NI 43-101
PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE
VAN DYKE COPPER PROJECT

Miami, Gila County, Arizona

Centred at 3,695,560 N and 512,000 E (NAD 27)

Submitted to:
Copper Fox Metals Inc.
Suite 650, 340-12th Avenue SW
Calgary, Alberta V2R 1L5

December 18, 2015

Submitted by:
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DATE & SIGNATURE PAGES

Herewith, our report entitled 'Preliminary Economic Assessment Technical Report for the Van Dyke Copper Project' dated 18 December 2015.

"Originals Signed and Sealed"

James (Jim) H. Gray, P.Eng.
Moose Mountain Technical Services
Principal Engineer

Dated the 18 December 2015

"Originals Signed and Sealed"

Tracey Meintjes, P.Eng.
Moose Mountain Technical Services
Principal Engineer

Dated the 18 December 2015

"Originals Signed and Sealed"

Susan C. Bird, M.Sc., P.Eng.
Moose Mountain Technical Services
Principal Engineer

Dated the 18 December 2015

CERTIFICATE & DATE – JAMES (JIM) H. GRAY

I, James (Jim) H. Gray, P.Eng, do hereby certify that as a co-author of the report titled **PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE VAN DYKE COPPER PROJECT:**

1) I am a Principal of Moose Mountain Technical Services, with a business address of #210 1510 2nd St North Cranbrook BC, V1C 3L2.
2) I graduated with a Bachelor of Applied Science in Mining Engineering from the University of British Columbia in 1975.
3) I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (#11919), the Association of Professional Engineers, Geologists and Geophysicists of Alberta (Member M47177), and Engineers Geoscientists New Brunswick (L5018).
4) I have worked as a Professional Engineer for over forty years since my graduation from university.
5) I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional associations (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6) I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
7) I am independent of Copper Fox Metals Inc. as defined in Item 1.5 of National Instrument 43-101.
8) I am responsible for the overall technical report “**PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE VAN DYKE COPPER PROJECT**” date 18 December 2015.
9) I visited the Property on March 12, 2015.
10) I have had no previous involvement with the Property that is the subject of the Technical Report.
11) I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
12) I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public.

Dated this 18 December 2015.

“Originals Signed and Sealed”

____

Signature of Qualified Person

James (Jim) H. Gray, PEng

CERTIFICATE & DATE – TRACEY MEINTJES

I, Tracey Meintjes, P.Eng., of Vancouver B.C. do hereby certify that as a co-author of the report titled **TECHNICAL REPORT AND RESOURCE ESTIMATE FOR THE VAN DYKE COPPER PROJECT:**

1. I am a Metallurgical Engineer with Moose Mountain Technical Services with a business address of #210 1510 2nd St North Cranbrook BC, V1C 3L2.
2. This certificate applies to the technical report entitled "**PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE VAN DYKE COPPER PROJECT**" date 18 December 2015.
3. I am a graduate of the Technikon Witwatersrand, (NHD Extraction Metallurgy – 1996)
4. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (#37018).
5. My relevant experience includes process engineering, operation, and supervision, and mine engineering in South Africa and North America. I have been working in my profession continuously since 1996.
6. I am a "Qualified Person" for the purposes of National Instrument 43-101 (the "Instrument").
7. I have not visited the Property.
8. I am responsible for Sections 13, 17, and 19; including metallurgical and processing portions of Chapters 1 and 26 of the Technical Report.
9. I am independent of Copper Fox Metals Inc. as defined by Section 1.5 of the Instrument.
10. I have had no previous involvement with the property that is the subject of the Technical Report.
11. I have read the Instrument and the Technical Report has been prepared in compliance with the Instrument.
12. As of the date of this certificate, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 18 December 2015.

"Originals Signed and Sealed"

____

Signature of Qualified Person

Tracey D. Meintjes, P.Eng.

CERTIFICATE & DATE – Susan C. Bird

I, Susan C. Bird, M.Sc., P.Eng., do hereby certify that as a co-author of the report titled **PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE VAN DYKE COPPER PROJECT:**

1. I am a Principal of Moose Mountain Technical Services, with a business address of #210 1510 2nd St North Cranbrook BC, V1C 3L2.
2. I graduated with a Geologic Engineering degree (B.Sc.) from the Queen's University in 1989.
3. I graduated with a M.Sc. in Mining from Queen's University in 1993.
4. I am a member of the Association of Professional Engineers and Geoscientists of B.C. (No. 25007).
5. I have worked as an engineering geologist for a total of 18 years since my graduation from university.
6. My experience with Cu deposits includes acting as qualified person (QP) for the resource estimate on a number of deposits including Rosemont, AZ, Ilovitza, as well as resource and reserve estimation for Taseko's Gibraltar Mine, BC.
7. I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that because of education, experience, independence and affiliation with a professional organization, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.
8. I am responsible for Section 14 of this report titled "**PRELIMINARY ECONOMIC ASSESSMENT TECHNICAL REPORT FOR THE VAN DYKE COPPER PROJECT**" as well as sections pertaining to the Resource in Sections 1, 25 and 26, dated December 18, 2015.
9. I am independent of Copper Fox Ltd. , as described in Section 1.5 of NI 43-101 and do not own any of their stocks or shares. I work as a geological and mining consultant to the mining industry.
10. To the best of my knowledge, information and belief at the effective date, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.

Dated this 18 December 2015.

"Originals Signed and Sealed"
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Signature of Qualified Person
Susan C. Bird, M.Sc., P.Eng.
B.C. Registration No. 25007

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1 SUMMARY

1.1 Project Overview

The Van Dyke Copper Project (the "Project") is a copper oxide project located in Arizona. Copper Fox Metals Inc. (Copper Fox) retained Moose Mountain Technical Services (MMTS) to prepare a National Instrument 43-101 (NI 43-101) Technical Report and Resource Estimate for the Van Dyke Copper Project; Gila County, Arizona, U.S.A. entitled "Preliminary Economic Assessment Technical Report for the Van Dyke Copper Project" (PEA). The Project has a long history of exploration, development and limited mining that dates back to 1916. This scoping study level Technical Report provides the first NI 43-101 engineering technical study undertaken on the Van Dyke copper project and builds upon the previous resource estimate and metallurgical testwork prepared by MMTS and SGS E&S Engineering Solutions Inc. as published in the previous Technical Report entitled "Technical Report and Resource Estimate for the Van Dyke Copper Project" January 30, 2015 Sections 4 to 12 from the January 30,2015 Technical Report have been used unchanged for this report and are covered by the QP from that report.

It is the intent of his Technical Report to provide the reader with a review of a potential project economics of this mine plan and recommendations for future work. This report suggests a mine plan that utilizes underground access and in-situ leach (ISL) combined with traditional solvent extraction and electrowinning (SX-EW) to extract acid soluble copper (ASCu). The key economic results of the PEA are summarized in the Table below. All currency is in US dollars.

Table 1-1 Summary of Base Case Economic Parameters and Results

Van Dyke - Economic Summary	Unit	Base Case
Life of Mine (LOM)	years	**11**
Copper Cathode Sold	Million lbs	**456.9**
Copper Price	$US/lb	**3.00**
Gross Revenue	$US	**1,370,000,000**
Royalties	$US	**31,500,000**
Operating Costs (includes LOM sustaining costs)	$US	**619,800,000**
LOM Direct Operating Cost ($/pound recovered copper)	$US/lb copper	**0.60**
All In Sustaining Cost ($/pound recovered copper)*	$US/lb Cu	**1.44**
Initial Capital Costs (includes 30% Contingency)	$US	**204,400,000**
Taxes	$US	**110,900,000**
NPV & IRR (Base Case)		
Discount Rate	%	**8%**
Pre-tax Net Free Cash Flow	$US	**453,100,000**
Pre-tax NPV	$US	**213,100,000**
Pre-tax IRR	%	**35.5%**
Payback	Years	**2.3**
Post-tax Net Free Cash Flow	$US	**342,200,000**
Post-tax NPV	$US	**149,500,000**
Post-tax IRR	%	**27.9%**
Payback	years	**2.9**

**All in Sustaining Cost includes the LOM Direct Operating Cost*

1.2 Mineral Resource Estimate

The mineral resource has been made using Ordinary Kriging of total copper (TCu) and oxide copper (ASCu) based on the available drillholes and channel samples. The modelled grades have been validated through comparisons with the original data and the de-clustered, volume-variance corrected composited data.

The mineral resource is estimated uses criteria consistent with the CIM Definition Standards (2014) and in conformity with CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice" (2003) guidelines.

The Inferred Resource has an effective date of November 18, 2015, as summarized in Table 1-2. The Base Case at a 0.05% TCu cut-off is considered an appropriate cut-off for the extraction of copper by in-situ leaching (ISL), as determined by a literature review of similar properties in Arizona (HDI-Curis, 2013 and Excelsior, 2014).

There are no known environmental, permitting, legal, title, taxation, socio-economic, marketing and political or other factors that could materially affect the resource estimate as used in the cash flow analysis of this PEA.

Table 1-2 Inferred Mineral Resource Estimate within Potentially Economic Confining Shape

Zone	Cut-off - TCu(%)	tonnes	TCu (%)	ASCu (%)	ASCu/TCu	Total Cu (Mlb)	Oxide Cu (Mlb)
Oxide	0.05	113,143,000	0.434	0.284	0.676	1,083	704
Mixed	0.05	69,918,000	0.167	0.060	0.403	245	93
Total	0.05	183,061,000	0.332	0.198	0.598	1,328	797

Notes:

1. *All numbers are rounded following Best Practice Principles.*
2. *The total copper and oxide copper are expressed in millions of pounds ('Mlb').*
3. *The terms Oxide and ASCu represent the acid soluble copper.*

Mineral resources that are not mineral reserves do not have demonstrated economic viability.

1.3 Reliance on Other Experts

The authors of this Report state that they are the QPs for those areas identified in the appropriate "Certificate of Qualified Person" attached to this Report. The QPs confirm that the information relied upon conforms to NI 43-101.

The QPs have not independently reviewed ownership of the Project area and the underlying property agreements. The QPs have fully relied upon, information derived from Copper Fox corporate staff and legal experts retained by Copper Fox for this information.

The authors have relied upon the work of others also for matters pertaining to site hydrogeology, and in providing cost estimates for the economic model. The consultants that have participated in work supporting this study are Knight Piésold (KP), Ray V. Huff and Associates, Greenwood Environmental, Schlumberger Water Services (SWS), and SGS E&S Engineering Solutions Inc. (SGS).

1.4 Analytical Methods

Copper Fox used ALS Minerals (ALS) in Reno, Nevada, for the analysis of the first batch of historic drill core and drill core pulps. Copper Fox also used Skyline Assayers and Laboratories (Skyline) in Tucson, Arizona, for a second batch of historic drill core pulps.

Copper Fox used Skyline for the analysis of all core sampled from the 2014 diamond drilling program, with the exception of eight short whole core samples which were analyzed by SGS E&S Engineering Solutions Inc. (SGS) in Tucson, Arizona, as part of a preliminary in-situ pressure leach test. Check sampling of 2014 core analysis, was conducted by Inspectorate America Corporation (Inspectorate) in Reno, Nevada. With the exception of one sample that, because of its high grade, was sent to Inspectorate's Vancouver facility for analysis. A comprehensive Quality Assurance/Quality Control program was instituted to make possible the verification of analytical results from historical exploration programs for which there were no laboratory analytical certificates.

Samples were analyzed for total copper, acid soluble copper, cyanide soluble copper and a standard suite of metallic and non-metallic elements, and for gold by fire assay (FA) with an atomic absorption (AA) finish.

1.5 Data Verification

Copper Fox's 2014 exploration program of drillhole twinning and re-analysis of existing stored drill core and drill core pulps was designed to provide a modern data set that could be compared with, and used to verify, the historic results. In order to provide a resource estimate for the Van Dyke Copper Project, it was necessary to verify and integrate as much of the historic data as possible.

The data generated from the re-analysis of drill core and drill core pulps generally correlated well with the historic data recorded on drillhole logs. Total copper content of the re-analyzed historic drill core and drill core pulps correlates very well with the original data. Acid soluble copper content of the re-analyzed historic drill core and drill core pulps is consistently higher than the original data. This may suggest that modern soluble copper analysis techniques are more thorough than techniques of the late 1960s and early 1970s. Overall, the re-analysis demonstrated that the historic data set is acceptable and representative of the Van Dyke Copper Project.

The drillhole twinning program, consisting of five twin pairs of holes, also verified the integrity of the historic drillhole data. In all cases, lithology could be correlated between the twin pairs. The style of mineralization was found to be similar in all twin pairs, with mineralization occurring in moderately to intensely fractured and brecciated Pinal Schist and to a lesser extent in porphyritic quartz monzonite of the Schultze Granite. With one exception, mineralogy (malachite, azurite, chrysocolla, tenorite and cuprite) and total copper grades correlate well between twin pairs. The exception, VD14-02 drilled as twin of OXY-6 in the north-central part of the Project, intersected a mineralized interval with similar widths as the original hole, but one in which the lower 120m consists of different copper-bearing minerals, and carries markedly lower total copper and acid soluble copper grades.

MMTS is of the opinion that the 2014 Copper Fox drill program:

1) generated analytical results that are suitable for use in resource estimation;
2) where both historic drillholes and 2014 drillholes exist, data for the 2014 holes will be used for resource estimation;
3) confirmed that the northwest part of the property, west of the Van Dyke shaft, was affected by historic ISL testing and/or small-scale mining that removed a percentage of the available soluble copper from a volume of mineralized rock;
4) identified an area of possible incidental leaching in the north-central part of the property, in the vicinity of drillhole OXY-6 and twin VD-14-02, that reduced the amount of secondary copper in the mineralized interval, and impacts the use of historical data for OXY-6;
5) through a rigorous QA/QC assessment of the data, verified that the remainder of the historical analytical results are suitable for use in resource estimation.

1.6 Mining

Trade-off studies, indicate that it is more cost effective to install the in-situ wellfield from underground development rather than from surface. The proposed access to the mineralized zone contemplates an access ramp from surface to the mineralized zone using mechanized equipment to allow development within the targeted production zone and installation of service and ventilation facilities.

A total of 5,300 meters (“m”) of underground development is planned over the LOM including:

- 2,212m of ramp 4.9m wide x 4.9m high with arched back driven at a grade of -15%,
- 1,400m of well bay access driven at 6.1m width x 6.1m height,
- Fresh Air Route (Secondary Egress): This comprises 213m of 4.9m diameter borehole raise driven in two segments and connected via 181m of 4.9m wide x 4.9m high drifts,
- 1,484m of well bays 6.1m width x 6.1m high.

All underground development will be completed using conventional drill and blast tunneling techniques by mining contractors. Appropriate ground support will be completed as and if required. The majority of the underground development is contemplated to be completed during the pre-production phase. Ventilation during access ramp and underground development will be provided by a fan located at the portal. Ventilation raises will serve as alternate egress route as required.

The mine plan is estimated to produce roughly 440 thousand tonnes of waste rock that will be stored in a valley directly adjacent to the portal on land owned by Desert Fox. Funds have been allocated within the PEA to progressively reclaim the rock pile in accordance with permit requirements at the end of the mine life.

1.7 In-Situ Leach (“ISL”) Operations

Copper Extraction and Acid Consumption:

Historical operations and recent metallurgical testwork confirm that Van Dyke is suitable to use ISL for extraction of copper. Chrysocolla, malachite, and azurite are the primary copper bearing minerals in the Van Dyke deposit, with secondary copper minerals being chalcocite and native copper. The 68% acid soluble copper (ASCu) recovery assumed for the PEA is at the low end of recoveries achieved in the 2014 simulated ISL tests (SGS, 2014) and is considered conservative. Leaching is carried out using a weak solution of sulphuric acid. Net sulfuric acid consumption is estimated to be approximately 1.5lb acid/lb copper produced based on the current testing and results of historical pilot test leach operations (Occidental, 1978). No deleterious elements in the pregnant leach solution ("PLS") were identified during the 2014 pressure leach tests.

Underground Production Wells:

The copper recovery circuit has been designed to establish a closed system related to fluid injection and recovery. Fan pattern wellfield geometry is proposed to recover the leachable copper. In this configuration, angled wells are advanced from horizontal underground workings with an average well spacing of 30m between extraction holes within the deposit.

The study incorporates hydraulic stimulation to induce a secondary fracture set over a 10m to 30m radius around the drillhole. The ratio of recovery wells to injection wells in the proposed wellfield array used in the PEA is 4:1 per array with an overall ratio of 1:1.

During the operation phase, crews will enter the underground workings on a daily basis to check the injection and recovery wells, develop future patterns, recover past patterns, and perform daily maintenance.

Copper Extraction Plan:

The copper extraction plan is estimated as seventeen leaching zones, the timing of which will be dictated by the underground development.

Conventional solvent extraction and electrowinning (SX-EW) is planned to recover copper from the PLS. The PLS recovered from the ISL is pumped to the PLS pond on surface and then to the SX-EW facilities for copper recovery. The solution from the SX-EW plant is then recycled back to the underground ISL.

Copper cathode production is estimated to be approximately 60 million lbs per year of "Grade A" copper cathodes in Years 1-6 of the mine life, declining thereafter.

1.8 Infrastructure

The Van Dyke project is located within the town limits of Miami, Arizona. Sewer, water, communications and powerlines are present on the property. The planned administration, maintenance, and warehouse facilities are located along Chisholm Avenue and the SX-EW facilities and truck scale are sited at the end of Nash Avenue to take advantage of local topography, accommodate environmental considerations and ensure efficient operations. The processing facilities include:

- Solvent extraction plant,
- Electrowinning tank house and tank farm for auxiliary vessels,
- Solution pond to handle: PLS, raffinate, process water, emergency pond,
- Water treatment plant,
- Ancillary facilities including warehouse and maintenance shop, and
- Administration offices.

1.9 Social and Environment

The PEA contemplates employing 134 direct jobs in all operations of the project. Using a common industry multiplier of three, it is anticipated that up to 402 indirect jobs will be created.

The permitting for the pilot leach test recommended by the PEA is prescribed by the Federal US Code ("USC") laws, the US Code of Federal Regulations ("CFR") and Arizona Revised Statutes ("ARS"). The environmental permitting process is managed by the United States Environmental Protection Agency ("USEPA") and the Arizona Department of Environmental Quality ("ADEQ"). Other federal and state agencies could also become involved.

A summary of the required permits is found in the following Table.

Table 1-3 Summary of Permitting Requirements

Item	Agency
Air Quality Permit	Arizona Department of Environmental Quality (ADEQ): Air Quality Division
Aquifer Protection Permit	Arizona Department of Environmental Quality (ADEQ): Water Quality Division
Mined Land Reclamation Plan	Arizona State Mine Inspector
Sewage Permit	Town of Miami
Storm Water General Permit	Arizona Department of Environmental Quality: (ADEQ) Water Quality Division
Underground Injection Control and Aquifer Exemption	US Environmental Protection Agency (USEPA)
Survey of Endangered Species and Migratory Birds	US Environmental Protection Agency (USEPA)
Survey of Cultural Resources	State Historic Preservation Office (SHPO)
Native Plants Notice	Arizona Department of Agriculture (ADA)
CWA 404	US Army Corps of Engineers (USACE)
CWA 401	Arizona Department of Environmental Quality
Hazardous Waste Generator Identification Number	Arizona Department of Environmental Quality

The main permits required for the pilot test are:

- Aquifer Protection Permit ("APP") for leaching operations and surface impoundments; ADEQ,
- Underground Injection Control Permit ("UIC") for injection wells; USEPA.

The APP and the UIC permits are expected to have a one year processing time. Additional environmental authorizations may be required including a Statement of Claim of Rights to use public (surface) water of the State of Arizona. Environmental Management Plans will be developed to protect the environment and comply with environmental legislation during the permitting process.

The ISL operation is expected to operate with a net water surplus; however, if water is needed to support operations, it will be sourced from groundwater in the alluvium unit which supplied water to historic leach operations in the order of 250 to 500 gallons per minute (gpm).

1.10 Cost Estimates

Capital Costs:

Initial Capital Costs, presented in the Table below, are defined as all costs incurred until commencement of copper production; including pre-production operating costs. Capital Cost estimates are based on new construction costs and consists of direct and indirect cost factors. Factored estimates are used for Codes A, D, E, and all indirect costs. For Code B and Code C detailed estimates are used.

Table 1-4 Capital Estimate Summary

WBS Code	Description	Cost $(000's)
A	General Site	$ 10,000
B	ISL Well Field	$ 3,200
C	Underground Mining	$ 32,300
D	Processing	$ 49,100
E	Buildings and Facilities	$ 9,800
PP	Initial Operating Costs*	$ 10,200
	Total Direct Costs	**$ 114,600**
X	Indirect Costs	$ 36,900
Y	Owner's Costs	$ 10,400
	Total Indirect Costs	**$ 47,300**
	Total Direct and Indirect Costs	**$ 161,900**
Z	***Contingency***	***$ 42,500***
	Total Capital Cost	**$ 204,400**

** Work Breakdown Structure (WBS)*

***Indirect Costs, Owner's Costs, and Contingency are not applied to Initial Operating Costs.*

Contingency is included based on the expected level of accuracy and engineering definition used in a PEA. The contingency covers undefined items of work within the scope of the project and is set at 30% of direct and indirect cost codes A, B, C, D, E, and X.

Indirect Costs:

Indirect Costs are calculated as a percentage of direct construction costs and capture charges that construction contractors might apply or include in their rates. Factors used for estimating indirect costs are shown below.

Table 1-5 Indirect Costs

Indirect Costs - Categories and Factors	
Construction Indirects - % of Direct Costs	15%
Spares - % of Processing Costs	5%
Initial Fills - % of Processing Costs	0%
Freight and Logistics - % of Direct Costs	5%
Commissioning and Pre-Production Start-Up	Allowance
EPCM - % of Direct Costs	10%
Vendors	Allowance
Taxes and Duties	3%

Sustaining Capital Costs:
Sustaining Capital Costs are all capital expenditures incurred after commencement of copper production including; additional or replacement equipment, additional underground development and continuous well field expansion. LOM Sustaining Capital Costs are outlined in the Table below.

Table 1-6 Sustaining Capital Costs

	Sustaining Capital Estimate Summary	
WBS Code	**Description**	**Cost ($000's)**
A	General Site	$0
B	ISL Well Field	$39,400
C	Underground Mining	$29,900
D	Processing	$200
E	Buildings and Facilities	$0
PP	Pre-Production Operating Costs	$0
	Total Sustaining Capital	**$69,600**

Operating Costs:
The estimated Total LOM Operating Costs and LOM Unit Costs required to produce a pound of copper are summarized below:

Table 1-7 Operating Costs

Operating Costs	LOM Cost ($000's)	LOM Unit Cost
ISL Well Field Acid Costs	$25,000	$0.06
ISL Well Field Monitoring Costs	$2,000	$0.01
ISL Well Field Electrical (Pumping) Costs	$19,500	$0.04
ISL Well Field Maintenance Costs	$19,200	$0.04
SX-EWG Processing Costs	$123,400	$0.27
G&A, Offsite Costs	$77,700	$0.17
Water Treatment Costs	$6,600	$0.01
Total Operating Costs	**$273,400**	**$0.60**

Additional Operating Costs:
Additional Operating Costs are operating costs which are not included in the Cash Operating Cost, including future well field development, rock stimulation and equipment replacement.

Table 1-8 Additional Operating Costs

Additional Operating Costs	LOM Cost ($000's)	LOM Unit Cost
Reclamation and Closure*	$11,700	$0.03
Drilling Costs	$91,300	$0.20
Fracturing Costs	$155,700	$0.34
Pump Replacement	$18,000	$0.04
Total Additional Operating Costs	**$276,700**	**$0.61**

**Closure Water Treatment Cost is included in Operating Costs in Table 1-8*

Cash Costs per Pound Copper:
The average LOM Cash Operating Cost is estimated to be $0.60 per pound of copper produced and includes well field operations, process plant operations, water treatment, and general administrative cost. The LOM Total Cash Cost is defined as the Cash Operating Cost plus royalties, severance taxes, and reclamation and closure costs and estimated to be $0.71 per pound of copper produced.

Table 1-9 Cash Costs per Pound Copper

Cash Cost Category	Unit Cost ($US/lb)
Direct Cash Cost	0.60
Royalties and Severance Tax	0.08
Sustaining Capital Costs	0.15
Additional Operating Costs	0.61
All In Sustaining Cost (AISC)	1.44

1.11 Closure and Reclamation

Closure and reclamation will be in accordance with the requirements set out in the State and Federal permits required to develop and operate the project and includes the following major activities:

- Rinse the underground wellfield to restore groundwater quality within the mined area to levels specified in the project permits,
- Decommission, sell and remove all Buildings and other infrastructure, including the SX-EW plant
- Reshape the earth structures and disturbed areas to achieve long term stability and protection against erosion,
- Reshape the waste rock dump and construct vegetative cover,
- Treat the excess water, including wellfield rinse water, for two years following the cessation of commercial operations,
- Decommission the water management structures, and
- Decommission the water treatment plant.

The estimated Reclamation and Closure costs are summarized below:

Table 1-10 Estimated Reclamation and Closure Costs

Reclamation and Closure	Cost ($000's)
Well Field Decommissioning	$3,700
Infrastructure Decommissioning	$4,000
SX-EW Decommissioning	$3,200
Closure Water Treatment (2 Years)	$1,200
Water Treatment Plant Decommissioning	$1,000
Total Reclamation and Closure Costs	**$13,100**

1.12 Economic Analysis Summary

The pre-tax and post-tax Net Present Value ("NPV") for the Van Dyke ISL project at various discount rates is shown below. The 8.0% discount rate has been chosen as the **Base Case** for the project. Analysis includes recovery of capital, operating and sustaining costs, county, state and federal taxes and royalties.

The economic analysis for the Base Case before taxes indicates an IRR of 35.5%, an NPV and a payback period of 2.3 years. The economic analysis after taxes indicates an IRR of 27.9%, and a payback period of 2.9 years.

Table 1-11 Net Cash Flow

Discount Rate	NPV Pre-tax	NPV Post-tax
5.00%	$ 282,800,000	$ 205,200,000
8.00%	$ 213,100,000	$ 149,500,000
10.00%	$ 176,000,000	$ 120,000,000
12.00%	$ 145,000,000	$ 95,600,000

The Base Case Net Free Cash Flow after recovery of all operating capital and sustaining costs before tax is estimated to be $453.1 million and $342.2 million after tax.

Project Sensitivities:

The NPV of the project is most sensitive to copper prices and copper oxide recoveries (see charts below) and less sensitive to operating, sustaining and capital costs as illustrated in Figure 1-1. The IRR is sensitive top copper prices, recoveries and a decrease in capital costs as illustrated in 1-2.

