral Reserve estimates were performed in accordance with the 2003 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (CIM, 2003), and initially reported in accordance with the 2010 CIM Definition Standards for Mineral Resources and Mineral Reserves (2010 CIM Definition Standards). The estimates were subsequently reviewed 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) is a predecessor company 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 companies.

A preliminary assessment was completed by AMEC in 2008 (2008 PA), followed by a feasibility study in 2011 (2011 FS). This work was undertaken for RMP Resources Corporation (RMP), which became American Vanadium Corporation (American Vanadium). While neither of these two studies are considered by Prophecy 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.

Figure 2-1: Project Location Plan



Note: Figure from Hanson et al., 2011.

2.3 Qualified Persons

The following Wood 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 Edward J.C. Orbock III, RM SME, Principal Geologist and US Manager of Consulting
- Mr Edwin Peralta, P.E., Senior Mining Engineer
- Mr Lynton Gormely, P.Eng., Senior Process Consultant/Principal Process Engineer.

2.4 Site Visits and Scope of Personal Inspection

Mr Ed Orbock visited the Project site on 23 June 2008, 17 November 2010, and again on 7 November, 2017. During the 2010 visit he inspected surface geology, drill hole collars, diamond drilling, logging, and sampling protocols. During the 2017 visit, he inspected surface geology and verified that no additional on-ground work had been undertaken at either the Gibellini or Louie Hill deposits.

Mr Kirk Hanson visited the Project site on 23 June, 2008 and again on 17 November, 2010. 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.

2.5 Effective Date

The following effective dates are noted:

- Mineral Resource estimate: 29 May, 2018
- Last supply of information on mineral tenure: 5 May, 2018
- Last supply of information on environmental and permitting: 9 May, 2018
- Financial analysis: 29 May, 2018.

The overall Report effective date is taken as the date of the financial analysis, which is 29 May, 2018.

2.6 Information Sources and References

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

The primary information sources for the Report include the following technical reports that had been previously filed on the Project area:

- Orbock, E., 2017: Gibellini Vanadium Project, Nevada, USA, NI 43-101 Technical Report: technical report prepared by Amec Foster Wheeler E&C Services Inc., effective date 10 November, 2017
- 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., 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
- Wakefield, T., and Orbock, E., 2007: NI 43-101 Technical Report Gibellini Property Eureka County, Nevada: technical report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 18 April, 2007.

During 2011, Mr Michael Drozd, who was employed by AMEC as a consulting metallurgist at the time, visited the Project site and performed the following scope of personal inspection:

- Mr. Michael Drozd, RM SME, inspected drill core to provide a preliminary assessment of competency of the material down-hole as part of initial review for metallurgical crushing requirements at the Gibellini deposit. Mr. Drozd also reviewed sites that could potentially host heap leach pads and process infrastructure.

Information from this site visit was used when assessing considerations of reasonable prospects for eventual economic extraction in Section 14 of the Report.

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, or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from legal experts retained by Prophecy 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.

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.

3.3 Markets

The QPs have not independently reviewed the marketing or metal price forecast information. The QPs have fully relied upon, and disclaim responsibility for, information derived from experts retained by Prophecy for this information in the following document:

- Merchant Research and Consulting Ltd, 2017: Vanadium, 2017 World Market Review and Forecast: 97 p.

This information is used in support of the Mineral Resource estimate in Section 14 and the economic analysis in Section 22.

Vanadium marketing and vanadium product price forecasting are specialized businesses requiring knowledge of supply and demand, economic activity and other factors that are highly specialized and requires an extensive database that is outside of the purview of a QP. The QPs consider it reasonable to rely upon Merchant Research and Consulting Ltd for such information as the company is a well-known research firm specialising in market research for the chemical sector and specialty metals.

3.4 Taxation

The QPs have not independently reviewed the taxation information. The QPs have fully relied upon, and disclaim responsibility for information derived from experts retained by Prophecy for this information through the following document:

- Trumbell and Flowerdew, 2018: Revisions to Tax Components of Prophecy's Gibellini PEA: report prepared by Dale Matheson Carr-Hilton Labonte LLP, 4 May 2018.

This information is used in support of the economic 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 Property 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. It is centred at latitude 39° 13' North and longitude 116° 05' West. Mineralization at Gibellini 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.

4.2 Property and Title in Nevada

Information in this sub-section has been compiled from Papke and Davis, (2002). 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 is needed for all mining and processing activities, plus all activities exceeding five acres of proposed disturbance. A Plan of Operations 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 Plan of Operations (PoO) or Notice 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 has used the Policy Perception Index from the 2017 Fraser Institute Annual Survey of Mining Companies report (the 2017 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 has relied on the 2017 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 91 jurisdictions surveyed in the 2017 Fraser Institute survey, Nevada ranks third for investment attractiveness, fifth for policy perception and eighth for best practices mineral potential.

4.3 Project Ownership

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

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

4.4 Mineral Tenure

The Gibellini Project ground holdings include:

- 40 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Janelle Dietrich (Ms Dietrich) and the unpatented lode mining claims (Dietrich Claims) are leased to Prophecy.

- 105 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is VC Exploration (US), Inc.
- 209 unpatented lode mining claims situated in Eureka County, Nevada. The owner of record is Vanadium Gibellini Company, 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 Vanadium Gibellini claims. Figure 4-1 is a claim location plan.

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.

4.4.1 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.

The Affidavit and Notice of Intent to Hold Mining Claims dated October 2, 2017 was recorded on October 6, 2017 at Document No. 233899 in the Eureka County Recorder's Office, satisfying the Nevada statutory requirements for the assessment year beginning September 1, 2017.

Janelle 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.

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.

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
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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				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
				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
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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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
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
				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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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: Vanadium Gibellini 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
NMC1159872	PCY 53	Eureka	Lode	21 0160N 0520E 025	SW
				21 0160N 0520E 036	NW

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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
				21 0160N 0520E 027	SE
NMC1160657	PCY 27	Eureka	Lode	21 0160N 0520E 026	SW
				21 0160N 0520E 027	SE
				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
				21 0160N 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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160671	PCY 45	Eureka	Lode	21 0160N 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
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 0530E 031	NE, SE
NMC1160699	PCY 157	Eureka	Lode	21 0160N 0530E 031	NE, SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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
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
NMC1160723	PCY 181	Eureka	Lode	21 0150N 0530E 006	NW
				21 0160N 0530E 031	SW, SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160724	PCY 182	Eureka	Lode	21 0150N 0530E 006	NE, NW
				21 0160N 0530E 031	SE
NMC1160725	PCY 183	Eureka	Lode	21 0150N 0530E 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	21 0150N 0530E 005	NW, SW
				21 0150N 0530E 006	NE, SE
NMC1160742	PCY 200	Eureka	Lode	21 0150N 0520E 001	SE
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 0150N 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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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
				21 0150N 0520E 012	NE
NMC1160756	PCY 214	Eureka	Lode	21 0150N 0520E 001	SE
				21 0150N 0520E 012	NE
NMC1160757	PCY 215	Eureka	Lode	21 0150N 0520E 001	SE
				21 0150N 0520E 012	NE
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
				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 0150N 0520E 012	NE
NMC1160769	PCY 227	Eureka	Lode	21 0150N 0520E 012	NE

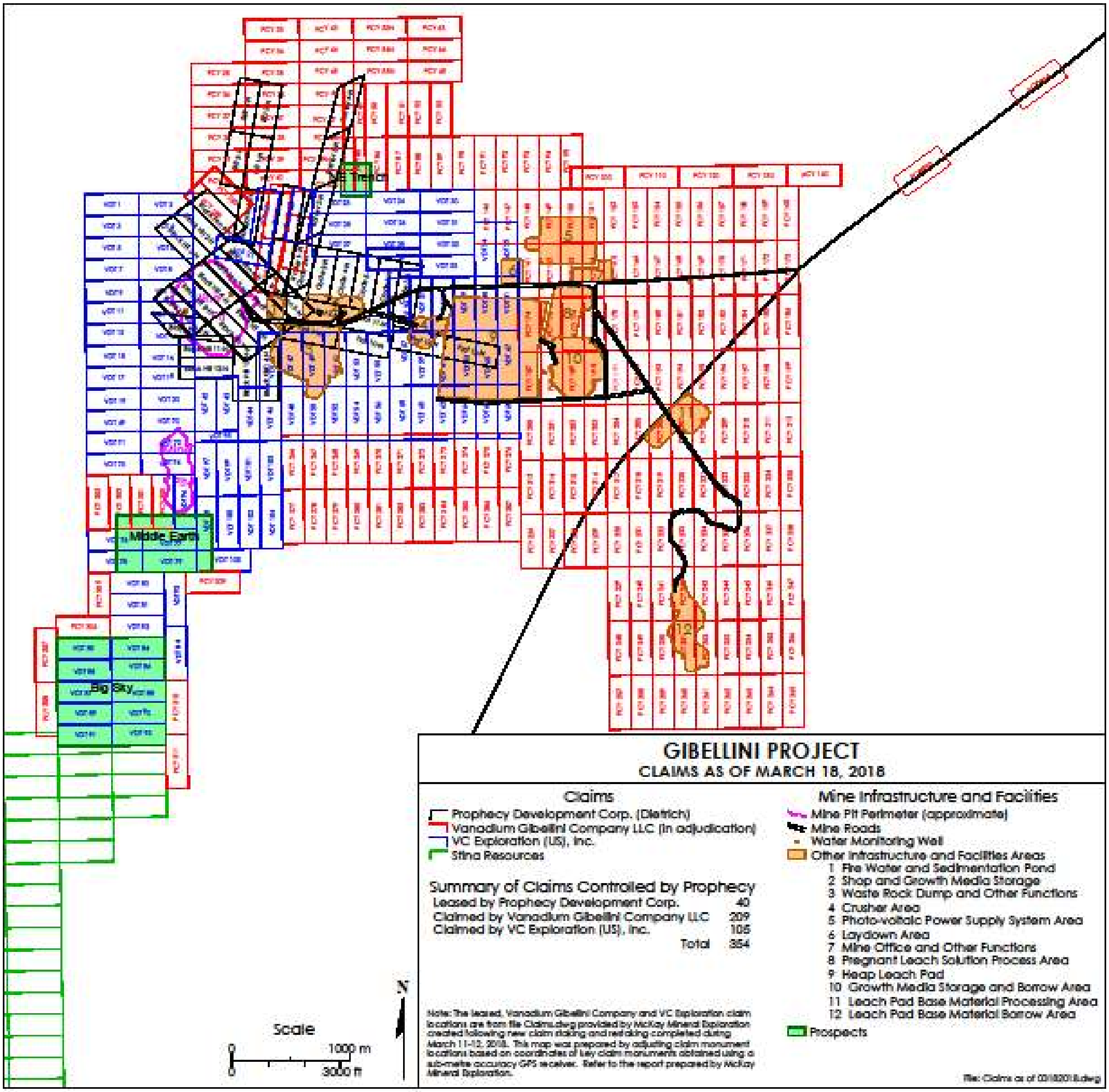
Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
NMC1160770	PCY 228	Eureka	Lode	21 0150N 0520E 012	NE
NMC1160771	PCY 229	Eureka	Lode	21 0150N 0520E 012	NE
NMC1160772	PCY 230	Eureka	Lode	21 0150N 0520E 012	NE
				21 0150N 0530E 007	NW
NMC1160773	PCY 231	Eureka	Lode	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
NMC1160776	PCY 234	Eureka	Lode	21 0150N 0530E 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
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 0150N 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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				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
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
				21 0150N 0520E 011	NE, NW
NMC1160821	PCY 279	Eureka	Lode	21 0150N 0520E 002	SE

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
				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	21 0160N 0520E 034	NE
				21 0160N 0520E 035	NW, SW
NMC1160832	PCY 290	Eureka	Lode	21 0160N 0520E 035	NW, SW
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
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

Serial Number	Claim Name	County	Case Type	Meridian Township Range Section	Subdivision
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, SE
				21 0150N 0520E 011	NW, SW
NMC1167813	PCY 310	Eureka	Lode	21 0150N 0520E 010	SE
				21 0150N 0520E 015	NE
NMC1167814	PCY 311	Eureka	Lode	21 0150N 0520E 015	NE, SE

Figure 4-1: Mineral Tenure Plan



Note: Figure courtesy Prophecy, 2018. Claims shown as held by Stina Resources are not part of the Gibellini Project.

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

4.4.2 VC Exploration

The 105 unpatented lode claims are located within unsurveyed Sections 1, 2 and 3, 10, 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 22, 2017 was recorded August 22, 2017 at Document No. 233784, Book 606, beginning at Page 535 in the Eureka County Recorder's Office, satisfying the Nevada statutory requirements for the assessment year beginning September 1, 2017 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 and no affidavit of assessment or annual mining claim assessment fees are due until the annual assessment year beginning September 1, 2018.

4.4.3 Vanadium Gibellini

The 209 unpatented lode claims are located within unsurveyed Sections 1, 2, 3, 10, 11, 12, Township 15 North, Range 52 East, unsurveyed Sections 29, 30, 31, and 32, Township 16 North, Range 53 East, unsurveyed Sections 25, 26, 27, 34, 35, and 36, Township 16 North, Range 52 East, and Sections 6, 7, 18, 5, 8, and 17, Township 15 North, Range 53 East, MDM, Eureka County, Nevada.

The claims were located in September and December, 2017 and March 2018, and no affidavit of assessment or annual mining claim assessment fees are due until the annual assessment year beginning September 1, 2018.

4.4.4 McKay

A series of unpatented claims were held by Richard A. McKay, Nancy M. Minoletti, and Pamela S. Scutt (the McKay claims, Table 4-4). 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 4-4: 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

The legal opinion notes that the McKay Lease is not completely clear as to what happens in situations such as this, where the McKay claimants failed to complete the requirements for the assessment year September 1, 2016 through September 1, 2017, but Prophecy assumed responsibility for maintaining the claims prior to the date such requirements became due. The opinion also states that it is unclear whether a court interpreting the McKay Lease would conclude that the McKay claimants abandoned their interest in the lands in question, and therefore have no rights to the claims staked by Prophecy that cover the ground previously held under the McKay claims, or whether they are entitled to payment of royalties or conveyance of record title to such claims.

4.5 Royalties

4.5.1 Dietrich Lease (Dietrich Royalty)

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, Prophecy 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 Prophecy 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 Prophecy 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 Prophecy'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%.

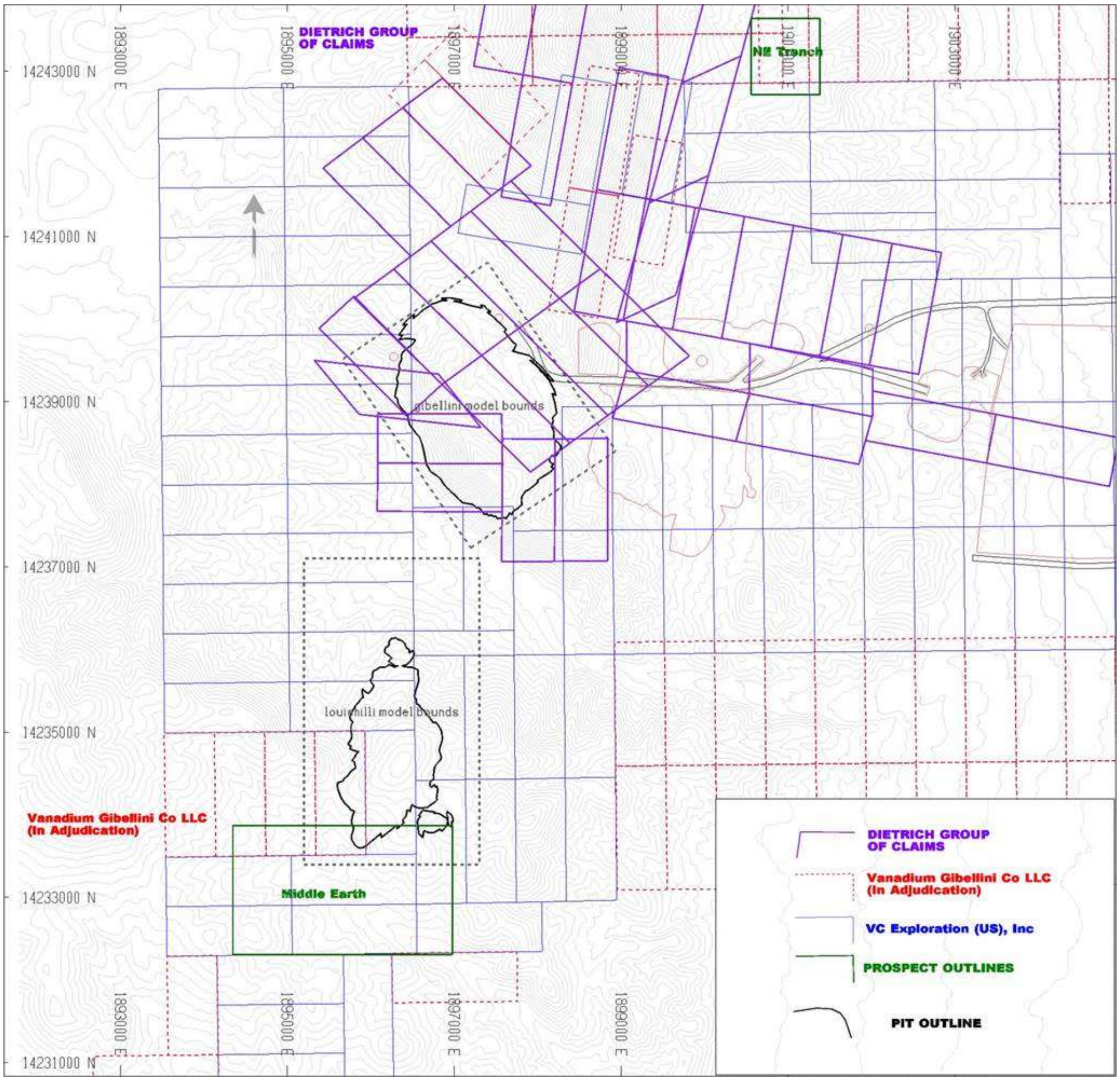
The Amendment to Lease agreement requires Ms Dietrich to transfer title over all but four of the unpatented mining claims within the Dietrich Claims at any time in exchange for US$1 million to be paid as an advance royalty or transfer payment.

Prophecy has agreed to pay a federal tax lien against the Dietrich Claims of $99,027.22. Should Prophecy 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 Prophecy.

If Prophecy does develop a mine on the Dietrich claims, or construct mining-related facilities within the claims, then Prophecy must notify Ms Dietrich as to which claims Prophecy requires. Ms Dietrich may request that Prophecy "*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 Prophecy 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 4-2), 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.

Figure 4-2: Location Plan, Pit Limits in Relation to Dietrich Lease



Note: Figure courtesy Prophecy, 2018.

4.5.2 McKay Lease (McKay Royalty)

The McKay Lease contained an advance royalty and a production royalty (the McKay Royalty). Under the advance royalty provision, Prophecy was required to pay the owners $10,000 upon execution of the lease. Thereafter, on the anniversary date of the execution of the lease, Prophecy was to 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 during both the initial term and 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, $2,000 times the average vanadium pentoxide price per pound, up to a maximum of $28,000 annually.

The advance royalty payments were to continue until such time as Prophecy begins payment of the production royalty, provided, however, that if the production royalty payable in any year was less than the advance royalty otherwise payable for such year, Prophecy would pay the difference between such amounts to the owners. 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, could be deducted as credits against Prophecy's future production royalty payments, provided that the credit was not applied to payment of the difference between the production royalty paid during any year and the advance royalty that would otherwise be payable.

The McKay Lease does not specifically set forth what events trigger the payment of the production royalty, but the legal opinion notes that a reasonable interpretation is that payment of such royalty is due upon commencement of commercial mining operations. The production royalty required Prophecy to pay a 2.5% NSR. Prophecy had an option to purchase 60% of the production royalty from the owners for $1,000,000.Under the McKay Lease, if Prophecy "*intends to develop a mine or to construct mine-related facilities*" on the McKay Lease, Prophecy will notify the owners which portions of the claims will be required for Prophecy's purposes. The owners may then require Prophecy to "*acquire title to the portion*" of the claims within the McKay Lease "*required for [l]essee's proposed uses for nominal consideration of $1*." In the event that the claim owners require Prophecy to take title to all or any portion of such claims, the advance royalty and production royalty contained in the lease "*shall not be affected*."

A small portion of the planned Gibellini open pit falls within the VDT 43 claim, which was staked in March 2018 over a former McKay claim. The proposed Louie Hill open pit is within the staked ground that overlies former McKay claims.

As noted in Section 4.4.4, it is unclear if Prophecy is required to pay royalties on the former McKay claim areas. 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. However, in Section 22.5, a sensitivity for the pre-tax financial model to the McKay royalty provisions was included. Inclusion of the royalty had no material impact on the after-tax net present value of the Project.

4.6 Encumbrances

There is a tax lien against the Dietrich claims as a result of unpaid federal taxes for the year ending December 31, 2010. The existence of the tax lien gives the federal government a superior interest in the claims than Prophecy. In the event Prophecy were to take title to the Dietrich Claims and the taxes remained unpaid, the lien would continue to encumber the Dietrich Claims and the federal government could foreclose on its tax lien. The legal opinion recommended that Prophecy conduct additional inquiries and take action to ensure that the tax lien is removed, up to and including paying off the amounts owed.

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 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.

4.9 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 must be submitted to the BLM.

4.10 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. The baseline data collected would be subject to review and approval by the BLM and the Nevada Department of Environmental Protection (NDEP) and other cooperating agencies.

Additional work would be required in support of any future National Environmental Policy Act (NEPA) document.

4.11 Social License Considerations

Prophecy to date has had no community consultations. The company plans 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.

4.12 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, 2017 where claims had assessments due
- A number of newly-staked claims will not have annual claim maintenance fees payable until the assessment year beginning 1 September, 2018
- Surface rights are held by the BLM
- Permits, environmental studies and public consultation will be required for any future Project development.

Prophecy advised that to the extent known, there are no other significant factors and risks that may affect access, title, or right or ability to perform work on the Project.

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

5.1 Accessibility

The Gibellini Project is 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 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.

5.2 Climate

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

In 1942, Mr. Louis Gibellini located claims covering the Gibellini manganese–nickel mine (also known as the Niganz manganese–nickel mine) immediately east 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% manganese, 2.8% zinc, and 1.22% nickel. A shipment of 95.4 tons of mineralization in 1953 to the Combined Metals Company mill in Castleton, Nevada, reportedly contained 31.6% manganese (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 to 1961 (Roberts et al, 1967). Cheschey & Co. (1960–1963), Terteling & Sons (1964–1965), and Atlas and TransWorld Resources (1969) reportedly worked one or both of the deposits during the 1960s (Morgan, 1989). Work during this period included rotary drilling, trenching, mapping and metallurgical testing. Terteling & Sons 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 per pound) discouraged further development (Morgan, 1989).

In 1972, 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 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 AMEC.

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 test work.

RMP commissioned AMEC to review exploration work completed on the Project and to develop a mineral resource estimate conforming to CIM Definition Standards for Mineral Resources and Mineral Reserves (2005), as referenced by Canadian National Instrument 43-101. This work was the subject of a Technical Report completed in April 2007.

Following this initial technical report, RMP completed RC and diamond 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 Corp.

A feasibility study was commissioned in late 2010, and completed in 2011 (2011 FS). 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.

No on-ground work has been conducted on the Project since 2011. Some additional metallurgical test work was conducted in 2013. Prophecy has completed no exploration or drilling activities since Project acquisition.

Prophecy is not treating either the Mineral Reserves resulting from the 2011 FS or the economic results of that study as current. Some of the information generated during the 2011 FS is used as a basis for this PEA.

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).

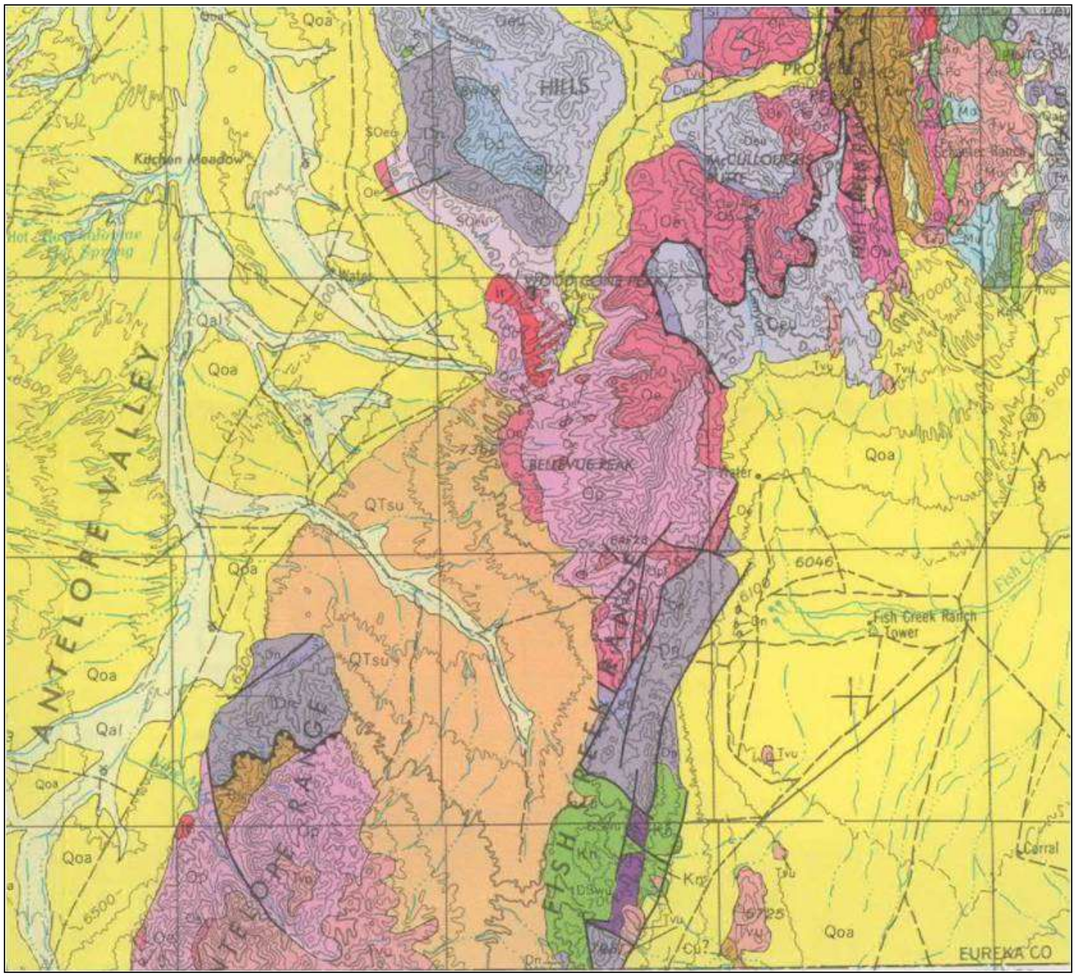
The southern part of the Fish Creek Range consists primarily of Paleozoic sedimentary rocks of Ordovician to Mississippian Age of the eastern carbonate, western siliceous, and overlap assemblages. Tertiary volcanic rocks crop out along the eastern edge of the range and Tertiary to Quaternary sedimentary 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 and Louie Hill sediment-hosted vanadium deposits are the most significant deposits in the district and all occur within the Gibellini Project boundary. The Bisoni-McKay sediment-hosted vanadium deposit occurs several miles south of the Gibellini Project area. 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). In general, the beds strike north-northwest and dip from 15 to 50° to the west. Outcrops of the shale are scarce except for along road cuts and trenches. The black shale unit which hosts the vanadium deposit is from 175 ft to over 300 ft thick and overlies gray mudstone. The shale has been oxidized to various hues of yellow and orange up to a depth of 100 ft.