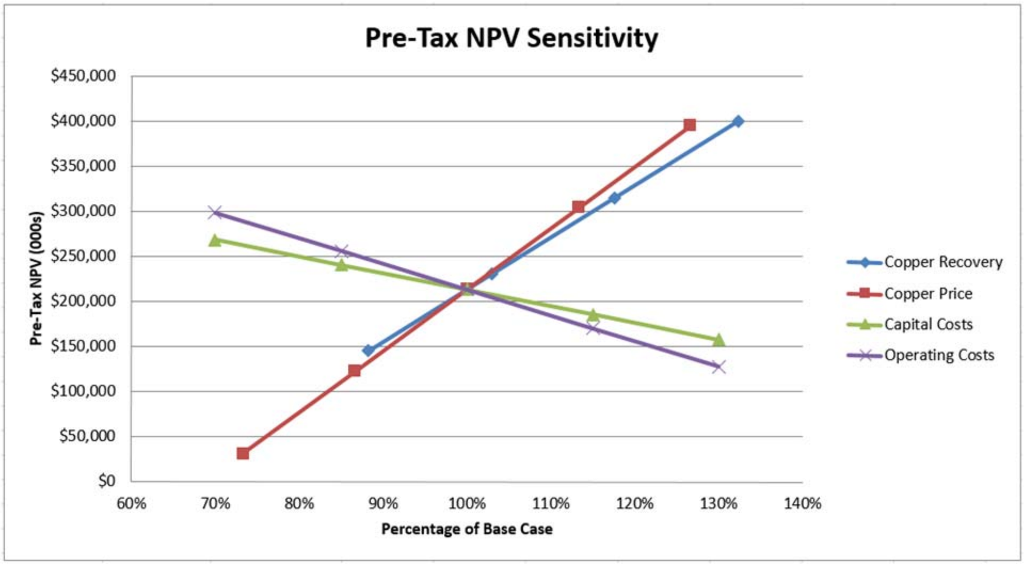

Figure 1-1 Pre-tax Project Sensitivities of NPV

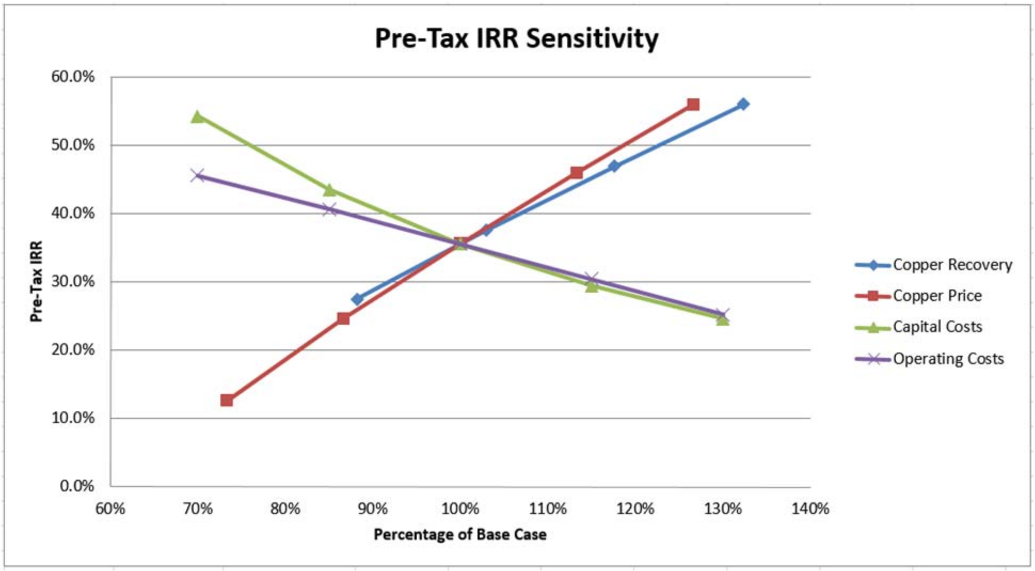

Figure 1-2 Pre-tax Project Sensitivities of IRR

1.13 Conclusions and Recommendations

It is demonstrated by this PEA that the Van Dyke property has potential as an in situ leach oxide Cu deposit. It is recommended to proceed with advanced levels of study, with the primary areas listed below.

1. Drilling
2. Metallurgy
3. Geotechnical Investigation
4. Hydrology and Pilot Testing
5. Detailed Costing

2 INTRODUCTION

2.1 Purpose of Report and Terms of Reference

Copper Fox Metals Inc. (Copper Fox) retained Moose Mountain Technical Services (MMTS) to prepare a National Instrument 43-101 (NI 43-101) Preliminary Economic Assessment for the Van Dyke Copper Project, Gila County, Arizona, U.S.A. The authors of the report are Jim Gray, P.Eng, Susan Bird, P.Eng., Tracey Meintjes, P.Eng, of MMTS who are “Qualified Persons” as defined by NI 43-101 standards. Sections 4 to 12 are unchanged from the previous Technical Report entitled “Technical Report and Resource Estimate for the Van Dyke Copper Project” January 30, 2015 have been used unchanged for this report. These were the responsibility of Bob Lane P.Geo. the QP from that report. Jim Gray P.Eng. the overall QP of this report confirms that these sections are a valid copy of the January 30th, 2015 Technical Report.

Copper Fox is a Canadian resource company listed on the TSX-Venture Exchange (TSX VENTURE: CUU) focused on copper exploration and development in North America with offices in Calgary, Alberta and Miami, Arizona. Copper Fox holds, through its wholly-owned subsidiary, Desert Fox Copper Inc. (Desert Fox), the Van Dyke Copper Project in the Globe-Miami Mining District, Arizona. Throughout the report reference is made primarily to the parent company Copper Fox, rather than its subsidiary Desert Fox.

The purpose of this Technical Report is to provide an NI 43-101 Preliminary Economic Assessment (PEA) for the Van Dyke Copper Project based an updated Resource estimate, preliminary hydrologic, metallurgic, geotechnical and costing studies. The PEA provides an in situ leach mine plan and cash flow analysis for the project. The information presented herein forms the basis for ongoing advanced studies, which will include additional drilling, metallurgic, hydrologic and economic analyses in order to optimize future development of the Van Dyke Copper Project.

This Technical Report is prepared in accordance with the guidelines provided in NI 43-101, Standards of Disclosure for Mineral Projects (June 24, 2011) for technical reports, Companion Policy 43-101CP, Form 43-101F1, and uses industry accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) “Best Practices and Reporting Guidelines” (CIM, 2003) for disclosing mineral exploration information, including the updated CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

2.2 Sources of Information

The Resource presented in this report is based on historical information and data compiled by Copper Fox including unpublished papers and electronic copies of reports, technical memos and correspondence, geologic maps, drill logs and cross-sections, analytical results from re-sampling of stored historic drill core and drill core pulps, analytical results from diamond drilling completed in 2014, and publically available reports and documents. The principal sources of information are diamond drilling data generated by Occidental Minerals Corporation, AMAX and Utah International between 1968 and 1975, and six diamond drillholes completed by Copper Fox in 2014. The minable resource and cash flow is based on both factored and detailed cost estimates, with the overall metal recovery based on metallurgic studies by SGS, environmental studies by Greenwood Environmental, and geotechnical and hydrogeologic studies by Knight Piésold .

All sources of data referenced in the text are listed alphabetically in Section 27: References.

2.3 Site Visits and Scope of Personal Inspections

Bob Lane, P.Geo., of MMTS, initially visited the Project from November 26-29, 2013 as part of the January 30th 2015 Technical Report. The site visit included an inspection of the project infrastructure, company offices and core and sample storage facilities. A tour of the site included stops at the historic Van Dyke Shaft, the former Kocide Chemical copper recovery plant, several pertinent outcrops and a number of historic drillhole collar locations. Two days were spent examining core from four holes drilled in the 1970s by Occidental Minerals Corporation and cataloging pulps that remained in storage from that period of drilling. Additional visits to the Project were made by co-author Susan Bird, P.Eng., on April 12, 2014, and by Bob Lane on April 22-26, 2014 and again on June 20-21, 2014. The latter visits coincided with Copper Fox's Phase 1 drilling program, and included an inspection of the core logging and core processing station, stops at two of the in-progress drillholes, examination of core from three of the completed 2014 drillholes, review of drill core handling, drill core Chain-of-Custody procedures, and QA/QC methodologies.

Jim Gray, P.Eng. visited the site from March 12, 2015 through March 13, 2015 and inspected Van Dyke property, as well as BHP's adjacent Miami East project.

2.4 Definitions and Units of Measurement

A list of terms frequently used in this report is defined in the glossary of Table 2-1 below.

Table 2-1 Glossary

Term	Definition
Acid soluble	The portion of the mineralization which can be extracted from the rock by the use of a solution containing minor concentrations of sulphuric acid
Assay	Analysis of a rock or soil sample metal content
Composite	Assay data weight-average over a larger, standardized length
Cut-off grade	The grade value of mineralization at which the deposit can be considered economic, or in the case of Inferred material to be considered probable for eventual extraction
Dip	The angle in degrees from horizontal that a surface is inclined perpendicular to strike
Domain	A segregation of the deposit into volumes which are interpreted to contain similar geologic characteristics
Fault	A structure within the earth displaying movement along the discontinuity
Grade	The concentration of metal within the assay, composite, or block expressed in %, ppm or ppb
Kriging	Interpolation of samples values that minimizes the estimation error
Lithology	Geologic term defining rock type
Lixiviant	The liquid used to extract the metal from the mineralization in leaching.
Mineral Resource	"a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction" (CIM, 2014)
Mineral/Mining Lease	An area of land for which mineral rights are held by a certain party
Mining Assets	Material properties
Mixed	Mineralization including both oxide and sulfide mineralization
Nearest neighbor	Interpolation of samples to include only the closest value by polygonal estimation
Raffinate	The leach solution minus the copper
Shoulder Grade	The grade cutoff of at the ends of an assay interval used for reporting wtd. mean grade
Sulfide	Mineralization including significant sulfur bearing minerals
Zone	A segregation of the deposit into oxide, mixed, or sulfide based on the grade and acid solubility of the mineralization

Frequently used abbreviations and acronyms are shown in Table 2-2.

Table 2-2 List of Abbreviations and Acronyms used in this Report

Abbreviation	Description
%	percent
^{o}C	Degrees Celsius
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
APP	Aquifer Protection Permit
AQL	Aquifer Quality Limit
ASLD	Arizona State Land Department
BLM	US Department of the Interior, Bureau of Land Management
Cu	Copper
ASCu	Acid Soluble copper (copper oxide)
lbs	pounds
masl	Metres above standard sea level
md	millidarcy
ppb	Parts per billion
ppm	Parts per million
RQD	Rock Quality Designation (%)
sg	Specific gravity
t	Metric tonne
USEPA	United States Environmental Protection Agency
WQARF	Water Quality Revolving Fund
GSRBM	Gila and Salt River Baseline and Meridian

Historical exploration and mining data in Arizona was documented using the Imperial system, with units of length expressed in feet and inches, mass in short tons, and precious metal grades in ounces per short ton. More recent exploration and mining data in Arizona is also commonly quoted using Imperial units. However, in this report the metric system is used preferentially, with units of length expressed in kilometres, metres or centimetres, units of mass expressed in kilograms or metric tonnes, and precious metal grades expressed in grams per tonne, in parts per million (ppm) or in parts per billion (ppb).

All UTM positions referenced in this report and on its accompanying figures are referenced to the North American Datum of 1927 (or NAD 27).

All currency quoted in this report refers to US dollars unless otherwise noted.

3 RELIANCE ON OTHER EXPERTS

In preparation of this report the authors, as Qualified Persons, have examined the historical data provided by Copper Fox and have relied on the basic data as well as project information from other sources to support the statements and opinions presented in this Technical Report.

The QPs have not independently reviewed ownership of the project area and the underlying property agreements. The QPs have fully relied upon, and disclaim responsibility for, information derived from Copper Fox corporate staff and legal experts retained by Copper Fox for this.

Regarding metallurgical work, the authors have relied on SGS E&S Engineering Solutions Inc. (SGS) who completed a preliminary In-Situ Copper Leaching Simulation Study on the Van Dyke Copper Project; a summary of the study is presented in Section 13: Mineral Processing and Metallurgical Testing.

Regarding environmental work, the authors have relied on Greenwood Environmental who completed a framework for expected permitting and environmental timelines, and Knight Piésold (KP) who developed a water treatment and reclamation plan.

Regarding Hydrogeological work, the authors have relied on KP, Schlumberger Water Services (SWS), and Ray Huff and Associates (RHA).

3.1 Land Status

The land status information summarized herein, including ownership, location and dimension of mineral estate and surface estate lands that comprise most of the Project, was the result of exhaustive research and compilation by independent land manager Mr. Daniel L. Mead of Cornerstone Lands/DLM/L.L.C., Tucson, Arizona. The legal descriptions for these mineral estate and surface estate lands were sourced from official Gila County documents located in Globe, Arizona. The information provided to the authors by Mr. Mead is relied upon.

Official legal descriptions of unpatented mineral claims that form the southern part of the project area were collected from the federal Bureau of Land Management offices in Tucson, Arizona. This information is relied upon by the authors and the authors did not independently confirm details of this.

3.2 Historic Exploration

The geological and exploration data captured from earlier operators of the Van Dyke Copper Project and, to a lesser degree, from relevant publically available reports, provide a sound technical foundation for the Project. The authors believe that the historical technical information provided for the preparation of this report was accurate at the time it was written and is relied upon.

The interpretations and opinions expressed by these earlier workers, regarded to be competent, experienced explorationists, were based on a current understanding of the geological setting of the deposit and are reasonable. Their work is regarded to have been performed in accordance with high standards for the periods in which the work was completed and is relied upon.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Van Dyke Copper Project is situated within the Globe-Miami mining district, Gila County, east-central Arizona, approximately 110 kilometers (km) east of Phoenix (Figure 4-1). The core area of the Project is centered at 512000 E and 3695600 N (UTM; NAD27) and lies primarily within the town limits of Miami, Arizona. The Town of Miami lies about 10km west of the City of Globe, and near the San Carlos Apache Indian Reservation. Miami, Globe, and a number of unincorporated communities nearby, including Inspiration, Claypool and Central-Heights-Midland City, commonly called Globe-Miami.

The land survey coordinates for the Project include Sections 29, 30 and 33 of Township 1 North, Range 15 East, Gila and Salt River Baseline and Meridian (GSRBM) and Sections 25, 31 and 36 of Township 1 North, Range 14 East, GSRBM.

The Globe-Miami mining district is a major copper mining area located in the northern foothills of the Pinal Mountains and the Globe Hills, within the Arizona-New Mexico Basin and Range Province, and the broad Walker-Texas Lineament Zone. The mining district is almost entirely within the Inspiration and Globe quadrangles and comprises the Miami-Inspiration sub-district in its western side and the Globe Hills sub-district on its eastern side. The mining district includes a number of porphyry copper deposits that have been mined since the discovery of rich veins of chrysocolla in the Globe Hills in 1874. The history of the Globe-Miami mining district, with a focus on the Van Dyke Copper Project is provided in Section 6: History. A discussion of mineral deposit types found in the Globe-Miami mining district is provided in Section 8: Deposit Types.

The productive mineral deposits of the Globe-Miami district, including the Van Dyke copper deposit, and the nearby Superior district, lie within a 10km wide, generally northeast to easterly trending corridor (Peterson, 1962). This corridor marks a zone of Proterozoic structural weakness that parallels the contact between Pinal Schist and the Proterozoic granites to the north-west. The corridor is also parallel to the main foliation within the Pinal Schist, and it is also the locus of Mesozoic and Tertiary silicic intrusions, which are interpreted to be genetically associated with mineralization in the district (Hammer and Peterson, 1968). The main copper porphyry deposits are therefore centered on the main intrusive mass, while the vein deposits occur distally, but still within the mineralized corridor.

Figure 4-1 **Location of the Van Dyke Copper Project**

There are currently three producing mines in the Globe-Miami district: the Pinto Valley copper mine of Capstone Mining Corp; the Carlota copper mine of KGHM International Ltd., and the Miami-Inspiration copper mine, smelter and rod mill of Freeport-McMoRan Inc. The district also hosts the Miami-East mine of BHP Billiton, presently on care-and maintenance, and the historic Copper Cities and Old Dominion copper deposits.

The Van Dyke Project shares a common claim boundary with the Miami-East and Miami-Inspiration mine sites. The Van Dyke copper deposit does not out crop, but resides beneath a thick blanket of Gila Conglomerate, which is capped locally by a thin veneer of alluvium. The deposit is situated in the depressed hanging wall block of the Miami East fault, opposite the east end of the Miami-Inspiration orebody. The deposit strikes northeast and dips gently southeast at about 20 degrees. The mineralization that comprises the deposit occurs over 1200m by 1300m area and is approximately 225m thick.

4.2 Tenure and Ownership

Tenure

The Van Dyke Copper Project consists of several varieties of patented lands, many of which occur within or near the city limits of the town of Miami. Additional patented lands owned by the company are contiguous with and lie south and east of the core area of the Project. A total of 26 patented parcels of land, each of which includes subsurface mineral rights, cover an aggregate area of 531.5 hectares; these comprise the Mineral Estate of the Van Dyke Copper Project (Table 4-1 and Figure 4-2).

The Project includes a total of 83 parcels of land that include surface rights. They cover a total of 5.75ha primarily in the northwestern part of the patented mining claim area (Figure 4-3).

The company also controls 35 unpatented lode mining claims (MIA 1-35) that are contiguous with and located immediately south of the core area of the Project. The unpatented claims are located on Federal Land administered by the Bureau of Land Management (BLM). The unpatented claims cover 292.0 hectares as listed in Table 4-2.

Ownership

The ownership history of the patented lands covering the Van Dyke Copper Project is described in Section 6: History. The patents became available after taxes had not been maintained for many years. Bennu Properties, LLC, Albert W. Fritz Jr. and Edith Spencer Fritz (Bennu-Fritz) applied to Gila County and acquired clear title to surface and subsurface mineral rights (patents) that cover the Van Dyke property in April, 2012, through a tax lien foreclosure process.

Bell Copper Corporation conducted initial negotiations and finalized terms for acquisition of the Van Dyke Copper Project with Bennu-Fritz through a “Letter of Intent”. However, before the deal could be completed Bell sold its position to acquire 100% of the Van Dyke patented lands to Copper Fox. Ultimately, Bennu-Fritz sold the Van Dyke property directly to Copper Fox by way of a Special Warranty Deed signed by the two entities on April 5, 2013. Bennu-Fritz retains a 2.5% Net Smelter Return ("NSR") production royalty from the Van Dyke deposit.

Annual Costs to Maintain Ownership

There are no annual taxes for the Project's mining patents (Mineral Estate). However, annual taxes are required for patented lands that include surface rights (real property) in addition to sub-surface (mineral) rights, and the taxes are for the surface rights only. The annual aggregate tax required to maintain the surface lands is $1,845.80, and payment has been made to Gila County, Arizona.

The 35 unpatented federal lode mining claims owned by Copper Fox require an annual maintenance fee of $155 per claim be paid to the United States Bureau of Land Management (BLM), and an annual administration fee of $10 per claim be paid to Gila County. A payment of $5,425 was made in respect of these claims in August 2015 for the filing year September 1, 2015 to August 31, 2016.

Table 4-1 List of Patented Lands, Van Dyke Copper Project

Patent Number	Legal Description	Type of Patent	Area (acres)	Area (Ha)
Township 1N, R 14E				
Patent-46574	T1N, R14E, Sec 36: Long shot, Solace #1 & Solace #2 claims	ME Patent	32.6	13.2
Patent-431029	T1N, R14E, Sec 25 & 36: Gray Copper claim	ME Patent	20.6	8.3
Patent-434949	T1N, R14E, Sec 36: Chief, Vesper, Cracker Jack, White Captive, Orphan, Snail, Red Cloud & Iron claims	ME Patent	63.0	25.5
Patent-546592	T1N, R14E, Sec 36: Dora fractional claim	ME Patent	0.4	0.2
Patent-590391	T1N, R14E, Sec 36: Sho Me No. 2, Copper Center, Sulphide No.1 claims	ME Patent	56.5	22.9
Patent-590392	T1N, R14E, Sec 36: Onward, Onward #2 & Onward #3 claims	ME Patent	38.0	15.4
Patent-612204	T1N, R14E, Sec 36: Blue Bell, Blue Bell #2, Blue Bell #3 & Sulphide claims	ME Patent	35.6	14.4
Patent-629135	T1N, R14E, Sec 36: Sulphide #2 claim	ME Patent	14.6	5.9
Township 1N, R 15E				
Patent-22128	T1N, R15E, Sec 30 Lot 4 Sec 30 & T1N, R14E Sec 25 Lot 12	HES Patent	40.0	16.2
Patent-91944	T1N, R15E, Sec 30: Sho Me claim	ME Patent	21.6	8.7
Patent-56345	T1N, R15E, Sec 30 Lot 5	HES Patent	38.3	15.5
Patent-159952	T1N, R15E, Sec 30 SE 1/4 of NE 1/4	HES Patent	40.0	16.2
Patent-219203	T1N, R15E, Sec 30: Myrtle Lode claim (MS 2583)	ME Patent	9.0	3.6
Patent-160508	T1N, R15E, Sec 30 W 1/2 of NE 1/4	HES Patent	21.2	8.6
Patent-160509	T1N, R15E, Sec 30 E1/2 of NW 1/4	HES Patent	18.4	7.4
Patent-163255	T1N, R15E, Sec 30 Lots 2, 3, & 8	HES Patent	0.4	0.1
Patent-181896	T1N, R15E, Sec 30 NE 1/4 of NE1/4	FLSDA	11.0	4.5
Patent-248767	T1N, R15E, Sec 30 SE 1/4	CE Patent	160.0	64.7
Patent-253612	T1N, R15E, Sec 30 SE 1/4 Of SW 1/4	CE Patent	40.0	16.2
Patent-302130	T1N, R15E, Sec 30 Lot 1	HES Patent	1.4	0.6
Patent-541188	T1N, R15E, Sec 29 SW 1/4	HES Patent	79.0	32.0
Patent-1106529	T1N, R15E, Sec 29 SE 1/4	CE Patent	160.0	64.7
Patent-1041095	T1N, R15E, Sec 33 SW 1/4	FLSDA	132.0	53.4
Patent-1041093	T1N, R15E, Sec 33 S1/2 SE1/4 & S1/2 SW 1/4	FLSDA	40.0	16.2
Patent-1041094	T1N, R15E, Sec 33 SW1/4 NE1/4 & N1/2 SE 1/4	FLSDA	80.0	32.4
Patent-1041093	T1N, R15E, Sec 33 SE 1/4	FLSDA	160.0	64.7
			1313.4	**531.5**

Brief definitions of the government patents listed above:

ME (Mineral Estate) Patent: The Federal Government transfers its ownership for both the mineral and surface estate of an unpatented mining claim or claims to the patentee.

CE (Cash Entry) Patent: The sale of public land to the highest bidder.

FLSDA: The sell, exchange or interchange of USFS land (both surface and mineral estate) by a quitclaim deed to a citizen or company by authority of the Secretary of the Department of Agriculture.

HES (Homestead Entry Survey) Patent: The sale of Federal Government land to the highest bidder to those that had pre-emption claim.

Table 4-2 List of Unpatented Lode Mining Claims, Van Dyke Copper Project

Claim Name	AMC #	County	Book	Fee Number	Area (acres)	Area (hectares)
MIA-1	405285	Gila	2010	12604	20.661	8.361
MIA-2	405286	Gila	2010	12605	20.661	8.361
MIA-3	405287	Gila	2010	12606	20.661	8.361
MIA-4	405288	Gila	2010	12607	20.661	8.361
MIA-5	405289	Gila	2010	12608	20.661	8.361
MIA-6	405290	Gila	2010	12609	20.661	8.361
MIA-7	405291	Gila	2010	12610	20.661	8.361
MIA-8	405292	Gila	2010	12611	20.661	8.361
MIA-9	405293	Gila	2010	12612	20.661	8.361
MIA-10	405294	Gila	2010	12613	20.661	8.361
MIA-11	405295	Gila	2010	12647	20.661	8.361
MIA-12	405296	Gila	2010	12648	20.661	8.361
MIA-13	405297	Gila	2010	12614	20.661	8.361
MIA-14	405298	Gila	2010	12615	20.661	8.361
MIA-15	405299	Gila	2010	12616	20.661	8.361
MIA-16	405300	Gila	2010	12649	20.661	8.361
MIA-17	405301	Gila	2010	12650	20.661	8.361
MIA-18	405302	Gila	2010	12617	20.661	8.361
MIA-19	405303	Gila	2010	12651	20.661	8.361
MIA-20	405304	Gila	2010	12652	20.661	8.361
MIA-21	405305	Gila	2010	12653	20.661	8.361
MIA-22	405306	Gila	2010	12654	20.661	8.361
MIA-23	405307	Gila	2010	12655	20.661	8.361
MIA-24	405308	Gila	2010	12656	20.661	8.361
MIA-25	405309	Gila	2010	12657	20.661	8.361
MIA-26	405310	Gila	2010	12658	20.661	8.361
MIA-27	405311	Gila	2010	12659	20.661	8.361
MIA-28	405312	Gila	2010	12660	20.661	8.361
MIA-29	405313	Gila	2010	12661	20.661	8.361
MIA-30	405314	Gila	2010	12662	20.661	8.361
MIA-31	405315	Gila	2010	12663	20.661	8.361
MIA-32	405316	Gila	2010	12664	20.661	8.361
MIA-33	405317	Gila	2010	12665	20.661	8.361
MIA-34	405318	Gila	2010	12666	20.661	8.361
MIA-35	405319	Gila	2010	12618	20.661	8.361

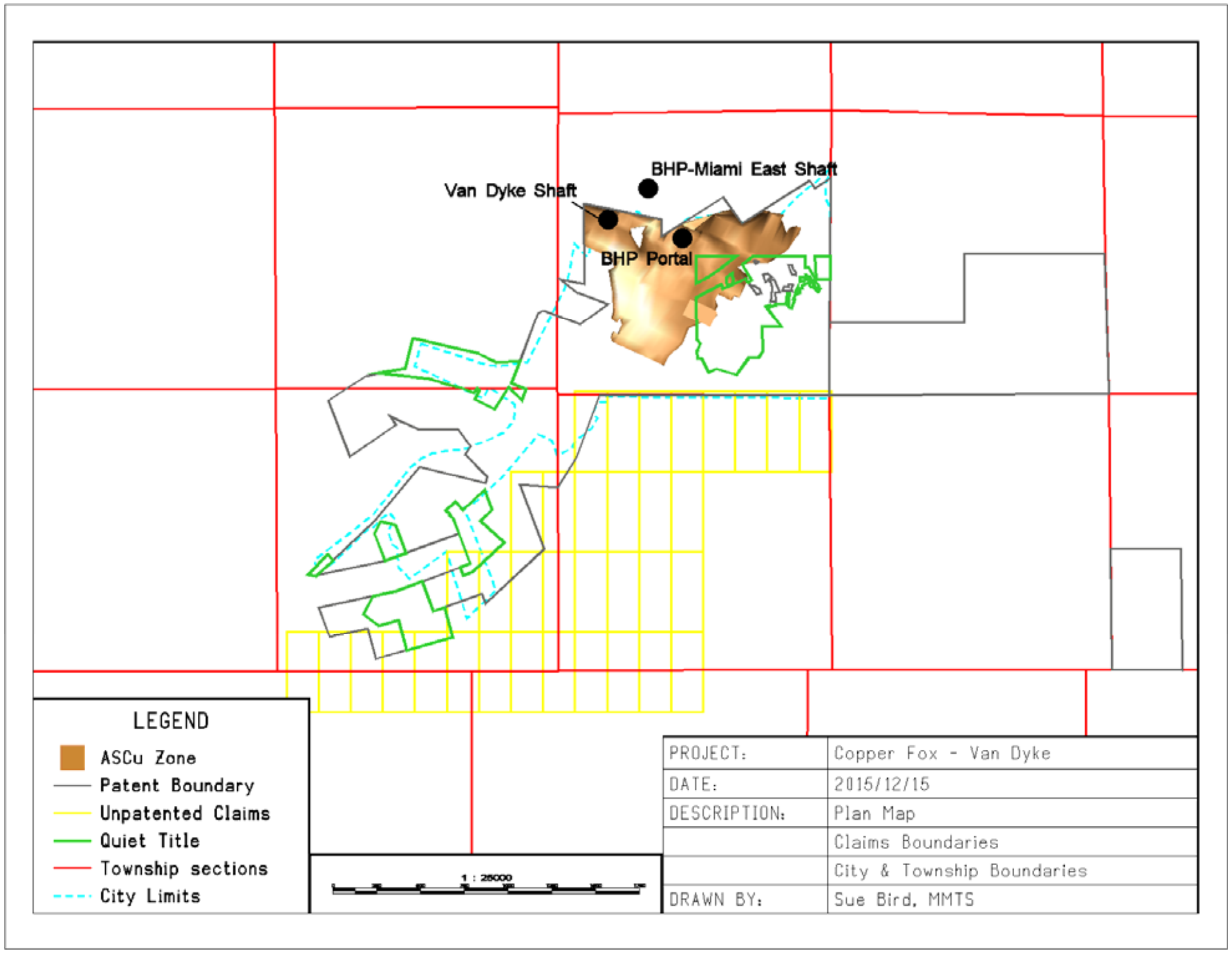

Figure 4-2 Distribution of Patented lands and Unpatented lode mining claims that Comprise the Van Dyke Copper Project

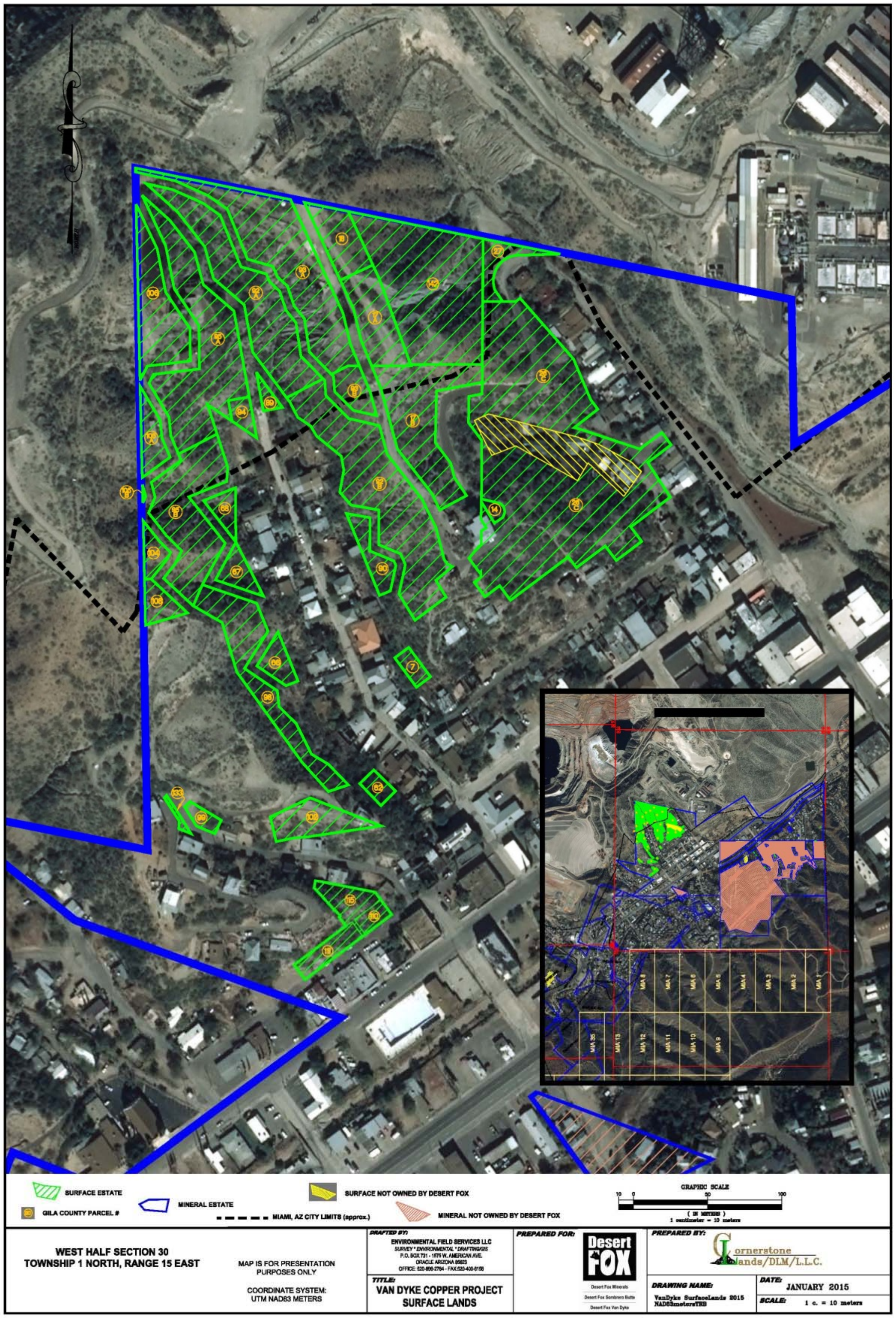

Figure 4-3 Distribution of Surface Rights owned by Copper Fox Van Dyke Company that Coincide with the Van Dyke Copper Project

4.3 Socio-Economic and Environmental Studies

The town of Miami is located on the northeastern slope of the Pinal Mountains, and is surrounded (except to the east) by the Tonto National Forest. The town is bisected by east-west highway U.S. Route 60 and is served by the Arizona Eastern Railway.

The census of 2010 determined that there were 1,837 people, 749 households and 472 families in Miami. According to the 2008-2012 American Community Survey, the median income for a household was $38,534 and the unemployment rate was 3.5%. For the population 25 years and over (1,296), educational attainment was 34.5% high school graduate, 25.1% with some college education (no degree), 8.6% with a Bachelor's degree or higher and 8.3% with an Associate's degree (technical training).

Employment and median earnings by major industry sectors for residents (civilians aged 16 and older) of the Globe-Miami district over the past twelve months is shown in Table 4-3.

Table 4-3 Main Industries by Employment and Median Earnings, Globe-Miami district, Arizona

Subject	Estimate (number of civilians employed population 16 years and older)	Median earnings (US dollars)
Mining, quarrying, and oil and gas extraction	1 280	59 570
Retail trade	739	13 669
Transportation and warehousing, and utilities	548	41 750
Educational services, and health care and social assistance	1 642	21 100
Arts, entertainment, and recreation, and accommodation and food services	801	16 053
Public administration	565	41 824

Source: US Census Bureau, 2008-2012 American Community Survey

4.4 Current Environmental Liabilities of Neighboring Properties

As described in Section 6, the Globe-Miami district has been a mining region for over 130 years. From twelve silver processing mills in the 1880s to large-scale copper mining operations in the 1980s.

In 1989, the Arizona Department of Environmental Quality (ADEQ) declared metal-bearing water in the Pinal Creek area a cleanup site under the state's Water Quality Revolving Fund (WQARF). A group of mining companies, consisting of BHP Copper (formerly Magma), Cyprus Miami Copper Corporation, and Inspiration Consolidated Copper Company, formed the Pinal Creek Group to conduct the cleanup activities under the direction and supervision of ADEQ.

In 1995, USEPA/ADEQ completed a preliminary assessment of the Van Dyke Mine site under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The conclusion of the preliminary assessment was that Van Dyke Mine site did not pose any threat to public health, welfare or the environment and it was determined that the mine did not warrant further investigation/evaluation under CERCLA/SARA[1].

The Pinal Creek Group and the State of Arizona signed a Consent Decree in August of 1997. The Order was approved by the court in August of 1998. The Consent Decree is still enforceable on the successor members of the original Pinal Creek Group, currently, BHP Copper Inc. (BHP) and Freeport McMoRan Miami Inc. (FMMI). Cost recovery litigation between BHP and FMMI resulted in a settlement in March of 2010. As a result of that settlement the Pinal Creek Group was dissolved and FMMI became the sole owner/operator of the Pinal Creek remediation systems and the downstream Consent Decree obligations.

In 2006, the Van Dyke mine outfalls, Miami Wash and Bloody Tanks Wash, were removed from the State’s list of impaired water bodies.

BHP Copper Inc. is no longer actively mining but still undergoing remediation and reclamation activities at their Miami East site. Freeport McMoRan Miami Inc. and BHP are still active at the TJ pit which is jointly owned, and with heap leaching of copper ore and recovery by solution extraction/electrowinning (SX/EW).

Environmental Permitting Requirements for Advanced Exploration and Development

There are several drilling and environmental permits required to advance the Van Dyke Copper Project. Below is a list of these permits including a brief description and purpose for each permit required.

An Aquifer Protection Permit (APP) is required from ADEQ for the potential discharge of pollutant to an aquifer. The applicant must show that the Best Available Demonstrated Control Technology will be used by the facility and that Aquifer Water Quality Standards (AWQS) will not be exceeded as a result of discharge from the facility.

Underground Injection Control (UIC) permits for ISL injection wells are issued by USEPA, as well as aquifer exemptions, if injecting in an Underground Source of Drinking Water (USDW). Under the Arizona Pollutant Discharge Elimination System (AZPDES) Permit Program, all facilities that discharge pollutants from any point source into waters of the United States (navigable waters) are required to obtain an AZPDES permit. Water rights, wells construction and groundwater withdrawal for mineral extraction (ISL recovery) and metallurgical processing are permitted by the Arizona Department of Water Resources (ADWR).

Other permits may be required from ADEQ (air quality, storm water) and USEPA (hazardous waste, historical preservation). The Arizona State Mine Inspector will authorize the Mined Land Reclamation Plan and the town of Miami and the Gila County will issue utilities and right-of-ways permits.

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[1] *ADEQ, 1995. Preliminary Assessment Report, Aritmeco’s Van Dyke Mine.*

Other permit requirements could be triggered by non-compliance with respect to the following acts:

- National Environmental Policy Act
- National Historic Preservation Act
- Endangered Species Act
- Resource Conservation and Recovery Act (solid and hazardous waste)
- Emergency Response and Community Right-to-Know Act
- Clean Water Act

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

The Van Dyke Copper Project is located in the Globe-Miami mining district at the town of Miami, Gila County, Arizona. The project is approximately 110km east of Phoenix and is accessed via U.S. Route 60 (Figure 5-1) which runs easterly through Bloody Tanks Wash and connects the town of Miami with the city of Globe approximately 10km further to the east. The town of Miami is built up on both sides of the highway and areas of previous drilling occur throughout the town. Many of these drill sites are still accessible by dense network of community paved and gravel roads. However, some historic drill sites are hidden beneath more recent town infrastructure such as asphalt parking lots or building construction.

Roads servicing the mining operations of BHP Copper and Freeport McMoRan, immediately north and west of Miami and of the Project are gated and require authorizations for use. Some of these roads access historic Van Dyke drill sites that now reside on surface rights owned by the mining companies. Access agreements were struck to secure legal access to these areas whose mineral rights are unequivocally owned by Desert Fox.

5.2 Climate

The National Oceanic and Atmospheric Administration’s Climate Atlas of the United States and the Western Regional Climate Center records provide data from 1914 - 2005 from a station in Miami, Arizona.

The regional climate is semi-arid. The average amount of annual precipitation for the area is 58.4 cm. Most of the rainfall occurs during the winter and summer months. Precipitation during the winter months (December - March) usually occurs as long, steady storms. Snow may fall at higher elevations, but typically does not accumulate. Rain events during the summer months (July - early September) are typically short and violent in response to local thunderstorms. May and June are the driest months of the year and the period can reach drought conditions.

The average annual maximum temperature for the period of record at this station is 25°C. The warmest month is July with an average maximum temperature of 36°C. The coolest month is January, with an average minimum temperature of 1°C.

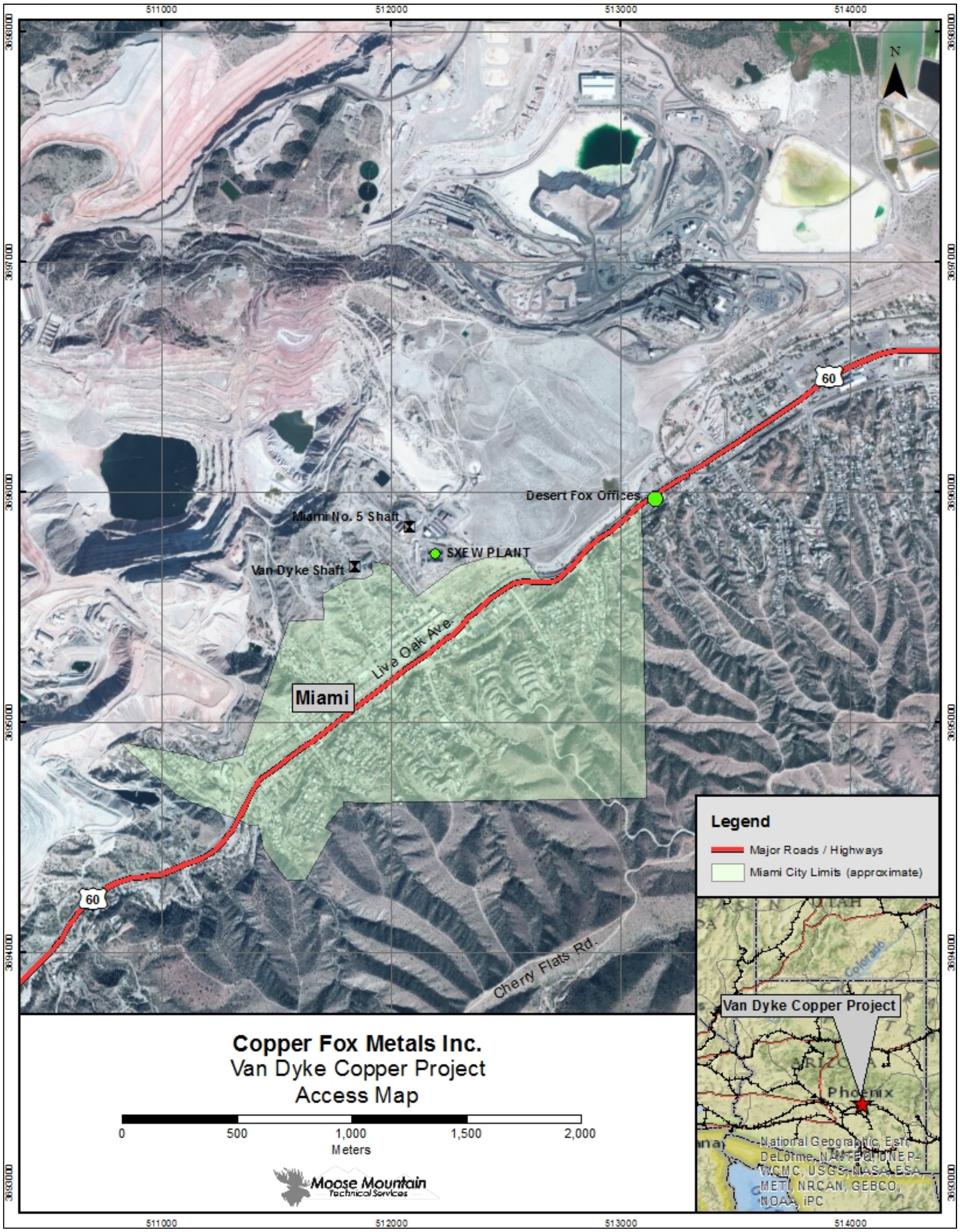


Figure 5-1 Van Dyke Copper Project – Access and Location

5.3 Local Resources

Existing facilities at the Project include a permanent office and core storage building, a series of steel “sea cans” that are used to store drill core and equipment, and a yard which serves as a suitable core layout and working area (Plate 5-1). The yard is not fenced, but core and supplies are never left out or unattended during daylight hours. All materials are put away and locked inside the office or sea cans during non-working hours. The office facility is located in the town of Miami at the following address: 344 E. Highway 60, Lower Miami, AZ 85539-1353.

5.4 Infrastructure

There is a long-standing tradition of copper mining in the area, and the industry still provides the largest number of jobs for residents. Therefore, the local services already in place are sufficient to supply the Project's needs. The current level of community services is thought to be adequate for the requirements of the Project. Medical facilities are available at Miami’s Cobre Valley Community Hospital. Fire, police, public works, transportation, and recreational facilities are in place and fully functioning. The two communities have an adequate supply of permanent housing and temporary housing to more than accommodate the projects exploration workforce.

Plate 5-1 Copper Fox’s office, core logging and equipment storage facilities, Miami, Arizona

5.5 Physiography and Vegetation

The project is located in the Basin and Range physiographic province of in east-central Arizona. The topography of the project area consists of a narrow, east-west alluvial corridor, where downtown Miami is situated and through which Highway 60 runs. The alluvial corridor, Bloody Tanks Wash, is flanked to the north and to the south by hills that rise to elevations of about 4,000 feet masl. Bloody Tanks Wash slopes gently eastward and during rain events channels water toward the Miami Wash and the headwaters of Pinal Creek. The town of Miami is at an elevation of approximately 3,400 feet asl; prominent dumps, heap leach pads, tailings facilities and other mining infrastructure from other operations occupy large areas immediately north and northwest of the town and project area (Plate 5-2).

There are no natural surface water features in the area. Several large tailings ponds are located north of the Bloody Tanks Wash.

Plate 5-2 Looking northwest over the town of Miami with the Van Dyke shaft (center) and Miami No. 5 shaft (right) shown in the background

The hilly topography is dissected by steep-walled gulley's that direct seasonal storm waters toward Bloody Tanks Wash which runs easterly through town. The Van Dyke deposit is located primarily beneath the town of Miami.

6 HISTORY

6.1 Early Developments in the Globe-Miami District

The Globe-Miami mining district of south-central Arizona is one of the oldest and most productive in the United States. The first prospecting expeditions visited the Globe-Miami area in the 1860s during a time when the area was still being settled. The early prospecting activities led to the discovery of numerous, small silver+/-gold vein occurrences some of which later became producing mines. By 1883, at the peak of silver mining, there were twelve mills processing ore in the vicinity of Globe (Ransome, 1903). Through the 1880's, the price of silver decreased and the mines gradually became uneconomic; by 1887 almost all of the silver mining activity had ceased. During the same period, the price of copper rose sufficiently to create interest in high-grade copper occurrences, some of which had previously been worked for silver.

The important Globe claim was staked in 1874 to cover impressive chrysocolla-bearing veins that later became part of the Old Globe mine (later renamed the Old Dominion mine). It did not garner significant attention until 1881 when mining infrastructure was moved from a small high-grade copper operation 10km west of Globe to the Old Dominion site. Mining at the Old Dominion underground copper operation reached full production in 1884, and continued until 1931.

Toward the end of the 19th century, reserves of higher grade copper ore lessened while the demand for the metal increased, and the economics of extracting copper from lower grade deposits improved. Efficient bulk mining techniques and new recovery processes were developed to extract copper from porphyry deposits, and contributed heavily to the future development of several large surface and underground mines in the Miami area.

During 1905 and 1906, prior to the establishment of the town of Miami, the predecessors of the Miami Copper Company (Miami Copper) began to procure options on many of the claims that eventually formed the bulk of the Miami mining operation (Miami Unit). In 1907, development of the Redrock shaft encountered abundant, rich copper oxide mineralization that compelled the company to develop the site. By 1911, Miami Copper had completed construction of a mill, power plant, and other infrastructure and produce copper concentrate from the Miami deposit (Ransome, 1919). From 1911 to 1959 block caving was used as the primary mining method. In 1943, in-situ leaching in an area of subsidence was initiated, and post-1959 this method of mining was used exclusively. Ownership and operatorship of the site changed hands numerous times throughout its development (Miami Copper was taken over by Magma Copper Company which became part of Newmont Mining, Inc. in 1969; Magma Copper was spun-off by Newmont in 1987) ultimately being purchased in 1996 by BHP Copper, Inc., which then merged with Billiton in 2001 to become BHP Billiton. In addition to mining, reclamation and reprocessing of old tailings to extract additional copper began in the 1989 and was completed in 2001 when mining operations were suspended. The site produced more than 2.7 billion pounds of copper during its 90 years of operation and is presently undergoing remediation and reclamation.

The early success of Miami Copper enhanced the prospectively of the Miami area. Inspiration Mining Co. (IMC) acquired ground in the area and by 1911 had drilled more than 80 holes, sunk a number of shafts, and developed 27,000ft of underground workings. In 1912, IMC merged with another local explorer, Live Oak Development Co., to form the Inspiration Consolidated Copper Company (Inspiration Consolidated) and, after a construction phase, began producing in 1915. Ultimately, multiple deposits were discovered and later developed by Miami Copper and Inspiration Consolidated over an irregular west-east corridor more than 4km in length; the area is known as the Miami-Inspiration trend. Mining of rich secondary copper mineralization took place from a complex of deposits distributed along the trend including the Thornton, Live Oak, Red Hill, Blue Bird, Joe Bush and Oxhide pits and from underground block-caving of the Miami and Miami East ore bodies (Skillings, 1978; Creasey, 1980). Ownership and operatorship of the Inspiration Consolidated site also changed as a number of mergers and acquisitions took place. Inspiration Consolidated was purchased by Cyprus Minerals Company in 1988, which evolved into Cyprus Amax Minerals Company. Cyprus Amax was purchased by Phelps-Dodge in 1999, which in turn was purchased in 2007 by present owner/operator Freeport McMoRan Copper & Gold Inc. (Freeport).

The Carlota (Cactus) property, located west of Miami-Inspiration, also began as a small underground copper-silver producer, being operated intermittently from 1929 to 1964. Copper carbonates and silicates occur in shattered diabase in the footwall of the Kelly fault zone. The property was re-evaluated in the early 1970s and late 1980s, and after changing ownership multiple times, was purchased in 2005 by Quadra Mining Ltd. Quadra developed a large open pit and heap leach/SX-EW operation that was commissioned in 2008. KGHM International purchased the mine in 2011.

The first bulk mining of porphyry-style copper mineralization in the Globe-Miami district began in 1943 when the Castle Dome deposit, located 3km northeast of Carlota and approximately 8km west of the town of Miami, transitioned from a high-grade low-tonnage operation. Mineralization at Castle Dome consisted of a chalcocite-enriched supergene blanket and was mined until 1953. In 1954, the Copper Cities disseminated copper deposit approximately 5km north of Miami was exploited, followed at a later date by the small Diamond H pit, located about 2km southwest of Copper Cities (Peterson, 1954). The large Miami and Inspiration deposits transitioned to bulk mining techniques at about the same time. Stripping of the Pinto Valley deposit, which constituted the hypogene mineralization immediately northeast of the original Castle Dome supergene orebody, began in 1972. In 2013, Capstone Mining Corp. purchased the Pinto Valley copper mining operation from BHP Copper.

In 1969, Miami Copper discovered the Miami East deposit, a tabular ore body located 3km east of the Miami-Inspiration workings and at a depth of approximately 1km. Production began in 1974 utilizing a combination of conventional mining and in-situ leaching techniques until reserves were exhausted. The mine site, known as the Miami Unit, has been on care-and-maintenance since 2002.

Presently, mining in the Globe-Miami district is taking place at Freeport’s Miami mine, at Capstone’s Pinto Valley mine, and at KGHM’s Carlota mine. Freeport’s operations include open pit mining and heap leaching of copper ore and recovery by solution extraction/electrowinning (SX/EW). The site also has a smelter and rod mill.

6.2 History of the Van Dyke Copper Project

In the early 1900's, as the demand for a local workforce increased, the need to provide miners with convenient housing, shopping and places of amusement led to the founding of the town of Miami. Miami was founded in 1907 when the Miami Land and Improvement Company (MLIC) acquired a tract of land on the upper end of Miami Flats (present-day downtown Miami). In 1908, Mr. Cleve W. Van Dyke purchased the tract from the MLIC, purchased adjacent land, formed the Miami Townsite Company and began to sell surface building lots. The first train arrived in October, 1909, and a federal census taken in 1910 determined that Miami had 1,390 residents.

Mr. Van Dyke shrewdly retained the mineral rights beneath the town, and in 1916 transferred these mineral rights to newly formed Van Dyke Copper Co. (VDCC). VDCC provided a vehicle for him to explore and potentially develop the ground that lay adjacent to mineral estates owned by Miami Copper Company (Miami Copper) and Inspiration Consolidated Copper Company (Inspiration Consolidated).

Later in 1916, VDCC drilled the initial hole into the Van Dyke deposit (Rice, 1921). The vertical rotary drillhole, V-1, was located on a ridge approximately 1000 feet southwest of the No. 5 Shaft of Miami Copper Company. It was drilled through post-mineral sedimentary rock (Gila Conglomerate) of uncertain thickness in the hope of intersecting a blind copper deposit. At a depth of 1182 feet the drill encountered a fault zone with abundant copper carbonate and copper silicate minerals. The hole was lost shortly thereafter in the footwall of the structure. VDCC drilled a second vertical rotary hole 2,600 feet east-southeast of hole V-1. Hole V-2 reportedly intersected 41 feet of copper carbonate and copper silicate-bearing breccia averaging about 4% Cu (Peterson, 1962). VDCC also collared a third hole 6,700 feet farther to the southeast, but it was abandoned in Gila Conglomerate at a depth of 1,400 feet.

Exploration drilling was suspended early in 1918 because of the United States' increased participation in World War One, but resumed in 1919 following an agreed upon armistice that ended the war and led to the signing of the Versailles Treaty. In the spring of that year, VDCC began to sink a vertical shaft located 200 feet south of drillhole V-1 (Rice, 1921; Peterson, 1962). By 1921 the shaft, which was designed for development and exploration purposes only, had been sunk to a total depth of 1,692 feet and had intersected mineralization similar to that cut by drillhole V-1 (Rice, 1921). Sinking of the shaft provided a significant cross-section of the geology and mineralization it encountered (Table 6-1 and Figure 6-1), including the Miami fault, a southeast-dipping normal fault that abruptly truncated the eastern extension of the Miami East deposit. This information enabled geologists to estimate with greater certainty the direction and amount of displacement on the Miami fault.

Unfortunately, a sharp decline in the price of copper during the year led to the suspension of further underground development activities.

By 1928, copper prices had recovered. VDCC dewatered the shaft and resumed its exploration and development of the Van Dyke deposit. Underground drifts were developed on the 1212 Foot, 1312 Foot and 1412 Foot levels and the first shipments of ore were made in 1929. Ore shipments continued through to 1931 when copper prices again fell to levels that would not sustain profitable mining operations (Peterson, 1962).

In 1943, the Van Dyke mine was reopened as a National Defense Project. It was found that most of the stopes and some of the drifts had caved (Kreis, 1974), but ore was available in parts of the mine. Despite exceptional average ore grades of approximately 5% Cu, the operation was not profitable because of the limited capacity of the small single hoist used to bring ore to surface from the 1212 Level. The mine was closed in June 1945. Metal production for the two periods of operation (1929-1931 and 1943-1945) totaled 11,851,700 pounds of copper (Peterson, 1962).

The property was idle in 1946, but in 1947, AMICO Mining Corp. (a company formed and held equally by Anaconda Copper Co., Miami Copper Co. and Inspiration Consolidated Copper Co.) leased the Van Dyke property and drilled four holes to test for the southern extension of the deposit. The holes failed to intersect encouraging mineralization; and AMICO was dissolved in 1949 (Peterson, 1962).

The Van Dyke property remained inactive from 1948 to 1963. In 1964, Freeport Sulfur Company leased the Van Dyke property and drilled two holes that failed to intersect mineralization (Clary et al., 1981). The property was again dormant until 1968.

In April, 1968, Occidental Minerals Corporation (Occidental) acquired the Van Dyke property through a lease and Option to Purchase agreement with VDCC. In the early 1970's, Occidental optioned its interest to several other companies including AMAX and Utah International (Utah). The two companies conducted considerable amounts of drilling but neither completed its earn-in.

Table 6-1 Description of Geology encountered in the Van Dyke Shaft (after Rice, 1921)

From (ft)	To (ft)	Description
0	760	Gila Conglomerate
760	1183	Pinal Schist with traces of chalcotrichite
1183	1218	Orebody (within Pinal Schist) copper silicates and carbonates
1218	1430	Pinal Schist with traces of chrysocolla, malachite, azurite, cuprite, and native copper
1430	1595	Pinal Schist with stringers and disseminations of chalcocite
1595	1610	Pinal Schist with pyrite and chalcopyrite (top of 'Primary' zone)
1610	1635	Granite Dyke
1635	1692	Miami Fault followed by tectonic breccia composed of Pinal Schist

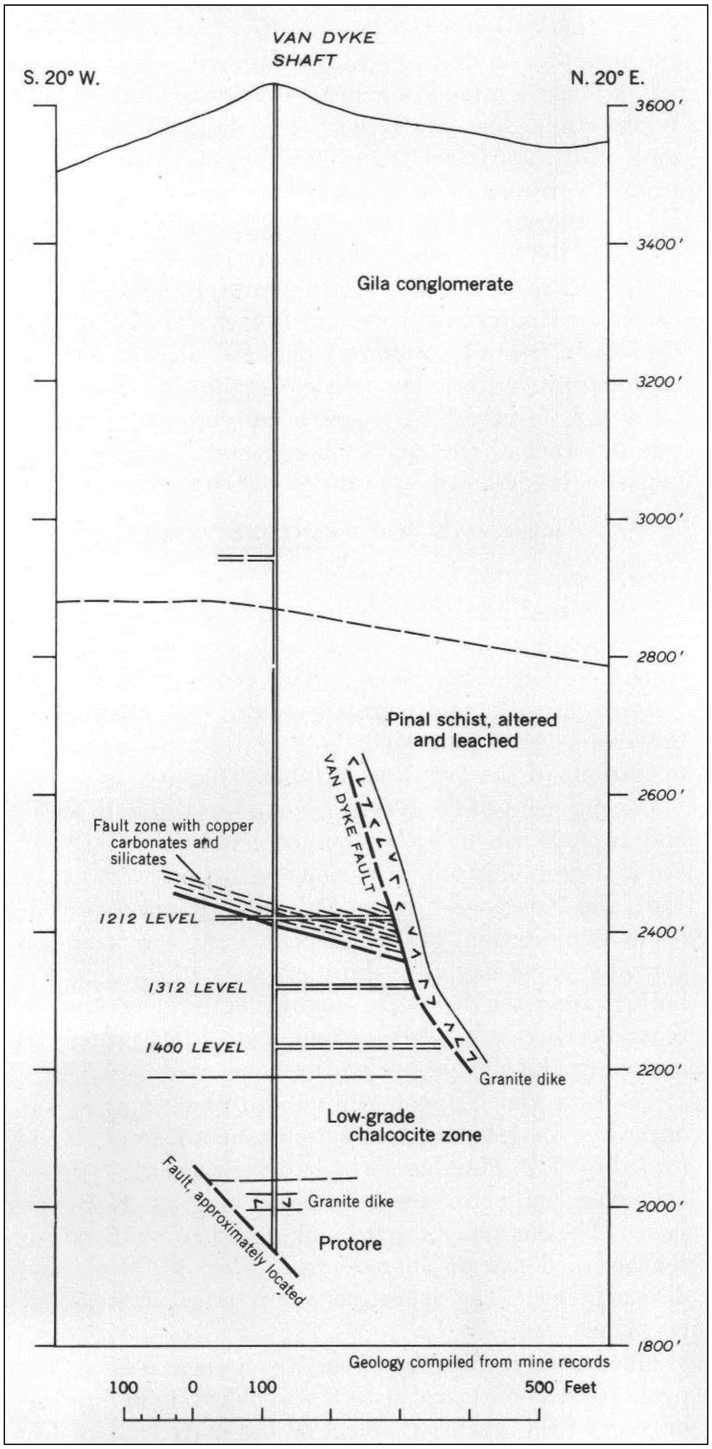


Figure 6-1 Geological Cross-section along 020° of the Van Dyke Shaft (reproduced from Peterson, 1962)

AMAX terminated its option with Occidental late in 1973 and Utah terminated its option with Occidental in late 1975 or early 1976. By 1975, a total of 50 holes had been drilled throughout the project area, including many within the Town of Miami. The drilling covered a polygonal area with maximum dimensions of approximately 1300m in an east-west direction by approximately 1000m in a north-south direction.