Figure 7-1: Regional Geology Map



Qal	Alluvium
Qoa	Older Alluvium
QTsu	Sedimentary deposits, undivided
Tvu	Volcanic Rock, undivided
Kn	Newark Canyon Formation
Dn	Nevada Formation
DSwu	Sedimentary rocks, undivided
Oe	Eureka Quartzite
Op	Pogonip Group

Note: Figure from Hanson et al., 2011, after Roberts et al., 1967.

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).

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 Louie Hill deposit is located in the same formation and lithologic units as the Gibellini deposit. The general geology in this area is interpreted to be similar to the Gibellini deposit area.

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 degrees to 22 degrees 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 25º northwest. This may be either a normal sedimentary contact or a fault contact (interpreted to be thrust fault but evidence is inconclusive).

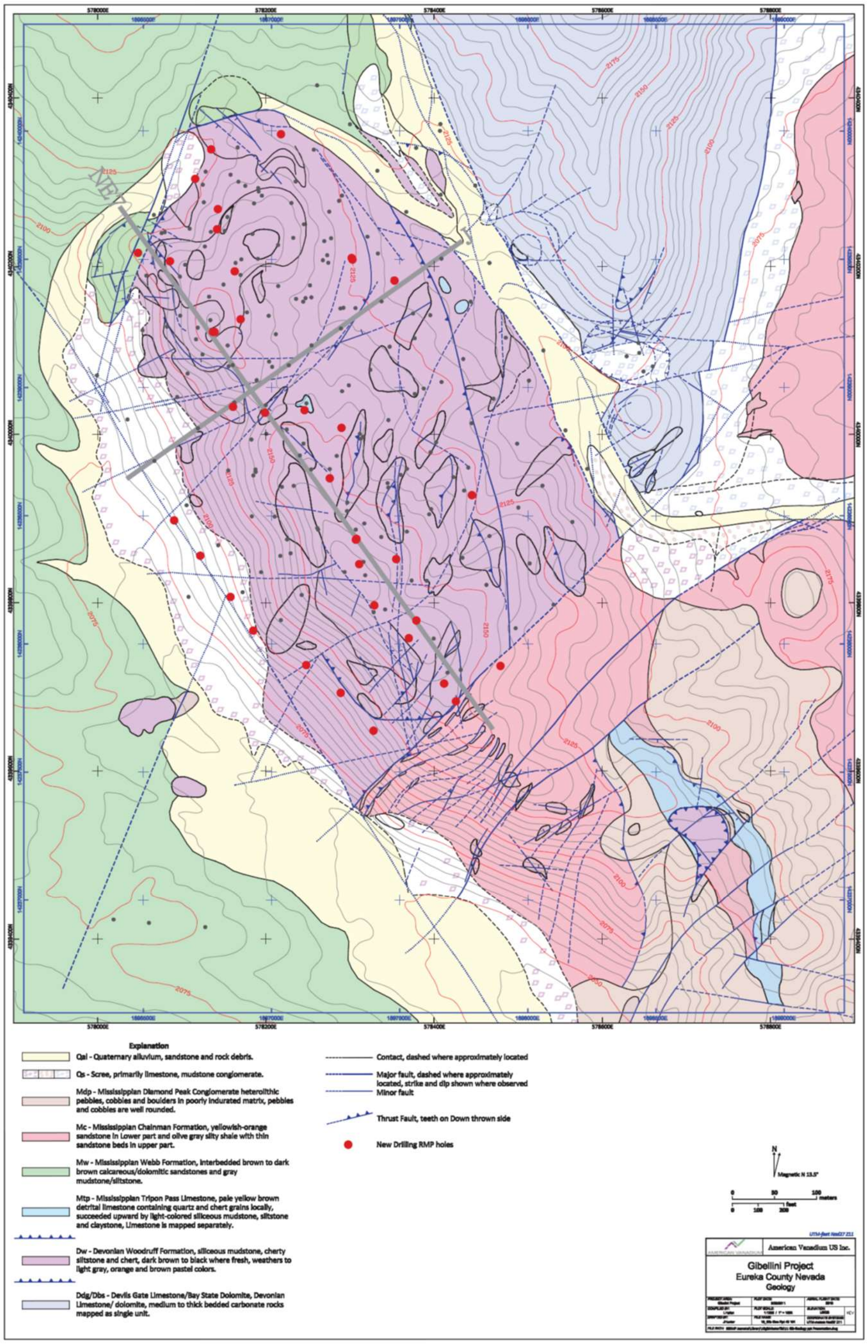
7.3 Deposit Descriptions

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 15º to 50º to the west. The black shale unit which hosts the vanadium Mineral Resource 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.

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).

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,
- 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/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, and
- 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.

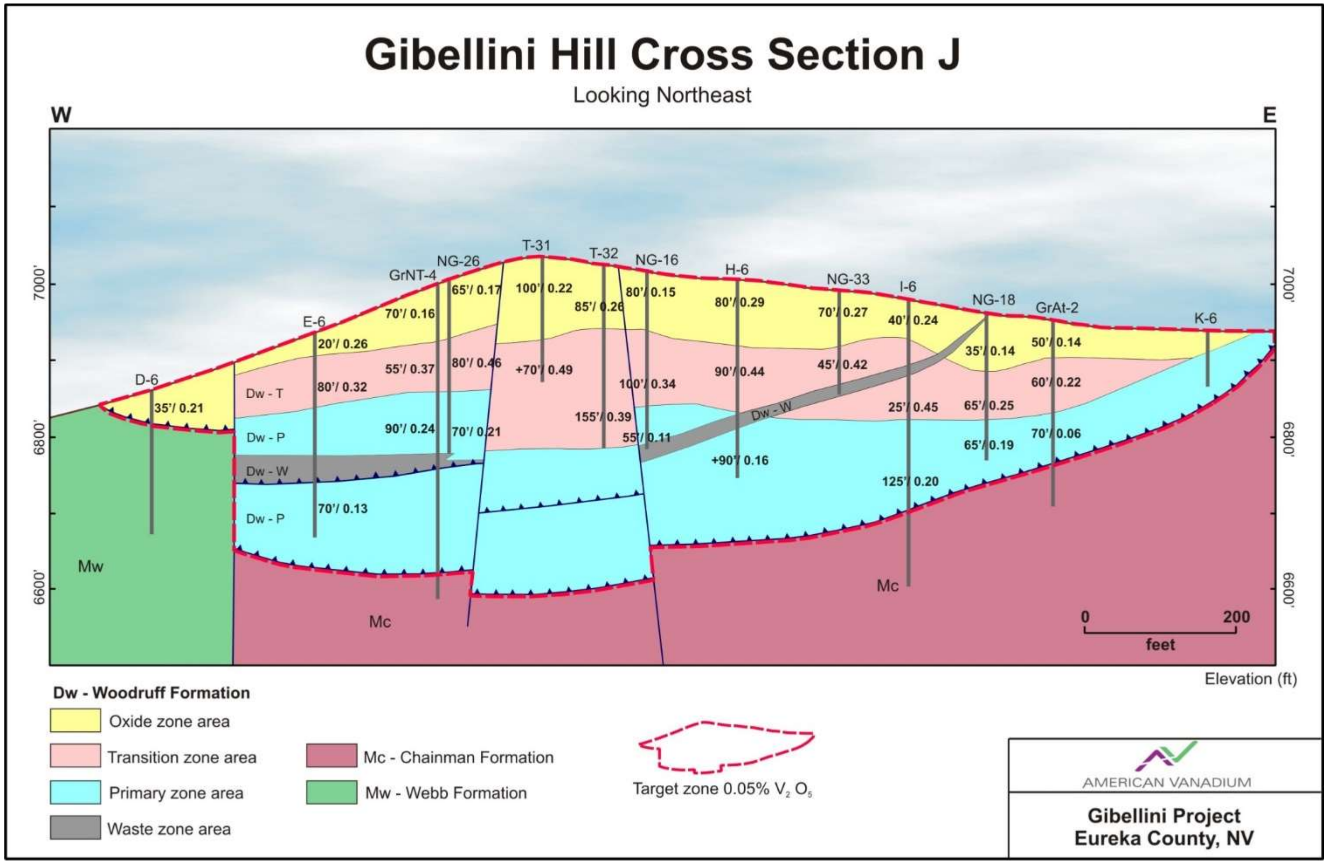
Figure 7-3 and Figure 7-4 are cross and long sections through the Gibellini deposit showing typical V_20_5 grades, alteration (oxidation), and lithologic units.

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

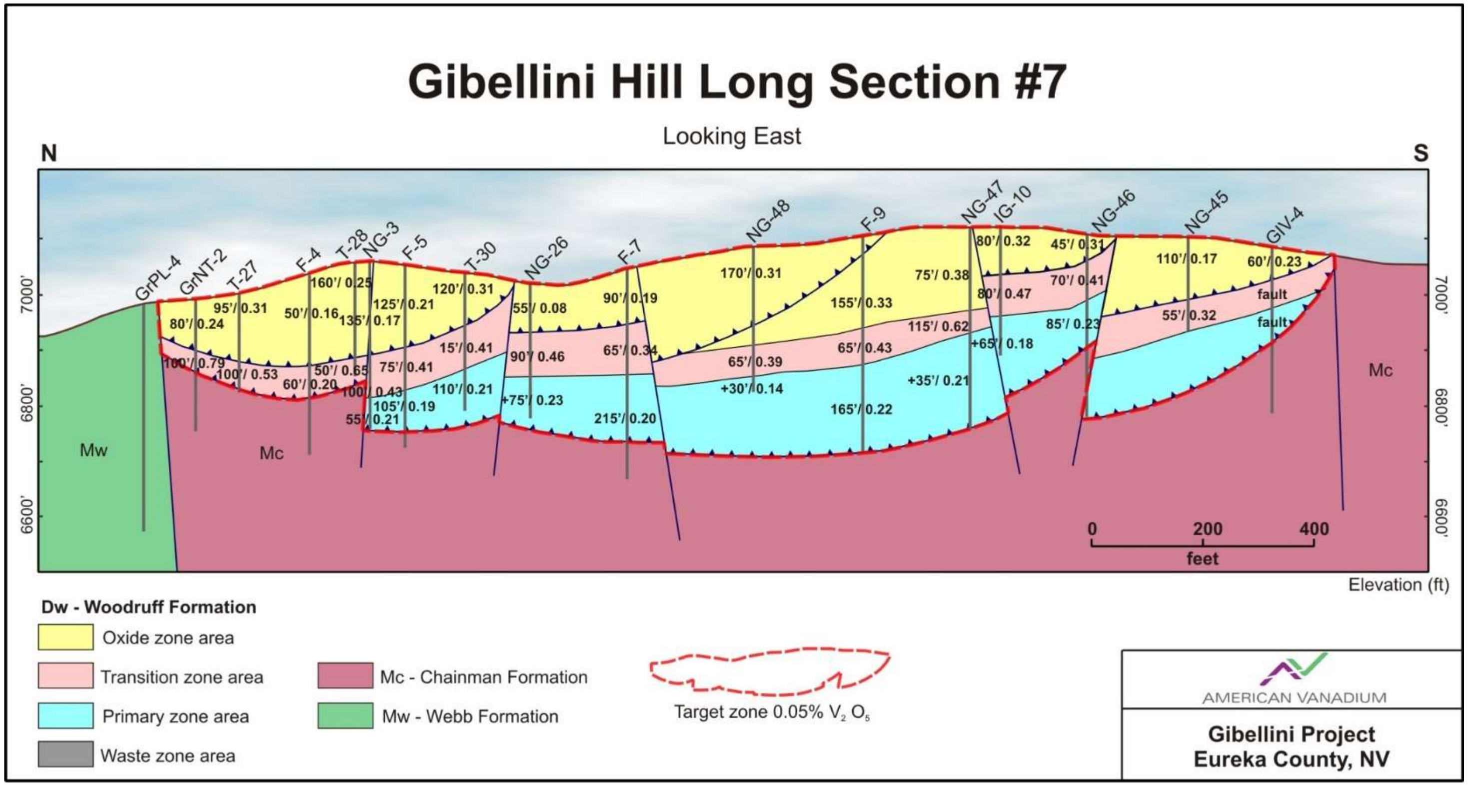
The Louie Hill deposit lies approximately 500 m south of the Gibellini deposit, being separated from the latter by a prominent drainage. Mineralization at Louie Hill is hosted by organic-rich siliceous mudstone, siltstone, and chert of the Gibellini facies of the Devonian Woodruff Formation and probably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

Figure 7-3: Cross Section Across Gibellini, Looking Northwest. Red Outline Shows the 0.050% V_2O_5 Grade Shell Outline with Drill Hole Trace



Note: Figure from Hanson et al., 2011.

Figure 7-4: Long Section Across Gibellini, Looking Northeast. Red Outline Showing 0.050% V_2O_5 Grade Shell with Drill Hole Trace. East Grid Lines are Spaced 500 Ft Apart



Note: Figure from Hanson et al., 2011

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 0 to 40º.

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.

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

7.4 Mineralization and Alteration

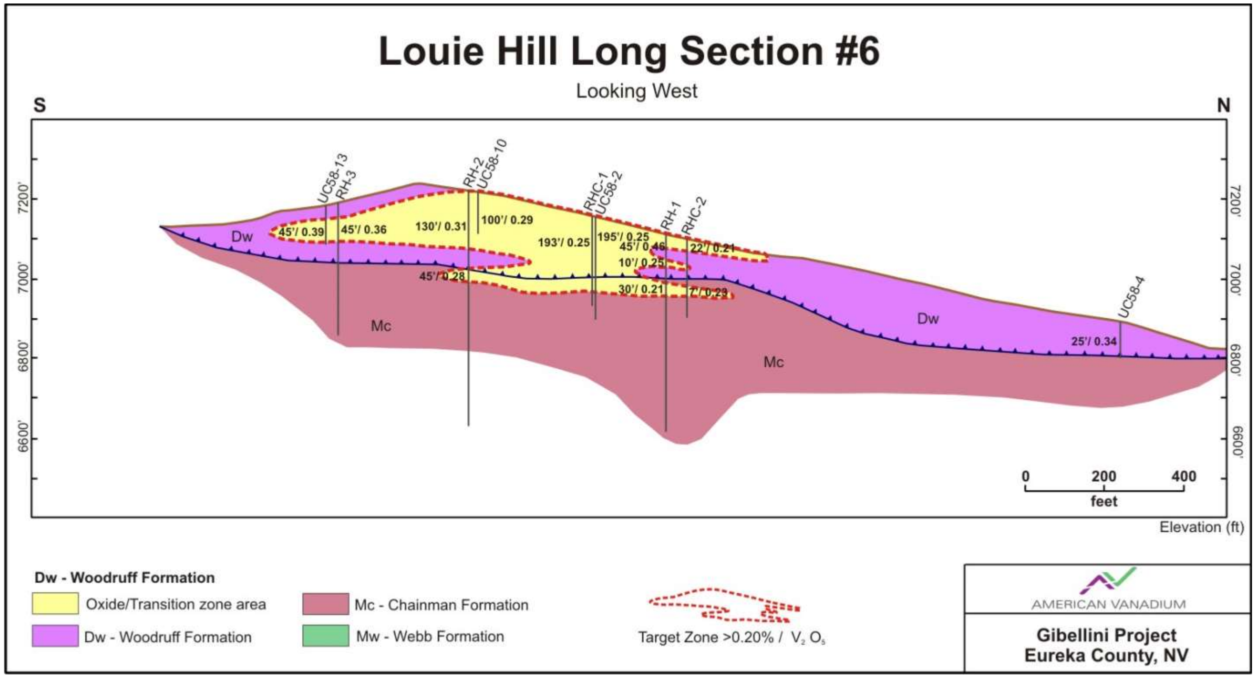
Vanadium mineralization at Gibellini and Louie Hill is hosted in black shale sedimentary rocks. Mineralization is tabular, conformable with bedding, and remarkably continuous in grade and thickness between drill holes.

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. 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.

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 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 reported the occurrence of the vanadium mineral fernandinite ($CaV_8O_{20}\cdot H_2O$) (SGS, 2007). Other minerals reported to occur at Gibellini are marcasite, sphalerite, pyrite, and molybdenite (Desborough et al., 1984).

Figure 7-5: Long Section Across Louie Hill, Looking West. Red Outline Showing 0.20% V_2O_5 Grade Shell with Drill Hole Trace.



Note: Figure from Hanson et al., 2011

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 and Mineral Reserve estimation
- The mineralization style and setting of the Project deposit is sufficiently well understood to support Mineral Resource and Mineral Reserve estimation.

8.0 DEPOSIT TYPES

Similarities with the style of mineralization for the Project exist in the USGS manganese nodule model, model 33a of Cox and Singer (1986).

The vanadium mineralization of the Gibellini and Louie Hill areas is hosted in sedimentary rocks. Mineralization is tabular, conformable with bedding, and remarkably continuous in grade and thickness between drill holes.

Limited mineralogical work conducted in the early 1970s suggests that the vanadium occurs within manganese nodules in the shale (Assad and Laquitton, 1973). 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.

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.

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. AMEC contacted OAS in an attempt to reclaim digital results from the original work and was informed that nothing remained from the original work. The 25 ft contour lines from the Noranda base map were digitized by AMEC to provide the topographic control for the Gibellini resource estimate in 2008.

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 mineralized area. The mine coordinate system has been 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 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. Figure 9-1 shows an example of the contoured files.

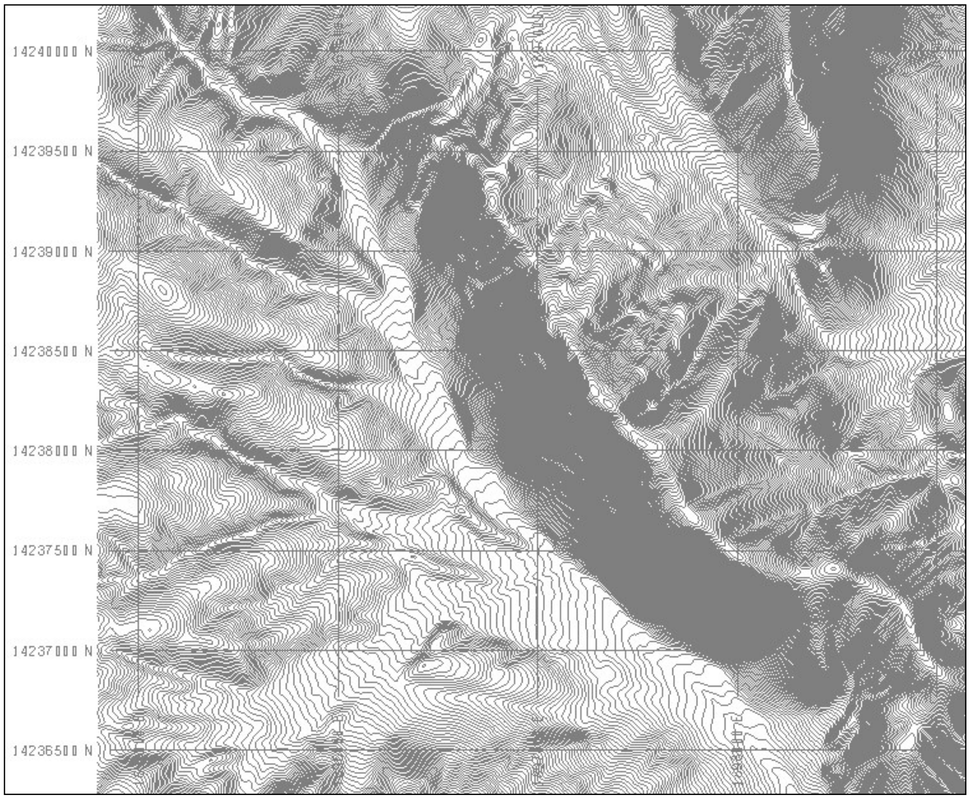
The PhotoSat-produced topography has an overall relative horizontal accuracy of ±6.6 ft (±2 m) over 6.2 miles (10 km). The vertical accuracy is approximately ±1 ft (±30 cm).

The topography is used in support of the conceptual pit shell 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.

Figure 9-1: Gibellini 2010 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, the majority 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).

9.6 Geotechnical and Hydrological Studies

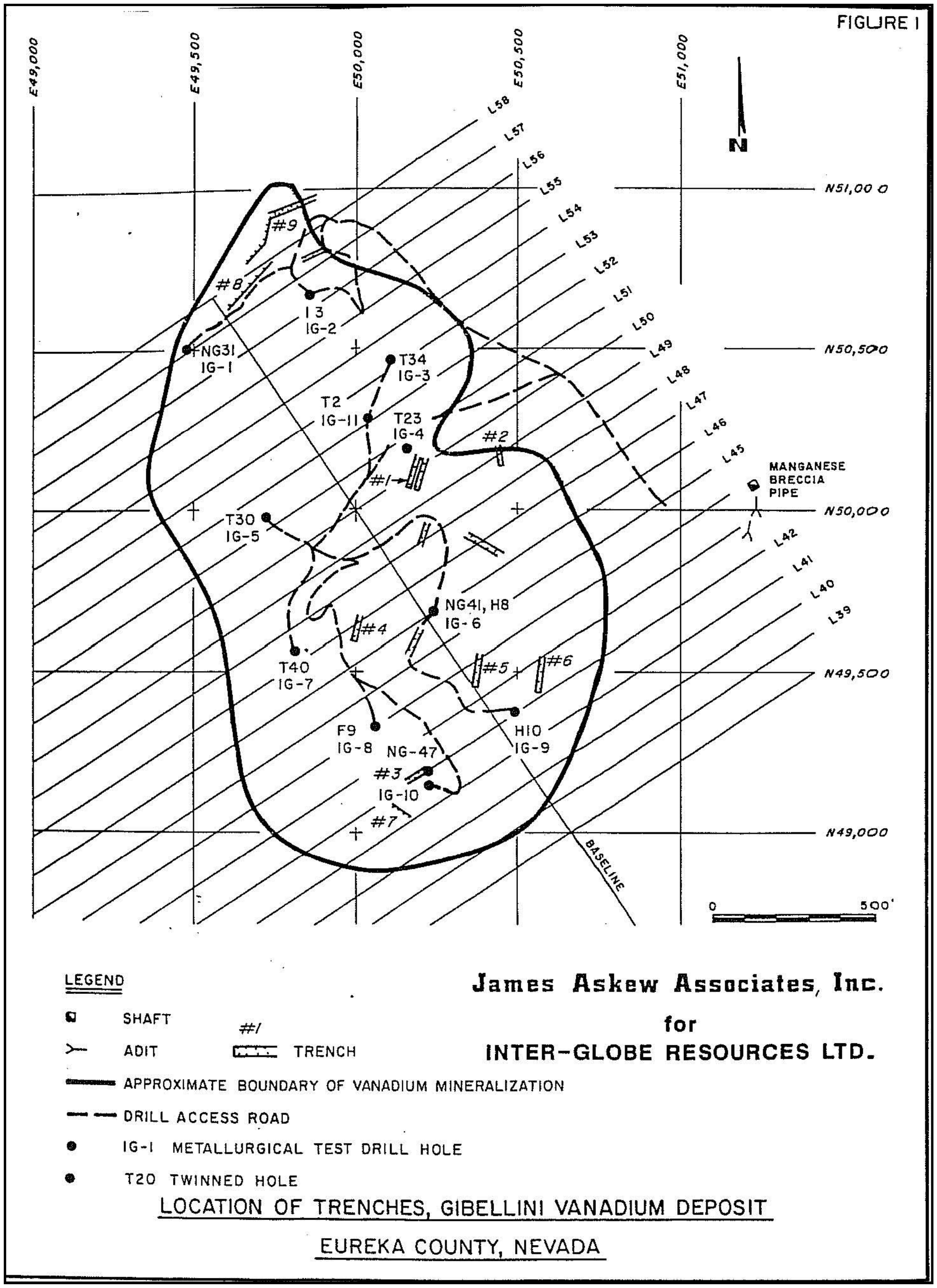
9.6.1 Geotechnical Studies

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 test work and a seismic hazard analysis.

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



Note: Figure from Hanson et al., 2011

Table 9-1: Length-Weighted Average V_2O_5 Assays for 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

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, a water quality sample was collected from the Don Hull ranch well 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 280 drill holes (about 51,265 ft) have been completed on the Gibellini Project since 1946, comprising 16 core holes (4,046 ft), 169 rotary drill holes (25,077 ft; note not all drill holes have footages recorded) and 95 RC holes (22,142 ft). Drilling is summarized by operator in Table 10-1. The Project drill collar location plan is included as Figure 10-1.

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.

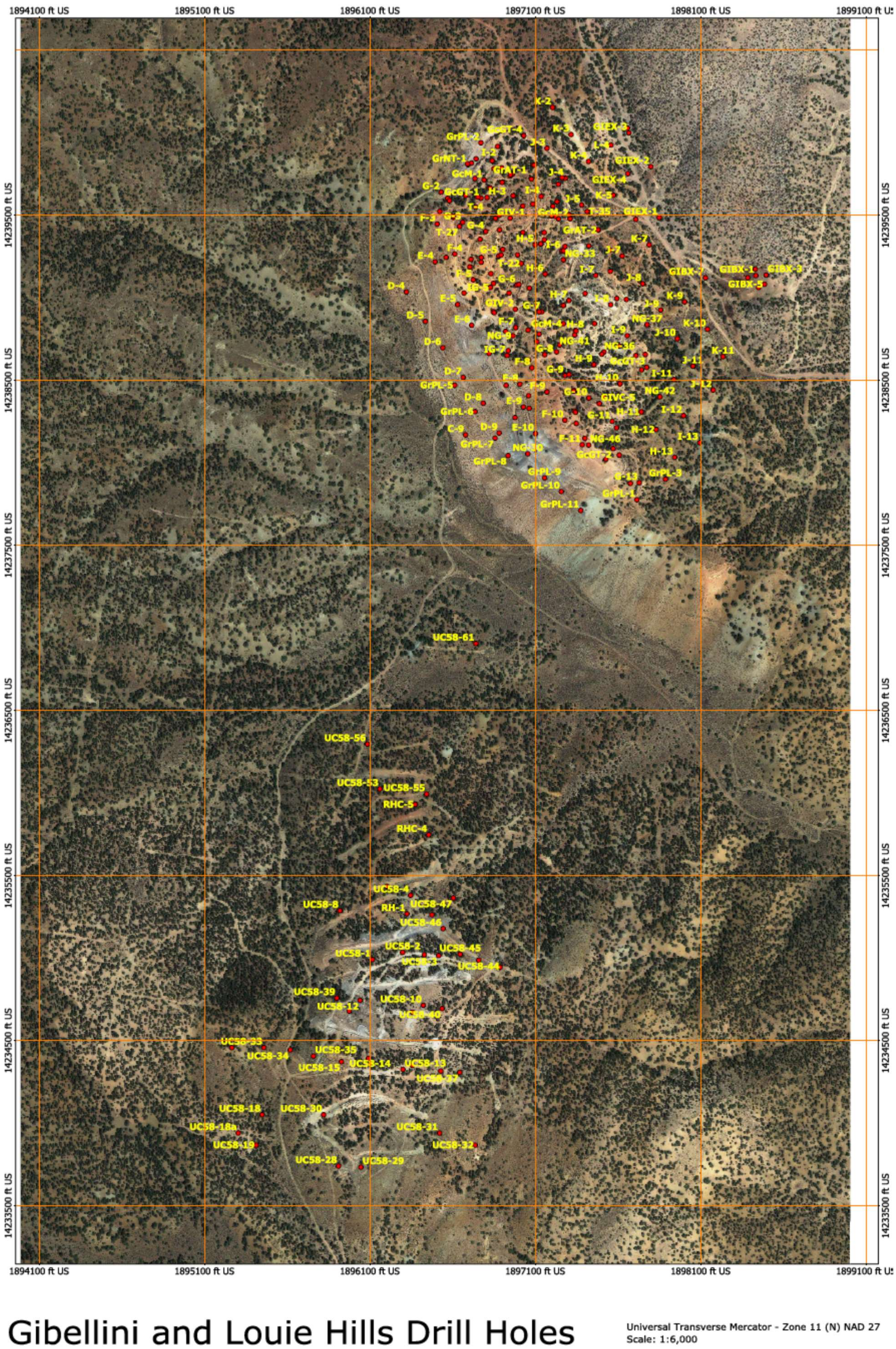
A total of 895.5 ft of drilling in four core drill holes was completed at the Gibellini manganese–nickel mine by the NBMG in 1946.

No cuttings, assay rejects, or pulps remain from these drilling campaigns.

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	Union Carbide	1956	49	unknown	—	—	—	—
	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	60	unknown	—	—	—	—	—
	Noranda	1973	—	—	5	610		
	American Vanadium	2007	—	—	3	1,430	—	—
	American Vanadium	2008	—	—	—	—	6	1,200
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			*169*	*25,077*	*95*	*22,142*	*16*	*4,045.5*

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.

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 ultimate pit limit from the 2008 PA study.

10.4 Drill Methods

10.4.1 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 7/8" diameter long-tooth tricone bit. The Inter-Globe drilling is well documented and employed RC methods with a 5 1/4" 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 to from 50 ft to 350 ft in total length. The average drill hole depth for legacy drill holes on the Project is 207 ft. The deepest legacy drill hole on the property 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.

10.4.2 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.

Diamond 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 5.75" diameter bit. Morning Star Drilling completed the core drilling at HQ diameter.

10.5 Geological Logging

10.5.1 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.

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.

10.5.2 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. Wood considers the domains derived from this interpretation to be adequate and reasonable for the purposes of Mineral Resource estimation.

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

10.6 Collar Surveys

10.6.1 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.

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 metres using the NAD83 datum.

10.6.2 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.

10.7 Down Hole Surveys

10.7.1 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.

All 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 Wood does not consider the lack of down-hole surveys to be a significant concern. In Wood'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 Wood to be small.

10.7.2 RMP/American Vanadium Programs

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

10.8 Recovery

There is no information available on the legacy drilling recoveries.

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 diamond drill holes completed in the Gibellini area. The average recovery from 92 ft to 102 ft was logged as 71%.

Generally, 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 Wood'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.

10.9 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.

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. The stratigraphy dips at low angles to the west and so vertical intersections of mineralization are roughly approximate to the true mineralized thickness.

Mineralization at Gibellini is roughly stratabound, strikes northwest–southeast and dips at low angles to the west. 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.

Table 10-3 presents an example of the types of drill intercepts that have been returned for the Project deposit areas in the legacy drill programs. Table 10-4 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.

10.10 Geotechnical and Hydrological Drilling

10.10.1 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 1 ft. Groundwater was not encountered to the maximum depth penetrated of 101 ft during the site investigation.

Table 10-3: 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
	T-12	105	130	25	0.17
	T-12	8	60	52	0.26
	T-12	65	90	25	0.29

Deposit	Hole ID	From (ft)	To (ft)	Intercept (true width ft)	Average Grade (% V_2O_5)
	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
Louie Hill					

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

Table 10-4: 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

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.

10.10.2 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.

10.10.3 Gibellini Deposit Investigations

Five vertical and four oriented drill holes (1,011 ft) were completed using 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.

10.11 Metallurgical Drilling

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

10.12 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 sited 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.

10.13 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. Wood does not consider the lack of down-hole surveys to be a significant concern. In Wood'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 10-3 and Table 10-4 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 the use of 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.

AMEC 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 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 RMP Reverse Circulation Sampling

Cuttings for each 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.

11.3 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.

11.4 Metallurgical Sampling

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

11.5 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 so as 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. Wood recommends that for density at Louie Hill a minimum of 30 density determination 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 block model.

Table 11-1: Summary of Gibellini Density Data

	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

11.6 Analytical and Test Laboratories

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

11.7 Sample Preparation and Analysis, Legacy Drill Programs

11.7.1 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 QA/QC program is noted on the logs either.

11.7.2 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 (see Section 13.5) and so AMEC 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.

11.7.3 Atlas

V_2O_5 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 Noranda

V_2O_5 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. 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. AMEC plotted the check assays against the original assays and found that the Union assays are biased marginally (9% to 14%) high 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%.

11.9 Inter-Globe

Inter-Globe assayed samples for V_2O_5 at Skyline Laboratories (Skyline) in Denver, Colorado. 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 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.

11.9.1 Union Carbide

No information is available to American Vanadium 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.

11.9.2 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 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.

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.

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

AMEC 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.

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, Nevada 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, therefore AMEC was unable to independently verify these assays with check assays.

11.10.2 RMP and American Vanadium

Standard reference materials (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

Drill data collected from geological logging were stored in an Access® database. This database was stored on an American Vanadium server in Reno, Nevada. Legacy drill data, in paper format, were stored in the American Vanadium offices at Reno, Nevada (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).

11.12 Sample Security

Sample security procedures for legacy drilling at the Gibellini Project are unknown.

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 layout area in Eureka at the time the 2011 technical report was compiled (Hanson et al., 2011).

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 accurately represent the source documents
- No records remain for the drill sampling methods employed by NBMG (core), Terteling (rotary), or Atlas (rotary). Noranda and Inter-Globe collected drill samples on 5 ft intervals
- RC and core methods sampling employed by RMP and American Vanadium are in line with industry norms. RMP collected RC samples as 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 and Louie Hill 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 analysed 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. The QP author of this Report section was personally involved with both data verification exercises.

No additional work has been undertaken on the Project since the data verification program undertaken by AMEC QPs in 2011. The QP author of this Report section has reviewed the data verification undertaken by the AMEC QPs, and has performed his own checks on the data, including site visits. He has concluded that the information provided in this Report is suitable for the purposes used.

12.2 2008 Verification Program

12.2.1 Legacy Data Review

All legacy data in the Gibellini Project resource database 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 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 (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 (Section 13.5). 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 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 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 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 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 90th 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 Project 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 project 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 in order 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 $\pm$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% V_2O_5 to 0.409% V_2O_5 - adjusted down by 25%
- From 0.410% V_2O_5 to 0.510% V_2O_5 - adjusted down by 5%

- Greater than 0.510% V_2O_5 - 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 Comments on Section 12

The AMEC QPs, including the current Report author, considered that a reasonable level of verification had been completed, and that no material issues would have been left unidentified from the programs undertaken. As no additional scientific and technical work has been undertaken on the property since the AMEC audits, the AMEC conclusions are considered by Wood, and the current Report author, to remain valid.

The QP, who participated in, and relies upon this work, has reviewed the appropriate reports, and 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 in 2008 (Hanson et al., 2008). Conclusions from that audit were that the data were generally acceptable for Mineral Resource estimation
- Data made available 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 as a result of the audit that additional twin holes should be drilled at Gibellini to verify Atlas data

- Drill data were verified by AMEC and Wood prior to Mineral Resource estimation by running a software program check.

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 test work on Gibellini mineralization (Condon, 1975). Only the work completed by Noranda was available for review. American Vanadium undertook test work from 2008–2011.

13.2 Gibellini Metallurgical Test Work

The Gibellini metallurgical test work 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.

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

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 300 pounds per ton 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.

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.

Table 13-2: Recovery for Tests using 300 lbs/ton Sulphuric Acid

Sample	-1/2 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/ton Sulphuric Acid and Manganese Dioxide

Sample	-1/2 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 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 Test Work

Mill Feed 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.

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

Test Results

The initial test work 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 kilograms per tonne (200 pounds per short ton) 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 pounds per ton, the recovery was lower than expected. An additional series of tests were done using 300 pounds per ton and the recovery increased to the levels expected.

Based on these data the columns were set up to use 300 pounds per ton sulphuric acid on the oxide and transition samples and 350 pounds per ton 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 test work indicated that the recoveries for oxide, transitional and reduced material would be as indicated in Table 13-5. 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 grams per liter 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 grams per liter throughout the test work. The columns also showed low acid consumption (see Table 13-7).

Table 13-5: Bottle Roll Test Recovery Data

Sample	Recovery (%)
Oxide	34.6
Transition	55.4
Reduced	25.4

Table 13-6: Column Test Recovery Data

Sample	-1/2 “	-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	-1/2 “	-2”
Oxide	119 lbs/t	101 lbs/t
Transition	115 lbs/t	90 lbs/t
Reduced	115 lbs/t	No Column

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.

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.

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

Material	Recovery (% V_2O_5)	Acid Consumption (lbs/ton)
Oxide	65	300
Transition	70	300
Reduced	52.3	300

The recovery rates were derived from the column test work. 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 grams per liter 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.

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 pounds per ton 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 test work 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.

Test work 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 test work was also recommended to determine if the polymer usage could be decreased and the cost lowered or eliminated. Another purpose of the test work 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 Test Work

American Vanadium instituted a metallurgical drilling program where six core holes were drilled to obtain samples for metallurgical testing. All test work 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 FS 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 Test Work 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
	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 Test Work

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 test work 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 to 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 test work (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 pounds per short ton 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 2.99×10^{-4} cm/sec or higher was maintained throughout the testing on the north zone oxide sample and 3.04×10^{-4} cm/sec or higher was maintained on the south zone transition sample. The agglomeration moisture was approximately 10% for the samples.

Test Work Interpretation

The test work 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 to 0.210% vanadium. The recovery ranged from 42 to 60.3% on the coarse sample (-2”) and from 41.5 to 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 is 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 to 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 to 250 g/L sulfuric acid and use a HCL wash to remove iron.

13.2.4 Pilot Plant 1 and 2 Testing

The 2011 FS 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 tons 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 pounds per short ton 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 (for example, Table 16-10).

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.

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 (1/2”)	Column, open circuit	123	80.2%	0.313	36
12.5 mm (1/2”)	Column, closed circuit	199	68.3%	0.284	42
12.5 mm (1/2”)	Column, closed circuit	198	74.0%	0.313	48
12.5 mm (1/2”)	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 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 13-12).

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. The difference in recovery is probably due to removal of vanadium from the matrix by acid leaching over the extended period of time 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 Test Work

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 sulfuric 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 test work 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 test work 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 test work was done with a 500 ml column. This test work 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 sulfuric 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 sulfuric 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 ammonium metavanadate (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 sulfate 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 flow sheet, which will differ from the flow sheet 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

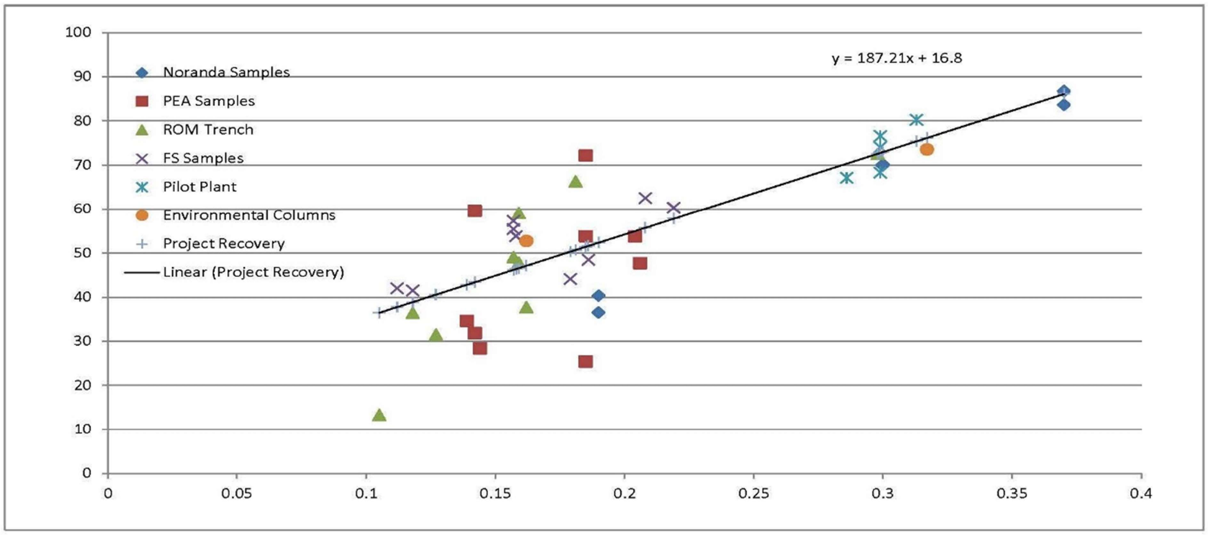
The samples tested represent the deposit material as they are from a variety of locations across the deposit. Some of the testing has been done on surface samples and some tests were done on size ranges that are not the present process design.

The various metallurgical test work 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 (shown in Figure 13-1) using the equation:

Recovery% = (Grade (%V) x 187.21) + 16.8

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.

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:

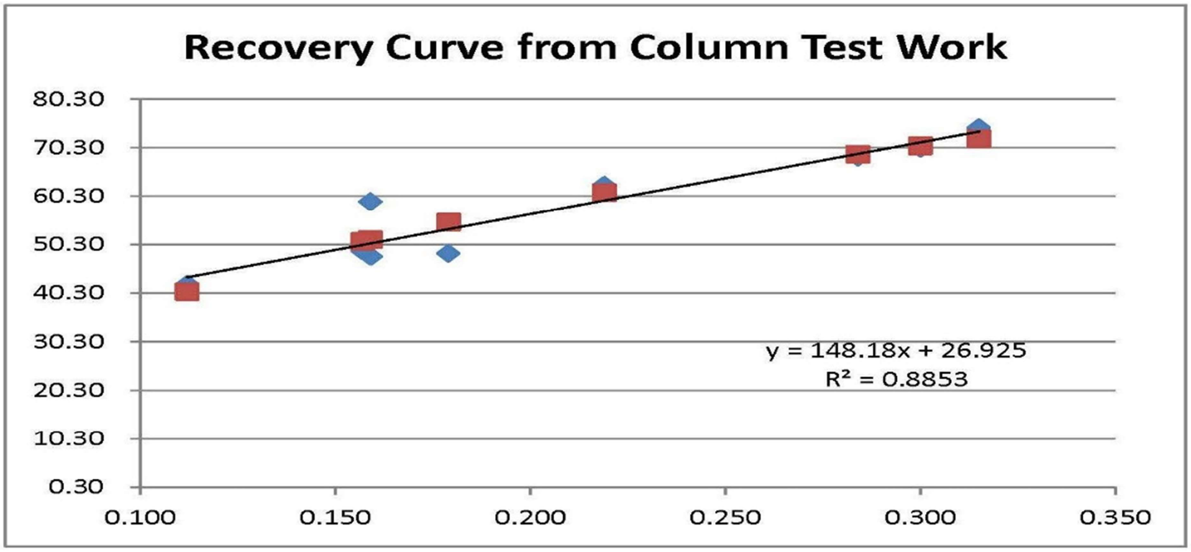
Recovery = (Grade(%V) x 148.18) + 26.92

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 test work 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 was 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 13-2: 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

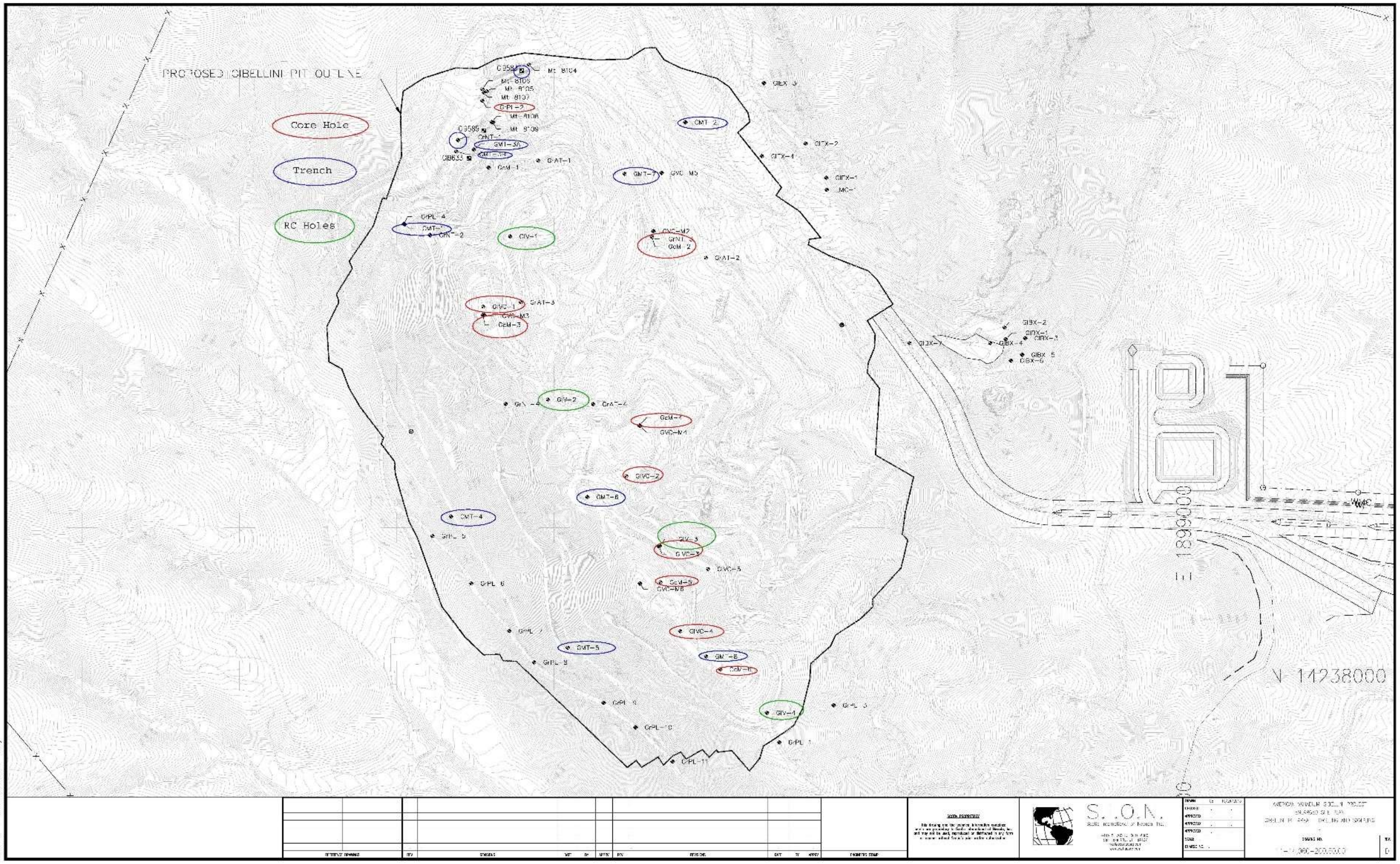
No Gibellini samples showed anomalously low recovery, while the pilot columns (mixture of oxide and transition material) showed almost exactly the predicted recovery of 71.38% (average pilot column grade 0.300% V and 71.30% average recovery).

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 to be 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.

Figure 13-3: Metallurgical Test Work Sample Locations, Gibellini Deposit



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 test work 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 in support of more detailed deposit evaluations.

13.6 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). An 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.

13.7 Comments on Section 13

In the opinion of the QP, the following conclusions are appropriate:

- 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.

- The process recovery for the 2011 column test work 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 test work.
- Metallurgical parameters appropriate for use in the current PEA are:
  - Gibellini and Louie Hill recovery: 60% for oxide, 70% for transition, and 52% for reduced
  - Gibellini and Louie Hill 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
- As production starts, the reduced material testing should be reviewed, and additional work done to see if better recovery for the material is possible
- As production starts, a sampling and testing program for the Louie Hill deposit is advisable to bring the level of understanding of this material to the same level as for Gibellini.

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 course of the 2011 test work, 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 met columns are in relatively benign material. American Vanadium also noted that the 2.5% calcium contour extends into the base of the transition mill feed material, in particular 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 Gibellini Mineral Resource estimate, and reviewed the estimate for Louie Hill that was performed by Mr Mark Hertel, RM SME (a Principal Geologist at AMEC at the time the Louie Hill estimate was performed), and is responsible for that estimate.

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 total 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® block model was created to estimate the V_20_5% resource. The model is rotated 326º. 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 3-D 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 MS and adjusted the polygons to match composite lengths. Grade polygons were wireframed to create 3-D 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 length. Oxidation boundaries were treated has a hard 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% V_2O_5, 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 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. The transition and oxide box which represents the 25th to the 75th percentile is thinner than the reduced domain, indicating a narrow grade distribution between the 25th to 75th percentiles.

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 domain. AMEC has treated the domain contacts between the oxidation states as hard 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).

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, indicate that approximately 0.2% of the metal has been removed.

Table 14-1: Block Model Tonnage Factor

Oxidation Domain	Average S.G. (gm/cm^3)	Tonnage Factor (ft^3/ton)
Oxide	1.90	16.86
Transition	1.96	16.35
Reduced	2.26	14.18

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 to be of 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, are 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 mine 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 where 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. Mine block tabulation indicates that there were no oxide or transition blocks above the resource cut-off grades, and only 2,645 Inferred tons 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-neighbour (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 Resource is that a quarterly production (0.75 Mt) 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 Mt) 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

Wood reviewed the 2011 resource estimate for reasonable prospects for eventual economic extraction, using the 2014 CIM Definition Standards, and updated the assumptions as required.

In their September 25, 2017 commodity study report, Merchant Research & Consulting Ltd., developed an annual forecast, out to year 2027, for 98% V_2O_5, ex-works China. The average V_2O_5 cash flow price for the year 2027 is \$12.73/lb. The \$12.73/lb V_2O_5 price is considered appropriate as a long-term price for cash flow or Mineral Reserves estimates. Wood typically increases the Mineral Reserve assumed metal price by 15% for the Mineral Resource price; to be used in reasonable prospects for eventual economic extraction analysis. Based on this, a long–term V_2O_5 Mineral Resource price assumption based on Mineral Reserve price would be \$14.64/lb.

A V_2O_5 price of \$14.64/lb is considered reasonable and was used by Wood as the long-term price assumption for the Mineral Resource base case.

Mineralization was confined within an LG pit outline that used the following key assumptions:

- Mineral Resource V_2O_5 price: \$14.64/lb
- Mining cost: \$2.21/ton mined
- Process cost: \$13.62/ton processed
- General and administrative (G&A) cost: \$0.99/ton processed
- Metallurgical recovery assumptions: 60% for oxide material, 70% for transition material and 52% for reduced material

- Tonnage factors: 16.86 ft^3/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material
- Royalty: 2.5% NSR
- Shipping and conversion costs: \$0.37/lb V_2O_5.

For the purposes of the Gibellini resource estimate in this Report, an overall 40º pit slope angle assumption was used.

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.

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_20_5% assays. Nine drill holes drilled by American Vanadium with a total of 547 V_20_5% assays were also included.

A three-dimensional MineSight® block model was created to estimate the V_20_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

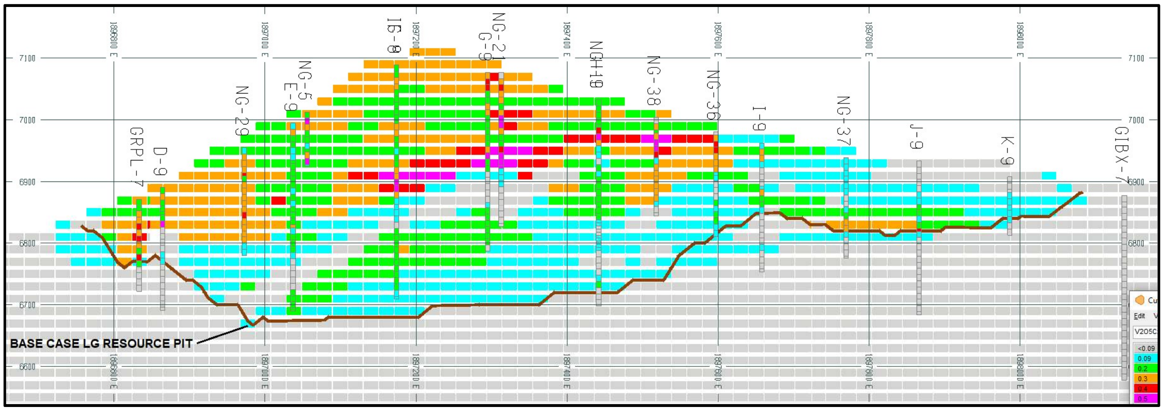
American Vanadium supplied AMEC with geological interpretations, 10 cross sections and three long sections. The cross sections are spaced at 300 ft and long sections are spaced at 200 ft. The sections were comprised of lithology, fault, and mineralization interpretations. AMEC recommended that oxidation 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.

Figure 14-1: Gibellini Cross Section NonOrtho 10518521 Looking North West. Showing V_2O_5 Color Coded Blocks and Composites within Mineral Resource LG Pit.



Note: Figure prepared by Wood, 2018

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_20_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 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 three-dimensional search ellipsoid and composite weighting used in the OK grade estimation of V_20_5%.

14.3.8 Estimation/Interpolation Methods

OK was used to estimate V_20_5% grades into blocks domain tagged as mineralized and non-mineralized. Hard contacts were maintained between the domains. A range restriction of 200 ft was placed on grades greater than 0.15% V_20_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_20_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 axis respectively.