Drilling determined that the Van Dyke deposit is covered by from 186m (in the northwest part of the deposit) to more than 627m of unmineralized Tertiary Gila Conglomerate. Mineralization encountered consisted primarily of the secondary copper minerals azurite, malachite and chrysocolla in tectonically fractured to brecciated Early Proterozoic Pinal Schist.

Modelling of the Van Dyke deposit using information from the early underground workings and details from drilling completed between 1968 and 1975 determined that the Van Dyke deposit resides in the downthrown hangingwall block of the Miami fault, east of the truncated, elongate Miami-Inspiration system of deposits. At Van Dyke, significant mineralization (equal to or greater than 0.15% Cu) generally occurs in two sub-parallel zones separated by a band of weaker copper grades Table 6-2). However, in the Van Dyke shaft area and in nearby drillholes, copper mineralization was shown to be vertically continuous, and therefore became the focus for later assessments.

A total of 34 drillholes intersected sufficient widths and grade of copper mineralization to be used to calculate resource estimates for the Van Dyke deposit. Four different estimates were completed, all from 1973 to 1976, decades before implementation of National Instrument 43-101 (NI 43-101); the estimates are therefore historical and are not relied upon by the authors of this report or by Copper Fox. The historical estimates range from 103,000,000 tons averaging 0.53% Cu to 140,858,000 tons averaging 0.40% Cu. These estimates are outlined in Table 6-3 below. Resource estimates were also completed for a limited area in and adjacent to the Van Dyke underground workings and led to further test work (outlined below) in the immediate area of the mine (Kreis, 1974; Caviness, 1987).

Table 6-2 List of Selected Drillhole Intersections, Van Dyke Copper Deposit (Acid Soluble Copper (ASCu) Intervals (Shoulder Cut-Off of 0.1 %)

DDH ID	Zone (relative)	From (m)	To (m)	Interval (m)	CuAS (%)
OXY-6	upper	376.12	402.34	26.21	0.661
	mid	415.44	435.86	20.42	0.676
	lower	506.27	582.17	75.90	0.831
	total	376.12	582.17	206.05	0.481
OXY-7	upper	396.24	418.19	21.95	0.696
	lower	427.94	541.93	114.00	0.417
	total	396.24	541.93	145.69	0.429
OXY-8	upper	322.48	339.24	16.76	0.196
	lower	374.29	439.22	64.92	0.504
	total	322.48	439.22	116.74	0.322
OXY-10	upper	339.85	379.17	39.32	0.654
	mid	426.72	460.55	33.83	0.283
	lower	473.96	489.51	15.54	0.207
	total m+l	426.72	489.51	62.79	0.211
OXY-18	upper	408.74	442.57	33.83	0.719
	mid	477.32	521.21	43.89	0.162
	lower	576.07	584.91	8.84	0.310
	total U+M	408.74	521.21	112.47	0.291
OXY-20	upper	428.85	452.93	24.08	0.313
	mid	479.15	500.79	21.64	0.159
	lower	508.10	528.52	20.42	0.376
	u+m+l	428.85	528.52	99.67	0.217
VD-5	upper	417.27	432.51	15.24	0.871
	mid	438.61	450.80	12.19	0.293
	lower	530.66	579.42	48.77	0.371
	total	417.27	579.42	162.15	0.230
VD-6	upper	364.54	429.16	64.62	0.412
	mid	450.49	459.64	9.15	0.134
	lower	480.97	500.48	19.51	0.302
	total	364.54	500.48	135.94	0.273

Table 6-3 Comparison of Historical Resource Estimates, Van Dyke Copper Deposit

Company or Estimator	Year	Tonnage	Total Cu (%)	Oxide Cu (%)	Method	Cut-off Grade
Occidental	1973	115,700,000	0.51	0.34	polygonal	0.20 % Cu
AMAX	1973	117,000,000	0.49	0.31	polygonal	0.20 % Cu
Utah	1975	140,585,000	0.40	0.24	sections	0.15% Cu
C.R. Caviness	1976	119,202,494	0.52	0.32	sections	0.20 % Cu

In 1976, Occidental initiated an in-situ leaching pilot program in an area due west of the Van Dyke shaft on patented claims and surface estate lands owned by VDCC. The work consisted of drilling from surface one vertical injection well and one vertical recovery well, each 1,000 feet in length, spaced 75 feet apart. Water was then pumped down the injection well to hydraulically fracture rock containing acid soluble copper mineralization. A weak sulphuric acid solution was then pumped down the injection well and allowed to percolate through the fractured rock until being drawn up the recovery well. The pilot program completed in 1977 confirmed that in-situ leaching was an efficient and effective method of extracting copper from the deposit.

In 1978, Occidental initiated a second phase of in-situ testing by drilling five injection and recovery wells and eight monitoring wells. The testing continued until May, 1980, and indicated the feasibility of a surface in-situ leaching operation at Van Dyke (Huff et al, 1981). However, a surface operation at Van Dyke was not supported by the Town of Miami under which the deposit resides. Town ordinances and ongoing litigation discouraged Occidental sufficiently and later in 1980 the company relinquished its option on the Van Dyke property.

In 1982, Federal Judge Mary Anne Richey dismissed the suit brought by the town of Miami against Occidental and Van Dyke, and approved an agreement which:

- nullified the original deed restrictions imposed on surface property owners which prohibited them from filing for damages in the event of surface subsidence occurrences from mining under their houses and buildings;
- extended the ownership of surface property owners from 40 feet to a depth of 500 feet below,
- continued Van Dyke ownership of the mineral rights;
- called for companies mining under Miami to file a $500,000 bond with the town government, in addition to providing public liability insurance protection of one million dollars plus one million dollars protection for property damage.

In 1986, Kocide Chemical Corporation (Kocide), a wholly-owned subsidiary of Griffin Corporation, negotiated a deal with the owners of the VDCC to develop an in-situ leaching and copper recovery operation in the area that Occidental had tested in the 1970s. Kocide applied for and received the necessary permits to drill a series of injection and recovery wells and to construct a copper cementation plant. Advancement of the Project was delayed through 1987, and production did not commence until December, 1988 (Beard, 1990). Initially, Kocide injected a dilute sulfuric acid solution into the underground workings and recovered the pregnant solution from a production well. Cement copper was precipitated in 'Kennecott Cones' using shredded and de-tinned cans and the product was shipped to the company's Casa Grande plant for further refining to produce copper sulphate. A recorded

721,720 pounds of copper cement was produced in 1988-89. Kocide suspended its operations in 1989 due to iron build up in the recycled leach solution.

Later in 1990, Arimetco International Inc. acquired the Van Dyke property and the following year rehabilitated the Van Dyke shaft. In 1992, Arimetco was developing plans to leach the entire deposit using the Van Dyke shaft as an extraction well, but this work did not proceed past the planning stages. Following Arimetco's departure, the Van Dyke property lay dormant for a number of years.

6.3 Recent Developments - Van Dyke Copper Project

In April, 2012, Bennu Properties, LLC, Albert W. Fritz Jr. and Edith Spencer Fritz (Bennu-Fritz) concluded its acquisition of clear title to certain surface and subsurface mineral rights that comprise an estimated 90 - 95% of the known extent of the Van Dyke property through a tax lien foreclosure process. At about the same time, Bell Copper Corporation (Bell), through a wholly-owned subsidiary, entered into a purchase and sale agreement with Bennu-Fritz to acquire the Van Dyke property. Bell also acquired 35 unpatented federal mineral lode claims (the MIA 1-35 claims) that cover approximately 600 acres of ground contiguous with the southern edge of the Van Dyke property.

In July, 2012, Copper Fox Metals Inc. (Copper Fox) signed a purchase agreement with Bell to acquire 100% of Bell's interest in the Van Dyke property. Under the terms of the purchase agreement Copper Fox, through a wholly owned subsidiary Copper Fox Van Dyke Company, acquire 100% of the Van Dyke property, including the MIA claims, as well as the Sombrero Buttes property, by paying to Bell CDN$500,000, and to Bennu-Fritz $1.5 million and by assuming the continuing obligations with respect to the Van Dyke property, subject to certain amended terms and conditions. Bennu-Fritz retains a 2.5% Net Smelter Return ("NSR") production royalty from the Van Dyke deposit. Late in 2013, Copper Fox initiated a review of all available data on the Van Dyke project, including drill core and pulps stored in Miami, and began to plan its 2014 work program. A summary of the work completed in 2013-2014 is described in Section 9.0: Exploration and in Section 10: Drilling.

7 GEOLOGICAL SETTING AND MINERALIZATION

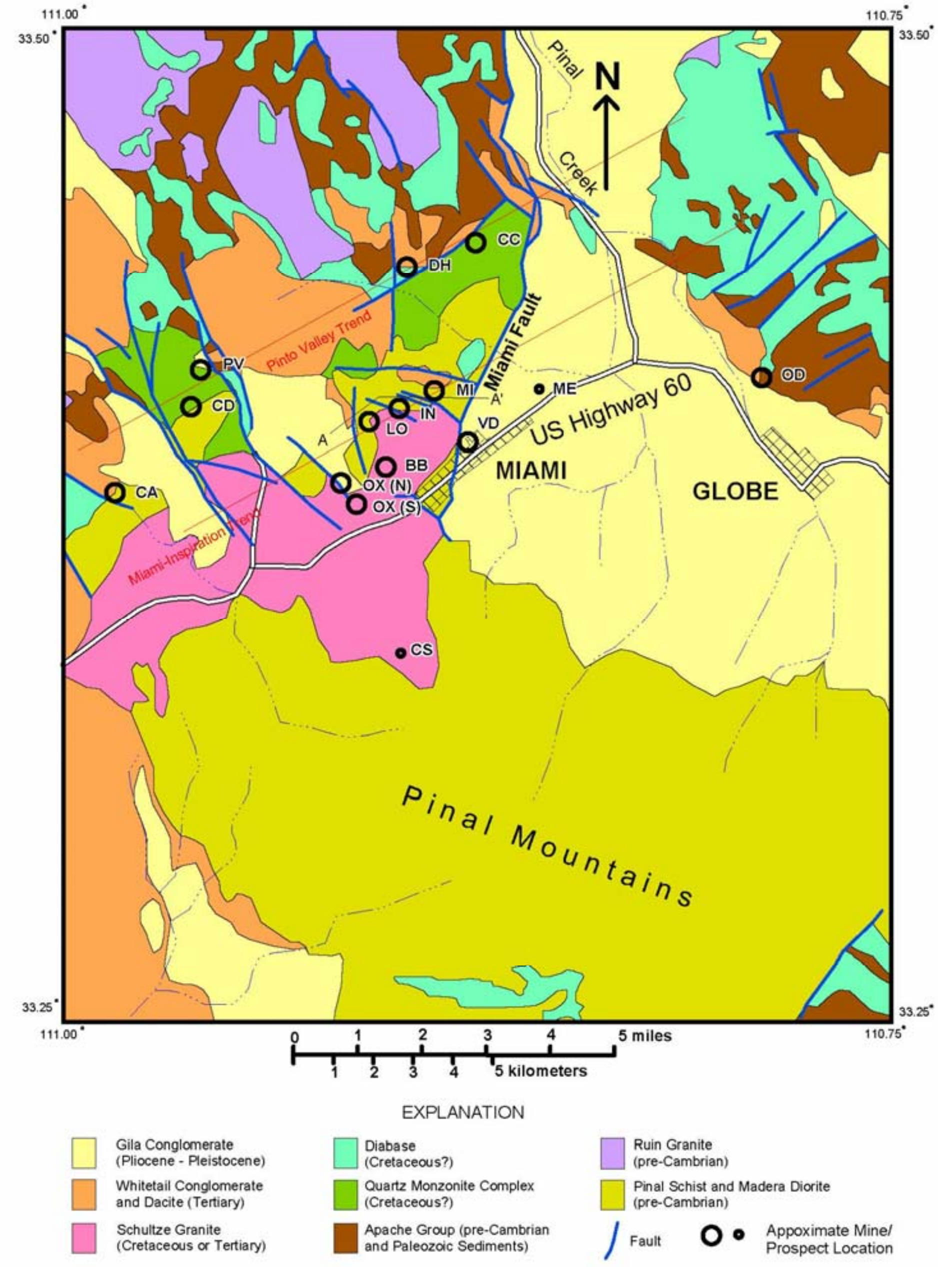
7.1 Geological Setting

The Van Dyke Copper Project is located in the Basin and Range province of east-central Arizona, and centrally within the Globe quadrangle. The general geology of the Globe quadrangle was studied by F. L. Ransome in 1901 and 1902. The results of his work were published by the United States Geological Survey as Professional Paper 12 (Ransome, 1903) and as folio 111 of the Geologic Atlas (Ransome, 1904). In 1911, following the realization of the significance of low-grade disseminated copper deposits, Ransome returned to the district to conduct additional work, the results of which were included in Professional Paper 115 (Ransome, 1919). In the middle of the 20th century, N.P. Peterson and others conducted fieldwork and produced a number of important reports, including United States Geological Survey Professional Paper 342, describing the geology and ore deposits of the district (Peterson, 1962), a publication that provides the geological framework for the area.

Southeast Arizona, including the Globe-Miami district, has undergone considerable structural deformation that began in the Paleoproterozoic and persisted through to the Tertiary. During the Late Cretaceous and Early Tertiary, the area endured basement-cored uplifts bounded by reverse faults, volcanism, intense compressive deformation, and plutonism that are all related to the development of the Laramide orogeny and magmatic-hydrothermal arc (Coney, 1978). A period of extensive erosion, including the unroofing of porphryry copper systems followed, and was in turn followed in the Late Tertiary by Basin and Range rifting (Maher et al., 2005; Seedorf et al., 2008).

The Globe-Miami mining district is underlain by igneous, sedimentary and metamorphic rocks of Precambrian, Paleozoic, Tertiary, and Quaternary age. Figure 7-1 shows a simplified geological map of the western half of the district. lists the stratigraphy of the Miami-Inspiration area. Figure 7-2 shows a diagrammatic sketch that illustrates the age and spatial relationships of the major rock units.

The oldest exposed rocks in the district are Early Proterozoic (1.6-1.7 Ga) turbidites and felsic volcanic rocks of the Pinal Schist that were metamorphosed to greenschist facies. These rocks were intruded by granodioritic to dioritic rocks at ~1.6 Ga, including the Madera Diorite. Post-metamorphic, regionally extensive granitic plutons (~1.4 Ga) were emplaced into this sequence and developed andalusite-bearing contact aureoles. Subsequently, the Late Proterozoic Apache Group, a relatively thin (~1 km) succession of regionally extensive marine sedimentary rocks dominated by siliciclastic and minor carbonate rocks, was deposited across the region. It consists of, from oldest to youngest: the Pioneer Formation, including the basal Scanlan Conglomerate; the Dripping Spring Quartzite, including the Barnes Conglomerate; the Mescal Limestone; and, minor basalt closely associated with the Mescal.



Note: Deposit Abbreviations: BB=Bluebird; CA=Cactus/Carlota; CC=Copper Cities; CD=Castle Dome; CS=Copper Springs; DH=Diamond H; IN=Inspiration (Thornton); LO=Live Oak; ME=Miami East; MI=Miami Caved; OD=Old Dominion; OX(N)=Oxhide North; OX(S)=Oxhide South; PV=Pinto Valley; VD=Van Dyke

Figure 7-1 Simplified Geological Map of the Western Half of the Globe-Miami Mining District (modified by L. J. Bernard after Peterson, 1962; Creasey, 1980; Sillitoe, 2010)

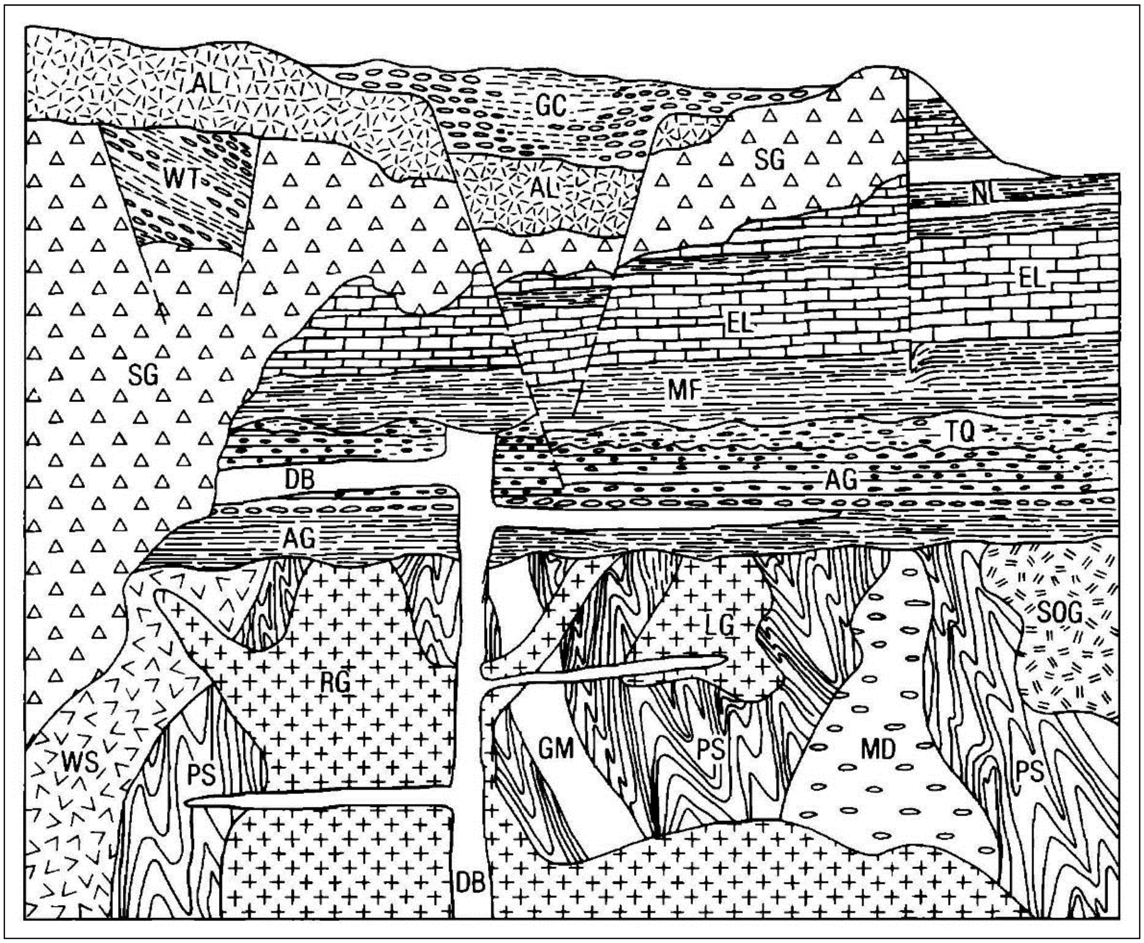
Paleozoic rocks in the district are the Cambrian Troy Quartzite, Devonian Martin Limestone, Mississippian Escabrosa Limestone, and Pennsylvanian to Permian Naco Formation.

During the latter stages or following deposition of the Apache Group, basaltic magmas were emplaced at about 1.1 Ga as sub-horizontal sheets (sills and sill-like bodies) of diabase with local, steeply dipping feeder dikes. These intrusions were emplaced predominantly at shallow depths, within the upper 2km of the crust, but locally breached the surface in the form of basalt flows. The masses of diabase locally are important hosts to mineralization and provide key markers used in reconstructing Laramide reverse and mid-Tertiary normal faults (Maher et al., 2008).

Table 7-1 Stratigraphy of the Miami-Inspiration Area (after Ransome, 1903 and 1919; Peterson, 1962; Creasey, 1980)

Rock or Formation	Age	Description
Alluvium	Upper Tertiary and Quaternary	Unconsolidated, poorly sorted poly-lithologic detritus
Gila Conglomerate	Upper Tertiary and Quaternary	poorly sorted, matrix-supported bouldery cobble conglomerate
Apache Leap Tuff	Miocene	dacitic ash flow tuff
Whitetail Conglomerate	Oligocene	well-bedded, hematite-rich matrix supported conglomerate
Naco Formation	Pennsylvanian - Permian	thin bedded calcareous sediment, marl and fossiliferous limestone
Escabrosa Limestone	Lower Mississippian	cliff forming limestone and dolostone
Martin Limestone	Upper Devonian	dolostone, minor shale and sandstone
Troy Quartzite	Cambrian	well-bedded, well-sorted quartzite with basal quartzite conglomerate
Apache Group		
Mescal Limestone	Precambrian (~1.2 Ga)	stromatolitic limestone, dolomitic limestone and chert
Dripping Spring Quartzite	Precambrian	upper quartzite beds and lower arenaceous shale
Pioneer Formation	Upper Precambrian	arkosic sandstone to arenaceous shale
Pinal Schist	Early Proterozoic (1.6-1.7 Ga)	regionally extensive meta-turbidites and minor felsic volcanic rocks metamorphosed to greenschist facies; locally andalusite-bearing

Several other igneous intrusions, ranging from granodorite to quartz monzonite, were emplaced during late Mesozoic and early Tertiary time. The most recent of these is the Schultze Granite, which underlies the southern part of the district, and was intruded into the Precambrian and Paleozoic country rock during the Paleocene. The Schultze Granite is a composite pluton consisting of at least three intrusive phases. The earliest phase is a granodiorite, the intermediate or main phase is a porphyritic quartz monzonite, and the youngest phase is a series of porphyritic intrusions that were not all emplaced at the same time (Creasy, 1980). Near the northern-most exposures at the Inspiration deposit, Schultze Granite has various textures and compositions that have been called granodiorite, quartz monzonite, and porphyritic quartz monzonite (Olmstead and Johnson, 1966). Creasey (1980) refers to this as the porphyry phase (i.e. granite porphyry) of the Schultze Granite. A separate body of granite porphyry has been mapped at the Pinto Valley, Copper Cities, Diamond H, and Miami East deposits, and is seen near the vein-controlled mineralization at Old Dominion.



Abbreviations: AG, Apache Group; AL, Apache Leap Tuff; DB, diabase EL, Escabrosa Limestone; GC, Gila Conglomerate; GM, granite of Manitou Hill; LG, Lost Gulch Monsonite; MD, Madera Diorite; MF, Martin Formation; NL, Naco Limestone; PS, Pinal Schist; RG, Ruin Granite; SG, Schultze Granite; SOG, Solitude Granite; TQ, Troy Quartzite; WS, Willow Spring Granodiorite; WT, Whitetail Conglomerate.

Figure 7-2 Diagramatic Sketch Illustrating Geologic Relationships of Rock Units in the Globe-Miami Mining District (Creasey, 1980)

Tertiary sedimentary and volcanic rocks cover the mineralized units. The Whitetail Conglomerate was formed as a result of regional uplift approximately 32 Ma. Rocks of the Whitetail Conglomerate contain weathered clasts of older rocks in a red iron oxide-rich, very fine-grained matrix, and locally detrital to exotic copper mineralization. A Miocene ash-flow tuff, known as the Apache Leap Tuff, covered the area following the Whitetail Conglomerate (21 Ma). Further Basin and Range faulting and subsequent erosion produced the Tertiary to Quaternary Gila Conglomerate from the erosion of all older rocks.

The Gila Conglomerate fills a deep structural basin between the towns of Miami and Globe, a distance of more than 10km, and extends northward along Miami Wash and Pinal Creek. It was deposited as two alluvial fan complexes that washed down from the Apache Peaks to the north and from the Pinal Mountains to the south. Gila Conglomerate is covered by variably thick surficial deposits of alluvium and outwash. Figure 7-3 provides a cross-section of part of the Miami-Inspiration trend.

7.2 Mineralization in the Globe-Miami Mining District

The Globe-Miami mining district of east-central Arizona occupies part of the Laramide magmatic-hydrothermal arc of southwestern North America, one of the world's premier copper provinces (Titley, 1982b; Long, 1995). The district is known for a cluster of large disseminated or porphyry copper deposits, many of which have been or are actively being mined and copper-rich polymetallic vein deposits (Ransome, 1903). The vein deposits, based on their predominant metals, have been further divided by Peterson (1962) into copper veins, zinc-lead veins, zinc-lead-vanadium-molybdenum veins, manganese-zinc-lead-silver veins, gold-silver veins, and molybdenum veins. Many vein deposits were important producers during the early history of the district.

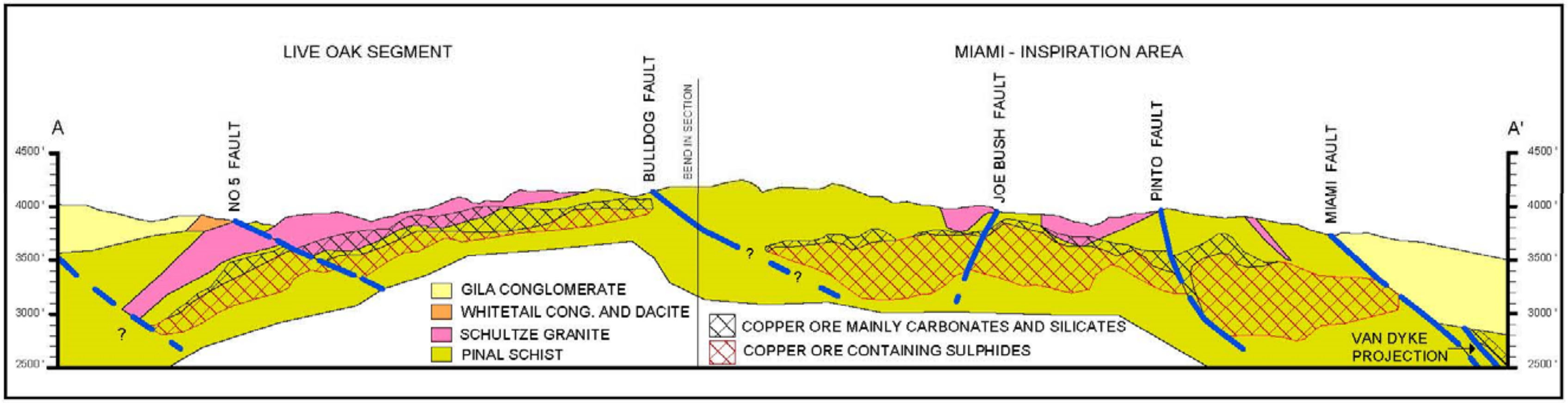


Figure 7-3 West to East Section of the Miami-Inspiration Trend (modified by L.J. Bernard after Peterson, 1962)

The district's porphyry copper deposits include Miami-Inspiration, Miami East, Pinto Valley, Copper Cities, Castle Dome and Carlota. Potassic, argillic, sericitic and propylitic phases of alteration are associated with the deposits. Mineralization is either primary sulphide or hypogene, and secondary enrichment (oxide, silicate and sulphide), or supergene. Hypogene zones consist of the primary sulphide minerals pyrite and chalcopyrite with minor amounts of molybdenite, occasional sphalerite and galena; gold and silver may be recovered in small amounts as by-products. Supergene enrichment zones, and locally exotic copper deposits, are dominated by chrysocolla, malachite, azurite and tenorite as replacements of sulphide species or as infiltrations of late fracture systems. Chalcocite locally occurs as 'blankets' proximal to hypogene ore. The development of supergene mineralization was so extensive and the process of copper enrichment so thorough, that it led to the formation of numerous large, copper-rich ore bodies. Almost all of the ore mined in the Globe-Miami district came from supergene-enriched deposits.