14.3.9 Block Model Validation

AMEC constructed an NN model to compare to the OK grade block model. Nearest-neighbor grade interpolation also honored the interpolation parameters as applied to the

OK grade model. For all blocks classified as Inferred, the V_20_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

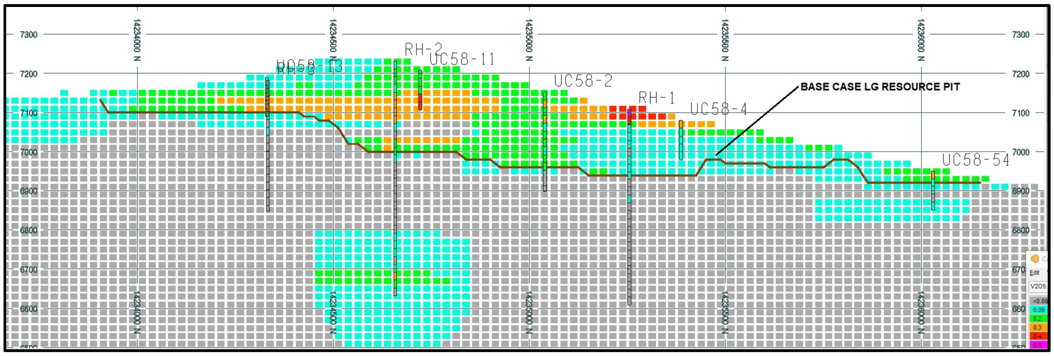
Wood reviewed the 2011 resource estimate for reasonable prospects for eventual economic extraction, using the 2014 CIM Definition Standards, and updated the assumptions as required.

- Mineral Resource V_2O_5 price: $14.64/lb
- Mining cost: $2.21/ton mined
- Process cost: $13.62/ton processed
- General and administrative (G&A) cost: $0.99/ton processed
- Metallurgical recovery assumption: of 60% for oxide material
- Tonnage factor: 16.86 ft^3/ton for oxide material
- Royalty: 2.5% NSR
- Shipping and conversion costs: $0.37/lb V_2O_5

For the purposes of the resource estimate in this Report, an overall 40º slope angle was used.

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 Looking West. Showing V_2O_5 Color Coded Blocks and Composites within Mineral Resource LG Pit.



Note: Figure prepared by Wood, 2018

14.4 Mineral Resource Statement

Mr. Edward J.C. Orbock III, a Wood employee, and an SME Registered Member, is the Qualified Person (QP) for the Mineral Resource estimates. The estimates have an effective date of 29 May, 2018.

Mineral Resources for Gibellini are included as Table 14-2, whereas the Mineral Resources for Louie Hill are included as Table 14-3. Mineral Resources are stated using cut-off grades appropriate to the oxidation state of the mineralization.

Wood performed a sensitivity case analysis on the Gibellini estimate to assess the impact of variation in V_2O_5 price on the estimate. The sensitivity case is shown in Table 14-4. Gibellini Measured and Indicated Mineral Resources are relatively insensitive to V_2O_5 price with regards to tons and grade. Very few tons (8.7%) are lost between base case and base case -39%, and grades are slightly higher (5.3%). For Inferred material, the vanadium price does have a large impact on tons and grade, due to most of Inferred being reduced material. As vanadium price drops, cut-off grades increase, and previously economic material is reclassified as waste.

A similar sensitivity evaluation was performed for the Louie Hill estimate, and is indicated in Table 14-5 with the base case highlighted. Louie Hill also shows some insensitivity to metal price with regards to tons and grade.

Table 14-6 and Table 14-7 provide a sensitivity to changes in V_2O_5 cut-off grade for Gibellini and Louie Hill, respectively.

Table 14-2: Mineral Resource Statement, Gibellini

Confidence Category	Domain	Cut-off V_2O_5 (%)	Tons (Mt)	Grade V_2O_5 (%)	Contained V_2O_5 (Mlb)
Measured	Oxide	0.101	3.96	0.251	19.87
	Transition	0.086	3.98	0.377	29.98
Indicated	Oxide	0.101	7.83	0.222	34.76
	Transition	0.086	7.19	0.325	46.73
Total Measured and Indicated			***22.95***	***0.286***	***131.34***
Inferred	Oxide	0.101	0.16	0.170	0.55
	Transition	0.086	0.01	0.180	0.03
	Reduced	0.116	14.80	0.175	51.72
Total Inferred			***14.97***	***0.175***	***52.30***

Notes to accompany Mineral Resource table for Gibellini:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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 $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton; general and administrative (G&A) cost: $0.99/ton 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/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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 14-3: Mineral Resource Statement, Louie Hill

Confidence Category	Cut-off V_2O_5 (%)	Tons (Mt)	Grade V_2O_5 (%)	Contained V_2O_5 (Mlb)
Inferred	0.101	7.52	0.276	41.49

Notes to accompany Mineral Resource table for Louie Hill:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018. 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: $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton processed; general and administrative (G&A) cost: $0.99/ton processed; metallurgical recovery assumptions of 60% for mineralized material; tonnage factors of 16.86 ft^3/ton for mineralized material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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 14-4: Sensitivity of Gibellini Mineral Resource to Variations in Metal Price Assumptions (base case is highlighted)

V_2O_5 Price	Measured and Indicated			Inferred			Description
$/lb	Mt	Grade V_2O_5	Mlb V_2O_5	Mt	Grade V_2O_5	Mlb V_2O_5	
18.46	23.28	0.283	131.87	16.74	0.167	56.07	Base Case +21% Price
16.55	23.14	0.284	131.68	15.96	0.171	54.52	Base Case +12% Price
14.64	22.95	0.286	131.34	14.97	0.175	52.30	Base Case Mineral Resource Price
12.73	22.41	0.290	130.17	12.38	0.181	44.71	Base Case -15% Price (Cash Flow)
10.82	21.87	0.295	128.91	9.21	0.192	35.38	Base Case -35% Price
8.91	20.95	0.301	126.26	2.14	0.220	9.41	Base Case -64% Price

Notes to accompany Mineral Resource sensitivity table for Gibellini:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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: $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton; general and administrative (G&A) cost: $0.99/ton 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/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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: Sensitivity of Louie Hill Mineral Resource to Variations in Metal Price Assumptions

V_2O_5 Price	Measured and Indicated			Inferred			Description
$/lb	Mt	Grade V_2O_5	Mlb V_2O_5	Mt	Grade V_2O_5	Mlb V_2O_5	
18.46	—	—	—	7.67	0.273	41.82	Base Case +21% Price
16.55	—	—	—	7.63	0.274	41.75	Base Case +12% Price
14.64	—	—	—	7.52	0.276	41.49	Base Case Mineral Resource Price
12.73	—	—	—	7.40	0.278	41.21	Base Case -15% Price (Cash Flow)
10.82	—	—	—	7.04	0.285	40.13	Base Case -35% Price
8.91	—	—	—	6.27	0.301	37.68	Base Case -64% Price

Notes to accompany Mineral Resource sensitivity table for Louie Hill:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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: $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton; general and administrative (G&A) cost: $0.99/ton processed; metallurgical recovery assumptions of 60% for oxide material; tonnage factors of 16.86 ft^3/ton for oxide material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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: Sensitivity of Gibellini Mineral Resource to Variations in Cut-off Grade (base case is highlighted)

Cut-off (V_2O_5)	Measured and Indicated			Inferred		
	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)
variable	22,953	0.286	131,344	14,974	0.175	52,305
0.25	13,782	0.350	96,367	463	0.271	2,511
0.35	5,549	0.433	48,017	3	0.381	20

Notes to accompany Mineral Resource sensitivity table for Gibellini:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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: $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton; general and administrative (G&A) cost: $0.99/ton 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/ton for oxide material, 16.35 ft^3/ton for transition material and 14.18 ft^3/ton for reduced material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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 14-7: Sensitivity of Louie Hill Mineral Resource to Variations in Cut-off Grade (base case is highlighted)

Cut-off (V_2O_5)	Measured and Indicated			Inferred		
	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)	Tons (k tons)	Grade (V_2O_5 %)	Contained V_2O_5 (k lb)
variable	—	—	—	7,523	0.276	41,494
0.25	—	—	—	3,993	0.352	28,119
0.35	—	—	—	1,536	0.451	13,842

Notes to accompany Mineral Resource sensitivity table for Louie Hill:

1. The Qualified Person for the estimate is Mr. E.J.C. Orbock III, RM SME, a Wood employee. The Mineral Resources have an effective date of 29 May, 2018.
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: $14.64/lb; mining cost: $2.21/ton mined; process cost: $13.62/ton; general and administrative (G&A) cost: $0.99/ton processed; metallurgical recovery assumptions of 60% for oxide material; tonnage factors of 16.86 ft^3/ton for oxide material; royalty: 2.5% net smelter return (NSR); shipping and conversion costs: $0.37/lb. An overall 40º 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.

14.5 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
- Assignment of oxidation state values for Gibellini only
- Assignment of SG values.

14.6 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 reran 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; the 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

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 for the Gibellini Vanadium project.

The 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 PEA mine plan for Louie Hill.

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.

16.2 Pit Optimization Inputs

The pit designs are based on pit shells obtained using the Lerchs–Grossmann (LG) algorithm for pit optimizations in MineSight® mining software.

Pit optimization inputs were jointly established by Wood and Prophecy 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 sub-sections.

16.2.1 Financial and Economic Inputs

Optimization financial and economic inputs are shown in Table 16-3. The commodity pricing was based on a 2017 vanadium world market review and forecast study completed by Merchant Research & Consulting Ltd. The mine planning and financial analysis used a metal price forecast of \$12.73/lb V_2O_5.

Table 16-1: Subset of the Gibellini Mineral Resource Estimate within the PEA Mine Plan

Leach Material	Domain	Cutoff V_2O_5 (%)	Tons x (1,000)	V_2O_5 (%)	V_2O_5 (Lbs x 1,000)
Measured	Oxide	0.116	3,910	0.253	19,750
	Transition	0.100	3,940	0.379	29,870
	Reduced	—	—	—	—
Indicated	Oxide	0.116	7,310	0.229	33,490
	Transition	0.100	6,880	0.330	45,470
	Reduced	—	—	—	—
Total Measured and Indicated			***22,040***	***0.292***	***128,580***
Inferred	Oxide	0.116	130	0.177	460
	Transition	0.100	10	0.150	30
	Reduced	0.134	11,590	0.180	41,660
Total Inferred			***11,730***	***0.180***	***42,150***

Table 16-2: Subset of the Louie Hill Mineral Resource Estimate within the PEA Mine Plan

Leach Material	Domain	Cutoff V_2O_5 (%)	Tons x (1000)	V_2O_5 (%)	V_2O_5 (Lbs x 1,000)
Inferred	Oxide	0.116	6,900	0.284	39,190
	Transition	—	—	—	—
	Reduced	—	—	—	—
Total Inferred			***6,900***	***0.284***	***39,190***

Table 16-3: Financial and Economic Inputs to Pit Shells

Description	Inputs
Metal price cash flow	$12.73/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.

A summary of the mine model inputs is presented in Table 16-4.

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 factor	Oxide = 16.9 ft^3/ton (1.9) Transition = 16.4 ft^3/ton (1.96) Reduced = 14.2 ft^3/ton (2.26) Undefined = 16.4 ft^3/ton (1.96)
Leach feed material types	Oxide Transition Reduced
Block size x, y, z (E, N, elev)	25 x 25 x 20 feet
Losses (%)	Accounted for in resource model
Dilution (%)	Accounted for in mine model

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.

A summary of the process inputs is presented in Table 16-6 and the metallurgical inputs are summarized in Table 16-7.

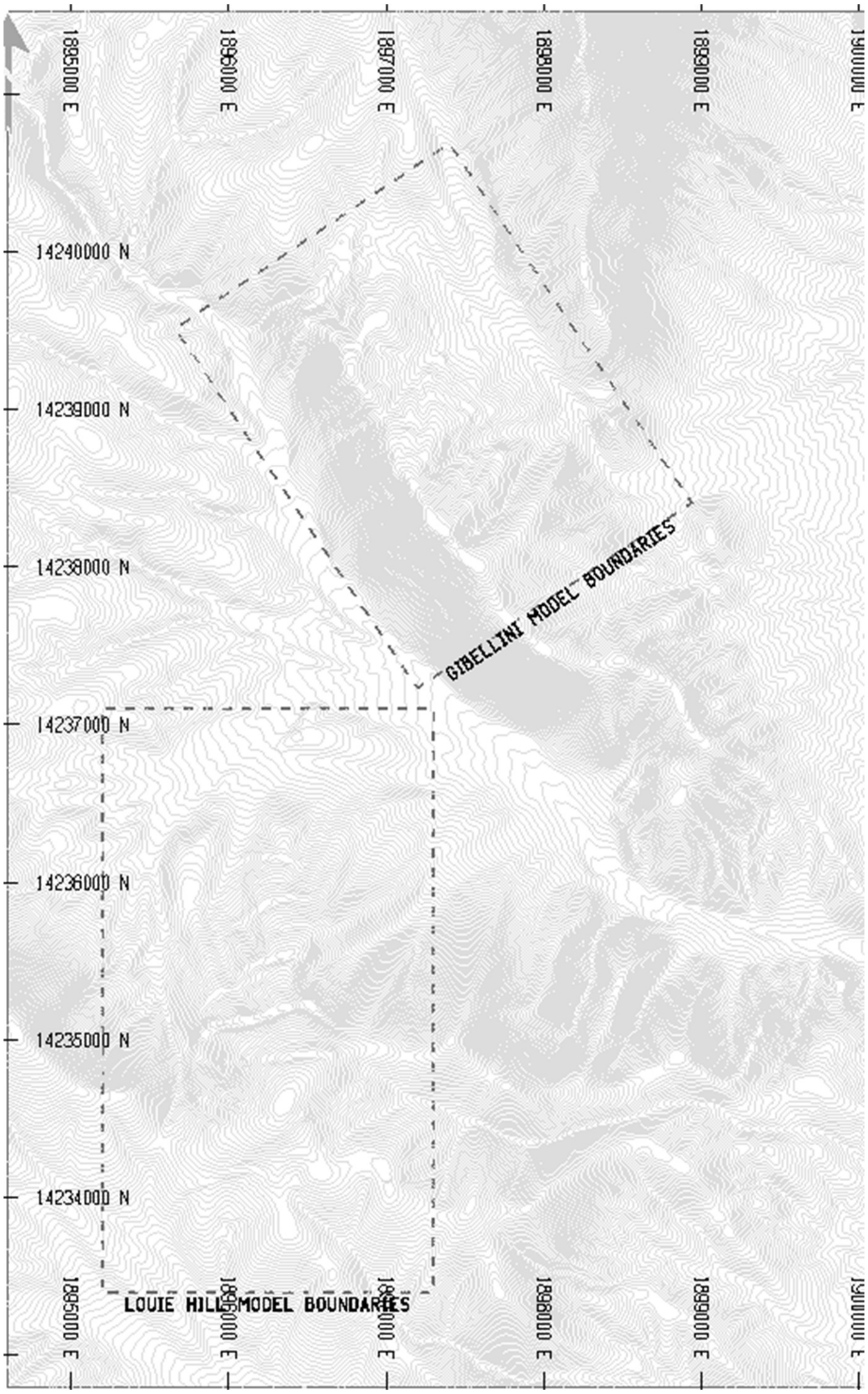
16.3 Pit Optimization Results

Pit optimizations were undertaken using MineSight® mining software at a range of V_2O_5 prices while keeping all other mining economic parameters constant. The resulting pit shells of the Gibellini deposit pit optimization are shown in in cross section in Figure 16-2 while the results of the pit optimization for the Louie Hill deposits are shown in in cross section in Figure 16-3.

Table 16-5: Mining Inputs

Criteria	Inputs
Mining method	Bulk open pit, contract mining
Average mining cost ($/t)	Contract rate = $2.00/t Owners costs = $0.21/t Total Mining cost = $2.21/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 40º slope angle assumption

Figure 16-1: Gibellini 2010 Surface Topography



Note: Figure prepared by Wood, 2018.

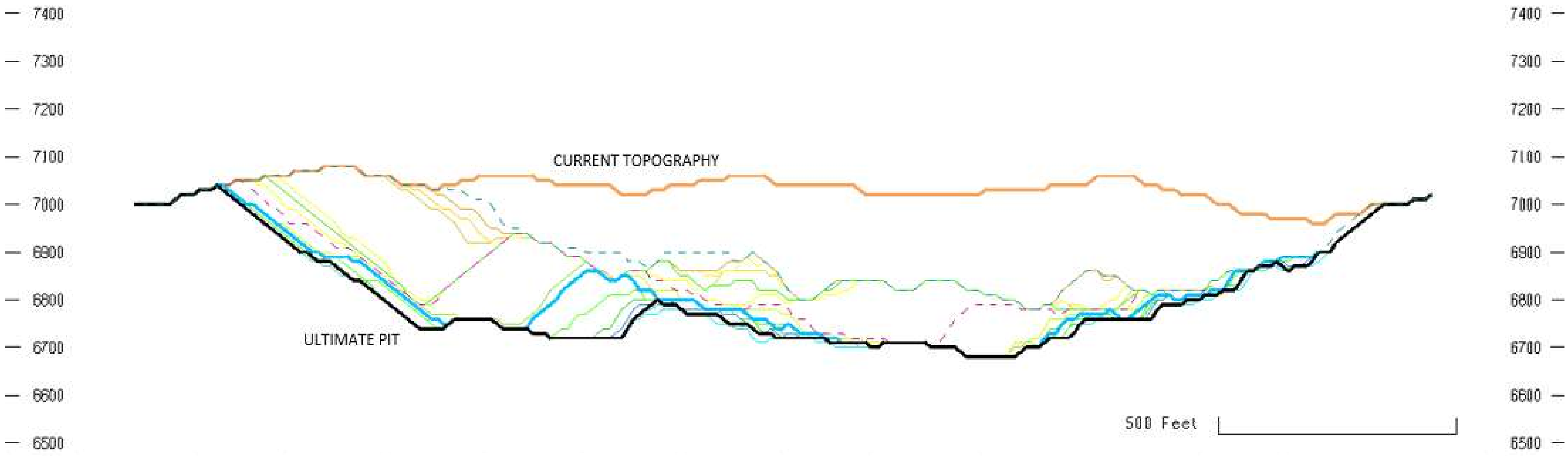
Table 16-6: Process Inputs

Criteria	Inputs
Process Type	Crushed acid heap leach
Production rate	3,000,0000 Mt/year or 8220 t/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 $0.54/t
Process Operating Cost	$8.90/t
Process Sustaining Cost	$0.47/t
Incremental Ore Haul Cost	$0.14/t
G&A Cost at design capacity	$0.67/t, $2 M annual spend
Closure Cost at design capacity	$0.29/t processed

Table 16-7: Metallurgical Inputs

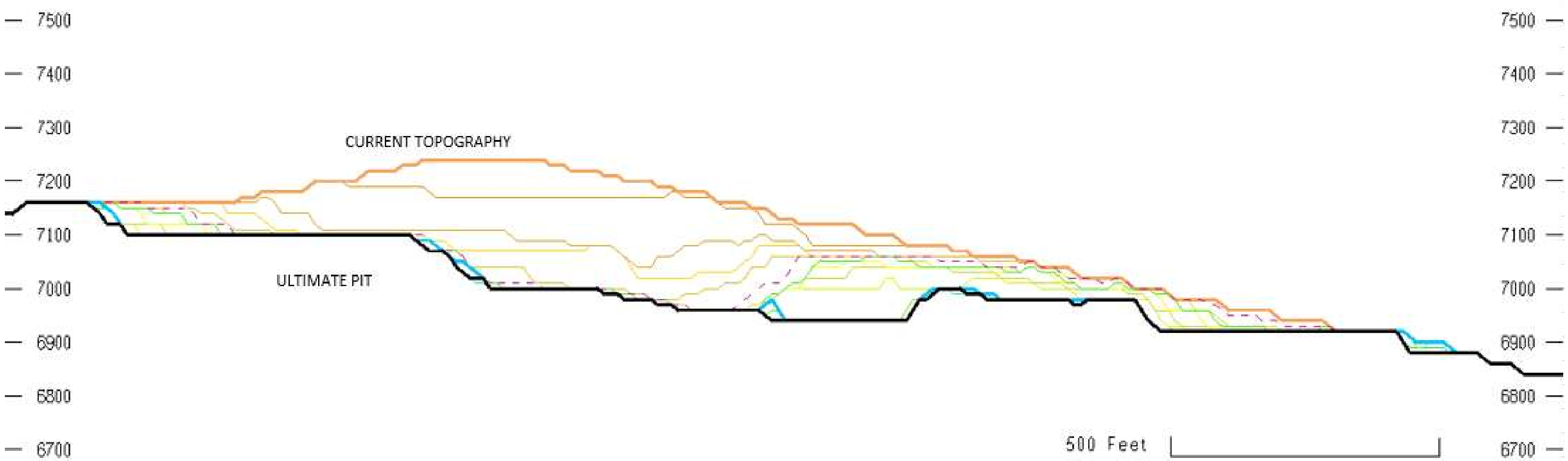
Criteria	Inputs
Process Recoveries	Crush Heap Leach Oxide = 60% Transition = 70% Reduced = 52%
Shipping and Conversion costs	$0.37/lb V_2O_5

Figure 16-2: Gibellini Pit Optimization Results



Note: Figure prepared by Wood, 2018.

Figure 16-3: Louie Hill Pit Optimization Results



Note: Figure prepared by Wood, 2018.

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.

16.4.2 Geotechnical and Hydrological Considerations

For the pit design, 40° overall slope angles were assumed based on dry conditions.

16.4.3 Ultimate Pit Design

The ultimate pit designs are based on the $12.73 per pound V_2O_5 price pit shells.

Figure 16-4 shows a plan view of the ultimate pits and Figure 16-5 shows a plan-view of the final pits and vanadium block grades at the bottom of both pits. (exposed leach material).

16.4.4 Pit Phases

Five pit phases were developed for the Project. Phases I, III and IV are mined from the Gibellini deposit and Phases II and Phase V are mined from the Louie Hill deposit.

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

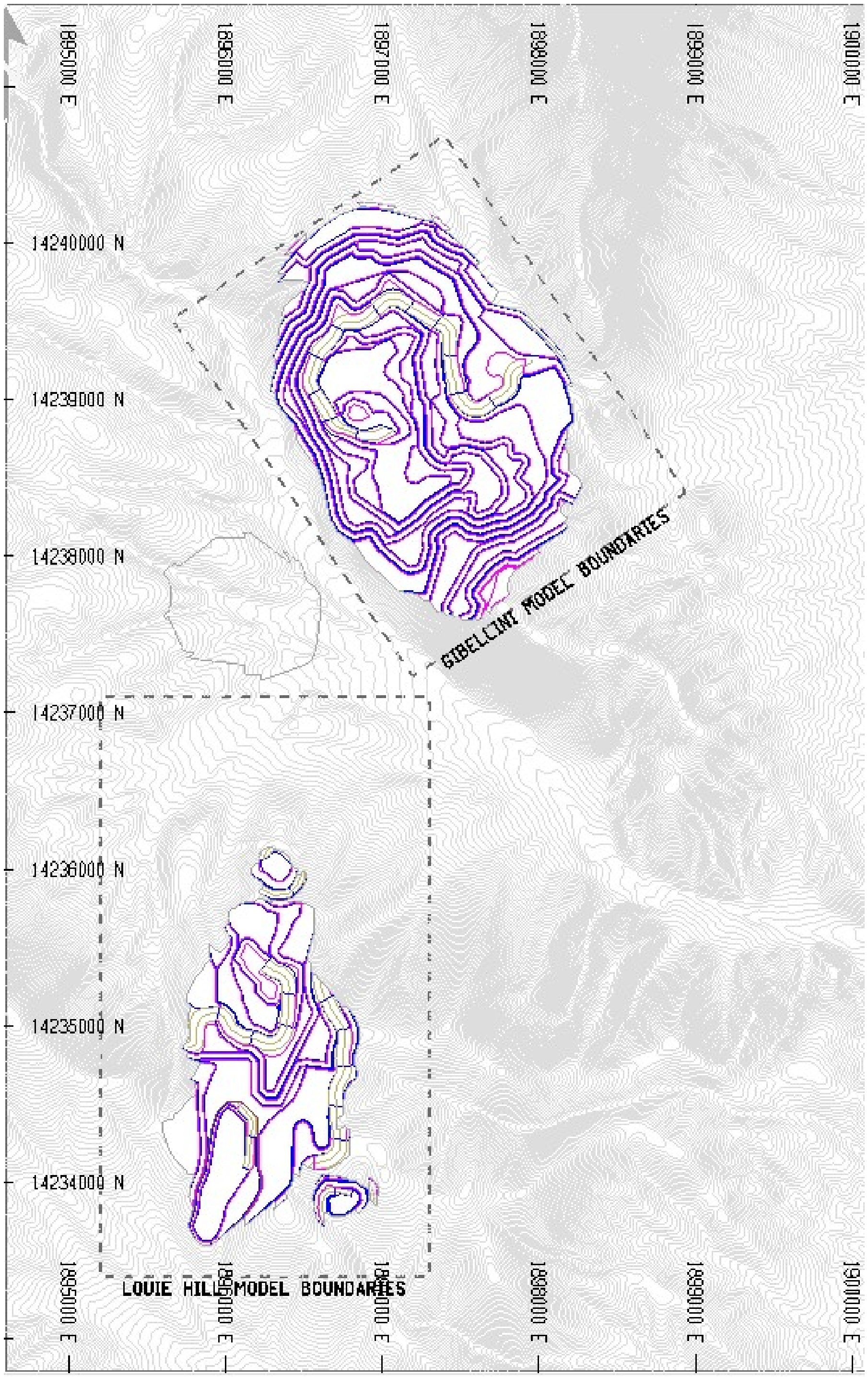
The haul roads in the PEA concept are designed to accommodate 100 ton haul trucks with a maximum gradient of 10% and an overall width of 85 ft. Access into the final pit bottoms will be gained via a section of single lane road 50 ft wide. A typical ramp cross-section is shown in Figure 16-6. Temporary roads will be developed to access the upper benches of both pits.

Mining at the Gibellini pit will start at elevation 7120 on the northernmost area of the deposit and mining in the Louie Hill pit will start at elevation 7220. The deepest bench to be mined will be at elevation 6640.

Table 16-8: Pit and Mine Design Criteria

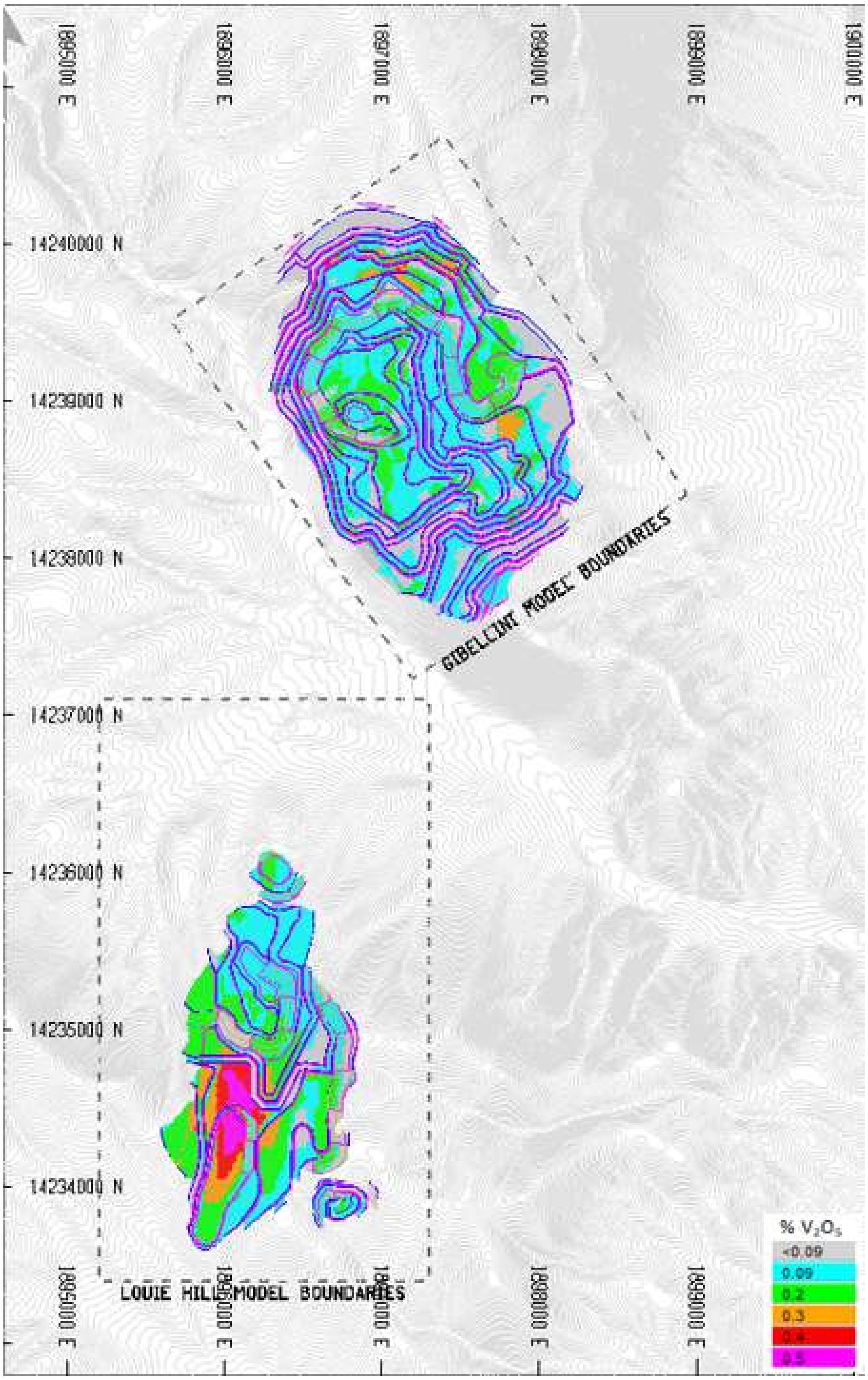
Criteria	Inputs
Design pit slope parameters (IR angles by sector and single/double bench configuration)	OSA, double bench (40 ft)
Waste dump slope assumptions (overall angle, lift height and face angle)	2.5 OSA with 80 to 40 ft benches
Maximum dump height	No limit
Max mine development rate	Maximum vertical 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 ton 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
Ore Control	Blast hole drilling and blast hole assaying

Figure 16-4: Ultimate Pits Gibellini and Louie Hill



Note: Figure prepared by Wood, 2018

Figure 16-5: Ultimate Pit – V_2O_5 Grades at Ultimate Pit Bottoms



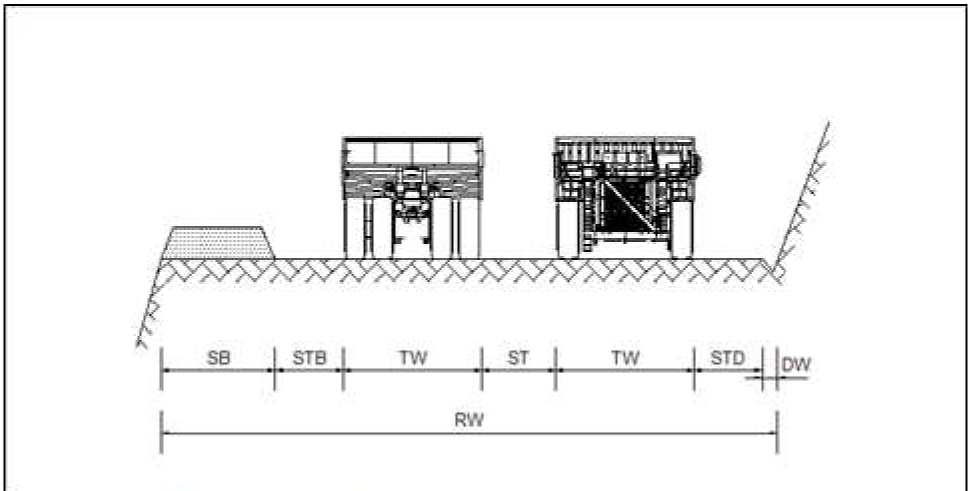
Note: Figure prepared by Wood, 2018

Table 16-9: Phase Summary

Phase	Pit	Total (kst)	Waste (kst)	Leach (kst)	V_2O_5 (%V2O5)	V_2O_5 (klb)	Strip Ratio (waste:leach)	Value (lbs rec./st)
Phase I	Gibellini	15,890	100	15,780	0.324	102,350	0.01	6.4
Phase II	Louie Hill	5,330	490	4,840	0.322	31,130	0.10	5.8
Phase III	Gibellini	12,320	1,740	10,580	0.203	42,990	0.16	3.5
Phase IV	Gibellini	10,490	3,080	7,410	0.171	25,400	0.42	2.4
Phase V	Louie Hill	3,400	1,300	2,100	0.197	8,270	0.62	2.4
Total		***47,430***	***6,710***	***40,710***	***0.258***	***210,140***	***0.16***	***4.4***

Note: kst = 1,000s short tons; klb= 1,000s pounds; lbs rec./st = pounds recovered per short ton

Figure 16-6: 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

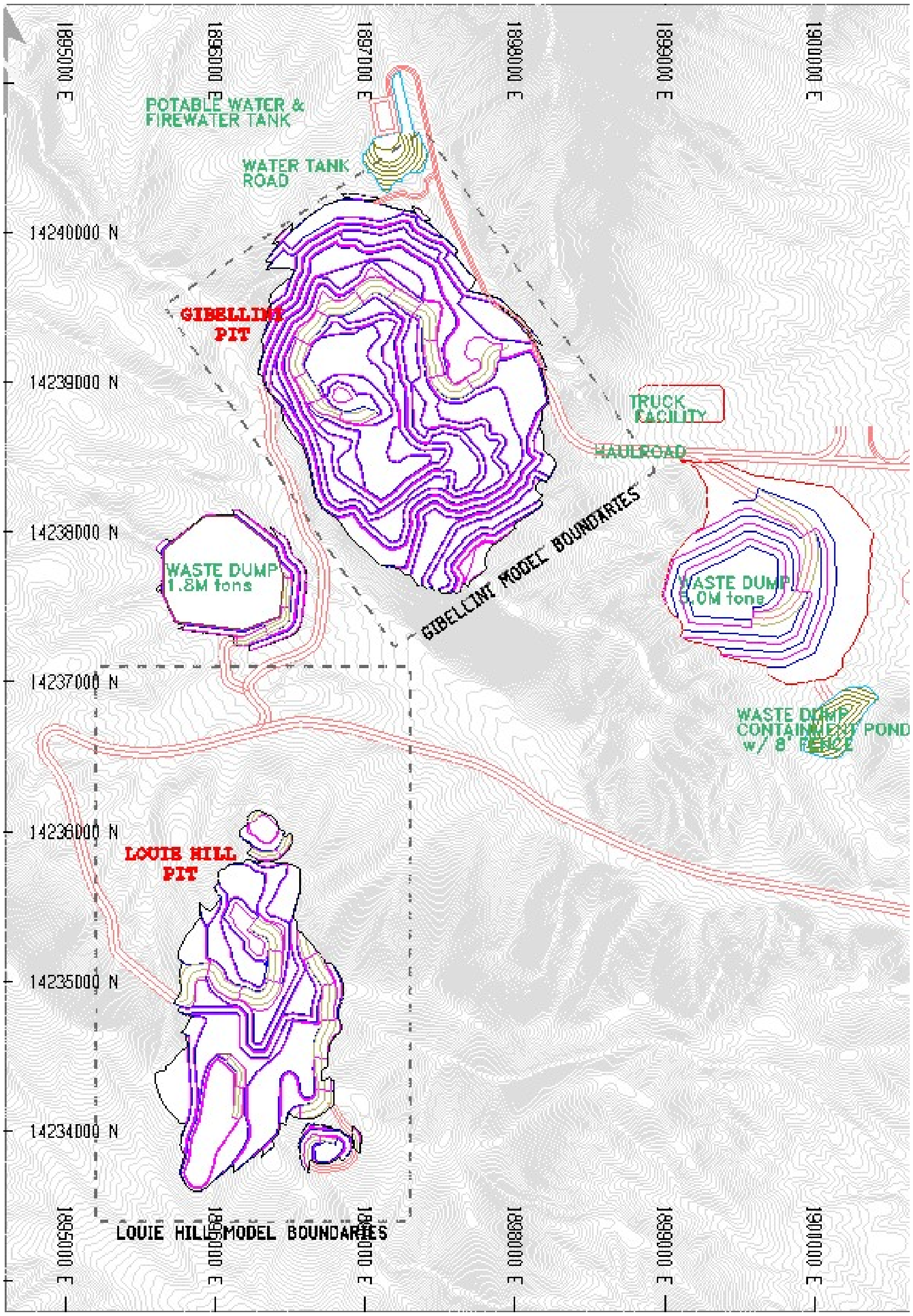
Note: Figure from Hanson et al., 2011.

16.6 Waste Rock Storage Facilities

Two waste rock storage facilities (WRSF) were designed for a total capacity of 6.8 Mst. Waste material from the Gibellini pit will be stored in a planned East WRSF which will have a maximum capacity of 5 Mst. Waste from the Louie Hill will be stored on a planned West WRSF. This material can also be used as backfill within the Gibellini pit if needed.

The location of the WRSFs are shown in Figure 16-7. This figure also shows both planned pits and the proposed access roads.

Figure 16-7: Conceptual Layout Plan, Proposed Gibellini and Louie Hill Pits and Waste Rock Storage Facilities



Note: Figure prepared by Wood, 2018.

16.7 Production Plan

Wood used an MS Excel®-based model to produce a mining schedule that:

- Fed material to the heap leach process at a constant 3 Mst/a
- Limited 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 planned mine annual schedule. The proposed mine material movement is shown in Figure 16-8.

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 lbs explosive per short ton of rock
- Conventional truck and loader operation with an assume fleet of 100t trucks and 14 yd^3 loaders
- Haul road, pit, and dumps maintained using a convention fleet of support equipment inclusive of graders, track dozers, and water trucks
- Owner-supplied truck shop and office facilities
- 24 hours per day 7 day a week operation using four mining crews
- 100% of the leach material rehandled from stockpile prior to being fed into the primary crusher for crushing and agglomeration.

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

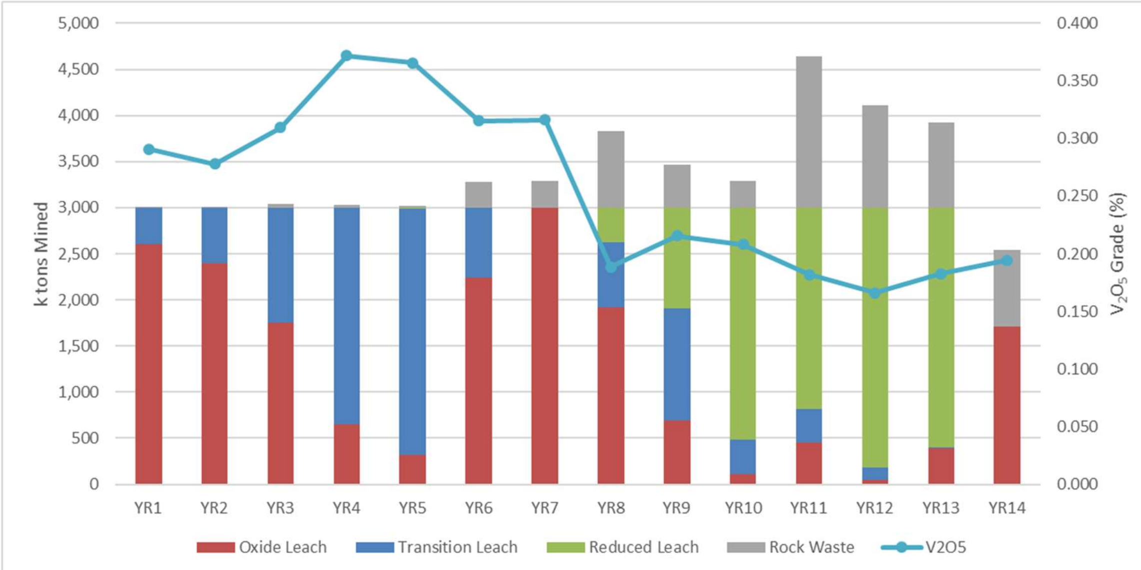
The mine plan assumption is that all mining will be performed by contractors. No Owner fleet equipment will be required.

Table 16-10: Proposed Mine Production Schedule

	Measured & Indicated		Inferred		Waste	Total Rock	Leach Oxide	Leach Transition	Leach Reduced	Leach Rock	V_2O_5	V_2O_5
	(kst)	(%V_2O_5)	(kst)	(%V_2O_5)	(kst)	(kst)	(kst)	(kst)	(kst)	(kst)	(%V_2O_5)	(klb)
YR 1	3,000	0.291	—	—	—	3,000	2,600	400	—	3,000	0.291	17,440
YR 2	3,000	0.278	—	—	10	3,010	2,400	600	—	3,000	0.278	16,690
YR 3	3,000	0.310	—	—	40	3,040	1,760	1,240	—	3,000	0.310	18,580
YR 4	3,000	0.372	—	—	30	3,030	650	2,350	—	3,000	0.372	22,320
YR 5	2,990	0.366	10	0.200	20	3,020	310	2,680	10	3,000	0.366	21,950
YR 6	780	0.344	2,220	0.305	280	3,280	2,240	750	10	3,000	0.315	18,920
YR 7	360	0.186	2,640	0.334	290	3,290	3,000	—	—	3,000	0.316	18,980
YR 8	2,520	0.192	470	0.171	820	3,820	1,910	700	380	3,000	0.189	11,310
YR 9	1,910	0.231	1,090	0.189	460	3,460	690	1,220	1,090	3,000	0.216	12,940
YR 10	480	0.253	2,520	0.199	290	3,290	110	370	2,520	3,000	0.208	12,480
YR 11	790	0.190	2,200	0.180	1,590	4,590	450	360	2,180	3,000	0.182	10,910
YR 12	190	0.245	2,820	0.160	1,120	4,120	50	140	2,820	3,000	0.166	9,980
YR 13	10	0.400	2,990	0.182	930	3,930	390	10	2,600	3,000	0.183	10,970
YR 14	—	—	1,710	0.195	830	2,540	1,710	—	—	1,710	0.195	6,670
Totals	***22,040***	***0.292***	***18,670***	***0.218***	***6,700***	***47,410***	***18,290***	***10,830***	***11,590***	***40,710***	***0.258***	***210,150***

Note: kst = 1,000s short tons; klb= 1,000s pounds

Figure 16-8: Mine Material Movement Plan



Note: Figure prepared by Wood, 2018.

16.10 Comments on Section 16

The QP notes:

- Pit optimization was done on the available resource block models. No constraints to the model were used in the PEA pit optimizations
- Pit designs were made for the ultimate pit only. No designs were made for the internal pits used in the mine schedule. However, the internal shells surfaces were limited by the ultimate pit designs ensuring no overlaps or additional material outside of the ultimate pit was scheduled
- Approximately 40% of the total estimated pounds of V_2O_5 in the PEA mine plan is in the Inferred category.

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 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, the Project process will use an acid strip followed by precipitation to produce a final product.

17.2 Process Flow Sheet

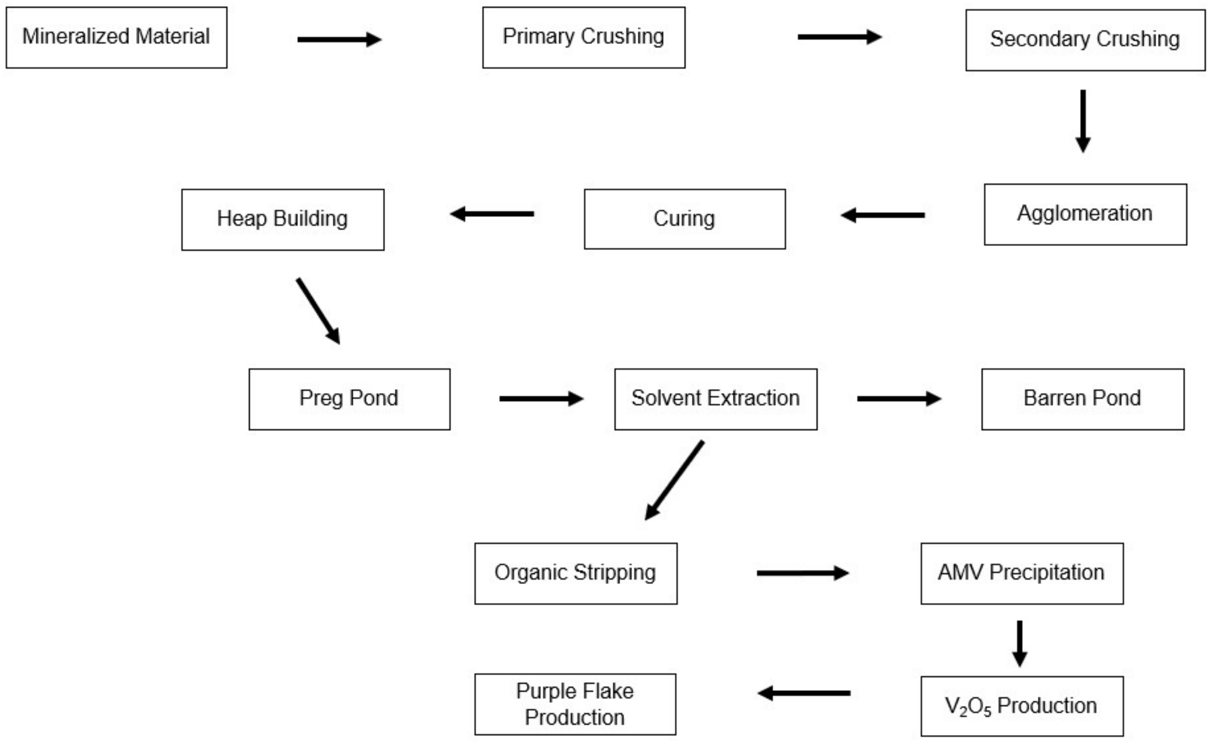
A block process flowsheet is based on testing completed to date (Section 13) and included as Figure 17-1. A conceptual equipment list for the process flowsheet is provided in Table 17-1.

17.3 Plant Design

The processing method envisioned will be to feed mineralized material from the open pit mines (Gibellini and Louie Hill) via loader to a hopper that feeds the screening and crushing plant. The screen will send any material greater than a third-inch and less than four inches in size to the cone crusher (+4” material will be sent to stockpile for further treating).

The crushed material will recycle to the screen feed belt, thus crushing in closed circuit. The minus half-inch mineralized material will be fed to the agglomerator where sulfuric acid, flocculant (agglomeration aid) and water will be added to achieve proper agglomeration. The agglomerated leach feed material will be transported to a stacker on the leach pad, which will stack the leach feed material to a height of 15 ft. Once the material is stacked and sufficient material is accumulated to permit distribution of sprinklers onto the leached material, solution will be added to the leach heap at a rate of 0.0025 gal/min/ft^2. The solution will percolate through the heap and will be collected in a pond, and this pregnant leach solution (PLS) will be sent to the process building for metal recovery.

Figure 17-1: Flowsheet Design Schematic



Note: Figure prepared by Wood, 2018.

Table 17-1: Conceptual Equipment List

Item
Jaw Crusher
Standard Cone Crusher
Agglomerator flocculant Tank No 1 c/w agitator
Agglomerator flocculant Tank No 2 c/w agitator
Primary Overland Conveyor
Grass Hopper Conveyor System
Heap Pad Radial Extendable Stacker Conveyor
Gypsum Filter Press
Solvent Extraction Mixer Settler
Stripping Mixer Settler
Pregnant Organic Tank
Barren Organic Holding Tank

Item
Barren Strip Solution Tank
Pregnant Strip Solution Tank
Coalescer Tank
Raffinate Tank
Sulfuric Acid Solution Tank
Precipitation Tank c/w agitator
Precipitate Thickener
Multi Hearth Furnace
Moveable Casting Wheel
Roll Crusher, Packaging
Rotary Vane Hopper Packaging
Hydrated Lime Bin
Lime Area Bag House
Lime Bin Rotary Air Lock
Kerosene Holding Tank
Sulfuric Acid Storage Tank
Oxidant Holding Tank
HCl Storage tank
Casting Area Crane
Stripping / Settler Area Crane
Process Building Air Compressor

The PLS solution will be pumped from the PLS pond to a tank (reduction tank) where the solution's pH will be modified by addition of milk of lime and the ORP will be modified by addition of sulfur dioxide solution. The solution will be sent to a plate and frame filter press to remove gypsum sludge. Clear solution will be sent to the solvent extraction system, the sludge will be sent to the agglomerator.

The PLS will be treated with iron to convert all of the vanadium in solution from the vanadate (VO^{3-}) form to the vanadyl (VO^{+2}) form, which will be preferentially loaded onto the organic phase in the extraction phase of treatment. A set of solvent extraction mixer–settlers will be used to recover the vanadium onto the organic phase and to produce a vanadium depleted aqueous solution (raffinate). The raffinate will then be returned to the leach pad to continue to leach the vanadium remaining in the heap material.

The loaded organic phase from the extraction will then be contacted in a separate set of mixer–settlers called the strip circuit. Here the vanadium will be pulled from the organic phase into the new aqueous phase. This will be undertaken using a 225 to 250 g/L sulfuric acid strip solution (barren strip solution). The stripped organic will then be returned to the extraction circuit where it will be re-loaded with vanadium. It may be necessary to wash the organic with HCl to remove ferric iron. This may not need to be done every cycle; it may be done periodically, or a partial sidestream may be processed continuously.

The pregnant strip solution will be advanced to a tank where sodium chlorate will be added to the solution to oxidize all of the vanadyl ion (blue) in solution to vanadate (yellow). The vanadate solution will be sent to a tank where anhydrous ammonia will be added to make ammonium metavanadate (AMV) precipitate.

The precipitate slurry will overflow into a thickener where it will be mixed in the center well with flocculant. The thickener underflow will be sent to a centrifuge for additional dewatering prior to being sent to a multi-hearth furnace for drying, calcining and melting. The melt will flow from the bottom of the multi-hearth furnace to a casting wheel, where the melted V_2O_5 will be cooled to a crystalline form and as the solid V_2O_5 is removed from the casting wheel, it will be crushed and sent to be packaged in one-ton supersacks. The thickener overflow will be acidified using 225 to 250 g/L sulfuric acid and returned to the strip circuit as barren strip solution. There it will be re-loaded with vanadium.

Approximately 210 million pounds of V_2O_5 will be produced from Gibellini leaching operations at an average recovery of 62% (oxide: 60%, transition: 70% and reduced: 52%).

Metal produced from leaching operations will generally increase from the first quarter of Year 1 to Year 5 as lower grade and lower recovery oxide ores are supplanted by higher grade and higher recovery transition ores. Following Year 5, the overall deposit grade drops; consequently, metal production likewise drops. The majority of the metal will be produced within the same reporting period as it is placed on the leach pad.

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)
- Ammonia
- Sodium chlorate

- Sulfur dioxide and/or powdered iron
- Electrical power
- 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 a 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/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 test work 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. 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
- Waste dump 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, 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.

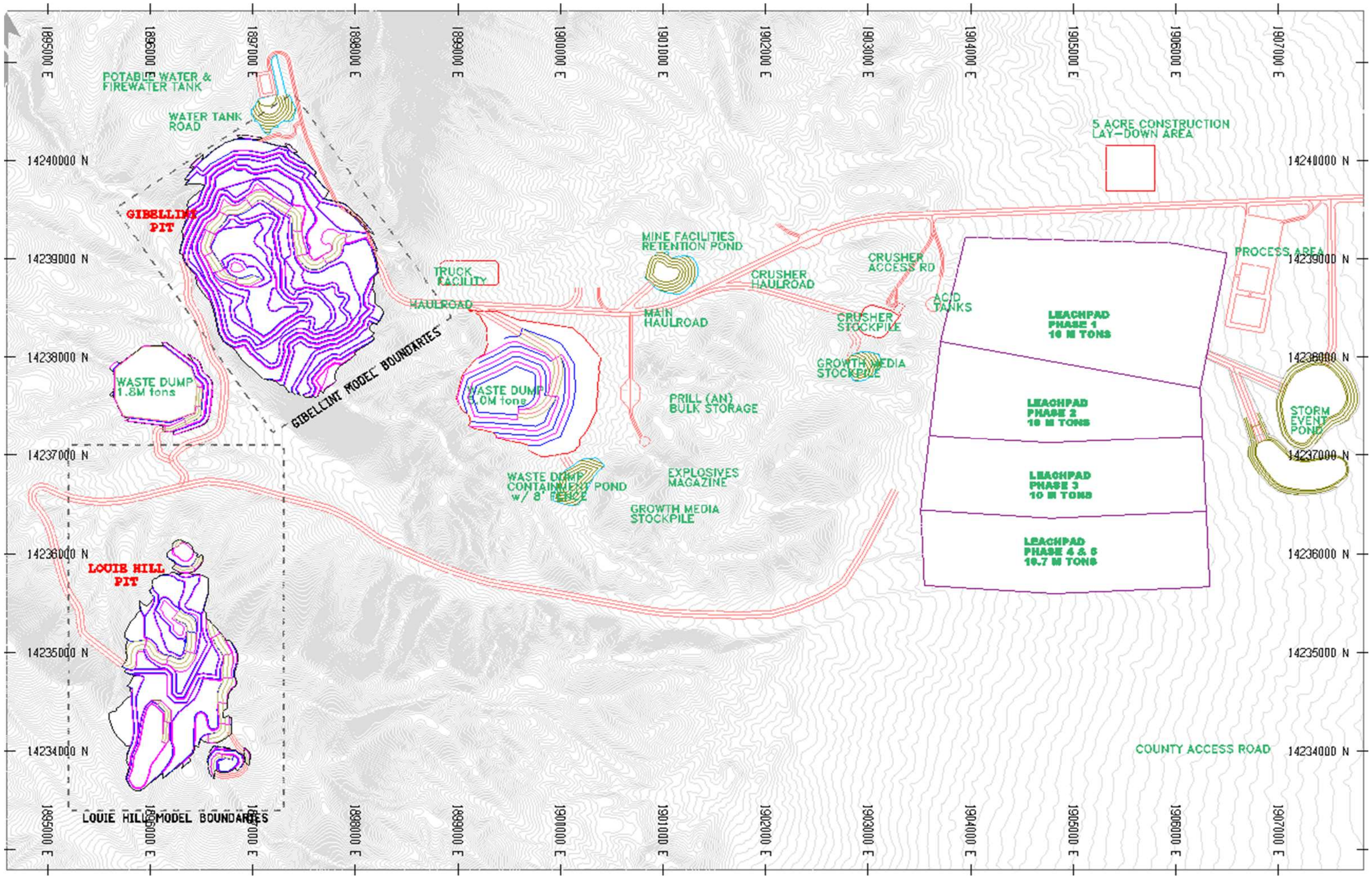
18.2 Site Infrastructure

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 100t haul trucks
- Truck wash: includes a light vehicle bay and a heavy equipment bay
- Fuel storage and distribution
- Miscellaneous facilities: ready line, hazardous waste storage pad, change pad, class III landfill, and explosives storage facility.