The hydrothermal deposits are genetically and spatially related to the emplacement of Paleocene (59 to 64 Ma) calc-alkaline hypabyssal intrusions, specifically the younger porphyritic phases of the Schultze Granite (Pederson, 1962; Creasey, 1980; Titley, 1982b; Seedorff et al., 2008). The mean intrusive age of the main phase of the Schultze Granite is 61.2 +/ - 0.4 Ma. The isotopic age of the porphyry phase is uncertain because of extensive alteration and because of multiple periods of intrusion. The age of mineralization differs from place to place across the district and spans about 5m.y. From oldest to youngest, the known periods of mineralization are: Copper Cities orebody, 63.3 +/- 0.5 Ma; regional quartz-sericite veins, 61.1 +/- 0.3 Ma; Miami-Inspiration orebody, 59.5 +/- 0.3 Ma; and Pinto Valley orebody, 59.1 +/- 0.5 Ma (Creasey, 1980).

Following their formation, porphyry copper systems were affected by faulting, erosion and oxidation and, in the Oligocene-Miocene, by extensional tectonism that dismembered and variably tilted the upper crustal rocks in the area through the development of grabens and half-grabens (Creasey, 1980; Spencer and Reynolds, 1989; Wilkins and Heidrick, 1995; Seedorff et al., 2008; Mayer et al., 2008).

The Van Dyke copper deposit is located within the Inspiration-Miami trend of deposits that includes four principal orebodies; from west to east they are Live Oak, Thornton, Miami Caved and Miami East (Ransome, 1919; Peterson, 1962; Olmstead and Johnson, 1966; Creasey, 1980).

7.3 Structural Setting, Geology and Mineralization of the Van Dyke Copper Deposit

7.3.1 Structural Setting and Deposit Geometry

The Van Dyke copper deposit lies to the east, and on the hangingwall side, of the Miami fault. The Miami fault is a district-scale northerly-trending, east-dipping normal fault that can be traced from the Van Dyke project to the Copper Cities mine three miles to the north. The Miami fault developed during the Tertiary; it forms the western edge of a graben that extends eastward to the city of Globe. The graben is filled with Late Miocene and younger Gila Conglomerate that thickens to the east and to the north.

East-side down displacement on the Miami fault is estimated to be approximately 400 m, placing the Van Dyke deposit at deeper levels than the adjacent Miami Caved deposit. Diamond drilling and deposit modeling have identified the presence of at least two more sympathetic normal faults in the hangingwall of the Miami fault. They include the Porphyry and Azurite faults which further dismember the Van Dyke deposit. Interpretive cross-sections produced by Occidental in the early 1970s illustrate a deposit that consists of two (or more) structural blocks or segments each bound by moderately east-dipping, east-side down normal faults. The deposit may originally have been a continuous, sub-horizontal sheet-like body, but now dips eastward at 15-20°. The portion of the deposit bound by the Porphyry fault and the Azurite fault consists of at least two gently east-dipping oxide panels separated by a weakly oxidized zone.

The footwall of the orebody is locally defined by a layer of red clay gouge that strikes a little west of north and dips 20°E. About 200 feet northeast of the Van Dyke shaft, mineralization is truncated by the Van Dyke fault, a structure coincident with the footwall of a granite porphyry dyke. The fault and dyke strike 110° and dip 70°NE. The localization of secondary copper minerals appears to have been controlled by the intersection of the low-angle fault zone with the Van Dyke fault. The greatest amount of brecciation and the highest copper grades occur near this intersection. The Van Dyke fault and its eastern extension the CW fault, appear to have formed barriers to the copper-bearing solutions that seeped into the low-angle fault zone. The amount of offset along these structures is uncertain.

The mineralization that comprises the Van Dyke copper deposit has a drill-defined, north-easterly strike length of 1200m, a down-dip dimension of 1300m, and a thickness of approximately 225m. A three dimensional view of the deposit is illustrated in Figure 7-4, indicating the major faults, the Gila Conglomerate-Pinal Schist boundary and the Oxide solid used in modelling, as well as the drillholes used. Additional plans and sections can be found in Section 14.

7.3.2 Geology

The Van Dyke deposit is not exposed at surface, therefore all known geological information for the deposit has been gained from exploration diamond drilling programs and from development of the Van Dyke shaft and related level workings. Based on diamond drilling, the deposit is covered by between 186 - 627m of alluvium and post-mineral Gila Conglomerate.

Almost all of the Van Dyke deposit is hosted by Lower Precambrian Pinal Schist; a minor amount of copper mineralization occurs in an altered porphyritic phase of the Paleocene Schultze Granite.

Stratified Rocks

Pinal Schist

Lower Precambrian (~1.7 - 1.6 Ga) Pinal Schist is typically pale to medium grey, strongly foliated meta-sedimentary rock consisting of up to 75-80% muscovite (or sericite) and quartz, and varying amounts of biotite, chlorite, k-feldspar and clay. It ranges from coarse-grained quartz-sericite schist to fine-grained quartz-sericite-chlorite schist. Evidence of early ductile deformation is provided by sections of schist that display tight (i.e. chevron) to isoclinal folds (Plate 7-1). More recent brittle deformation is demonstrated by extensive intervals of fractured to brecciated (and re-cemented) schist (Plate 7-2). The interconnected open spaces created during brittle deformation served as conduits and depositional sites for secondary copper minerals. Near the Miami fault and subsidiary faults, bands or zones of breccia and pale grey clay gouge predominate. Quartz ± sulphide veinlets cut the foliation.

Diabase, an important host to secondary copper mineralization at Miami East, has not been observed at Van Dyke.

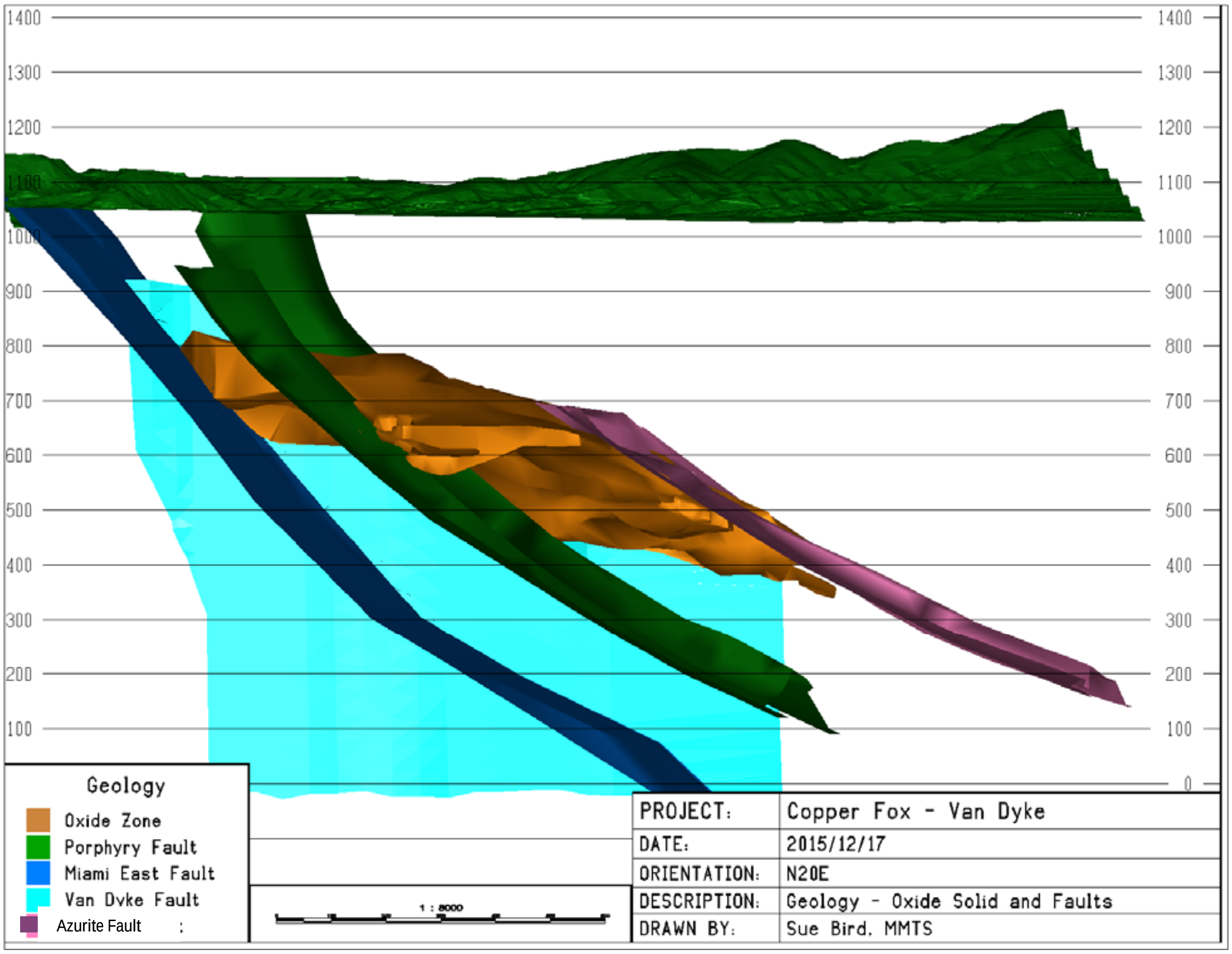


Figure 7-4 **Three-Dimensional View of the Van Dyke Copper Deposit – Major Faults and ASCu Zone**

Plate 7-1 Chevron-folded Pinal Schist, Drillhole VD-14-05 at 439.7m

Plate 7-2 Brecciated Pinal Schist Re-cemented in Part by Azurite and Malachite, Drillhole VD-14-04 at 473.3m

Gila Conglomerate

The Tertiary and Quaternary Gila Conglomerate is the youngest of all sedimentary rock units on the Project. Its deposition was preceded by periods of faulting, uplift and extensive erosion. The base of the unit rests on a pronounced angular unconformity. In the Van Dyke area, Gila Conglomerate lies directly on Lower Precambrian Pinal Schist.

The composition of the conglomerate is highly variable, often representing the dominant local lithology. It is typically poorly sorted, but generally is moderately to well-stratified, and is compositionally matrix-supported (Plate 7-3). Clasts range in size from pebbles to large cobbles and small boulders and are typically subrounded. This unit overlies and postdates mineralization, and therefore has little economic potential.

Intrusive Rocks

Schultze Granite

The only intrusive rock identified to-date on the Project is regarded to be Granite Porphyry. The most continuous interval of intrusive rock encountered in drilling is a pale greenish grey, porphyritic biotite granodiorite. The rock is composed of up to 10% clear quartz phenocrysts, 2% zoned K-feldspar phenocrysts (Plate 7-4) set in a finer grained groundmass consisting mostly of plagioclase, K-feldspar, quartz, sericite, biotite and hornblende.

The rock is often moderately to intensely sericite-altered and ranges from being non or weakly mineralized to strongly mineralized, particularly where it is intensely fractured to shattered or brecciated.

While most of the historic holes drilled on the Project did not encounter any intrusive rock, Copper Fox's first hole, VD14-01, passed through Pinal Schist and into Schultze Granite porphyry at a depth of 576.1m and stayed in intrusive to the end of the hole at 639.2m. Near the contact both units are weakly mineralized with pyrite±chalcopyrite and later (?) quartz-molybdenite veinlets. The Pinal Schist was phyllic-altered and Schultze Granite was phyllic to potassic-altered.

Alluvium

Tertiary alluvium is composed primarily of reworked detritus derived from Gila Conglomerate. It contains appreciable brown clay and an assortment of pebbles, cobbles and boulders. It forms thin (<1m to ~ 20m) poorly sorted and poorly cemented deposits that are well-exposed in Bloody Tanks Wash through the town of Miami. Recent erosion is dissecting these deposits and the underlying Gila Conglomerate.

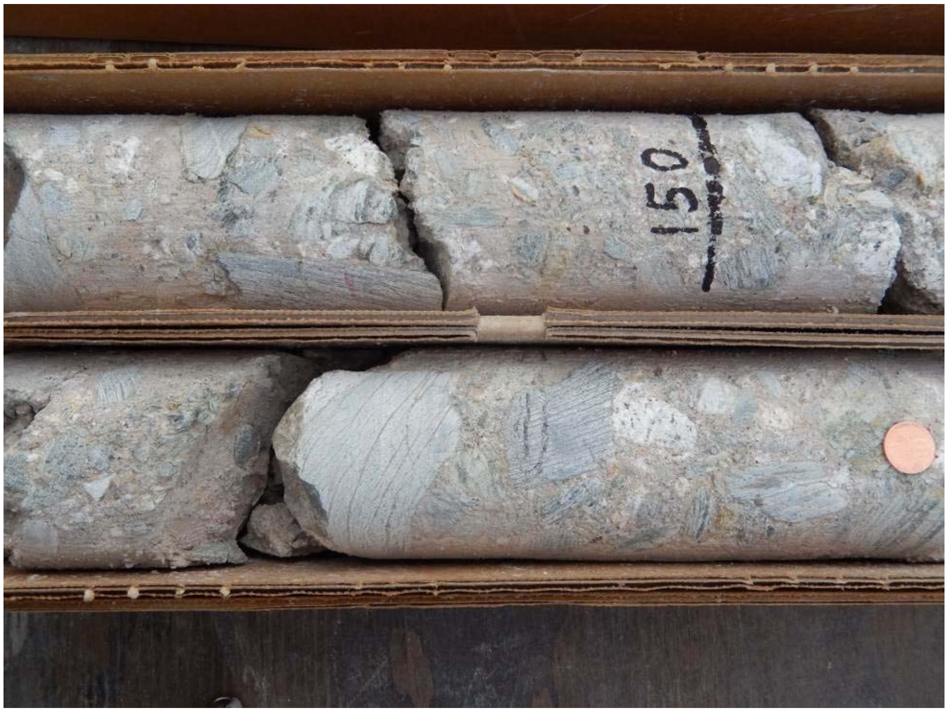


Plate 7-3 Gila Conglomerate, Drillhole VD-14-01 at 45.7m

Plate 7-4 Schultze Granite, Drillhole VD-14-01 at 628.4m Showing Porphyritic Biotite Granodiorite with one zoned K-spar Megacryst

7.3.3 Mineralization

Mineralization includes both hypogene or primary sulphide, and supergene or secondary enrichment (oxide-silicate+/-sulphide) types, but the latter far outweighs the former in terms of abundance, grade and therefore economic potential.

Secondary copper mineralization comprises the majority of the Van Dyke deposit. Mineralization, consisting primarily of azurite, malachite, chrysocolla, and tenorite occurs principally in tectonically fractured to brecciated panels of Pinal Schist in the hangingwall of the Miami Fault (Plate 7-5). The secondary minerals occur primarily as bands and crustifications, textures that suggest formation was by filling of open spaces. There are no relict sulphide grains in the upper part of the deposit. Supergene sulfide enrichment occurs in localized pods adjacent to the oxidized mineralization, primarily as chalcocite. Hypogene mineralization occurs beneath the secondary zones.

The secondary copper mineralization that comprises the majority of the Van Dyke copper deposit is believed to have formed from copper laden solutions that migrated laterally and vertically along interconnected fractures and zones of brecciation from the nearby oxidizing copper deposits, making the Van Dyke deposit an Exotic type porphyry copper deposit. In general, the grade of the secondary copper mineralization is at least in part a function of how well the country rock was structurally prepared prior to the mobilization of copper into solution.

Plate 7-5 Malachite, Azurite and Chrysocolla in Fractured to Brecciated Pinal Schist, 412.46 – 417.67m in Drillhole VD-14-03

8 DEPOSIT TYPES

The Globe-Miami mining district in which the Van Dyke project occurs is known mainly for its large porphyry copper deposits, including the Miami-Inspiration, Miami East, Pinto Valley, Copper Cities and Castle Dome mines, and copper-bearing veins of the Old Dominion mine. The Miami-Inspiration operation consisted of a complex of ore bodies, including the main Live Oak and Thornton pits, and the underground Miami Caved deposit, that together covered an arcuate west-to-east strike length of about 4km (Creasey, 1980). The Miami East deposit is the eastern down-faulted extension of Miami-Inspiration (Peterson, 1962; Titley, 1989). About half of the Miami-Inspiration ore was mined from a porphyritic quartz monzonite phase of Paleocene Schultze Granite and about half came from the Proterozoic Pinal Schist. The deposits consisted of partly eroded leached caps, well-developed supergene enrichment zones, and underlying lower-grade hypogene zones. At the Miami East deposit, a chalcocite-bearing diabase sill was an important source of ore.

Porphyry copper deposits consist of disseminated copper minerals and copper minerals in veins, stockworks and breccias that are relatively evenly distributed throughout large volumes of rock. Porphyry copper deposits are typically high tonnage (greater than 100 million tons) and low to medium grade (0.3–2.0% Cu). They are the world's most important source of copper, accounting for more than 60% of the annual world copper production and about 65% of known copper resources. Porphyry copper deposits also are an important source of other metals, notably molybdenum, gold and silver.

The geometry and dimensions of porphyry copper deposits are diverse, in part because of post-ore intrusions, varied types of host rocks that influence deposit morphology, relative amounts of hypogene and supergene ore each of which has different configurations, and erosion and post-ore deformation including faulting and tilting. Porphyry copper deposits commonly are centered on small cylindrical porphyry stocks or swarms of dikes. A generalized model for a classic or calc-alkalic porphyry copper deposit is presented in Figure 8-1.

The vertical extent of hypogene mineralization in porphyry copper deposits is generally less than or equal to 1 to 1.5km. The predominant hypogene copper sulphide minerals are chalcopyrite, which occurs in nearly all deposits, and bornite, which occurs in about 75% of deposits. Molybdenite, the only molybdenum mineral of significance, occurs in about 70% of deposits. Gold and silver, as by-products, occur in about 30% of deposits.

The development of supergene, or secondary copper, mineralization occurs when low-pH groundwater dissolves copper from hypogene copper minerals in an oxidizing environment, and transports and re-precipitates the copper in the form of oxides, carbonates, silicates and or sulphides in a stable, low-temperature, reducing environment (Figure 8-2). Numerous dissolution-precipitation cycles can occur and may lead to re-concentration of copper in laterally extensive deposits known as supergene oxide deposits and chalcocite enrichment blankets or enriched copper sulfide zones, and less commonly in distal concentrations known as exotic oxide deposits.

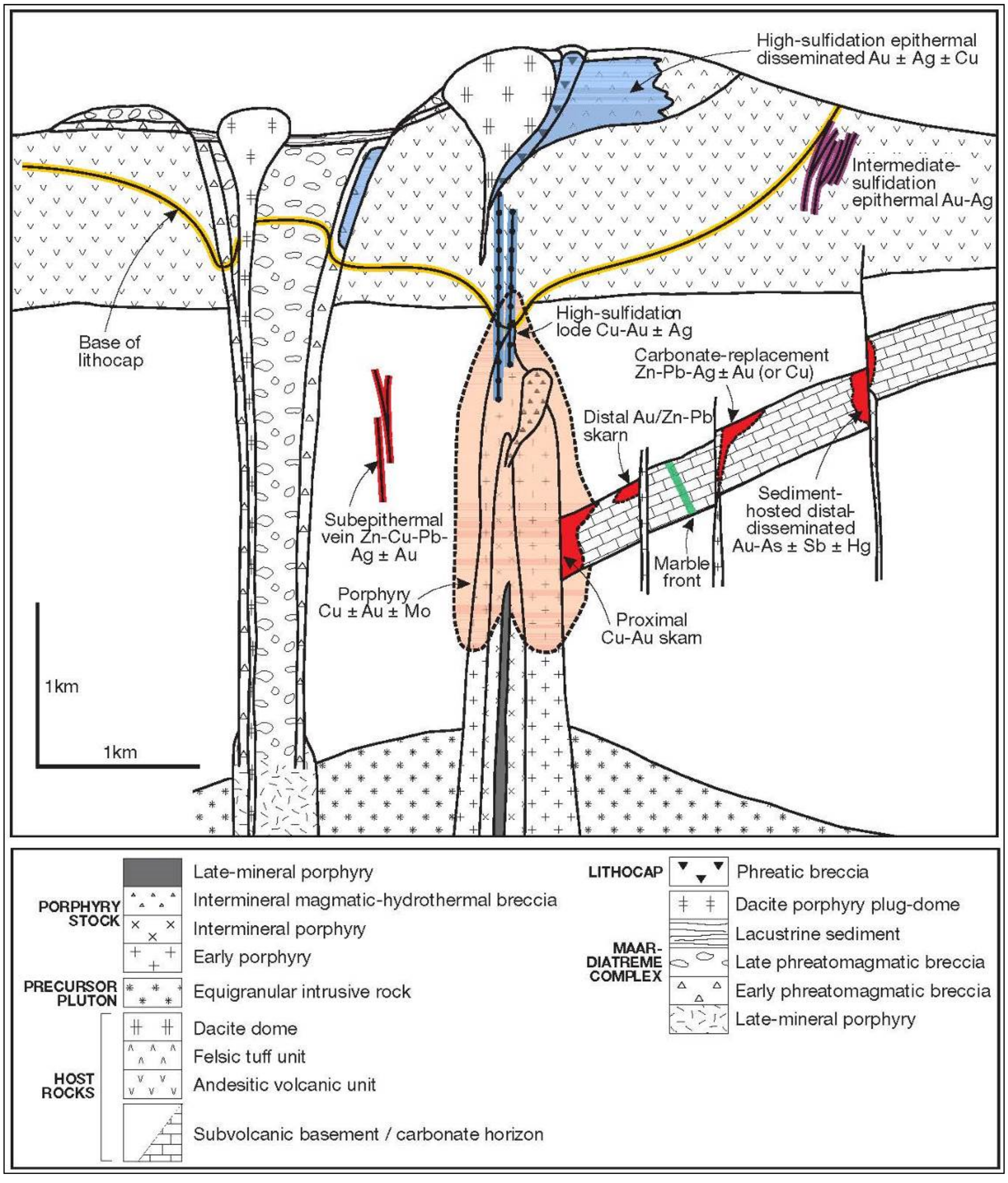


Figure 8-1 Generalized Model for a Telescoped Porphyry Copper System (After Sillitoe, 2010)

Common supergene or secondary copper minerals include malachite, azurite, cuprite, tenorite, chrysocolla, native copper, copper wad, and atacamite. These minerals occur as crystalline aggregates and crystals that fill fractures and line voids in leached capping, and in micrometer-to-millimeter aggregates that impregnate alteration and primary minerals in enriched copper sulfide ore, and less often, in hypogene ore. The complex paragenetic relationships and disequilibrium mineral associations common in copper oxide ores reflect changing chemical conditions during weathering cycles.

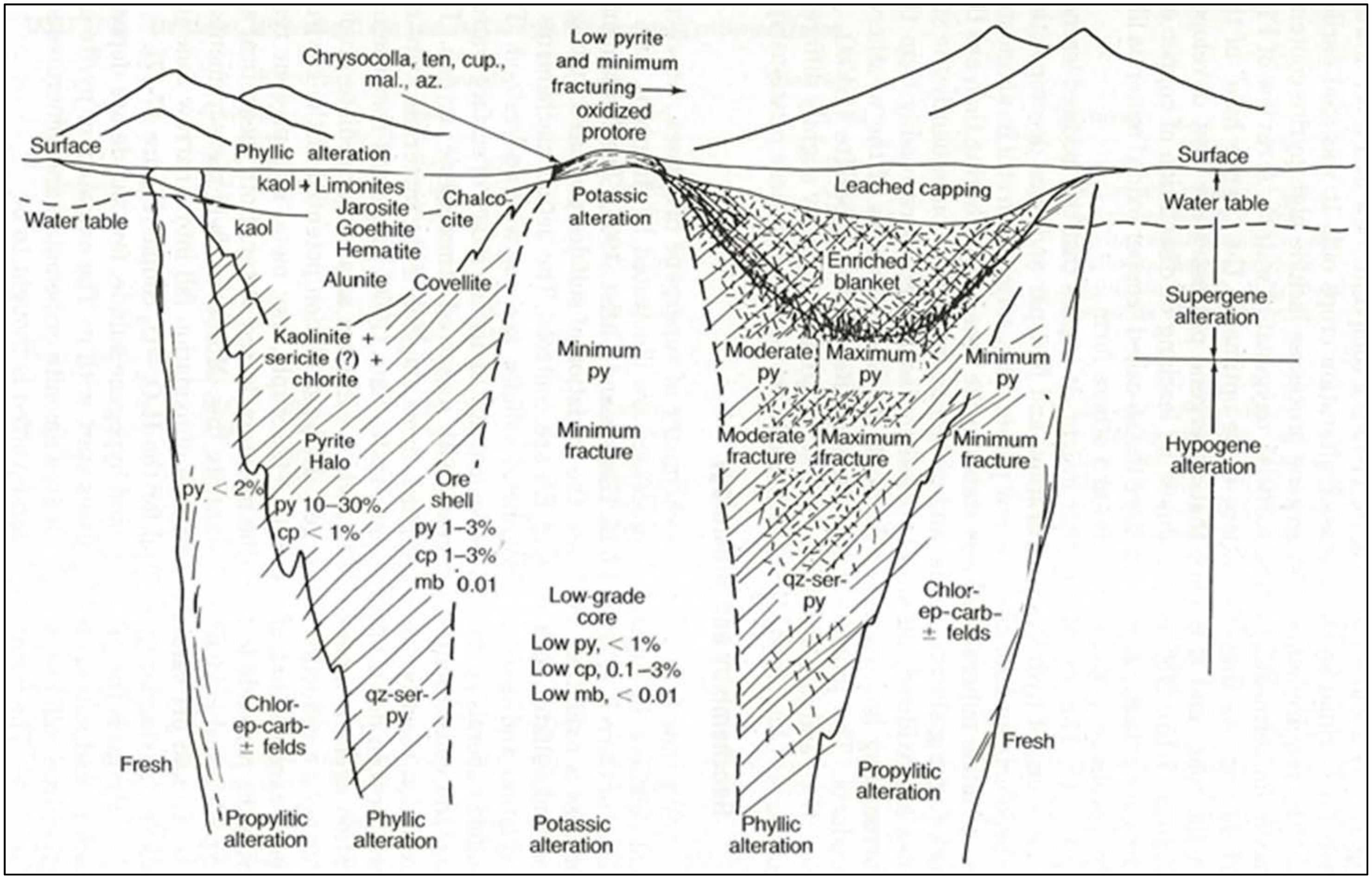


Figure 8-2 Idealized Results of the Interaction between Hypogene and Supergene Mineralization at an Exposed and Oxidizing Porphyry Copper Deposit (Guilbert And Park, 1986)

The Van Dyke deposit is located immediately southeast of the Miami Caved deposit and immediately southwest of the Miami East deposit. It is separated from the Miami Cave and TJ Pit by the district scale northeast-trending Miami East normal fault and from the Miami East deposit the Van Dyke fault. The Van Dyke deposit is the eastern extension of the Miami-Inspiration operation and may be the southeastern extension of the Miami East deposit. It is not exposed at surface, but is covered by from 186m to 627m of alluvium and post-mineral Gila Conglomerate.

The secondary copper mineralization at Van Dyke is believed to have formed principally from copper laden solutions that migrated laterally and vertically along interconnected fractures and zones of brecciation from nearby oxidizing copper deposits. Therefore, the principal type of mineral deposit found to-date on the Van Dyke property is that of a transported secondary copper or exotic copper deposit that is genetically and spatially tied to the well-known and well-developed porphyry copper systems located adjacent to it.