Figure 18-1: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

18.2.2 Process Facilities

The key facilities required in support of the mining operation include:

- Process offices and assay laboratory
- Product storage building

18.3 Road and Logistics

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 Gibellini pit and 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 waste rock storage facilities (WRSFs) for the Project, with a total capacity of 6.8 Mst (refer to proposed locations in Figure 16-7). The planned WRSF at the proposed Gibellini pit will accommodated 5 Mst of waste, and the Louie Hill WRSF will accommodate 1.8 Mst.

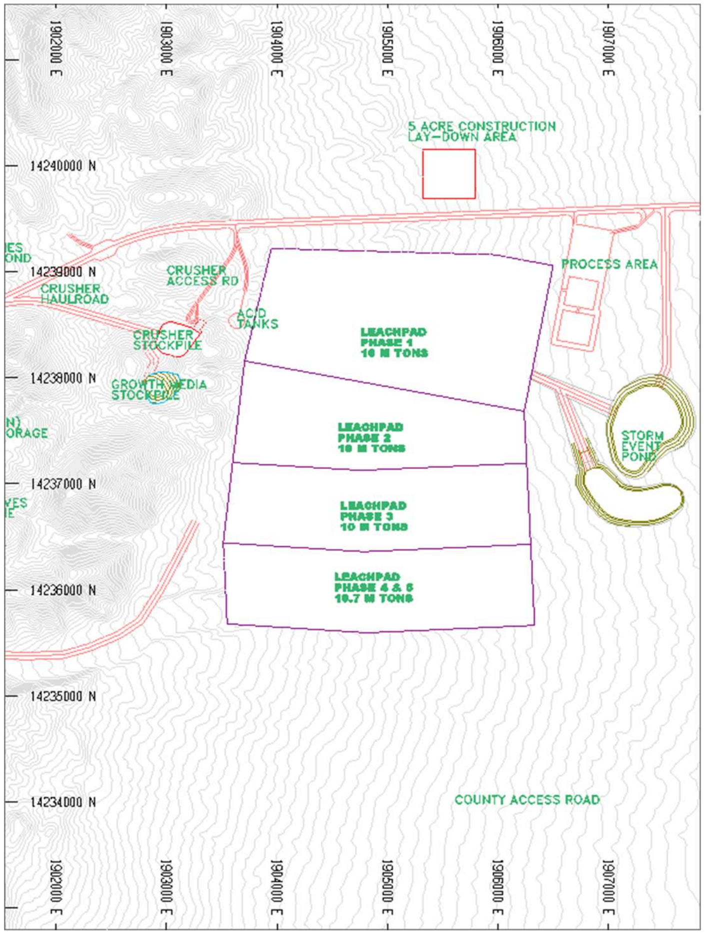
18.7 Leach Pad and Pond

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 four phases, an initial phase and three expansions, with a total planned capacity of 40.7 Mt (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.

Figure 18-2: Heap Leach Pad Design Layout



Note: Figure prepared by Wood, 2018

The design concept for the leach pad liner system includes a composite lining system consisting of a geosynthetic–clay liner overlain by an 80 mm-high density polyethylene (HDPE) geomembrane liner. The HDPE geomembrane liner will be covered with a cushioning/drainage layer of liner cover material or overliner.

Pregnant leach solution (PLS) will be collected and transported to the pond system using lined solution channels. The process pond system will be located to the east of the leach pad and will consist of a lined PLS pond and a lined storm pond.

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. 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 not been determined. For the purposes of the PEA, it was assumed that water rights could be leased, and that water could be pumped to the Project area from nearby farms and ranches. These farms and ranches are located within 19 miles of the Project, and have water available at water flow rates that range from 1,000 to 3,900 gpm, which is likely to be more than sufficient for Project needs.

18.8.1 Water System

The mine design assumes an average water requirement of 420 gpm, of which 40 gpm 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 3 Mgal make-up water pond would be built. The make-up water pond's capacity is designed at five days of peak usage.

Potable water and fire water will be stored in two separate tanks. The potable water tank will be a 30 ft diameter by 25 ft high metal storage tank with a 120,000 gal capacity. The fire water tank will be a 48 ft diameter by 20 ft high metal storage tank with a 250,000 gal capacity.

18.9 Power and Electrical

A 69 kV distribution line has been 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 power supply for the Gibellini Project site is assumed to be at 24.9 kV and supplied 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: 2.5 MW
- Average load: 1.6 MW
- 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.

18.10 Comments on Section 18

In the opinion of the QPs, the following conclusions are appropriate:

- Heap leach pad design is based on appropriate geotechnical test work; 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 projected process route
- Supply of offsite power and water is required
- Leach pads will have a total capacity of 40.7 Mst, and will be designed/built in four stages. Leach pad stages 1, 2 and 3 are designed for processing leach pad feed material from Phase I, II, III of the open pit mining operations. Leach pad stage 4 is designed for processing leach pad feed material from Phase IV and Phase V of the open pit mining operations
- Two WRSFs will be required, one at Gibellini (5 Mst) and the second at Louie Hill (1.8 Mst).

19.0 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

Prophecy commissioned a vanadium market survey by Merchant Research & Consulting Ltd (Merchant) to determine an appropriate vanadium price forecast for use in the PEA. The survey reviewed:

- Vanadium consumption
- World vanadium production
- Vanadium market outlook
- Projected vanadium prices.

Merchant (2017) noted:

- Vanadium is one of the most abundant metals in the earth's crust. Ores containing vanadium are commonly mined using open pit mining methods
- Vanadium metal is an essential alloying element used in many types of steel for tools, buildings, bridges, automobiles, pipelines and machinery. A small amount of vanadium adds strength, toughness, and heat resistance. It is usually added in the form of ferrovanadium, a vanadium-iron alloy
- In addition to its use as a steel alloy, recent advances in battery technology are relying on vanadium for use in the recently developed vanadium flow battery, also know as the vanadium redox battery (VRB). The extremely large capacities possible from VRB makes them well-suited to use in large power storage applications such as helping to average out the production of highly variable generation sources such as wind or solar power, or to help generators cope with large surges in demand
- Vanadium supply and demand has remained relatively constant over the past six years (2011–2016) at approximately 70,000 to 90,000 tonnes of ferro-vanadium per year. Forecast demand is expected to increase to over 160,000 tonnes per year, driven by VRB technology and improvements in steel quality produced in developing countries.

19.2 Commodity Price Projections

Based on the demand pricing forecast from Merchant's 2017 report, Wood adopted a long-term price forecast of $12.73 per pound of V_2O_5 sold.

19.3 Contracts

Prophecy proposes to ship a bagged product to a conversion company for conversion into a saleable product.

Mining will be undertaken using contract mining services.

No contracts are in place.

19.4 Comments on Section 19

Wood has reviewed and relied on the marketing assumptions and V_2O_5 pricing within the 2017 Merchant report. Merchant, in Wood's opinion, is a reputable company who routinely provides metal price forecasting services.

20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

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 Notice of Intent (NOI) and reclamation bond is required by the BLM or the USFS. For those 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.405 of the Nevada Revised Statute (NRS) and Sections 519A.120 through 519A.345 of the Nevada Administrative Code (NAC).

The Project is located on public lands administered by the BLM through the Mount Lewis Field Office.

American Vanadium contracted Enviroscientists, Inc. (Enviroscientists) to prepare the original PoO and Nevada Reclamation Permit Application, which was submitted in December 2012, and revised in February 2013 and November 2014.

On May 9, 2018, Prophecy submitted a PoO, prepared by SRK Consulting US (Inc) (SRK) to the BLM's Mount Lewis Field Office. In addition, a Reclamation Permit Application, also prepared by SRK, was submitted to the NDEP–BMMR.

The following steps are envisaged in support of Project permitting:

- Identification of baseline studies and data that will require updates
- Compilation of an environmental report for submission to the BLM
- Preparation of a Water Control Pollution Permit for submission to the BMRR.

Once these studies have been reviewed and accepted by the relevant regulatory authorities, Prophecy expects to trigger a Notice of Intent (NOI) from the BLM. This Report assumes that an environmental impact statement (EIS) will be required.

Since the Project is located on federal lands, the submittal of the PoO will constitute a federal action requiring analysis under NEPA. Following the submittal of the Plan and the determination that the Plan is complete under 43 CFR 3809 regulations by the BLM, the BLM will determine the level of NEPA analysis required, whether an Environmental Assessment (EA) or an EIS.

Based on early and more recent scoping with the BLM, as well as the size and nature of the Project, an EIS document is considered the likely route pending the results of the baseline data collection, review by permitting agencies, and additional BLM project scoping.

It is assumed for the purposes of this Report that the BLM will require an EIS to be prepared by a third-party contractor.

20.2 Baseline Studies

American Vanadium contracted Enviroscientists to oversee a baseline data program to support the original PoO and Nevada Reclamation Permit Application (collectively the Plan) document and future NEPA analysis. The baseline data program included studies to document the existing conditions of biological resources, cultural resources, surface water resources, ground water resources, and waste rock geochemical characterization.

Per BLM's Instruction Memorandum NV-2011-004 for guidance in processing "3809 PoOs", coordination with the BLM regarding the scope of the baseline studies was ongoing during the period of study for the original American Vanadium project area. The baseline data collected is subject to review and approval by the BLM and the NDEP and other cooperating agencies and is considered preliminary at this stage of the permitting and planning process. It is expected that the BLM will likely require that selected studies be updated to current standards, and will also likely require additional studies based on the resources potentially affected by the proposed Prophecy project activities.

Table 20-1 summarizes the studies completed by American Vanadium for the original project area.

The BLM provided a draft Baseline Needs Assessment Form (BNAF) to Prophecy on February 27, 2018. This draft document indicated that further baseline studies or activities for various resources will or may need to be performed or updated in support of the EIS based on input from the BLM Interdisciplinary team.

Table 20-1: American 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). Results confidential.	Complete 12/01/2010. Revised 08/31/2011
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	Complete 12/29/2010. Updated 09/20/2011, 06/21/2012
Waste Rock and Ore Characterization	Gibellini Vanadium Project Materials Characterization Phase I Update – Revised • Acid base accounting • Meteoric water mobility procedures • Whole rock geochemistry • Mineralogy	June 2011
	Gibellini Vanadium Project Interim Baseline Geochemistry Report • Static Testing • Confirmatory Mineralogy and Kinetic testing	October, 2011
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 04/18/2012, 04/19/2012
Groundwater Survey Report	Technical Memorandum: Production Well and Monitoring Well Development, Testing and Sampling Gibellini Project	Completed June, 2011

Such resources will, or could, include:

- Cultural resources
- Paleontological resources
- Native American coordination and consultation
- Visual resources
- Recreational resources
- Social and economic values

- Environmental justice
- Air quality
- Noise
- Noxious weeds, invasive and non-native species
- Grazing management
- Forests and rangelands
- Floodplains
- Water quality
- Wetlands/riparian zones
- Wildlife
- Threatened and endangered species
- Special status species
- Migratory birds
- Wild horses and burros
- Human health and safety
- Wastes, hazardous or solid
- Mining law administration
- Geology and minerals.

Other resources that have not been determined to be currently present, but which may be addressed by the BLM Interdisciplinary Team as important, include the following:

- Areas of Critical Environmental Concern
- Wilderness.

20.2.1 Biological Resources

Enviroscientists completed the baseline biological studies for the project area contemplated in the 2011 FS. 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.

Any updated PoO prepared by Prophecy will need to include environmental protection measures and project design features for biological resources to reduce the potential for significant impact to these resources. Additional protection measures and mitigation may be identified during the NEPA process.

20.2.2 Cultural Resources

Kautz Environmental performed a Class III Cultural Inventory on behalf of American Vanadium. This inventory included the project area and two potential powerline alternatives that were part of American Vanadium's projected development plan. A draft report documenting the surveys conducted in 2010 was submitted to the BLM, and was reviewed by the BLM archaeologist.

Additional Class III survey activities were performed in 2011, and the results were documented in an addendum to the original survey report. It is not known if this updated report was submitted to BLM for review and approval.

Following the submittal of a final cultural survey report and addendum, the BLM archaeologist will make a determination on the eligibility status of the cultural sites documented within the Project for listing on the National Register of Historic Places (NRHP). Additional surveys and/or testing may be needed to determine eligibility status of cultural sites.

Following the determination of the eligibility status and concurrence with the State Historic Preservation Office (SHPO), if there eligible cultural sites that cannot be avoided by Project activities, these sites will likely require mitigation, which may include data recovery. 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 to identify surface water resources within the Little Smoky Valley Basin (155A), which the project area falls within. No springs, seeps, or riparian areas were identified during the study within the project area.

Limited baseline water quality data was available from the United States Geologic Survey (USGS) on the springs in the basin. The results of the research and field assessments of the features in the Basin have been submitted to the BLM.

20.2.4 Ground Water Resources

Very little information is available pertaining to the depths of ground water and ground water chemistry in the Little Smoky Valley Basin. Site-specific ground water data was collected from the project area, including a ground water sample collected from the proposed off-site process water supply source contemplated in the 2011 FS.

Well Installation

In January and February 2011, RMP 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 RMP Resources, American Vanadium installed several more monitoring wells in November 2013 to January 2014.

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 FS.

However, the wells would likely be used as part of future baseline and ground water monitoring programs.

Groundwater Flow Direction

In June 2011, SWS measured water levels in the seven Gibellini wells with water present and the 8-Mile well located south of the Gibellini Project. Groundwaters flow to the north and northeast with groundwater elevations ranging from 6,059 ft amsl to 6,004 ft amsl.

Water Chemistry

In June 2011, SWS collected water samples from five wells to establish baseline water quality conditions in the Project area. Ground water in two wells met all Nevada primary and secondary drinking water maximum contaminant levels. In one well, manganese content exceeded maximum contaminant levels. In a second well, the arsenic content slightly exceeded the maximum contaminant level. Total dissolved solids, aluminum, iron, manganese, and lead in a third exceeded their respective maximum contaminant levels; however, these exceedances were suspect due to the high turbidity and suspended sediment in the well. However, the holding times for nitrate, nitrite, and total dissolved solids were exceeded and cannot be considered.

In April 2011, a water sample was collected from a well located at the proposed off-site process water source. The sample was analyzed for volatile organic compounds (VOCs) using Environmental Protection Agency (EPA) Method 8260B, for the NDEP Profile I inorganics and metals using various EPA methods, polychlorinated biphenyls using the gas chromatograph (GC) method, total nitrogen using EPA Method 351.2, and corrosively using the Langlier index.

Ground Water Monitoring and Reporting Program

Ground water monitoring and sampling will be performed to establish seasonal baseline conditions and will continue throughout the life of the mine 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 Geological and Geochemical Considerations

Overall, materials characterization provides an assessment of the potential geochemical behavior of the mined rock material to be used as backfill, placed in surface waste rock storage areas or rock that will remain exposed in the pit walls. These materials will come in contact with direct precipitation, run-off, and infiltration. This preliminary analysis does not consider hydrology.

SWS conducted Phase I static testing on material collected from the proposed pit area. These tests provide a first indication of the propensity of materials to produce acid rock drainage (ARD). Industry-standard, BLM, and NDEP specific indices are used as indicators of potential ARD based on sulfur (sulfides) and carbon (inorganic) speciation. Typically, static results indicate potential ARD materials that warrant further confirmatory testing and longer term kinetic testing.

Waste rock is currently defined by vanadium cut-off grade. A total of 24 fresh samples from core drilling at the Gibellini deposit were collected by American Vanadium field geologists and submitted to McClelland Laboratories on April 31, 2011. These samples were from seven core holes where the sample intervals were split based on mass of the sample. Three different zones of the deposit were sampled: Oxide zone, Transition zone, and Unoxidized (or reduced) zone. The samples were tested or analyzed for:

- Meteoric water mobility procedures (MWMP)
- Acid base accounting (ABA)
- Nevada Profile II and radionuclides
- Siderite-corrected neutralizing potential (NP)
- Whole rock geochemistry
- X-ray powder diffraction.

Preliminary results indicate the geologic material of the selected waste rock samples consist of an uncertain acid generating potential and are currently assumed to be potentially acid generating (PAG) materials. Initial effluent chemistry from meteoric water mobility procedures indicates the potential for metal leaching. Based on whole rock geochemistry and mineralogy, metal oxides comprise a substantial portion of rock percentage in all samples. Similar results appear in all three mineralized material zones:

oxide, transition, and reduced. Phase II kinetic testing was performed to confirm these results.

Geochemical characterizations of the Louie Hill deposit material will be required under the same test protocols discussed above. This testing program has not been initiated.

Because uranium is often associated with vanadium in geologic material, there is the potential for uranium to be present in process fluids and processed mineralized material. It is unknown at this time if the concentrations of uranium would require additional permitting through the Nuclear Regulatory Commission. NDEP–BMRR has indicated that further study could be required to confirm that the project can be operated and closed in a manner protective of human health and the environment.

20.3 Environmental Considerations/Monitoring Programs

Prophecy will continue to conduct groundwater quality monitoring. There are currently no other environmental monitoring programs associated with the proposed Project. Once final designs are completed, various waste rock management, process fluid management, and other monitoring/sampling programs will be implemented.

Monitoring programs will be 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: Water Pollution Control Permit (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 reviewed and updated every three years to assess adequacy of the bond to cover current reclamation costs.

20.4 Key Environmental Issues

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.

20.5 Proposed Mining Activities

Prophecy proposes to mine the Gibellini and Louie Hill deposits using open pit mining methods. Mineral extraction will be accomplished via sulfuric acid heap leaching, with vanadium recovery by solvent extraction. The following aspects of the mining and processing that may pose environmental concerns are individually discussed in the following subsections.

20.5.1 Stockpiles

Preliminary design of the mine and process facilities indicate that two or more stockpiles will be constructed. The stockpiles would include:

- A crusher stockpile to hold mineralized material prior to crushing and agglomeration will be constructed east of the proposed Gibellini pit. This stockpile in its preliminary design will have an extent of approximately 2 acres
- One or more stockpiles for growth medium (topsoil) that will be removed during construction activities and set aside for later use during reclamation of mine facilities, are also proposed. Growth medium stockpiles are estimated to total approximately 2 acres in size.

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.

20.5.2 Waste Rock Storage Facilities

Waste rock storage facilities will be designed and operated in accordance with Nevada Administrative Code (NAC) 445A.350-447. Waste rock will be managed in accordance with an approved Waste Rock Management Plan, which will be based on the potentially acid generating (PAG) characteristics of the waste rock.

Waste rock storage facilities will be reclaimed in accordance with NAC 519A.010-415. 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.

20.5.3 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 Nevada Administrative Code (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

(NAC445A.385). Conceptual designs include heap leach pads capable of containing 40.7 Mst of mineralized material (based on mine life of 13.5 years, 3 Mst processed per year).

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.010-415 and approved reclamation plans.

20.5.4 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 (NAC445A.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 concerns will be identified following the initial geochemical and geotechnical analyses of the heap leaching process and closure planning. Available information will be entered into the heap leach drain-down estimator (HLDE) model to estimate heap closure specifications.

20.6 Closure Plan

Prophecy will need to meet BLM 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. Prophecy 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 for the Plan 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
  - Stabilize 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 near pre-disturbance topography. Disturbed areas will then be seeded with a BLM-approved seed mix.

Prophecy will be required to submit updated plans for closure and reclamation of the disturbed lands as part of any updated Reclamation Permit application, in accordance with NAC 519A.270. Additionally, Prophecy will be required to submit 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, Prophecy will be required to submit a 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; and
- 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 US$40 million. This assumes a mine life of 13.5 years and production rates of approximately 3 Mst 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 this 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 concurs that the Project can be operated and closed in a manner protective of human health and the environment.

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.

20.7.3 BLM Plan of Operations/NDEP Reclamation Permit

Prior to commencing any mining operations on public lands administered by the BLM, a PoO describing how Prophecy will prevent unnecessary and undue degradation of the land and reclaim the disturbed areas must be submitted to the BLM. Concurrently, Prophecy will need to apply for issuance of a Reclamation Permit to NDEP–BMRR. These were submitted on May 9, 2018.

Following the submittal of the PoO to the BLM and the NDEP, regulations require that the BLM respond within 30 days to either issue a letter of completeness or require additional information. Following the issuance of the letter of completeness and review of available baseline data, the BLM will decide on the level of NEPA analysis required.

It is assumed for the purposes of this Report that BLM will decide that the appropriate level of analysis will be an EIS that will be prepared by a third-party contractor. A NEPA kickoff meeting will be held with representatives from Prophecy, the EIS contractor, and the BLM to discuss the Project and the content of the document. The contractor will prepare an administrative draft document for internal review by Prophecy and the BLM.

Following comments and revisions, an EIS document will be prepared and will be available for public review for approximately 30 days. Following the end of the public comment period, comments will be reviewed and addressed. Following the public comment period, a Final EIS will be prepared to address public comments provided during the public review period. The BLM will then prepare a Record of Decision providing authorization to proceed.

Table 20-2: Key Required Permits and Licenses

Permit	Issuing Agency	Status	Purpose of Permit / Documentation
Mine Plan of Operation (PoO) / NEPA Compliance	BLM	Submitted 9 May, 2018 EIS likely required, but to be determined	Prevents unnecessary or undue degradation associated with mining activities under the PoO. The NEPA document discloses to the public environmental impacts and project alternatives. Includes descriptions of existing biological and cultural conditions, as well as surveys of other resources and potential impacts to those resources.
Reclamation Permit	NDEP-BMRR	Submitted 9 May, 2018	Allows production activities that disturb land surface, and describes steps to be taken to return disturbed land and areas containing processing components to post mining land uses.
Material License, Application Form 313	United States Nuclear Regulatory Commission	To be submitted, if necessary	Correspondence with the NRC provided by Prophecy has preliminary indications that federal licencing may not be needed and can be granted by the State. Federal licencing may be necessary if uranium and decomposition products concentrate in process fluids. Submittal of an application may be necessary to determine if the applicant is qualified and that adequate procedures exist to protect the public health and safety from radioactive materials.
Class 1 or Class 2 Air Pollution Control Operating Permit	NDEP-Bureau of Air Pollution Control (BAPC)	To be submitted	Regulates sources of air pollution associated with mining activities.
Mining Stormwater Discharge Permit	NDEP-Bureau of Water Pollution Control (BWPC)	To be submitted	Regulates discharge of stormwater impacted by production activities to Waters of the U.S. Requires management of site stormwater and implementation of Best Management Practices (BMPs) to reduce impact to surface waters.
Water Pollution Control Permit	NDEP-BMRR	To be submitted	Authorizes operation of mining facilities to prevent degradation of waters of the state by establishing minimum criteria for design of process components and fluid containment systems. Described in NAC 445A 350-447.
Industrial Artificial Pond Permit	Nevada Department of Wildlife	To be submitted	Regulates the construction and operation of ponds containing chemicals that potentially impact wildlife.
Dam Safety Permit	Nevada Division of Water Resources	To be submitted if necessary	Allows for design and construction of structures impounding water, with a crest height of 20 feet or more or that will impound 20 acre-feet or more.
Petroleum Contaminated Soil Management Plan	NDEP-BMRR	To be submitted	Authorizes on-site treatment and management of hydrocarbon contaminated soils.
Solid Waste Class III Landfill Waiver	NDEP-Bureau of Waste Management (BWM)	To be submitted	Authorizes on-site disposal of non-mining, non-hazardous solid wastes.
Potable Water System Permit	NDEP-Bureau of Safe Drinking Water (BSDW)	To be submitted	Allows installation and operation of a non-community, non-transient potable water system for over 25 persons for over 6 months per year.

Permit	Issuing Agency	Status	Purpose of Permit / Documentation
Onsite Sewage Disposal System Permit or Permanent Holding Tank Permit	NDEP- BWPC	To be submitted	Authorized construction and operation of either an Onsite Sewage Disposal System (Septic System) or a permanent holding tank for domestic sewage.
Radioactive Material License	Nevada Division of Public and Behavioral Health	To be submitted	Licenses the use of nuclear flow and mass measurements, level indicators, etc.
Hazardous Materials Storage Permit	Nevada Fire Marshall	To be submitted	Authorizes the storage of hazardous materials and provides an inventory to the agency for public safety and hazard communication purposes.
Liquefied Petroleum Gas License	Nevada Board for the Regulation of Liquefied Petroleum Gas	To be submitted	Licenses tank installation and prescribes LPG handling and safety requirements.
Section 404 Permit	U. S. Army Corps of Engineers (USACE)	To be submitted if necessary	Required if waters of the US and or wetlands are to be impacted by the project.
Working in Waterways Temporary Permit	NDEP-BWPC	To be submitted if necessary	Required for temporary working in surface water channels This permit is required for operating earthmoving equipment in any body of water.
Building Permits	Building Planning Department, Eureka County	To be submitted	Required for facility construction and issuance of occupancy certificate.
Special Use Permit	Planning and Zoning Department, Eureka County	To be submitted	May be required for zoning changes, variances, etc., that may be required to comply with local and state regulations.
Road Right of Way	BLM, and/or Eureka County	To be submitted	Road use right of way if required to use or improve BLM or county roads.
Explosives Permit	U.S. Bureau of Alcohol Tobacco and Firearms (BATF)	To be submitted	Authorizes the storage and use of explosives on the mine site
Notification of Commencement of Operations	U.S. Mine Safety and Health Administration (MSHA)	To be submitted	MSHA enforces rules regarding mine safety, through use of regulations, requirements for mine training plans and mine registrations.
FCC Frequency Registrations for Radio/Microwave Communication and/or Telemetry	Federal Communications Commission (FCC)	To be submitted	Registration and/or licenses required for two-way radio communication and for telemetry purposes

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. There is currently an Executive Order that requires 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*". It is Wood's understanding that the Nevada BLM has determined that mining projects are considered infrastructure projects. This may 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 Plan of Operation document described above fulfills the requirements of the application for the Mining Reclamation Permit. Application review takes the BMRR approximately 180 days from submittal and will include a public notice. The BLM and the BMRR will jointly agree on the reclamation bond amount.

20.7.4 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.

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.

20.7.5 Nuclear Regulatory Commission Materials License

As the Project is still in an early stage of development, it is not yet known if this permit will be required. Preliminary discussions conducted by Prophecy with the NRC suggest that any licensure can be granted by the State of Nevada and will not need federal oversight.

20.7.6 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.

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

In addition to the approvals discussed in this section, Prophecy 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 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

Prophecy 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 Prophecy 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.