A local example of an exotic copper deposit is the Emerald Isle deposit located in northwestern Arizona. However, at Emerald Isle, mineralization consisting of tenorite, malachite and chrysocolla, is hosted by Gila Conglomerate. The source of copper at Emerald Isle is interpreted to be the low-grade porphyry copper mineralization at Alum Wash about 3.5 mi northeast of the Emerald Isle deposit (Agnerian and Postle, 2006)

Perhaps a suitable international analogue to the Van Dyke deposit is the Mina Sur deposit (formerly Exotica) located in northern Chile. Mina Sur developed within a 6.5km long paleo-channel south of the Chuquicamata porphyry copper deposit. It is generally believed that the secondary copper mineralization (mainly copper wad, atacamite and chrysocolla) was deposited as the result of the lateral flow of acidic solutions formed during the oxidation of the primary copper mineralization (Munchmeyer, 1996).

9 EXPLORATION

9.1 Historical Exploration

Exploration on the Van Dyke property began in 1916 with the collaring of rotary drillhole V-1 by Van Dyke Copper Co. from a ridge top located 1000 feet southwest of the Miami Copper's No. 5 Shaft in the northwest corner of the patented claim area. The drillhole intersected abundant copper oxide and copper silicate mineralization within a fault zone at a depth of 1,182ft (Peterson, 1962). A second drillhole, V-2 collared 2,600ft east-southeast of V-1 also intersected mineralized breccia, and a third hole, V-3, collared 6,700ft farther to the southeast was abandoned at a depth of 1,400ft in Gila Conglomerate Gila.

The partial success of the drilling program led to the sinking of the Van Dyke shaft, located just 200ft south of drillhole V-1. The excavation of the 6' by 11' vertical shaft began in 1919 and was completed to a depth of 1,692ft in 1920 (Rice, 1921). The shafts' intended use was for exploration and development, but three levels of underground workings were advanced from it that supported two short periods of mining. The mine was closed in 1945.

Two small inconsequential exploration drilling programs were later completed. In 1947, AMICO Mining Corp., a consortium of three major copper producers, leased the property and drilled four deep churn holes to test the deposit. All four holes were collared in Gila Conglomerate and were spaced equally along a northeast-oriented line starting approximately 2500 feet south of the Van Dyke shaft near Cherry Flats Road. Three of four holes penetrated the base of the Gila conglomerate, beneath which only traces of copper oxide and iron oxide minerals were noted in generally fresh and unmineralized Pinal Schist (Clary et al., 1981). In 1964, Freeport Sulfur Company leased the property and drilled two holes that failed to intersect mineralization (Clary et al., 1981). Data does not exist for any of the six holes mentioned above.

In 1968, Occidental Minerals Corporation leased the property and began what became a systematic exploration diamond drilling program. Occidental optioned the property to other operators periodically during the ensuing 12 years that it held the lease, including Utah and AMAX, but those entities did not earn an interest in the property. By 1975, a total of 50 holes had been drilled throughout the project area covering a polygonal area with maximum dimensions of approximately 1300m east-west by approximately 1000m north-south.

From 1976-1980 Occidental's work focused on in-situ leach pilot testing in an area west of the Van Dyke shaft, and area that was later leached in the late 1980s by Kocide, and evaluated on a broader scale by Arimetco.

9.2 Assessment of Historic Exploration Data

Following acquisition of the Project in 2013, Copper Fox initiated compilation and detailed re-examination of all available historical information that existed for the Project. The information included public and private hard copy reports, underground level plan maps, surface drillhole plan maps and cross-sections, and drillhole logs. All of the information was scanned and organized into an electronic data base that was made available to MMTS. Hard copies were re-filed and safely stored in the company's corporate offices.

In addition to capturing project information from the paper files, Desert Fox was also able to locate historic drill core and pulps for most of the holes drilled between the years 1968 and 1976. Fortunately, careful storage and a dry climate preserved the majority of the materials. Core and pulps were removed from the basement of a storage building located within the town of Miami and paper files were retrieved from trailers located on patented claims near the Van Dyke shaft. All of the materials were relocated to Desert Fox's new office and storage facilities located in the town of Miami.

Relevant Exploration Data

The historical exploration data base includes detailed logs for 45 holes drilled between 1968 and 1975 that describe lithology, alteration and mineralization. The logs also provide a complete total copper and acid soluble copper analytical results for each interval sampled. A number of the logs also list analytical results for silver, gold, sulphur and molybdenum. The recorded values for silver, gold and sulphur, where present, typically cover a series of sample intervals and may represent weighted averages. The recorded values for molybdenum are shown on a sample by sample basis, but only for a select number of the drillholes. The lack of a complete or near complete historic data set for silver, gold and molybdenum excludes these elements from further evaluation. Any re-assessment of historic drill core or drill core pulps or any new drilling should include multi-element analysis to determine the significance of other metals.

Results for total copper and acid soluble copper were compiled and reviewed in detail. However, there are no assay certificates for the any of the historical holes to back up the manually recorded analytical data. Core recovery data and any QA/QC procedures were not apparent from the drillhole logs or from any other historical documentation reviewed.

A review of drill logs, drill core and pulps by MMTS served to determine holes suitable for re-analysis as a means of verifying the authenticity and accuracy of the data recorded manually on the drill logs.

The historical data base also includes underground data for total copper**.**

MMTS Assessment of Exploration Data

Late in 2013, MMTS took part in the evaluation of the exploration materials which included: a detailed assessment of core, drillhole logs and pulps remaining from seven selected drillholes; a core box and footage determination of core remaining from the OXY and VD series of drillholes, and; a general account of the pulps that remain from core sample analysis.

The six drillholes selected for detailed review (OXY-6, -7, -8, -15, -27 and VD-73-6) cover 800m of eastward strike length and up to 550m of width. They provide an accurate representation of the geology and mineralization of the copper deposit. However most of the material remaining in the core boxes was not split (i.e. halved) core, but consisted of ~3/8" minus material. The reason for this was that the core was so badly broken that it could not be halved with a splitter, so Occidental ran each sample through a jaw crusher, took a riffle-split of the material to send to the lab, and returned the remainder to the core box as the reference sample (Tim Marsh, personal communication, December, 2013). This procedure would likely have resulted in a more homogeneous and representative sample than using a conventional core splitter.

Drillhole Collar Locations – Conversion of Grid and Resurvey

All historical drillholes were originally surveyed in local mine grid coordinates; there is no record of where the mine grid originates nor which way it is oriented. Copper Fox undertook a search for historic drillhole collars using existing exploration plan maps of the project area and was able to positively identify numerous collars in the field. A Trimble GeoHX GPS with sub-metre accuracy was used to survey the located collars in North American Datum (NAD) 27, UTM zone 12 (metres). The locations of 15 exploration drillhole collars and 9 ISL test well collars have been confirmed and surveyed. Three old survey monuments that had old mine coordinates associated with them were also located and surveyed. The location information for the survey monuments and drillhole collars was then used to perform a regression that translated undiscovered collar locations from mine grid coordinates into NAD 27 UTM coordinates.

10 DRILLING

10.1 Historic Drilling

Prior to Copper Fox acquiring the Project, a total of 70 exploration holes and 17 ISL wells had been drilled on the property. Of the 70 historic exploration holes, 23 were drilled between 1916 and 1964; they were a combination of churn, rotary or reverse circulation (RC) and diamond drillholes that tested the breadth of the property, and for which only anecdotal information is known. The remaining 47 exploration holes were diamond drillholes completed from 1968-1975 to systematically assess the Van Dyke deposit area; near-complete technical data has been compiled for the majority of these holes. The 17 ISL wells were drilled in close proximity to one-another from 1976-1978 and in 1988 in an area immediately west of the Van Dyke shaft. At least seven were diamond drillholes for which limited core, but no written descriptions, has been recovered. Mineralized intervals for these wells were sampled, analyzed and later reported as weighted averages in Clary et al. (1981), but no other detail exists for the wells.

In 2013, BHP mistakenly drilled hole MU-13-2, located near historic drillhole OXY-6, on the north-central part of the Van Dyke project where it owns surface rights but not the mineral estate patent. Once the trespass was realized, BHP provided all data for the drillhole to Copper Fox. BHP completed the RC hole to a depth of 1166.5m to assess the area's potential to host deeply buried porphyry copper mineralization. Unfortunately, it did not log or retain cuttings from the upper part of the hole that passed through the secondary copper zone that is of particular interest to Copper Fox.

Table 10-1 lists exploration drillholes and ISL wells completed on the property by year and operator. Figure 10-1 shows the locations of historic drillholes and wells.

Drilling campaigns completed prior to Copper Fox's acquisition of the Project, for which abundant exploration data exists, are believed to have been conducted using industry best management practices consistent with the era in which the work took place. Significant mineralized intersections for historical exploration drillholes are listed in Table 10-2 (results for Total Copper) and Table 10-3 (results for Acid Soluble Copper). The drill intersections provided do not represent the true thickness of the deposit.

Table 10-1 List of Historic Drillholes, Van Dyke Project

Year	Hole Identification Range	Exploration Company	Drillhole Type	Number of Holes Drilled	Reported Meters Drilled
1916-1917	V-1 to V-3	Van Dyke Copper	unknown	3	unknown
1947	Amico-1 to Amico-4	AMICO	Churn	4	unknown
1964	Freeport-1 & Freeport-2	Freeport Sulphur	unknown	2	unknown
1967(?)	Sho-Me-1 & Sho-Me-2	Sho-Me Copper / Van Dyke Copper	unknown	2	unknown
1968-1974	OXY-1 to OXY-31, OXY-33	Occidental Copper	Core	34	19,825.0
1972-1973	VD-1 to VD-7, VD-9, VD-10, VD-16	AMAX	Core	9	5,367.8
1975	C-UOXY-24, UVD-8, UVD-11 to UVD-14, UCV-17, LC-UVD-1	Utah International	Core	8	4,184.9
1976-1978	OXY-41 & OXY-42	Occidental Copper	Core	2	832.1
1978	OXY-44 to OXY-48, M-1 to M-5	Occidental Copper	Core; ISL Monitoring Wells	10	3,384.3
1988	K-1 to K-5	Kocide Chemical	ISL Wells	5	unknown
2013	MU-13-2	BHP Copper	RC	1	1,166.5
2014	VD14-1 to VD14-6	Copper Fox Metals	Core	6	3,211.7

10.2 Copper Fox 2014 Drilling

Copper Fox completed a drilling program on its Van Dyke project from late-March to mid-June, 2014. The program consisted of six PQ diameter diamond drillholes with an aggregate length of 3,211.7m. The holes were drilled across the Van Dyke copper deposit, covering a west-to-east distance of approximately 825m and a north-south distance of approximately 500m. Table 10-4 lists the coordinates 2014 Copper Fox drillholes. Figure 10-2 shows the locations of the six 2014 drillholes.

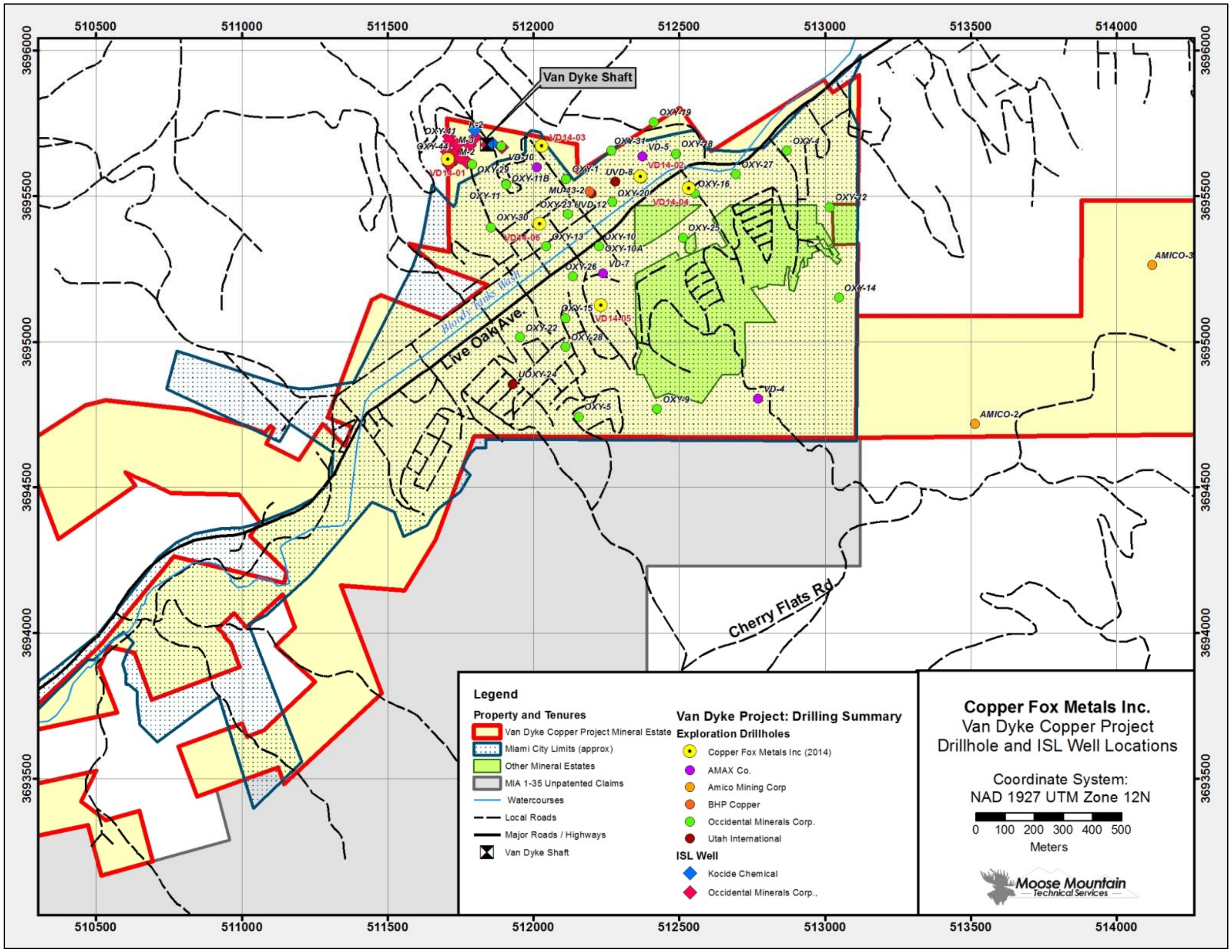


Figure 10-1 Exploration Drillhole and ISL Well Locations, Van Dyke Copper Project

Table 10-2 Historical Drillhole Intersections for Total Copper, Van Dyke Copper Deposit (using a cut-off grade of 0.10% Total Cu)

Drillhole ID	Easting NAD27	Northing NAD27	Length (m)	From (m)	To (m)	Interval (m)	Grade T_Cu (%)
OXY-1	512111.0	3695558.0	901.29	314.86	340.46	25.6	0.463
and				375.21	422.15	46.94	0.356
and				713.23	872.49	159.26	0.189
OXY-2	512344.4	3695155.3	573.79	402.64	419.1	16.46	0.428
and				463.3	494.69	31.39	0.956
OXY-3	512638.4	3695268.6	694.03	591.92	650.14	58.22	0.404
OXY-4	512869.3	3695656.1	965.00	616.31	628.5	12.19	0.302
and				645.87	680.31	34.44	0.156
OXY-5	512155.3	3694742.6	738.84	-	-	-	-
OXY-6	512369.0	3695563.5	631.24	376.12	583.69	207.57	0.597
OXY-7	512447.1	3695431.2	618.74	396.24	543.46	147.22	0.502
OXY-8	512030.4	3695670.1	489.51	313.94	404.77	90.83	0.563
OXY-9	512424.3	3694768.4	690.07	-	-	-	-
OXY-10	512224.3	3695327.5	537.36	339.85	379.17	39.32	0.766
and				406.91	501.4	94.49	0.355
OXY-11	511906.7	3695540.7	446.23	307.85	380.7	72.85	0.372
OXY-12	513017.0	3695462.7	806.81	659.89	673.3	13.41	0.461
OXY-13	512046.6	3695327.0	484.63	304.19	437.69	133.5	0.225
OXY-14	513048.3	3695151.4	835.15	-	-	-	-
OXY-15	512109.9	3695081.1	495.91	405.69	457.5	51.82	0.545
OXY-16	512542.5	3695514.5	440.13	-	-	-	-
OXY-16B	512535.5	3695523.3	651.66	453.24	625.75	172.52	0.274
OXY-17B	511889.8	3695672.1	520.60	306.63	471.83	165.2	0.467
OXY-18	512488.8	3695645.2	705.92	399.29	644.35	245.06	0.294
OXY-19	512413.4	3695754.1	785.16	729.39	785.16	55.78	0.149
OXY-20	512270.3	3695481.1	552.91	335.58	348.38	12.8	0.537
and				373.68	537.97	164.29	0.359
OXY-21	512351.5	3695033.9	532.79	481.28	498.35	17.07	0.869
OXY-22	511954.7	3695015.6	589.48	406.6	491.03	84.43	0.159
OXY-23	512118.2	3695437.6	466.34	336.8	466.34	129.54	0.291
UOXY-24	511928.1	3694853.9	452.93	-	-	-	-
OXY-25	512512.5	3695357.5	607.77	435.86	606.25	170.38	0.512
OXY-26	512134.6	3695224.8	483.11	359.05	425.5	66.45	0.217
OXY-27	512694.5	3695575.5	690.07	524.26	661.42	137.16	0.351
OXY-28	512110.7	3694982.5	527.61	410.26	505.66	95.4	0.193
OXY-29	511789.1	3695608.6	502.31	228.14	250.55	22.41	0.136
and				260.6	501.09	240.49	0.379
OXY-30	511854.9	3695393.0	265.18	-	-	-	-
OXY-31	512267.1	3695656.0	605.03	509.01	553.21	44.2	0.216
OXY-32	519756.7	3693219.7	1,005.84	676.66	708.96	32.31	0.104
VD-1	512452.6	3695216.9	601.37	555.04	592.53	37.49	0.587
VD-3	512017.0	3695402.8	431.29	256.03	282.24	26.21	0.516
and				308.76	324.00	15.24	0.617
and				344.73	398.68	53.95	0.405
VD-4	512771.1	3694804.6	840.33	-	-	-	-
VD-5	512374.3	3695635.7	618.74	417.27	450.8	33.53	0.549

Drillhole ID	Easting NAD27	Northing NAD27	Length (m)	From (m)	To (m)	Interval (m)	Grade T_Cu (%)
				524.56	582.47	59.91	0.516
VD-6	512350.7	3695353.3	562.66	361.49	509.63	148.13	0.342
VD-7	512238.8	3695234.6	508.41	388.01	508.41	120.4	0.251
UVD-8	512281.2	3695549.3	580.03	427.97	556.41	128.44	0.181
VD-9	512622.8	3695391.8	626.67	547.12	576.99	29.87	0.336
VD-10	512011.6	3695599.4	491.64	310.29	349.3	39.01	0.573
				366.67	395.63	28.96	0.540
UVD-11	512230.0	3695125.5	465.12	386.18	459.33	73.15	0.433
UVD-12	512200.1	3695509.6	530.35	358.14	511.15	153.01	0.291
UVD-13	512381.1	3695414.4	515.87	378.56	472.44	93.88	0.461
UVD-14	512530.5	3695275.5	627.43	521.06	597.1	76.04	0.461
VD-16	512734.3	3695178.0	686.71	548.64	569.98	21.34	0.149
and				609.6	624.84	15.24	0.120
UVD-17	512777.3	3695461.8	460.25	-	-	-	-

Table 10-3 Historical Drillhole Intersections for Acid Soluble Copper, Van Dyke Copper Deposit (using a cut-off grade of 0.05% Acid Soluble Cu)

Drillhole ID	Easting NAD27	Northing NAD27	Length (m)	From (m)	To (m)	Interval (m)	Grade AS_Cu (%)
OXY-1	512111.0	3695558.0	901.29	315.77	340.46		0.285
and				398.98	420.62	21.64	0.132
OXY-2	512344.4	3695155.3	573.79	402.64	419.1	16.46	0.345
and				463.3	494.69	31.39	0.472
OXY-3	512638.4	3695268.6	694.03	594.97	611.43	16.46	0.131
OXY-4	512869.3	3695656.1	965.00	616.31	624.08	7.77	0.184
and				675.74	649.38	26.37	0.071
OXY-5	512155.3	3694742.6	738.84	-	-	-	-
OXY-6	512369.0	3695563.5	631.24	376.12	582.17	206.05	0.480
OXY-7	512447.1	3695431.2	618.74	396.24	541.93	145.69	0.429
OXY-8	512030.4	3695670.1	489.51	320.04	345.34	25.30	0.161
				374.29	439.22	64.92	0.504
OXY-9	512424.3	3694768.4	690.07	-	-	-	-
OXY-10	512224.3	3695327.5	537.36	339.85	379.17	39.32	0.654
and				426.72	460.55	33.83	0.283
and				473.96	489.51	15.55	0.207
OXY-11	511906.7	3695540.7	446.23	334.67	352.35	17.68	0.151
OXY-12	513017.0	3695462.7	806.81	659.89	673.3	13.41	0.433
OXY-13	512046.6	3695327.0	484.63	395.63	434.34	38.71	0.170
OXY-14	513048.3	3695151.4	835.15	-	-	-	-
OXY-15	512109.9	3695081.1	495.91	405.69	455.07	49.380	0.517
OXY-16	512542.5	3695514.5	440.13	-	-	-	-
OXY-16B	512535.5	3695523.3	651.66	450.49	604.72	154.23	0.207
OXY-17B	511889.8	3695672.1	520.60	336.19	396.85	60.66	0.480
OXY-18	512488.8	3695645.2	705.92	408.74	442.57	38.83	0.719
and				469.09	524.26	55.17	0.144
and				574.55	588.26	13.72	0.223
OXY-19	512413.4	3695754.1	785.16	-	-	-	-
OXY-20	512270.3	3695481.1	552.91	335.58	348.39	12.81	0.532

Drillhole ID	Easting NAD27	Northing NAD27	Length (m)	From (m)	To (m)	Interval (m)	Grade AS_Cu (%)
and				428.85	528.52	99.67	0.217
OXY-21	512351.5	3695033.9	532.79	-	-	-	-
OXY-22	511954.7	3695015.6	589.48	408.74	491.03	82.29	0.094
OXY-23	512118.2	3695437.6	466.34	374.29	429.77	55.48	0.238
UOXY-24	511928.1	3694853.9	452.93	-	-	-	-
OXY-25	512512.5	3695357.5	607.77	437.39	584.3	146.91	0.434
OXY-26	512134.6	3695224.8	483.11	359.05	379.17	20.12	0.250
OXY-27	512694.5	3695575.5	690.07	521.21	655.32	134.11	0.253
OXY-28	512110.7	3694982.5	527.61	411.78	424.28	12.50	0.518
OXY-29	511789.1	3695608.6	502.31	268.22	366.67	98.45	0.508
OXY-30	511854.9	3695393.0	265.18	-	-	-	-
OXY-31	512267.1	3695656.0	605.03	527.3	551.99	24.69	0.155
OXY-32	519756.7	3693219.7	1,005.84	-	-	-	-
VD-1	512452.6	3695216.9	601.37	555.04	571.20	16.15	0.406
VD-3	512017.0	3695402.8	431.29	256.03	282.24	26.21	0.446
and				308.76	317.91	9.15	0.859
and				356.92	394.11	37.19	0.271
VD-4	512771.1	3694804.6	840.33	-	-	-	-
VD-5	512374.3	3695635.7	618.74	417.27	450.80	33.53	0.506
				524.56	582.47	57.91	0.325
VD-6	512350.7	3695353.3	562.66	361.49	459.64	98.15	0.304
				480.97	500.48	19.51	0.302
VD-7	512238.8	3695234.6	508.41	388.01	449.28	61.26	0.262
UVD-8	512281.2	3695549.3	580.03	455.52	544.07	88.54	0.149
VD-9	512622.8	3695391.8	626.67	-	-	-	-
VD-10	512011.6	3695599.4	491.64	-	-	-	-
UVD-11	512230.0	3695125.5	465.12	391.67	447.75	56.08	0.374
UVD-12	512200.1	3695509.6	530.35	414.22	477.93	63.71	0.180
UVD-13	512381.1	3695414.4	515.87	380.39	411.48	31.09	0.636
and				417.73	448.67	30.94	0.400
UVD-14	512530.5	3695275.5	627.43	-	-	-	-
VD-16	512734.3	3695178.0	686.71	554.74	573.02	18.28	0.130
UVD-17	512777.3	3695461.8	460.25	-	-	-	-

Table 10-4 Coordinates of the 2014 Copper Fox Drillholes

Twin Drillhole ID	Original Drilhole ID	Easting (NAD27)	Northing (NAD27)	Elev (m)	Total Depth	Base of Gila	Base of Oxide
VD14-01		511707.4	3695625.5	1067.0	639.17	140.36	379.48
VD14-02		512367.1	3695566.3	1032.2	602.28	381.40	598.02
	OXY-6	512369.0	3695563.5	1032.8	631.24	376.12	580.64
VD14-03		512029.4	3695671.1	1051.7	453.24	301.14	433.61
	OXY-8*	512030.4	3695670.1	1053.1	489.51	301.75	440.74
VD14-04		512534.0	3695525.3	1029.6	642.21	416.66	620.27
	OXY-16B	512535.5	3695523.3	1034.7	651.66	416.66	608.99
VD14-05		512231.1	3695125.3	1049.4	468.48	374.14	448.21
	CUVD-11	512230.0	3695125.5	1045.4	465.12	364.24	447.75
VD14-06		512021.8	3695403.5	1037.2	405.51	249.02	383.74
	VD 72-3	512014.5	3695399.4	1038.5	431.29	246.89	394.11

**original drill collar not located; March 19/14 regression to UTM from mine coordinates used (Tim Marsh, June 02, 2014).*

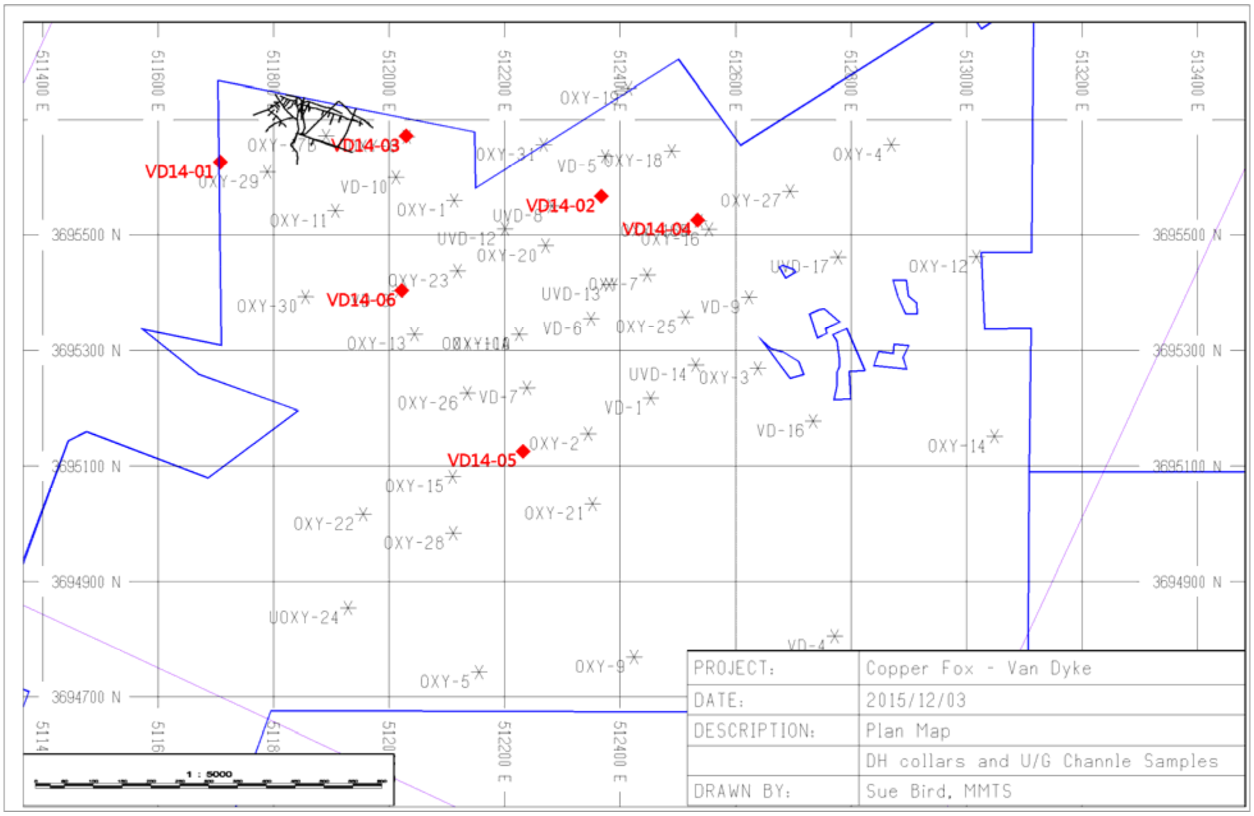


Figure 10-2 Locations of the Historic and 2014 Copper Fox Drillholes (red) with Patented Boundary (blue)

Drilling Procedures

All of the 2014 sites selected for drilling required minor to moderate amounts of earth work to provide relatively level, cleared areas from which to drill and, in some cases, to improve or re-establish access. Drill sites were built using local contractors under constant on-site direction from Copper Fox personnel. All of the 2014 drillholes were vertical and the drill, once moved to the collar location, was checked and confirmed for proper position and alignment by Copper Fox personnel. Prior to the start of drilling, large sound barriers were erected at each site to reduce the amount of noise disturbance for local residents (Plate 10-1). Some of the holes were required to be zero discharge; all water-laden cuttings were pumped from a drill collar collection tank to a centrifuge. The centrifuge separated water from solids and reused the water for drilling.