The underground mine workings previously associated with the original Gibellini 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, the Nevada Division of Minerals (NDOM), or the NDEP may require the old workings be secured and stabilized.

Another consideration is the possible classification of the old mine workings 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 would require the implementation of a cultural resource mitigation program to evaluate the impacts of a mine development project on the historic mine workings.

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 at an early stage. There do not appear to be any significant impediments to obtaining environmental or operating permits
- Because the Project is in its early stages, Prophecy does not yet have appropriate permits in place. There is a reasonable expectation that the company can obtain the necessary permits. However, Prophecy 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 and modeling to satisfy the regulatory agencies that the mine can be operated and closed in a manner protective of human health and the environment. Prophecy may be required to obtain additional permitting, or design the facility with a higher level of engineering and agency oversight to satisfy the regulatory agencies
- Additional baseline studies and geochemical characterizations of mineralized material and waste rock materials will likely be required by BLM and NDEP. Based on the timelines required for the studies and characterizations, delays in commencement of operation may be encountered. An EIS will likely be required 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. The long lead times that are likely for securing the major permits could affect the mine plan, if they result in delaying the start of operation.

21.0 CAPITAL AND OPERATING COSTS

21.1 Introduction

Capital and operating costs for the Gibellini 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 to follow after five years. During the capital period, an initial leach pad having a capacity of 10 Mt will be constructed followed by three expansions of approximately 10 Mt each. Total initial capital is estimated at $116.8 million (Figure 21-1).

Sustaining capital is estimated at $32.4 million. Figure 21-2 provides a distribution of sustaining cost expenditures.

Operating costs average $15.26 per ton leached. Figure 21-3 provides a distribution of the operating costs.

21.2 Capital Cost Estimates

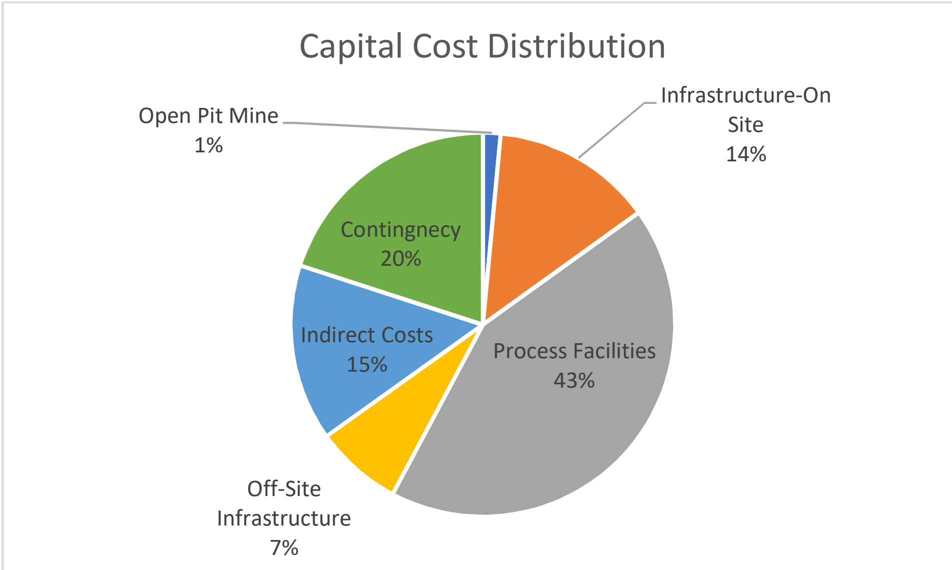
21.2.1 Basis of Estimate

The PEA capital cost estimate is based on the 2011 FS capital estimate adjusted for inflation and the inclusive of a 25% contingency to reflect the level of study. All costs are escalated to Q1 2018. Sustaining capital costs are likewise based on the 2011 FS adjusted for inflation and contingency; however, unlike the 2011 FS, the PEA sustaining costs account for the inclusion of mineralized material from Louie Hill, supporting infrastructure, and three leach pad expansions to accommodate the larger PEA resource base.

21.2.2 Escalation

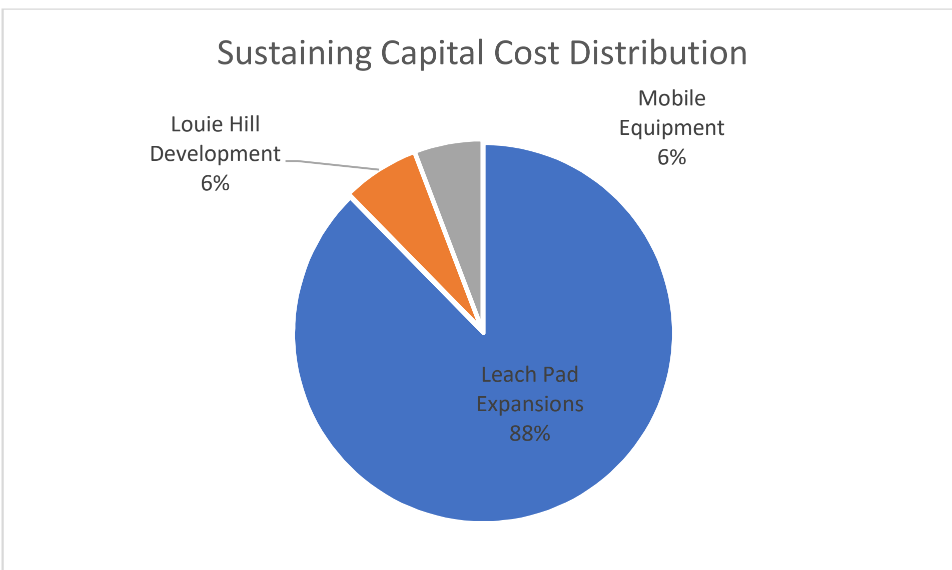
CostMine's Mining Cost Service was referenced to escalate Gibellini project costs from end-of-year (EOY) 2011 to Q3 2017. The escalation for surface mining over this time period was 9.1% whereas for milling it was 9.6%. An additional 0.5% escalation was added to account for Q4 2017 bring the average total escalation for mining and processing to 10.1%.

Figure 21-1: Capital Cost Distribution



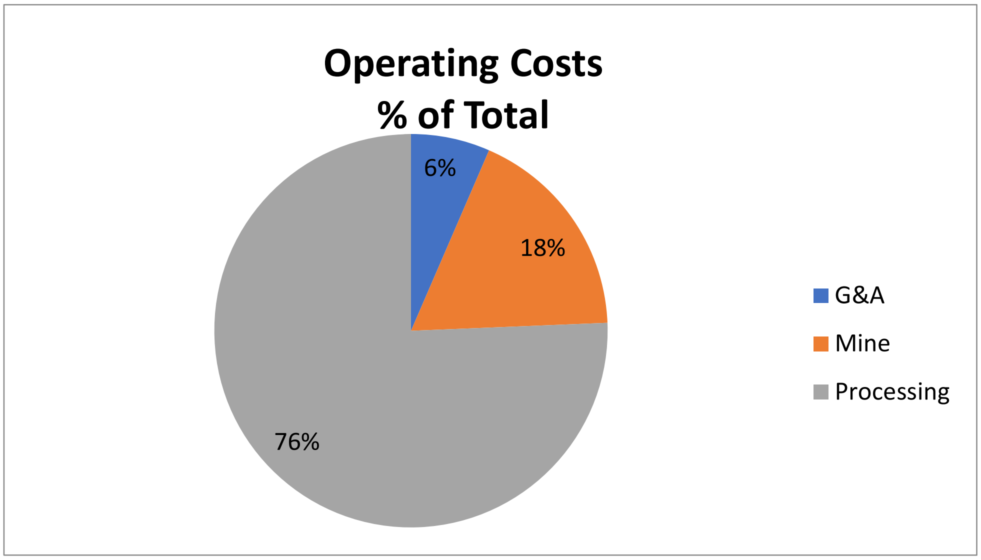
Note: Figure prepared by Wood, 2018.

Figure 21-2: Sustaining Capital Cost Distribution



Note: Figure prepared by Wood, 2018.

Figure 21-3: Operating Cost Distribution



Note: Figure prepared by Wood, 2018.

21.2.3 Contingency

The 2011 FS 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.

21.2.4 Mine Capital Costs

The Gibellini Project capital costs are minimal due to the use of contract mining, no pre-strip, 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: truck shop, wash bay, mine offices, and tire change area.

The Gibellini deposit provides mineralized material production in Year 1 without the need for pre-stripping. Initial development ahead of Year 1 includes:

- Waste rock storage facility and stockpile base preparation
- Open pit mine roads
- Ancillary mobile equipment.

In total, mine capital costs are estimated at $1.7 million.

21.2.5 Process Capital Costs

Process capital accounts for the majority of the initial capital expenditure and is estimated at $49.9 million. It includes:

- Mill feed handling
- Heap leach system
- Process plant.

21.2.6 Infrastructure Capital Costs

On site infrastructure costs are estimated at $15.9 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 $8.6 million and include the following:

- Water system
- Electrical supply system
- First fills.

21.2.7 Indirect Costs

Indirect costs account for $17.4 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 FS (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

21.2.8 Sustaining Capital

Sustaining capital costs are estimated at $32.4 million (Table 21-2).

The majority of the sustaining capital costs are incurred as a result of expanding the leach pads from the initial 10 Mt capacity to approximately 40.1 Mt in three 10 Mt expansions. The expansions occur a year prior to loading, in Year 3, Year 6, and Year 9.

Approximately $2.1 million is estimated in Year 5 for building the infrastructure to support Louie Hill development. The Louie Hill infrastructure will include:

- Louie Hill (West) WRSF
- Haul road to Louie Hill
- Haul road to Louie Hill (West) WRSF
- Storm water controls for Louie Hill open pit, WRSF, and roads.

Approximately $1.9 million is estimated for replacing mobile equipment, primarily in the process area. It is assumed that over the approximate 13.5 year mine life, 50% of the initial mobile equipment will be either replaced or rebuilt.

21.2.9 Capital Cost Summary

The capital cost estimate for the Gibellini Project is shown in

Table 21-3.

Table 21-2: Sustaining Capital Costs

Description	Total (US$000s)
Leach Pad Expansions	28,405
Louie Hill (West) WRSF	708
Haul Road to Louie Hill	999
Haul Road to Louie Hill (West) WRSF	70
Storm water controls Louie Hill open pit/WRSF/roads	341
Equipment Annual Allowance	1,875
Total Sustaining Capital	***32,397***

Table 21-3: Project Capital Cost Estimate

Cost Description	Total (US$000s)
Open Pit Mine	
Open pit mine development	1,412
Gibellini incremental WRSF	212
Mobile equipment	111
Infrastructure-On Site	
Site prep	2,431
Roads	1,391
Water supply	2,007
Sanitary system	61
Electrical - on site	2,052
Communications	165
Contact water ponds	174
Non-process facilities - buildings	7,583
Process Facilities	
Mill feed handling	15,380
Heap leach system	20,037
Process plant	14,441
Off-Site Infrastructure	
Water system	4,495
Electrical supply system	3,227
First fills	860
Subtotal Total Direct Cost	*76,039*
Construction indirect costs	4,254
Sales tax / OH&P	4,236
EPCM	8,879
Subtotal Prior to Contingency	*93,409*
Contingency	23,352
Total Project Cost	***116,761***

21.3 Operating Cost Estimates

21.3.1 Basis of Estimate

The PEA operating cost estimate is based on the 2011 FS operating cost estimate adjusted for inflation. For mining, CostMine's Mining Cost Service was referenced to escalate Gibellini operating costs from EOY 2011 to 2016. Six percent was added to the inflated cost to account for 2017 and 2018. Adjustments were made by cost area inclusive of: fuel, maintenance parts and supplies, labor, tires, and explosives.

Process and general and administrative (G&A) operating costs from the 2011 FS were likewise adjusted for inflation by area. For sulfuric acid, which accounts for over half the process operating costs, an indicative quote of $143/ton acid, obtained in early 2018, was used.

21.3.2 Mine Operating Costs

Mine operating costs are estimated to average $2.34/ton mined over the LOM. Table 21-4 provides a break down of cost by area and the percentage adjustment by cost area.

With the exception of fuel, all other costs have increased since the 2011 estimate. Fuel, the largest mine operating cost, decreased from an average selling price for off-road diesel of $3.53/gallon to $2.24/gallon.

Mine operating costs account for both the anticipated contracting mining costs of $2.06/ton and the mine owner mine management, engineering, ore control and geology costs of $0.28/ton.

21.3.3 Process Operating Costs

Process operating costs are estimated to average $11.54/ton leached, which is an 8% decrease compared to the 2011 FS process costs. The reduction in process costs are primarily the result of the decreased sulfuric acid costs. Both the sulfuric acid price and sulfuric acid consumption are lower in the PEA assumptions, when compared to the 2011 FS forecasts:

- The sulfuric acid price forecast decreased from $163/ton to $143/ton
- The sulfuric acid consumption predictions decreased from 85 lb/ton to 80 lb/ton.

Table 21-4: Mine Operating Costs

Cost Area	% Cost	% Adjustment	US$/t mined
2011 FS Mine Cost			2.42
Fuel adjustment	36	-31	(0.27)
Maintenance parts and supplies	25	16.6	0.10
Labor	13	19.6	0.06
Tires	10	1.1	0.00
Explosives	5	14.3	0.02
Other	11	4.2	0.01
2018 Mining Costs			***2.34***

Table 21-5 provides a comparison between the 2011 and 2018 processing cost assumptions.

Table 21-4: Mine Operating Costs

Cost Area	% Cost	% Adjustment	US$/t mined
2011 FS Mine Cost			2.42
Fuel adjustment	36	-31	(0.27)
Maintenance parts and supplies	25	16.6	0.10
Labor	13	19.6	0.06
Tires	10	1.1	0.00
Explosives	5	14.3	0.02
Other	11	4.2	0.01
2018 Mining Costs			***2.34***

Table 21-5: Process Operating Costs

Cost Area	2011 (US$/ton)	2018 (US$/ton)	% Change
Sulfuric acid	6.91	5.72	-17
Other reagents	2.81	2.67	-5
Maintenance	0.97	1.08	12
Power	0.50	0.56	12
Labor	1.32	1.51	14
Total	***12.51***	***11.54***	***-8***

21.3.4 General and Administrative Operating Costs

G&A operating costs are estimated at $0.99/ton, which is an approximately 15% increase over the 2011 FS costs. The increase is primarily as a result of higher labor costs.

21.3.5 Operating Cost Summary

Operating costs are anticipated to average $15.26/ton leached over the LOM.

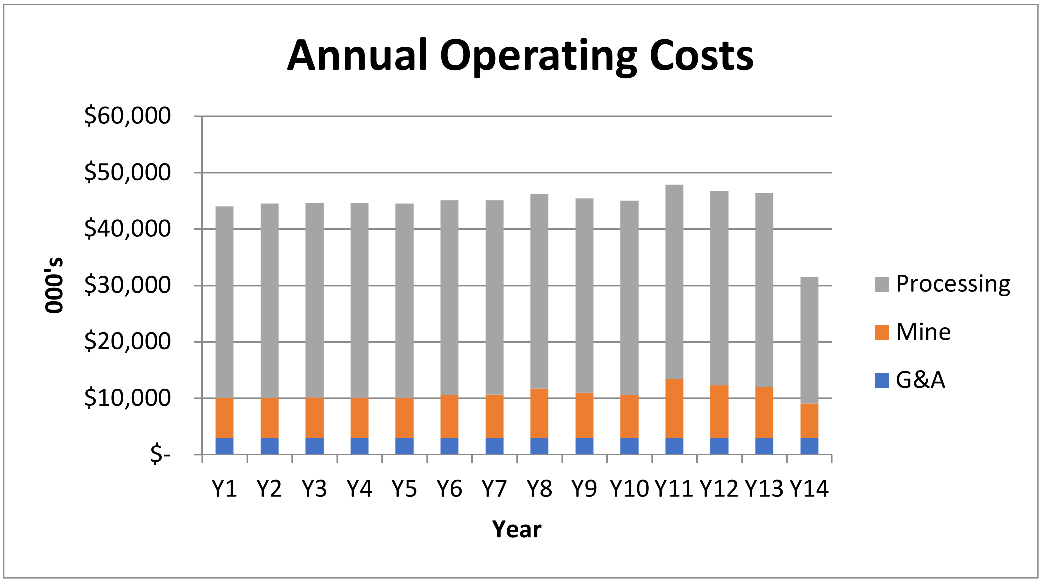
Process costs account for 76% of the total operating costs followed by mining at 18% and G&A at 6% (refer to Figure 21-3).

Annual operating costs average $45 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$/ton
G&A	0.99
Mine	2.72
Processing	11.54
Total Cash Operating Costs	***15.26***

Figure 21-4: Annual Operating Costs (US$ x 1,000)



Note: Figure prepared by Wood, 2018.

21.4 Comments on Section 21

The QPs note:

- Mine operating costs are sensitive to diesel pricing, and could increase significantly with increases to diesel pricing
- 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 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 2018 USD.

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 $12.73 V_2O_5 price. The subset of the Mineral Resource estimate within the PEA mine plan is 40.7 Mt of leach material grading 0.258% V_2O_5 (see material breakdown in Section 16). The projected mine life is approximately 13.5 years.

22.3.2 Metallurgical Recoveries

The Project is scheduled to leach at a three million ton per year 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 $10.6/lb shipped from the 2011 FS were escalated by 5% (using data from Mine Cost Service) to account for escalation resulting in a transportation cost of $11/lb for the PEA. The transportation cost estimate is based on transporting a bagged purple flake product from the mine to a conversion company located in Butler, Pennsylvania.

Selling costs are estimated at 5% of the product price within the financial analysis which results in a $0.64/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 $0.75/lb V_2O_5 sold.

22.3.4 Metal Prices

Metal price used for the economic analysis is $12.73/lb V_2O_5 based Merchant's pricing forecast, as discussed in Section 19.

22.3.5 Capital Costs

Capital cost assumptions are as outlined in Section 21.

22.3.6 Operating Costs

Operating cost assumptions are as outlined in Section 21.

Table 22-1: Recovered Metal

Description	Units	Value
Material leached	M tons	40.7
Leach grade	%V_2O_5	0.258
V_2O_5 lbs contained	M lbs	210.2
Average recovery	%	62.0
V_2O_5 lbs recovered	M lbs	130.3

22.3.7 Royalties

For the purposes of the PEA, it is assumed that Prophecy will pay a production royalty for Gibellini of 2.5% of the NSR until royalty payments reach a total of $3 million, where the royalty decreases to 2%. No royalties are assumed to apply to Louie Hill.

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 Profesional Accountants (DMCL), who are taxation experts. The tax model is reflective of the new 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 Amec Foster Wheeler 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 2018 dollars because the underlying assumption is that inflation is offsetting for revenue and costs.

22.4 Economic Analysis

Based on Wood's financial evaluation, the Gibellini Project generates positive before and after tax financial results. The pre-tax NPV at a 7% discount rate (the base case rate) is $411.4 million and the IRR is 56.5% (Table 22-2). Before-tax payback for the Project is estimated at 1.62 years.

The after-tax NPV at a 7% discount rate is $338.3 million and the IRR is 50.8% (Table 22-3). After-tax payback for the Project is estimated at 1.72 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.

22.5 Sensitivity Analysis

A sensitivity analysis was completed over the ranges of ±30 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 pre-tax cash flow, pre-tax NPV@7%, pre-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 22-2: Before-Tax Cash Flow

Annualized Cash Flow Before Tax	Units	Value
Cash flow	M US$	721.6
NPV @5%	M US$	480.5
NPV @7%	M US$	411.4
NPV @10%	M US$	327.8
IRR	%	56.5%
Payback - years from startup	Years	0.62

Table 22-3: After-Tax Cash Flow

Annualized Cash Flow After Tax	Units	Value
Cash flow	M US$	601.5
NPV @5%	M US$	396.9
NPV @7%	M US$	338.3
NPV @10%	M US$	267.7
IRR	%	50.8%
Payback - years from startup	Years	0.72

Table 22-4: Annualized Cash Flow

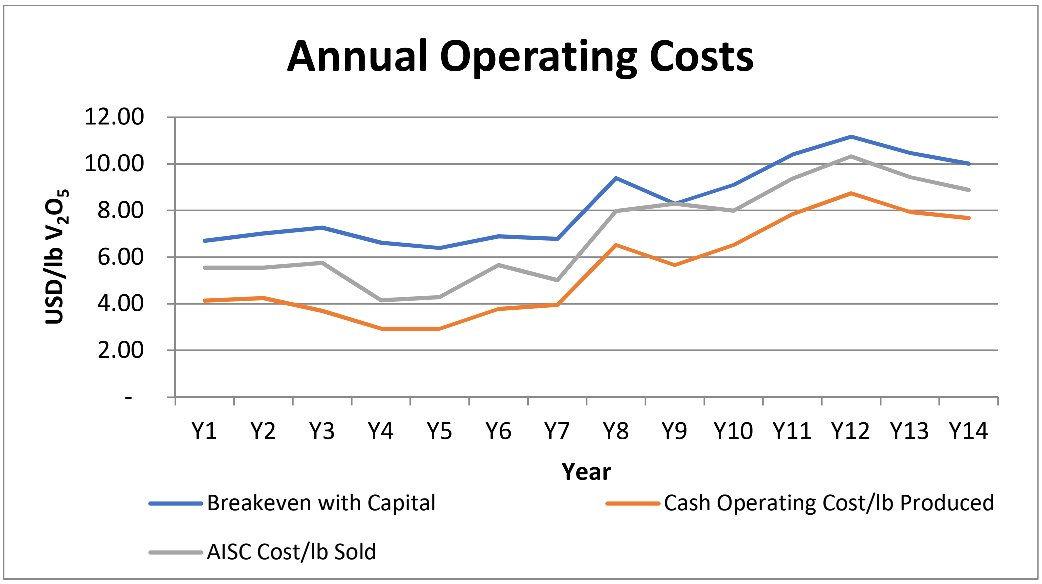
Cash Flow (000's)	Total	PP2	PP1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Revenue ($ 000's)																	
V_2O_5 Revenue	1,658,680	—	—	135,356	133,412	153,608	193,718	193,303	151,850	145,043	90,192	102,133	87,806	77,690	68,096	74,334	52,140
Transportation Charge	97,723	—	—	7,975	7,860	9,050	11,413	11,389	8,946	8,545	5,314	6,017	5,173	4,577	4,012	4,379	3,072
Royalty Payment Dietrich	26,154	—	—	3,185	2,511	2,891	3,646	3,638	903	197	1,698	1,922	1,653	1,460	1,282	1,170	-
Total Net Revenue	1,534,803	—	—	124,197	123,041	141,666	178,659	178,276	142,000	136,301	83,180	94,194	80,980	71,653	62,802	68,785	49,068
Cash Operating Costs ($ 000's)																	
G&A	40,433	—	—	2,886	2,886	2,894	2,886	2,886	2,886	2,894	2,886	2,886	2,886	2,894	2,886	2,886	2,886
Mine	110,916	—	—	7,117	7,144	7,204	7,186	7,150	7,689	7,706	8,827	8,070	7,704	10,507	9,415	9,028	6,170
Processing	469,825	—	—	33,982	34,462	34,476	34,457	34,458	34,462	34,479	34,456	34,449	34,435	34,454	34,431	34,435	22,390
Total Cash Operating Costs	621,174	—	—	43,985	44,492	44,575	44,529	44,495	45,037	45,079	46,170	45,405	45,025	47,855	46,732	46,349	31,446
Total Cash Costs ($ 000's)																	
Total Cash Operating Costs	621,174	—	—	43,985	44,492	44,575	44,529	44,495	45,037	45,079	46,170	45,405	45,025	47,855	46,732	46,349	31,446
Property Tax	2,048	307	793	58	56	55	53	52	50	49	47	46	44	43	41	40	38
Holding Fees	1,882	195	194	194	(336)	74	74	74	74	74	74	74	74	74	74	74	74
Total Cash Costs	625,104	502	987	44,236	44,212	44,704	44,657	44,620	45,161	45,202	46,291	45,525	45,143	47,972	46,847	46,463	31,558
Total Production Costs ($ 000's)																	
Total Cash Costs	625,104	502	987	44,236	44,212	44,704	44,657	44,620	45,161	45,202	46,291	45,525	45,143	47,972	46,847	46,463	31,558
Reclamation & Closure Accrual	40,000	—	—	2,899	2,947	2,948	2,947	2,947	2,947	2,948	2,947	2,947	2,947	2,948	2,947	2,947	1,731
Depreciation	145,523	—	—	108,355	320	9,619	395	2,513	9,644	395	395	10,303	395	370	320	295	220
Depletion Allowance	282,561	—	—	—	27,069	31,167	39,305	39,221	31,240	29,986	16,773	17,709	16,247	10,182	6,344	9,539	7,779
Total Production Costs	1,093,188	502	987	155,490	74,549	88,437	87,304	89,301	88,992	78,531	66,407	76,485	64,733	61,472	56,458	59,245	41,289
Before Tax Operating Income ($ 000's)																	
Net Revenue	1,534,803	—	—	124,197	123,041	141,666	178,659	178,276	142,000	136,301	83,180	94,194	80,980	71,653	62,802	68,785	49,068
Production Costs	1,093,188	502	987	155,490	74,549	88,437	87,304	89,301	88,992	78,531	66,407	76,485	64,733	61,472	56,458	59,245	41,289
Total Before Tax Operating Income	441,615	(502)	(987)	(31,293)	48,492	53,230	91,355	88,975	53,008	57,769	16,773	17,709	16,247	10,182	6,344	9,539	7,779
Income from Operations ($ 000's)																	
Nevada Net Proceeds Tax	26,753	—	—	3,842	2,280	2,970	4,403	4,386	2,930	2,694	643	1,173	591	295	107	265	173
Federal Corporate Tax	93,353	—	—	—	3,282	11,178	19,184	18,685	11,132	12,132	3,522	3,719	3,412	2,138	1,332	2,003	1,634
+ Depreciation	145,523	—	—	108,355	320	9,619	395	2,513	9,644	395	395	10,303	395	370	320	295	220
+ Depletion Allowance	282,561	—	—	—	27,069	31,167	39,305	39,221	31,240	29,986	16,773	17,709	16,247	10,182	6,344	9,539	7,779

Cash Flow (000's)	Total	PP2	PP1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Total Net Operating Income	749,593	(502)	(987)	73,220	70,319	79,867	107,468	107,637	79,830	73,325	29,776	40,830	28,886	18,301	11,569	17,106	13,971
Capital Cost ($ 000's)																	
Initial	116,761	45,110	71,651	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sustaining	32,397	-	-	75	100	9,398	175	2,292	9,423	175	175	10,083	175	150	100	75	—
Total Capital	149,158	45,110	71,651	75	100	9,398	175	2,292	9,423	175	175	10,083	175	150	100	75	—
Working Capital - $ 000's																	
Working Capital	—	—	4,754	(92)	1,454	3,063	(27)	(3,048)	(489)	(4,485)	1,000	(1,039)	(1,090)	—	—	142	(142)
Cash Flow Before Tax ($ 000's)	720,541	(45,612)	(77,393)	77,079	74,327	81,554	130,907	131,465	84,957	92,461	32,768	36,678	33,805	20,583	12,908	19,157	15,920
NPV @5%	480,541																
NPV @7%	411,357																
NPV @10%	327,763																
IRR %	56.5%																
Payback - Years from Startup	0.62																
Cash Flow After Tax ($ 000's)	600,435	(45,612)	(77,393)	73,237	68,766	67,406	107,320	108,393	70,896	77,635	28,602	31,786	29,802	18,151	11,469	16,888	14,113
NPV @5%	396,907																
NPV @7%	338,336																
NPV @10%	267,675																
IRR %	50.8																
Payback - Years from Startup	0.72																

Table 22-5: Key Costs and Breakeven Price (LOM)

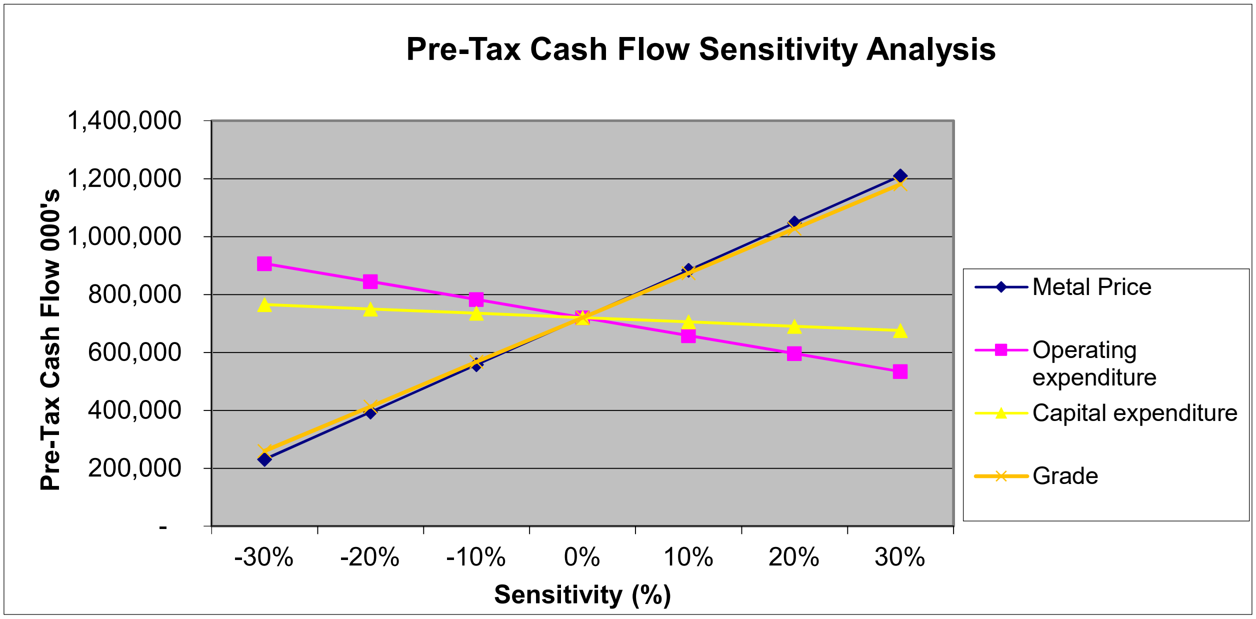
Item	Units	Value
Operating cash cost	US$/lb V_2O_5	4.77
All-in sustaining cost	US$/lb V_2O_5	6.28
Breakeven price	US$/lb V_2O_5	7.76

Figure 22-1: Annual Operating Costs (USD/lb V_2O_5)



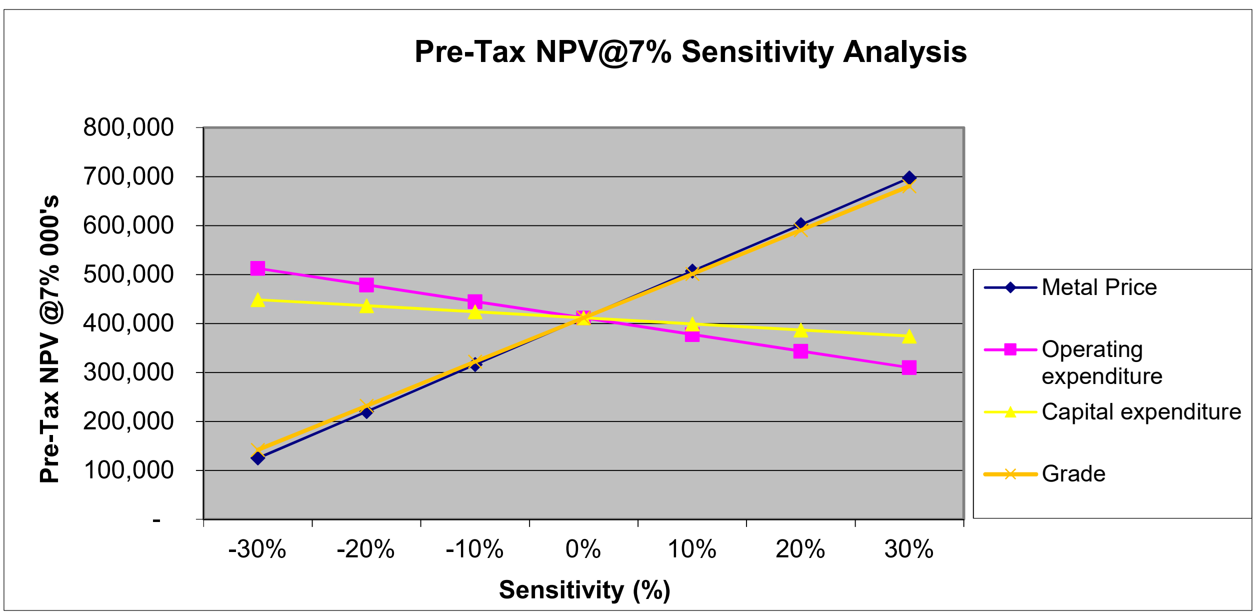
Note: Figure prepared by Wood, 2018.

Figure 22-2: Pre-Tax Cash Flow Sensitivity



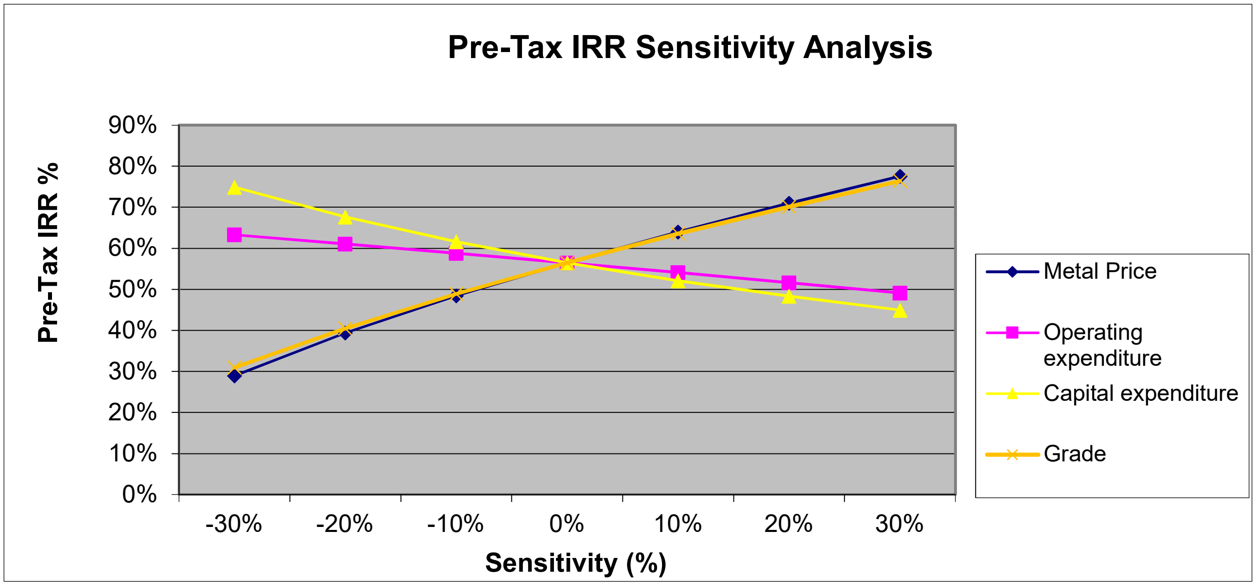
Note: Figure prepared by Wood, 2018.

Figure 22-3: Pre-Tax NPV@7% Sensitivity



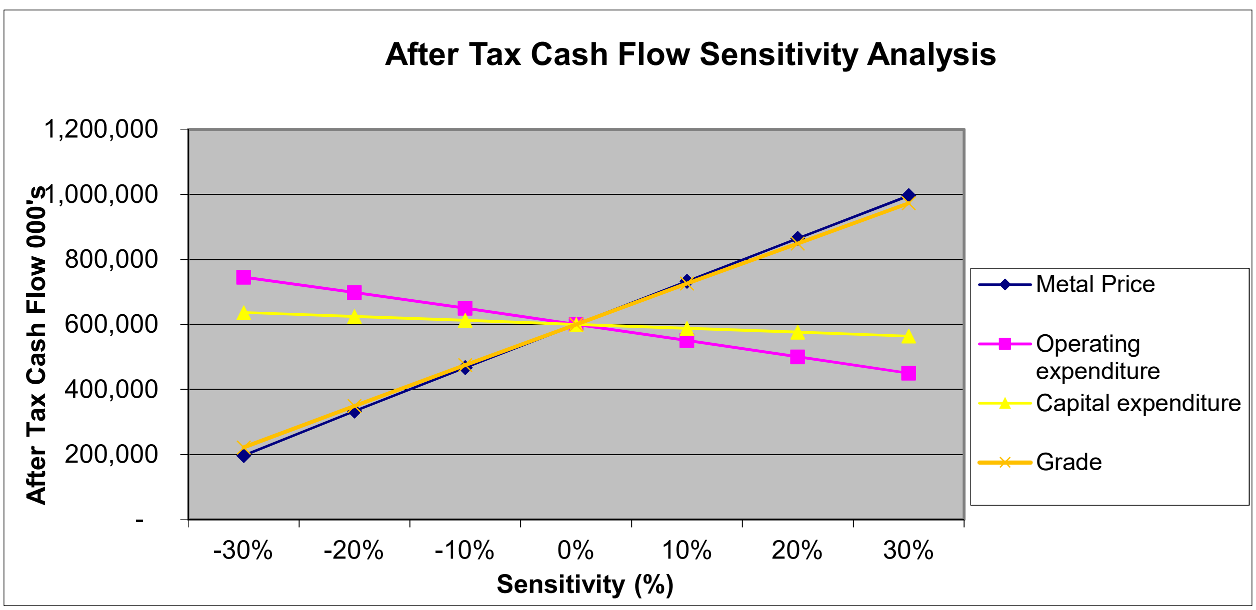
Note: Figure prepared by Wood, 2018.

Figure 22-4: Pre-Tax IRR Sensitivity



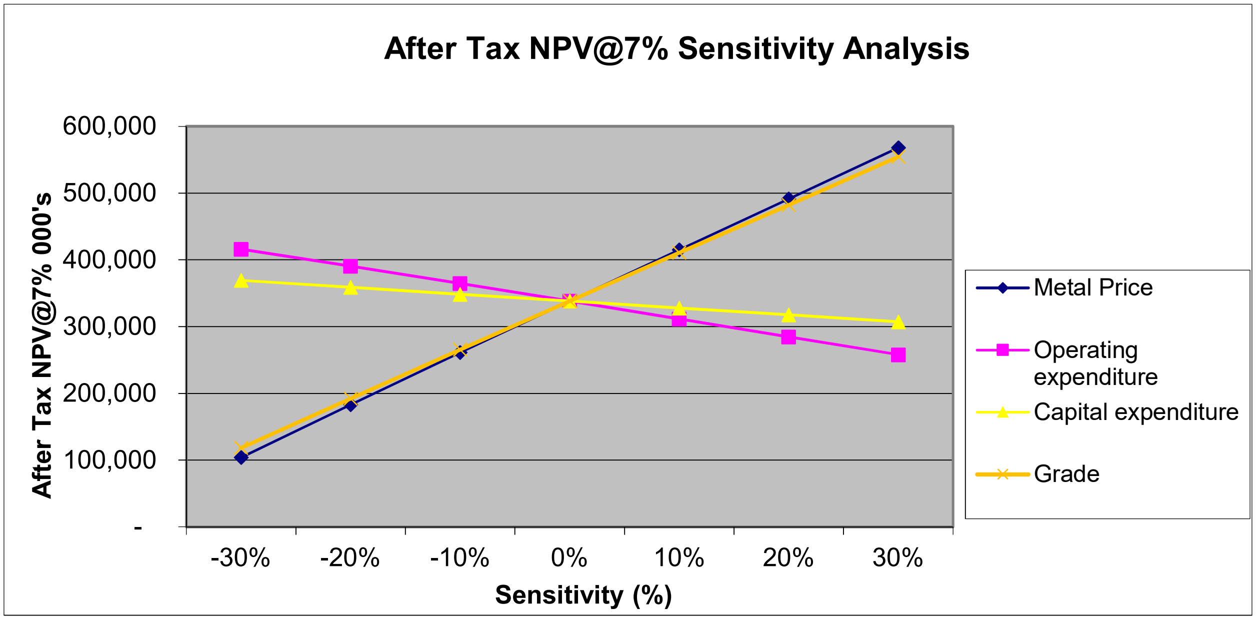
Note: Figure prepared by Wood, 2018.

Figure 22-5: After Tax Cash Flow Sensitivity



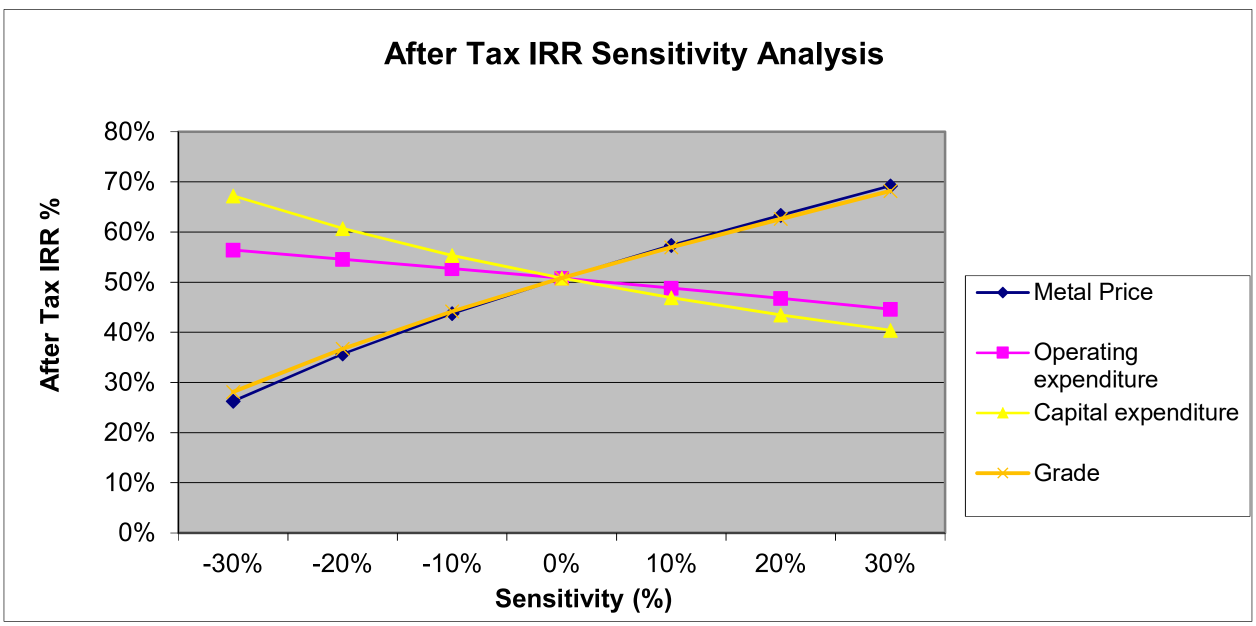
Note: Figure prepared by Wood, 2018.

Figure 22-6: After Tax NPV@7% Sensitivity



Note: Figure prepared by Wood, 2018.

Figure 22-7: After Tax IRR Sensitivity



Note: Figure prepared by Wood, 2018.

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.

To test the lower bound of the project value, an iteration was completed to determine at which price the after tax NPV@7% equals zero. Based on this iteration, it would take a vanadium price of \$7.33/lb V_2O_5.

A sensitivity was completed assuming that the 2.5% McKay NSR royalty was in place. With the McKay NSR royalty in place, the Project's pre-tax NPV@7% would drop by \$3.6 million.

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%.

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)
30	16.55	69	568.0	996.0
20	15.28	63	491.3	864.4
10	14.00	57	415.2	733.2
Base Case	12.73	51	338.3	600.4
-10	11.46	44	261.0	467.2
-20	10.18	36	183.1	333.2
-30	8.91	26	103.9	196.9

Table 22-7: After Tax IRR, NPV and Cash Flow Sensitivity to V_2O_5 Grade

V_2O_5 Grade Change (%)	V_2O_5 Grade (%V_2O_5)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	0.34	68	554.4	972.8
20	0.31	63	482.4	849.0
10	0.28	57	410.7	725.4
Base Case	0.26	51	338.3	600.4
-10	0.23	44	265.6	475.0
-20	0.21	37	192.2	348.9
-30	0.18	28	118.3	221.6

Table 22-8: After Tax IRR, NPV and Cash Flow Sensitivity to Capital Costs

Change in Capital Costs (%)	Capital Cost Estimate (US$ M)	After-tax IRR %)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	151.8	40	307.2	564.3
20	140.1	43	317.6	576.3
10	128.4	47	328.0	588.4
Base Case	116.8	51	338.3	600.4
-10	105.1	55	348.6	612.5
-20	93.4	61	358.9	624.6
-30	81.7	67	369.3	636.8

Table 22-9: After Tax IRR, NPV and Cash Flow Sensitivity to Operating Costs

Change in Operating Costs (%)	Operating Cost Estimate (US$/lb)	After-tax IRR (%)	After-tax NPV (US$ M @ 7%)	After-tax Cashflow (US$ M)
30	6.20	45	257.9	450.2
20	5.72	47	284.8	500.3
10	5.25	49	311.6	550.4
Base Case	4.77	51	338.3	600.4
-10	4.29	53	364.8	650.0
-20	3.82	55	390.7	698.4
-30	3.34	56	416.0	745.4

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 two third parties, with whom Prophecy has lease agreements. Royalties are associated with these 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
- No surface rights are currently held. Mineral deposits are located on land administered by the BLM
- To the extent known, Prophecy advised that 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

- Similarities with the style of mineralization for the Project exist in the USGS manganese nodule model, model 33a of Cox and Singer (1986). Vanadium mineralization is thought to be the result of syngenetic and early diagenetic metal concentration in the marine shale rocks
- 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 American Vanadium 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
- AMEC considered that a reasonable level of verification has been completed, and that no material issues would have been left unidentified from the programs undertaken. As no additional work has been undertaken on the project since the AMEC audits, the AMEC conclusions are considered by Wood to remain valid.

25.5 Metallurgical Test Work

- Metallurgical test work and associated analytical procedures were performed by recognized metallurgical 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 Gibellini. 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
- No processing factors were identified from the metallurgical test work that would have a significant effect on extraction
- 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 and Louie Hill, 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 40% 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. Phase I, Phase III and Phase IV are mined from the Gibellini deposit and Phase II 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
- 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. Site facilities will include the open pits, and process plant
- 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 four phases, an initial phase and three expansions, with a total planned capacity of 40.7 Mt
- There will be two WRSFs, with a total capacity of 6.8 Mst.

25.10 Environmental, Permitting and Social Considerations

- The Project is located on public lands administered by the BLM through the Mount Lewis Field Office
- The original PoO and Nevada Reclamation Permit Application were submitted in December 2012, and revised in February 2013 and November 2014. Prophecy submitted an updated PoO to the BLM and NDEP–BMRR for the Project in early May, 2018
- 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
- Prophecy will need to meet BLM 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
- Prophecy 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

- Prophecy commissioned a vanadium market survey by Merchant to determine an appropriate vanadium price forecast for use in the PEA. Based on the demand pricing forecast from Merchant's 2017 report, Wood adopted a long-term price forecast of $12.73 per pound of V_2O_5 sold
- Prophecy proposes to ship a bagged product to a conversion company for conversion into a saleable product
- No contracts are in place. Mining will be undertaken using contract mining services.

25.12 Capital Cost Estimates

- The PEA capital cost estimate is based on the 2011 FS capital estimate adjusted for inflation and the inclusive of a 25% contingency to reflect the level of study
- Total initial capital is estimated at $116.8 million
- Sustaining capital is estimated at $32.4 million.

25.13 Operating Cost Estimates

- The PEA operating cost estimate is based on the 2011 FS operating cost estimate adjusted for inflation
- Operating costs average $15.26 per ton leached.

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 PEA based on these Mineral Resources will be realized
- The pre-tax NPV at a 7% discount rate (the base case rate) is $411.4 million and the IRR is 56.5%. Before tax payback for the Project is estimated at 1.62 years
- The after-tax NPV at a 7%discount rate is $338.3 million and the IRR is 50.8%. The after-tax payback for the Project is estimated at 1.72 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 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 $863,000 to $1.041 million.

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 Geology, Block Modelling, and Mineral Resource Estimation

The recommendations pertain to geology, block modelling, and Mineral Resource estimation, as follows:

- Update data on the drill logs when new data are collected, or the old data are revised or reinterpreted
- Document relogging efforts and place updated copies of drill hole logs in the drill log folders
- The insertion rates of the control samples are low when compared to industry best practice; the insertion rate of SRMs, duplicates, and blanks should be increased to 5% each
- 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 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.

The total cost to carry out this program of work is projected to be approximately $325,000 to $380,000, depending on the amount of condemnation and angled drilling that may be required.

26.2.3 Metallurgical Testwork and Process

The following recommendations are made:

- Reduced material testing 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 deposit 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 deposit material

The total cost to carry out this program of work is projected to be approximately $500,000 to $600,000, depending on the amount of metallurgical testwork required for Louie Hill.

26.2.4 Mining

A trade-off study should be performed to determine if there are advantages to partially backfilling the Gibellini pit with waste mined from the Louie Hill pit.

A drill-and-blast study should be conducted to determine if reduced blasting, or even no blasting is practical, in an effort to potentially reduce blasting costs.

These programs are estimated at about $20,000 to $30,000.

26.2.5 Infrastructure

Recommendations relating to infrastructure include:

- Sources of water should be identified to support future more detailed studies.
- The WRSFs should be assessed to determine if lining under the facilities is required.

The total cost to carry out this program of work is projected to be approximately $10,000 to 20,000.

27.0 REFERENCES

AMEC, 2011: American Vanadium Gibellini Project Eureka County, Nevada, USA Feasibility Study: report prepared for American Vanadium, August 2011.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2003: Estimation of Mineral Resources and Mineral Reserves – Best Practice Guidelines, May 30, 2003: adopted by CIM Council on November 23, 2003.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2014: CIM Definition Standards – for Mineral Resources and Mineral Reserves, prepared by the CIM Standing Committee on Reserve Definitions: adopted by the CIM Council, May, 2014.

Call, R.P., 1985: Evaluation of Material Properties, Design on Non-Water Impounding Mine Waste Dumps: M.K. McCarter, Editor, Society of Mining Engineers of AIME, New York.

Condon, 1975: Summary of Results, Gibellini Project, Eureka County, Nevada: Noranda Exploration Inc. internal report.

Fraser Institute, 2018: Fraser Institute Annual Survey of Mining Companies 2017: accessed 4 May, 2018, https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2017.

James Askew Associates, 1989a: Metallurgical Test Drilling Program and Recommended Follow-up Geological Work, Gibellini Vanadium Project, Eureka County, Nevada: report prepared for Minproc Engineers Inc. and Inter-Globe Resources Ltd., July, 1989.

James Askew Associates, 1989b: Channel Sampling of Trenches and Pits, Gibellini Vanadium Project, Eureka County, Nevada: report prepared for Minproc Engineers Inc. and Inter-Globe Resources Ltd., August, 1989.

Journel, A.G. and Huijbregts C.J., 1978: Mining Geostatistics: Academic Press, New York.

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., 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.

Morgan, D.R., 1989: A Geological Report on the Bisoni Vanadium Property Situated 21 Miles South and 8 Miles West of Eureka, East Central Nevada: report prepared for Inter-Globe Resources Ltd on 6-Oct-1989.

Nevada Bureau of Mines, 1964: Mineral and Water Resources of Nevada, Bulletin 65.

Nevada Bureau of Mines and Geology, 1967: Geology and Mineral Resources of Eureka County, Nevada, Bulletin 34.

Papke K.G., and Davis, D.A., 2002: Mining Claim Procedures for Nevada Prospectors and Miners: Nevada Bureau of Mines and Geology, Fifth Edition, accessed via the internet, website address: http://www.clarkcountynv.gov/public-works/surveyor/documents/mining%20claim%20procedures.pdf.

Parrish, I.S., 1977: Geologist's Gordian Knot: To Cut or Not to Cut, Mining Engineering, April 1977, pp. 45–49.

Peterson, M.D., Frankel, A.D, Harmsen, S.C., Mueller, C.S., Haller, K. M., Wheeler, R.L., Wesson, R.L., Zeng, Y., Boyd, O.S., Perkins, D.M., Luco, N., Field, E.H., Wills, C.J., and Rukstales, K.S., 2008, Documentation for the 2008 Update of the United States National Seismic Hazard Maps, USGS Open File Report 2008-1128, 61 p.

Roberts, R.J., Montgomery, K.M., and Lehner, R.E., 1967: Geology and Mineral Resources of Eureka County, Nevada, NBMG Bulletin 64.

Stewart, J., McKee, E. and Stager, H, 1977: Geology and Mineral Deposits of Lander County, Nevada (Part 2): Nevada Bureau of Mines and Geology, Bulletin 88, pp. 60–106.

Trumbell and Flowerdew, 2018: Revisions to Tax Components of Prophecy's Gibellini PEA: report prepared by Dale Matheson Carr-Hilton Labonte LLP, 4 May 2018.

U.S. Department of Labor, 2011: Davis-Bacon Wage Determinations, White Pine County, Nevada, May 30, 2011.

USGS, 1983: Geologic map of the Cockalorum Wash Quadrangle, Eureka and Nye Counties, Nevada: Miscellaneous Investigations Series Map I-1410, 1983.

USGS, 2009: Eightmile Well 7.5 Minute Quadrangle, Nevada.

Vanadium Gibellini Company LLC: Gibellini Project Plan of Operations NVN-088878 and Nevada Reclamation Permit Application: report prepared for the Bureau of Land Management and the Nevada Division of Environmental Protection

Wakefield, T., and Orbock, E., 2007: 43-101 Technical Report Gibellini Property Eureka County, Nevada: technical report prepared by AMEC E&C Services Inc. for RMP Resources Corporation, effective date 18 April, 2007.