The 2014 holes were drilled by Layne Christensen Company using a two-step process. Drillhole pre-collars were drilled with an Ingersoll-Rand T-4W reverse circulation (RC) drill which cased through the alluvium into Gila Conglomerate. Once into Gila Conglomerate, the RC drill was replaced by an Atlas-Copco CT-20 diamond drill using PQ-sized tooling. The truck-mounted drill produced 85 mm (3 3/8”) diameter core and advanced each hole to the desired depth. The locations of all six drillholes were surveyed with a Trimble XH GPS and differentially corrected to an estimated accuracy of 0.1m.

Downhole geophysical surveys (including Caliper, Gyro, E-logs, Magnetic susceptibility, Flowmeter and Televiewer) were completed by Southwest Exploration Services, LLC, to better define the geotechnical characteristics of the rocks and hydrogeology of the deposit.

Plate 10-1 Large Sound Barrier Erected to Reduce Impact of Drilling for Local Residents, Hole VD14-01

Copper Fox hired Knight Piésold Ltd. (KP) to maintain a 24-hour presence at the drill. KP engineers collected the core directly from the drillers and completed a geotechnical assessment of the core before securing it for transport to the logging facility. Drill core was delivered to the logging facility by KP at the every shift change.

Drillhole Descriptions and Comparison of Twins to Originals

All six holes drilled by Copper Fox in 2014 are located on mineral estate lands that it owns, and all but one hole are located on surface tenure owned or controlled by other parties. The first 2014 hole, VD14-01 was drilled within an area previously tested by several historical drillholes in the vicinity of the underground workings and in-situ leaching pilot program. The remaining five 2014 holes, VD14-02 through VD14-06, were drilled to 'twin' selected historical drillholes.

The main intent of the 2014 drilling program was 1) to verify the accuracy of previously captured historical data for a specific number of historical drillholes, and 2) once verified, proceed with the estimate of a NI 43-101 compliant mineral resource for the Project using all pertinent historic data and new 2014 data.

Drillhole VD14-01 was drilled 140m west-southwest of the Van Dyke shaft. It was not intended to twin a particular historical drillhole, but rather to evaluate an area that had been the subject of pilot ISL testing programs. VD14-01 was collared approximately 40m west of any previously drilled exploration hole. While not located close enough to any pre-existing hole to be considered a twin, VD14-01 is situated an estimated 20.5 meters south-southwest of ISL hole OXY-46, and the two holes can be generally compared. The latter was a diamond drillhole that was used as a well for injecting dilute sulphuric acid (H_2SO_4) into the rock mass (Huff, 1979). Records show that it intersected modest chrysocolla and minor tenorite over a 79.55m interval (270.97-350.52 m) that graded 0.26% acid soluble copper (Clary et al., 1981).

Drillhole VD14-01 penetrated the base of the Gila Conglomerate at a depth of 140.4m and stayed in moderately to intensely brittley deformed and oxidized Pinal Schist to its faulted basal contact at a depth of 368.3m. Schultze Granite extended from the fault to the oxide/sulphide boundary and contact with Pinal Schist at a depth of 379.5m. Pinal Schist extended from the oxide/sulphide boundary to its faulted basal contact with Schultze Granite at a depth of 576.1m. Schultze was encountered to the end of the hole at a depth of 639.2m.

The oxidized rock mass penetrated by VD14-01 encountered cuprian allophane and a variety of cuprite called chalcotrichite, minerals known to be common by-products of copper leaching operations (Jansen and Taylor, 2003). These observations are consistent with a volume of rock that has been the subject of ISL. Below the oxide/sulphide boundary, VD14-01 encountered appreciable amounts of molybdenite and minor chalcopyrite in narrow quartz veins and quartz stockworks to the end of the hole.

Drillhole VD-14-02 was drilled to twin and verify historic hole OXY-6 and was collared within 3 meters of the old hole. It is located in the north-central part of the property, north of Highway 60 on surface tenure owned by BHP. VD-14-02 drilled through Gila Conglomerate and into well-mineralized intrusion breccia from 381.30 to 441.35m. Fractured, brecciated and locally milled Pinal Schist was encountered from 441.35 to the end-of-hole at 602.28m. Mineralization in the upper part of the hole, within the intrusion breccia, consisted of malachite (up to 4% of the rock mass locally) and cuprian allophane. Mineralization in the lower part of the hole was dominated by allophane, minor cuprite and occasional patchy malachite. In contrast, copper mineralization in OXY-6 was dominated throughout by chrysocolla and malachite, but no allophane. Of particular note is that a well-mineralized interval of chrysocolla and malachite logged in the lower mineralized section of OXY-6 has been replaced in VD14-02 primarily by cuprian allophane, traces of cuprite and occasional blebs of native copper. The marked change in mineralogy between the original hole and twin hole suggests that the lower part of the mineralized interval has been negatively affected by acidic solutions that stripped some of the copper. The solutions may have incidentally escaped from other leaching operations.

Drillhole VD-14-03 was drilled to twin and verify the results of historic hole OXY-8. It is also located on surface tenure owned by BHP just outside the administrative boundary of the town of Miami on Miami Avenue. VD14-03 was collared within 3 meters of OXY-8 and encountered the base of the Gila Conglomerate at a depth of 301.14m and the base of secondary copper mineralization at a depth of 433.61m. The geology and style of mineralization of the two holes are similar, consisting of highly fractured Pinal Schist carrying strong secondary copper mineralization dominated by chrysocolla with patchy malachite, azurite and tenorite. In VD14-03, minor allophane and cuprite were observed as fracture coatings in the upper part of the mineralized interval, but were not observed in the lower part of the zone. Overall, the observations and data collected for VD14-03 are consistent with the information recorded for the original hole.

Drillhole VD-14-04 was drilled to twin and verify the results of historic hole OXY-16B. The drill site is located just 60 meters south of Highway 60 in a privately-owned, gated compound on Latham Boulevard in the east-central part of the deposit. The hole encountered the base of the Gila Conglomerate at a depth of 416.66m and the base of the secondary copper zone at a depth of 620.27m. The geology and mineralogy correlate well between the holes, but VD14-04 carries consistently higher grades than the original hole.

Drillhole VD-14-05 was drilled to twin and verify the results of historic hole UVD-11. The drill site is located in the backyard of an Adonis Avenue residence in the south-central part of the deposit. The hole encountered the base of the Gila Conglomerate at a depth of 374.14m and the base of the secondary copper zone at a depth of 448.21m. The geology and mineralization are correlative between twin and original hole. In VD14-05, secondary copper mineralization starts at 400.81m with azurite and occasional tenorite noted to a depth of 434.34m at which point minor allophane and cuprite start to appear in addition to the other copper minerals. Azurite is particularly abundant between 438.91-445.00m.

Drillhole VD-14-06 is situated in the middle of the town of Miami in a parking lot immediately behind the Town Hall in the approximate center of the deposit (Plate 10-2). Approval to proceed with drilling of the hole was granted unanimously by Mayor and Council. VD14-06 was drilled to twin and verify the results of historic hole VD72-3, and is located within 10m of the old collar location. It encountered the base of the Gila Conglomerate at a depth of 249.02m and the base of the secondary copper zone at a depth of 383.74m. Both twin hole and original hole intersected weakly to moderately mineralized granite porphyry immediately below the capping Gila Conglomerate. The two holes remained in mineralized intrusion until encountering its brecciated and faulted footwall contact with the underlying Pinal Schist. Mineralization does not extend beyond the contact into the schist below.

Plate 10-2 Drilling of Hole VD14-06 from a Parking Lot Located in the Center of Miami, Arizona

10.3 Results

Total Copper and Acid Soluble Copper – 2014 Drilling

All of drillhole VD14-01 and the lower part of drillhole VD14-02 showed the effects of being subjected to post-mineralization acidic solutions either intentionally or incidentally. Both drillholes still intersected broad intervals of mineralization that returned significant grades of total copper and acid soluble copper. Each of the remaining four drillholes, VD14-03 through VD14-06, intersected broad zones of secondary copper mineralization averaging significant grades of total copper and acid soluble copper that are consistent with their respective historic twin drillhole.

Drillhole VD14-01, despite being drilled in an area that had been leached, returned 139.9m averaging 0.33% Total Copper and 0.24% Acid Soluble Copper. In addition, the hole was drilled well beyond the base of the secondary copper zone and into weakly disseminated and quartz veinlet hosted chalcopyrite+/-molybdenite mineralization. The sulphide zone averaged 0.164% Cu over 241.20m.

Hole VD14-02, drilled in an area that has not been subjected to any intentional ISL, showed the effects of such a process, particularly in the bottom half of the hole where allophane and cuprite occupied sites once resided by chrysocolla and malachite. The impact of this incidental leaching of copper is dramatically lower copper values in the lower 120m of the interval. The upper 84m of the mineralized interval was not impacted.

Results for all of the 2014 Copper Fox drillholes are listed in Table 10-5.

Table 10-5 2014 Diamond Drill Intersections, Van Dyke Copper Project

Drillhole ID	From (m)	To (m)	Interval (m)	Total Copper (%)	Acid Soluble Copper (%)
VD14-01	246.9	368.4	121.5	0.357	0.249
VD14-02	375.2	591.6	216.4	0.444	0.359
incl	375.2	398.1	22.9	1.41	1.299
incl	413.6	458.7	45.1	0.447	0.418
incl	486.2	590.1	103.9	0.394	0.249
VD14-03	315.5	434.7	119.2	0.681	0.391
VD14-04	452.3	598.0	145.7	0.376	0.316
VD14-05	401.3	448.1	46.8	0.583	0.528
VD14-06	249.0	383.7	134.7	0.346	0.246
incl	249.0	281.6	32.6	0.749	0.631

Cyanide Soluble Copper – 2014 Drilling and Historic Core Reanalysis

Cyanide soluble copper (CuCN) analytical results for 2014 drillholes and drill core pulps from two historical drillholes were reviewed and are summarized below.

CuCN Data Summary for 2014 Drillholes (VD14-01 to VD14-06):

- 768 total core samples analyzed for cyanide soluble copper (CuCN);
- values ranged from a minimum of <0.001% to a maximum of 0.861% CuCN;
- 57 samples had values of less than detection (<0.001% CuCN);
- 71 samples had values of greater than 0.05% CuCN;
- the mean average value for the 711 samples that had values > detection was 0.035% CuCN.

CuCN Data for Drill Core Pulps Analyzed by Skyline (OXY-23 & 26):

- 163 total pulp samples analyzed for cyanide soluble copper (CuCN);
- values ranged from a minimum of <0.001% to a maximum of 0.536% CuCN;
- 1 sample had a value of less than detection (<0.001% CuCN);
- 5 samples had values of greater than 0.05%;
- the mean average value for the 162 samples that had values > detection was 0.022% CuCN.

The cyanide soluble copper results suggest that a small but significant fraction of mineralization that does not report to an acid soluble assay consists of potentially leachable secondary copper sulphide species.

Cyanide soluble copper analysis should be completed on all remaining drill core and/or drill core pulps from historic drillholes and should be a standard analytical technique used in any future drilling programs.

Gold, Silver and Molybdenum – 2014 Drilling and Historic Core Reanalysis

The results for other metals of potential economic interest from 2014 drilling and from reanalysis of historic drill core and drill core pulps were reviewed and evaluated. A summary of the results for gold, silver and molybdenum is shown in Table 10-6.

2014 Drilling

Gold values ranged from less than detection to a high of 187 ppb Au. Higher gold values occurred in relative isolation from one-another. The best sustained interval of weakly anomalous gold mineralization occurred in drillhole VD14-04 where a 40.7m intersection starting at a depth of 466.5m averaged 15 ppb Au.

Silver values ranged from less than detection to a high of 3.6 ppm Ag. There were no intersections of consistently elevated silver.

Molybdenum values ranged from less than detection to 1000 ppm Mo or more in three of the six 2014 drillholes. The best sustained interval of molybdenite mineralization occurred in drillhole VD14-01 where a 230.6m interval starting at a depth of 379.2m averaged 256 ppm Mo. Elevated rhenium values coincide with strong molybdenum values. The interval starts at the oxide/sulphide interface and correlates with fractured to sheared and brecciated to milled Pinal Schist and competent Schultze Granite that carry molybdenite and minor chalcopyrite in narrow quartz veins and quartz stockworks.

Historic Drill Core and Drill Core Pulps

Gold values returned from the analysis of drill core and drill core pulps assembled from eight holes ranged from less than detection to a high of 2674 ppb Au. Elevated gold values, in all cases, were sporadic and generally occurred as isolated anomalies. The highest gold value occurred in drillhole OXY-26 where a 1.2m interval starting at a depth of 306.0m graded 2674 ppb Au and 60.2 ppm Ag.

Silver values ranged from less than detection to a high of 60.2 ppm Ag. There were no intersections of consistently elevated silver values. The highest silver values generally coincide with elevated gold values.

In contrast to the 2014 drillholes, the re-assayed historic drillholes did not encounter significant, nor consistent molybdenum values

Table 10-6 Summary of Other Metals of Potential Economic Interest, Van Dyke Copper Project

2014	Au (ppb)		Ag (ppm)		Mo (ppm)	
Drillhole ID	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
VD14-01	< 5	26	< 0.1	3.2	< 0.1	> 1000
VD14-02	< 5	187	< 0.1	3.6	3.2	640
VD14-03	< 5	49	< 0.1	2.4	5.8	1001
VD14-04	< 5	166	< 0.1	2.8	4.8	1000
VD14-05	< 5	81	< 0.1	2.8	0.5	42
VD14-06	< 5	58	< 0.1	0.4	1.1	652
Historic	**Au (ppb)**		**Ag (ppm)**		**Mo (ppm)**	
Drillhole ID	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
OXY-6	< 5	230	< 0.1	0.87	2.4	292
OXY-8	< 5	1705	< 0.1	1.9	4.7	198
OXY-15	< 5	48	0.03	0.28	2.29	29.2
OXY-17B	< 5	25	0.01	5.99	7.57	208
OXY-23	< 5	23	< 0.1	2.7	4.4	171
OXY-26	< 5	2674	< 0.1	60.2	4.9	200
OXY-27	< 5	20	< 0.1	0.75	2.4	89.6
VD-73-6	< 5	174	0.01	0.48	2.84	170

10.4 Diamond Drilling Summary and Interpretation

MMTS visited the Project during active diamond drilling activities and observed drilling, core handling, and core logging and sampling procedures. Locations and elevations of the six Copper Fox drillholes have been surveyed to sub-meter accuracy. Locations and elevations for a selection of historical drillholes have been positively identified and also surveyed to sub-meter accuracy. The locations and elevations for the remainder of the historic drillholes have been translated from old mine grid coordinates to UTM NAD 27 coordinates using iterative regression. MMTS believes that the exploration procedures implemented by Copper Fox meet or exceed current industry best management practices and standards.

All six of the 2014 Copper Fox drillholes were completed to their desired depth and encountered geology, alteration and mineralization consistent with a secondary or exotic copper deposit. Each drillhole penetrated the base of the post-mineral Gila Conglomerate, passed through broad intervals of secondary copper mineralization and the oxide/sulphide contact, and was terminated in unoxidized, weakly to non-mineralized Pinal Schist. Mineralization is hosted primarily by variably broken to shattered or brecciated Pinal Schist, and by intrusive breccia and granite porphyry of the Schultze Granite.

The first drillhole was not a twin of any historic hole, but was drilled to evaluate an area that had been the subject of ISL. It encountered minerals that are common by-products of ISL, but still returned important intervals of supergene and hypogene copper mineralization. Each of the five twin drillholes successfully intersected its target enabling comparisons to be made with its historic equivalent hole. One of the five twin holes encountered the effects of incidental leaching which resulted in a marked reduction in the overall grade of the grade of the twin versus its original hole. The four remaining twin drillholes encountered intervals of copper mineralization consistent with those of their respective original holes.

MMTS is of the opinion that the 2014 Copper Fox drill program,

1) generated analytical results that are suitable for use in resource estimation;
2) where both historic drillholes and 2014 drillholes exist, data for the 2014 holes will be used for resource estimation;
3) confirmed that the northwest part of the property, west of the Van Dyke shaft, was affected by historic ISL testing and/or small-scale mining that removed a percentage of the available soluble copper from a volume of mineralized rock;
4) identified an area of possible incidental leaching in the north-central part of the property, in the vicinity of drillhole OXY-6 and twin VD-14-02, that reduced the amount of secondary copper in the mineralized interval, and impacts the use of historical data for OXY-6;
5) the remainder of the analytical results from historic drilling programs are believed to be suitable for use in resource estimation.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

All drill core was transported from drill sites by a representative of Copper Fox and stored in a secure storage area until it was logged. Sample security was provided by Copper Fox personnel who abided by rigorous chain of custody practices.

11.1 Drill Core Handling Procedures

Drill core handling procedures from drill to laboratory consisted of the following:

- PQ core was transferred from five foot core tubes into heavy, waxed cardboard core boxes by a member of the drill crew;
- A geotechnical technician, provided by Knight Piésold Ltd. (KP), labelled the core boxes with drillhole number and the interval (from – to) contained in each box, and placed a wooden block marked with the depth in feet at the end of each run of core;
- The technician then listed the length of each core run and the length of core recovered on the reverse side of the block. Core recovery and Rock Quality Designation (RQD) measurements were then recorded by the technician;
- Following collection of this data, lidded core boxes were stacked on pallets, secured, and transported by staff of Copper Fox to its core logging facility in the town of Miami, Arizona;
- At the core logging facility, core boxes were laid out in order to ensure all boxes were present, and to ensure markers were correctly located and labelled;
- Core was geologically logged using large-format custom hard-copy forms designed for the Project; data was later entered into an electronic database;
- The geologist determined the core to be sampled by marking it with bright coloured wax crayons to indicate the start and end of each sample interval. Each sample interval was tagged with a unique identification number, and the data was recorded; the geologist marked samples for density measurements approximately every 100 feet;
- Core was photographed sequentially from collar to 'End of Hole' in both dry and wet conditions;
- Lids were then placed back on the core boxes and a shipment of core boxes was prepared for transportation to the lab;
- Each shipment consisted of one or more batches of samples, described below;
- Accompanying each shipment were a) a signed Chain of Custody form, b) a Sample Record form (one form for each batch of samples), c) bagged and tagged standards and blanks for insertion as prescribed into each batch of samples, and d) a Laboratory Requisition form;
- Core was shipped to Skyline Assayers & Laboratories (Skyline Labs) in Tucson, Arizona for splitting, sampling and analysis utilizing a truck from Skyline's commercial fleet;
- Each shipment of core was placed on wooden pallets, shrink-wrapped, loaded onto the truck, fastened securely with tie down straps, and driven directly to Skyline's gated compound for unloading and processing;
- Skyline's receiver logged receipt of the core boxes into the company's tracking system.

Layout and tagging of core samples were as follows:

- For twinned drillholes, effort was made to match, to the extent reasonable, the sample intervals of the historic drillhole being twinned. Core sampling typically began immediately below the base of the Gila conglomerate and extended well into the footwall of copper oxide zones and into hypogene mineralization if present;
- Samples were typically 5 feet in length, but may have been adjusted in the case of a geologic contact, discontinuity, change in mineralization or because of a significant interval of low or no-recovery;
- Marking of samples started nominally 20 feet above the first sign of significant mineralization;
- Listed on the retained part of the pre-numbered sample tags are: drillhole ID, core footage, box number and batch number, or standard or blank identifier;
- For routine drill core samples, two of the detachable pre-numbered tags were removed from the tag booklet and stapled into the core box at the start of the interval to be sampled (one of which will be detached during sampling at the lab and used to label the prepared sample; the other tag will remain affixed to the core box along with the retained half-core;
- For duplicate samples, two pairs of pre-numbered tags were stapled to the start of the duplicate sample interval;
- For standards and blanks, one of the pre-numbered tags was placed in the sample bag along with the appropriate standard or blank packet.

Drill core sampling procedures were as follows:

- Core boxes to be sampled were laid out in numerical order, and lids removed;
- Core marked for density measurements was located, removed for measurement, and returned to the core box prior to core cutting / splitting for geochemical analysis;
- Sections of competent core were halved using a diamond saw, with half-core being placed in a pre-numbered bag with the matching pre-numbered sample tag and the other half returned to the core box
- Sections of intensely fractured core were collected, bagged with the sample tag, crushed, and split into halves with one-half of the sample being bagged with the sample tag and the other bagged half being placed back into the core box;
- Once sampling was complete, lids were placed back onto core boxes, core boxes were cross stacked on wooden pallets, shrink wrapped and moved by forklift to an inactive area within the gated and locked storage compound to await their return to Copper Fox's core storage facility in Miami, AZ;
- Sample batches were assembled as per the Sample Record forms provided and completed by inserting the standards and blanks as prescribed;
- All samples were entered into Skylines's Laboratory Information Management System (LIMS) and the three-letter prefix BUR (reserved for samples from Copper Fox's Van Dyke Copper Project) was added to each unique sample number;
- Samples were then advanced for preparation and analysis.

11.2 Analytical Methods

Copper Fox used ALS Minerals (ALS) in Reno, Nevada, for the analysis of the first batch of historic drill core and drill core pulps. Later in the year, Copper Fox used Skyline Assayers and Laboratories (Skyline) in Tucson, Arizona, for a second batch of historic drill core pulps.

Copper Fox used Skyline for the analysis of all core sampled from the 2014 diamond drilling program, with the exception of a eight short whole core samples which were analyzed by SGS Metcon/KD Engineering (SGS) in Tucson, Arizona, as part of a preliminary in-situ leach study. Check sampling of 2014 core analysis was conducted by Inspectorate America Corporation (Inspectorate) in Reno, Nevada, with the exception of one sample that, because of its high grade, was sent to Inspectorate's Vancouver facility for analysis.

Skyline has ISO/IEC 17025:2005 certification for FA, AAS, ICP-OES and ICP-Mass Spectroscopy ("MS"). MMTS has no information regarding analytical laboratories used prior Copper Fox's involvement in the Project. All samples from the Copper Fox drilling program as well as most of the historic drilling and underground channel sampling data were used in the mineral resource estimate.

ALS has ISO 9001:2008 accreditation for quality management and ISO/IEC17025:2005 accreditation for gold assay methods. SGS and Inspectorate also maintain ISO 9001:2008 accreditation for quality management system certification.

The Quality Assurance/Quality Control ("QA/QC") program described in the following sections was designed to allow for verification of analytical results from historical exploration programs for which there were no laboratory analytical certificates.

11.2.1 Sample Preparation and Analysis – Skyline

Upon arrival at Skyline's Tucson lab, samples are lined-up based on the sample identification supplied by Copper Fox. Extra samples, missing samples, damaged containers, illegible sample IDs, or possible cross contamination are noted and reported to the lab manager, who in turn will contact the client for instructions. If needed, samples are dried at 105˚C for 8-24 hours. Each batch of samples is assigned a Job Number consisting of 3 letters followed by a 3 or 4 digit number. The 3-letter prefix identifies the client (in the case of Copper Fox the 3-letter prefix was BUR) and the number is assigned sequentially to each batch of samples submitted by the client. Sample IDs are digitally recorded, and corresponding adhesive-backed labels and laboratory worksheets are generated for each Job. Each label and laboratory worksheet contains an Item Number (assigned sequentially to the samples based on the client's transmittal form) and the Sample Identity for each sample. Samples are labeled, checked for proper sample IDs, and then lined up for sample reduction.

The entire sample is reduced in a jaw crusher to a nominal 75% minus 10 mesh. The crushed material is then transferred back into the original sample bag. The crushed product is then riffle split, re-blended and re-split three times. One half of the final split is further reduced (if needed) by the same process using a Jones riffle splitter until a final split of 200-300 grams is obtained. Any remaining minus 10 mesh material is poured back into the original labeled sample bag. The 200-300 gram split is then pulverized in a ring and puck mill to a nominal 95% minus 150 mesh product. The pulverized material is then placed in a manila envelope, to which a sample ID label has been affixed. The pulps for the entire job are then located on a numbered shelf in the pulp storage room, which is recorded on the job file cover sheet. Preparation equipment is cleaned between each batch of samples using river rock and silica sand. The preparation equipment is cleaned between samples using compressed air. The Sample Preparation supervisor randomly selects samples of the crushed material and pulverized product for a screen analysis to insure that this protocol is observed.

11.2.1.1 Analytical Procedures

The following laboratory procedures, used to analyze 2014 drill core samples and historic drill core pulps from two holes, were provided by Skyline.

Total Copper

Weigh 0.2000 to 0.2300 grams of sample into a 200 mL flask. Weigh samples in batches of 20. At end of each rack, weigh the first and last sample as checks plus 2 standards. In the last rack of the entire job add the tenth sample of every previous rack. Add 10.0 mL HCl, 3.0 mL HNO_3 and 1.5 mL $HClO_4$ to each flask. Place on a medium hot plate (about 250°C). Digest to near dryness until the only remaining acid present is $HClO_4$. Remove from the hot plate and cool. Add about 30 to 40 mL DI water and 10.0 mL HCl. Bring to a rolling boil and remove from hot plate. Cool the flask and contents to room temperature, dilute to the mark (200 mL) with DI water, stopper and shake well to mix. Read the solutions for copper by Atomic Absorption (AA) using standards made up in 5% hydrochloric acid.

Sequential Leach

Acid Soluble Component

Weigh 0.2500 to 0.2600g of sample into a 50 mL centrifuge tube. Weigh samples in batches of 16. At end of each rack, weigh the first and last sample as checks plus 2 standards. In the last rack of the entire job add the tenth sample of every previous rack. Add 10mL 5% H_2SO_4, cap and shake for one hour at room temperature. Centrifuge and decant the supernatant solution into a 100mL flask. Wash the residue once by adding 40mL deionized water to centrifuge tube and shaking for 5 minutes. Centrifuge and decant the supernatant solution into the 100mL flask. Dilute the 100mL flask to the mark with deionized water, stopper and shake well to mix. Read samples on AA using 0.5% H_2SO_4 calibration standards.

Cyanide Soluble Component

Add 10mL of 10% NaCN solution to the residue. Cap and shake for 30 minutes at room temperature. Centrifuge and decant the supernatant solution into a 100mL flask. Wash the residue once by adding 40mL deionized water to centrifuge tube and shaking for 5 minutes. Centrifuge and decant the supernatant solution into the 100mL flask. Dilute the 100mL flask to the mark with deionized water, stopper and shake well to mix. Read samples on AA using 1% NaCN calibration standards.

11.2.2 Sample Preparation and Analysis – ALS

Historic drill core from one hole (OXY-27) and historic drill core pulps from five holes (OXY-6, OXY-8, OXY-15, OXY-17B and VD-73-6) were submitted to ALS. Upon receipt, core samples were logged into the ALS tracking system, weighed, dried and crushed until > 70% passed through 2 mm (9 mesh). A split of up to 250g was collected and pulverized until > 85% passed through a 75 micron (200 mesh) screen. All pulps were further split to separate 0.5g sample for analysis of 51 elements by aqua regia digestion using an ICP-MS instrument (ALS method ME-ICP41), a 1g sample to analyze for soluble copper content using sulfuric acid/ferric sulfate leach with an atomic absorption finish (ALS method Cu-AA08q), and a 30g sample for analysis of gold by fire assay with an atomic absorption finish (ALS method Au-AA23). Method ME-ICP41 has a lower detection limit for copper of 0.2 ppm Cu and an upper detection limit of 10000 ppm Cu. Samples with greater than 10000 ppm Cu were re-analyzed using an ICP-OES instrument (ALS method Cu-OG46). This technique has an upper detection limit of 40% Cu.

11.2.3 Sample Preparation and Analysis – SGS

Eight whole core samples, ranging from 1.04 - 1.43m in length, were submitted to SGS for analysis and simulated in-situ leach testing. Each sample of drill core was visually inspected and a representative section measuring approximately 0.64m was selected and removed for pressure leach testing. The remainder of each core sample was dried and crushed to 100% minus 10 mesh. A 1000 g split of this material was evaluated for its mineralogical content, and a second 1000 g split was pulverized. Splits of the pulverized material were submitted for multi-element ICP analysis including copper (SGS method A0002AR), total copper (SGS method A0001Cu), total iron (SGS method A0001Fe), and sequential copper analyses (SGS method A0001SeqCu) in which acid soluble, cyanide soluble and residual copper are determined. The resulting head screen assays for the eight samples were compiled with the Skyline data to provide complete analytical records for the six 2014 drillholes.

11.2.4 Sample Preparation and Analysis – Inspectorate

A total of 93 pulps, including 8 CRS and 8 blanks, from the 2014 diamond drilling program were submitted to Inspectorate for check analysis. Procedures used for total copper and soluble copper analysis were intended to mimic, as closely as possible, the procedures used by Skyline. For all samples, splits weighing 0.5g were submitted for 30-element analysis using aqua regia digestion with ICP finish (method AR330) and for sequential copper leaching analysis (methods LH402 and LH403), and splits weighing 30g were submitted for gold analysis by fire assay with an atomic absorption (AA) finish (method FA430). Samples with greater than 0.3% Cu were re-analyzed using ore grade method AR410 (0.1g split digested in 100ml of aqua regia, with AA finish). One sample with greater than 20% Cu was re-analyzed using classical titration (assay method GC820).

11.3 Quality Assurance/Quality Control Procedures

11.3.1 Quality Assurance/Quality Control Procedures - Skyline

Quality Assurance/Quality Control (QA/QC) samples used by Copper Fox include blanks, certified reference standards (CRS) and core sample duplicates. Copper Fox used five different CRS) for its 2014 drill program. Three CRS were purchased from Ore Research and Exploration P/L, Bayswater North, Australia (OREAS) and two CRS were purchased from CDN Resource Laboratories, Ltd., Langley, B.C. Canada (CDN). The blank material used was a commercially available blank (CDN-BL-10) purchased from CDN.

Copper Fox inserted QA/QC samples into the sample stream on a per batch basis. Each batch of samples typically consisted of two CRS (including low to medium value for total copper (CuT) and a low to medium value for acid soluble copper (CuAS) along with values low to medium values for gold, silver and molybdenum), one blank, one duplicate and twelve core samples, or twelve pulp samples, as per the list shown below:

- #1: Standard (CDN-CM-26 or CDN-CM-27)
- #2: Standard (OREAS-901 or OREAS-902 or OREAS-904)
- #3: Blank (CDN-CM-10)
- #4 though N-1: unknown, drill samples
- N: Duplicate of N-1
- N=16, thus 12 unknowns and 4 controls per batch.
- Value of N (size of batch) depends on size of the sample tray used by the lab

Blanks Analysis

Copper Fox submitted 80 pulp blanks to Skyline to monitor sample preparation during the 2014 drilling program. All of the blanks returned total copper values of less than the detection limit (< 0.01% Cu) for the analytical method used; for plotting purposes they have been assigned a value of 0.005% Cu (Figure 11-1). All but six of the blanks returned acid soluble copper values of 0.005% Cu or lower. The six highest values range from 0.006 to 0.011% Cu and were returned in consecutive batches. Of the six, one sample certainly constitutes a failure because it returned a value of 0.011% Cu, a value greater than the CuT value for that sample. The consecutive nature of the six high samples, followed by a run of samples that returned CuS values below detection (<0.001% Cu) may suggest that lab recognized procedural inadequacies and made improvements. Overall, the results indicate generally good sample preparation at Skyline.

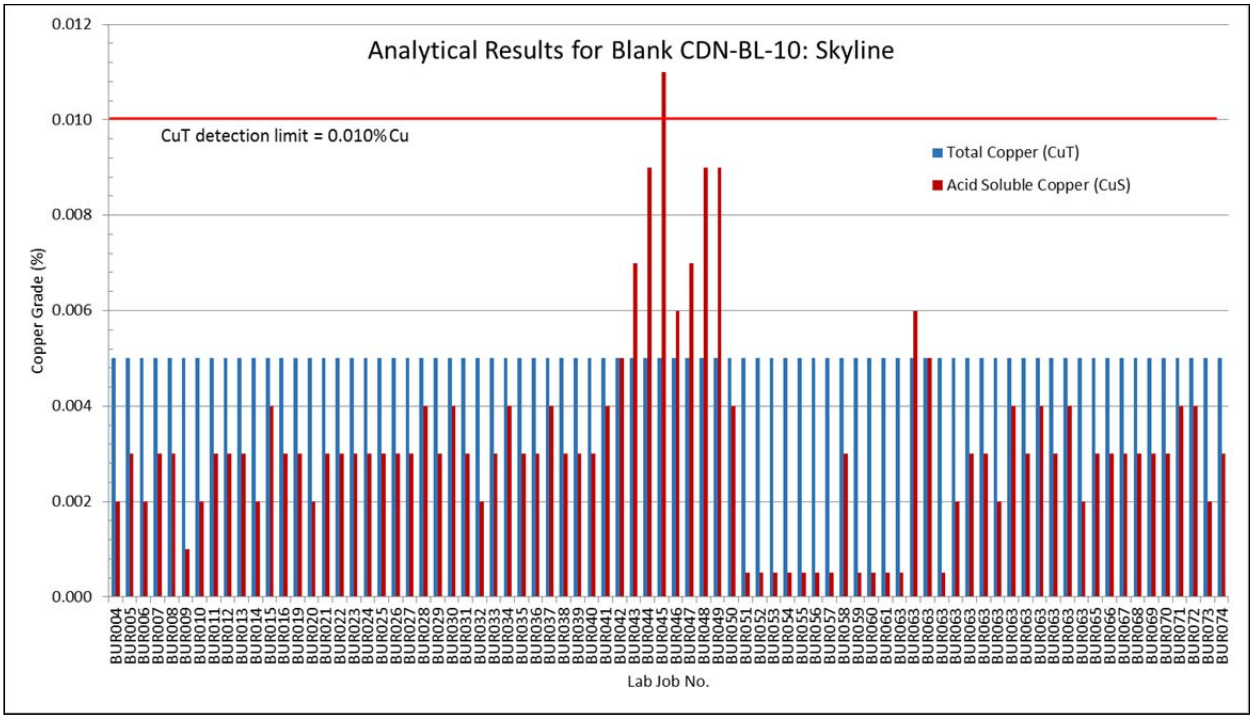


Figure 11-1 **Analytical Results for Blank CDN-BL-10, Skyline Lab**

Standards Analysis

A total of 160 certified reference standards were submitted as part of the 80 sample batches that were processed and analyzed by Skyline. The CRS in each batch included one of two porphyry copper-gold (+/-molybdenum+/-silver) sulphide standards and one of three transitional to oxide copper standards and covered a range of total copper and acid soluble copper values.

The red horizontal lines on the following Figures are +/-2 standard deviations from the mean or certified value for each standard used.

The CuT values for standard OREAS 901 plot at or above the certified value, but all within the range of +/-2 standard deviations. All of the CuS values for standard OREAS 901 plot above the certified value with 13 of 27 samples plotting beyond +2 standard deviations, one of which plots beyond +3 standard deviations (Figure 11-2). A slightly positive bias is indicated by the acid soluble data for OREAS 901.

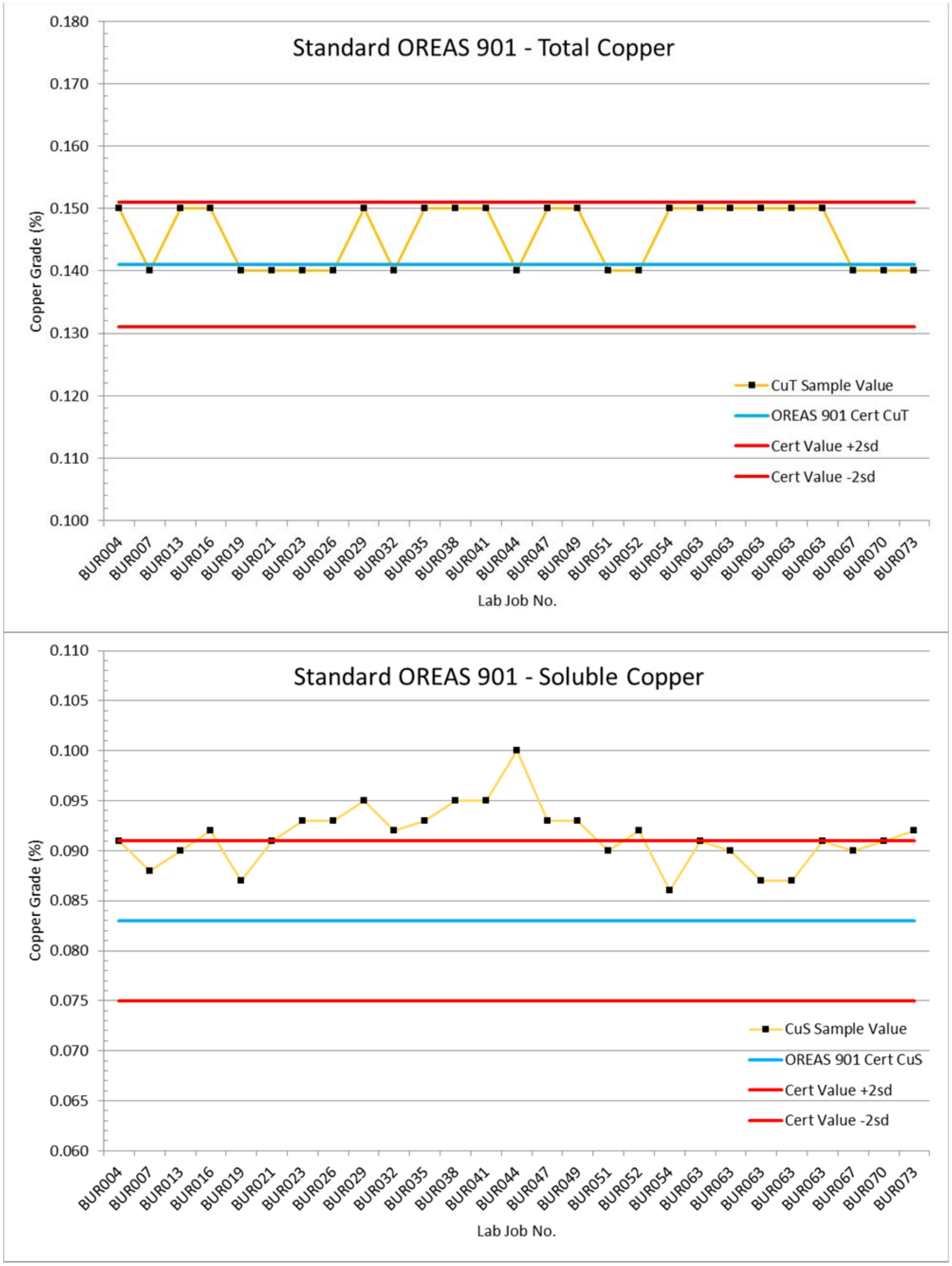


Figure 11-2 Total Copper (CuT) and Acid Soluble Copper (CuS) Results for CRS OREAS 901 at Skyline

The CuT values for standard OREAS 902 are distributed approximately evenly about the certified value without any apparent bias and within the range of +/- 2 standard deviations (Figure 11-3). All of the CuS values for standard OREAS 902 plot consistently above the certified value and two samples plot just beyond 2 standard deviations. Results are acceptable.

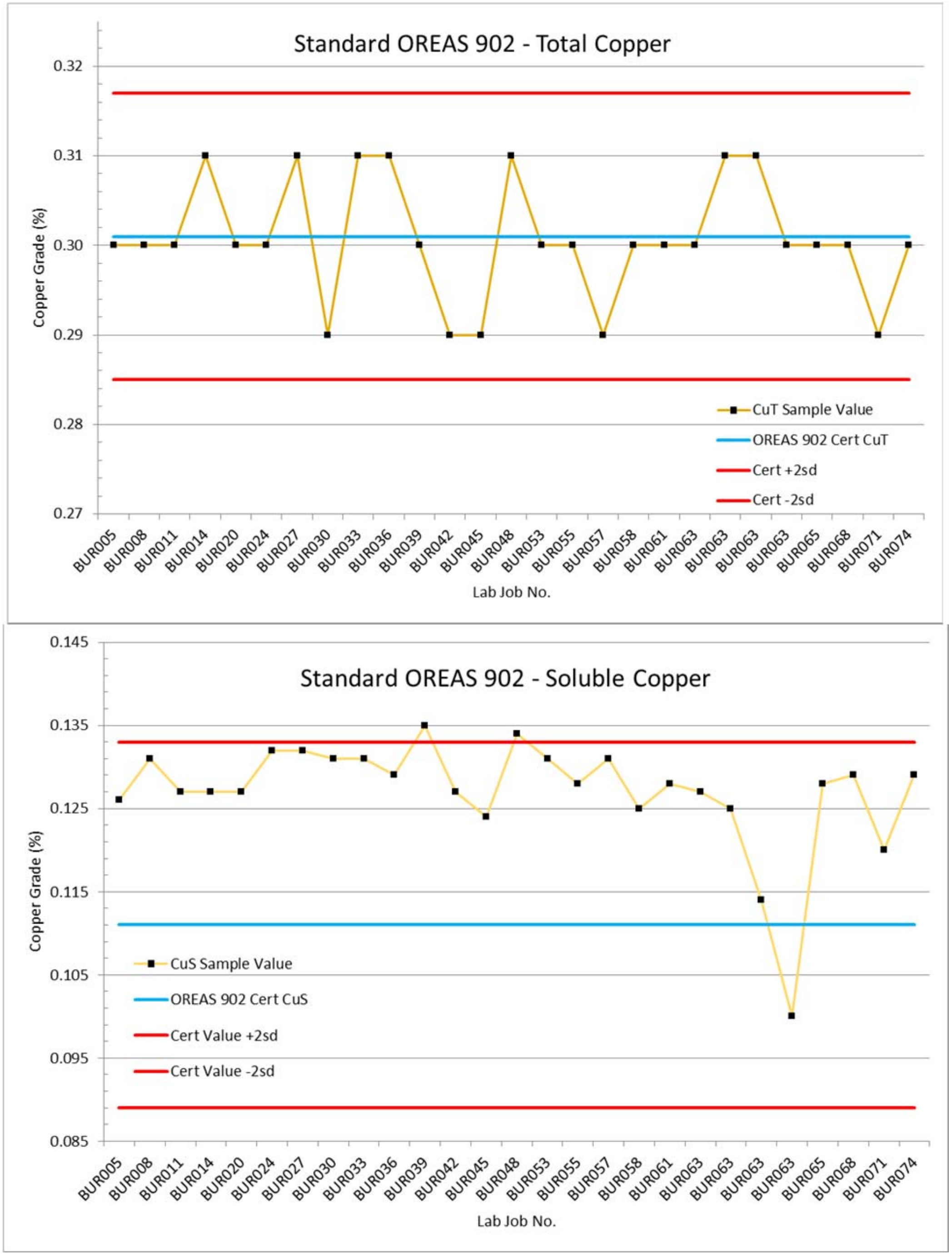


Figure 11-3 **Total Copper (CuT) and Acid Soluble Copper (CuS) Results for CRS OREAS 902 at Skyline**

The CuT values for standard OREAS 904 are distributed approximately evenly about the certified value without any apparent bias and, with one exception, within the range of +/-2 standard deviations (Figure 11-4). The CuS values for standard OREAS 904 are distributed somewhat erratically about the certified value, but are all within the range of +/-2 standard deviations. Results are acceptable.

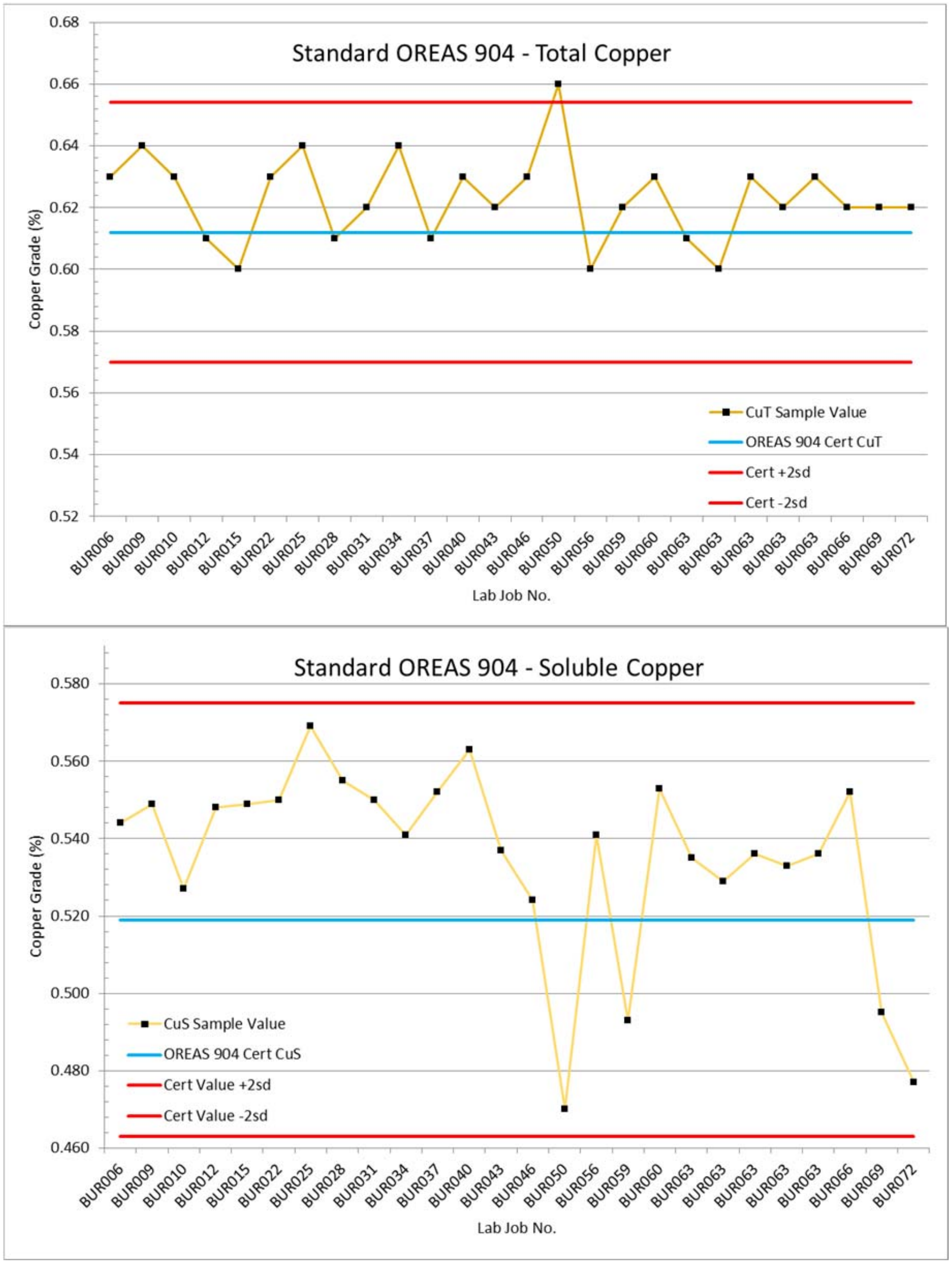


Figure 11-4 Total Copper (CuT) and Acid Soluble Copper (CuS) Results for CRS OREAS 904 at Skyline

The CuT values for standard CDN-CM-26 plot within two 'between lab' standard deviations of the certified value with one exception; the one exception lies within 3 standard deviations of the certified value and is considered an outlier (Figure 11-5). A total of 33 of the 40 analyses of standard CDN-CM-27 plot within of two 'between lab' standard deviations of the certified value. The remaining 7 analyses of the standard plot within 3 standard deviations of the certified value (Figure 11-6).

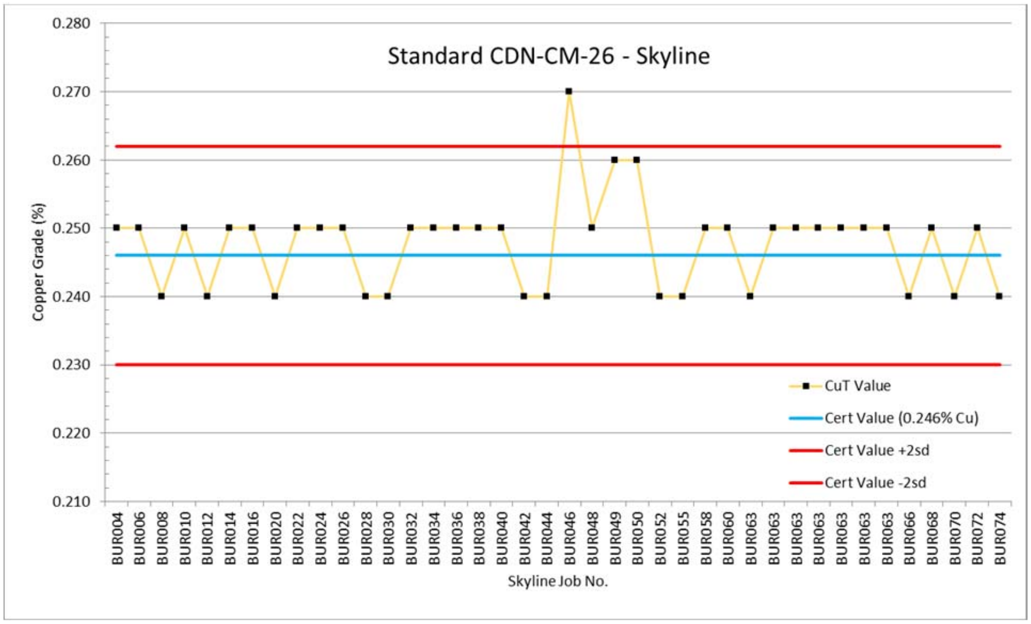


Figure 11-5 **Total Copper (CuT) Values for Standard CDN-CM-26**

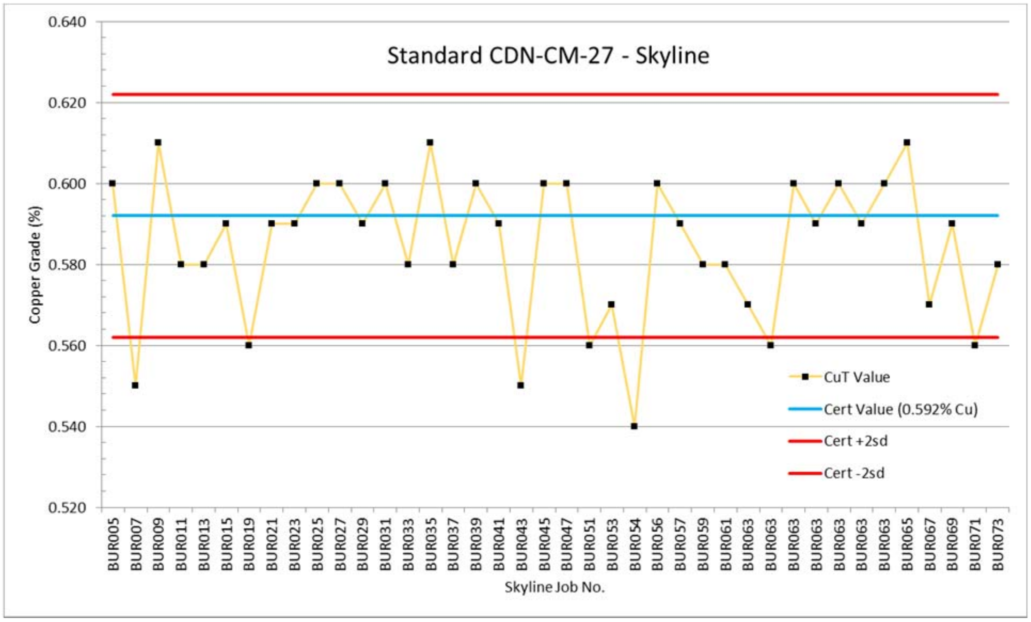
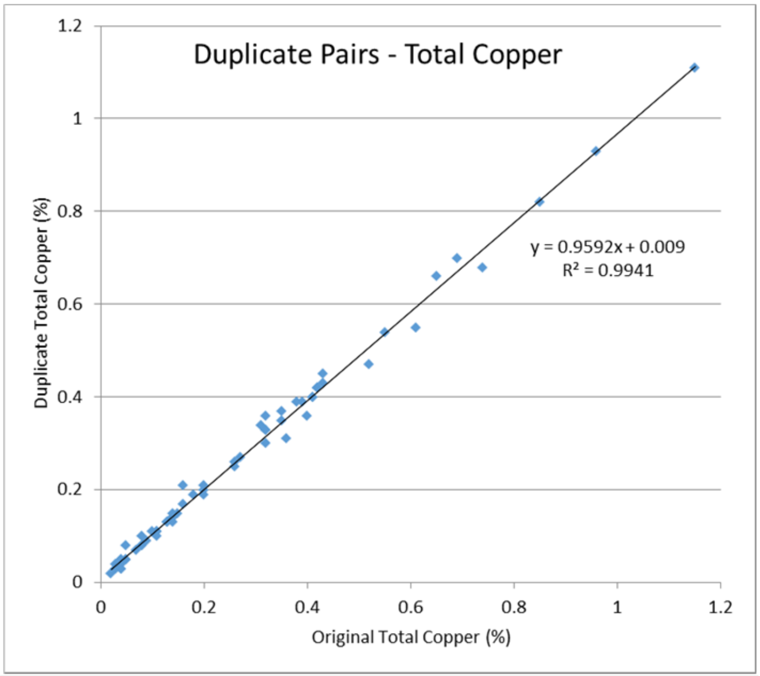


Figure 11-6 **Total Copper (CuT) Values for Standard CDN-CM-27**

The soluble copper (CuS) values for the three OREAS CRS consistently plot above the certified value and occasionally beyond + two standard deviations from it suggesting a slight positive bias.

Drill Core Duplicates

Drill core duplicates are used to monitor sample batches for switched samples, data variability due to laboratory error and homogeneity of sample preparation. Results for total copper in original sample versus duplicate sample and for acid soluble copper in original sample versus duplicate sample are shown in Figure 11-7. The data presented on the figures plot close to a 45° slope as indicated by r values that are close to 1; results are acceptable.



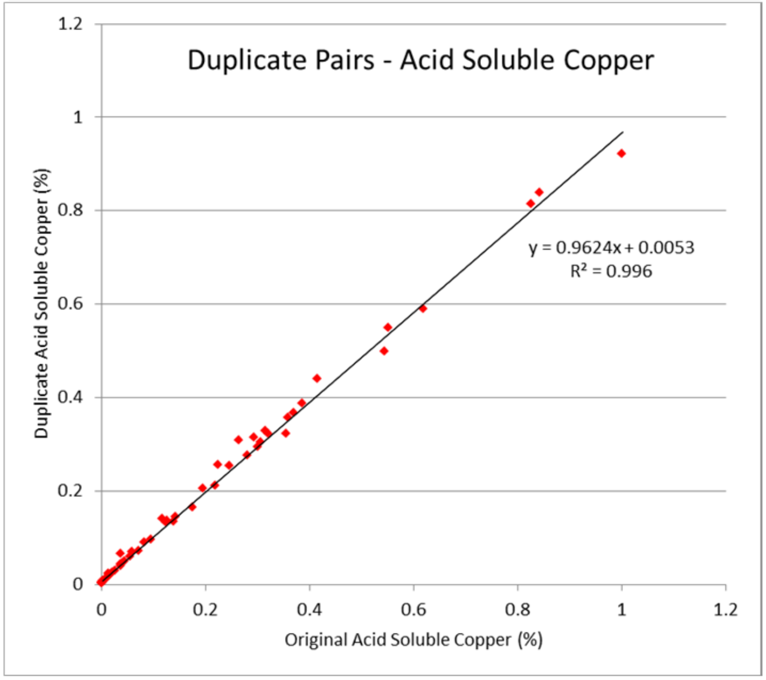


Figure 11-7 **Total Copper (CuT) and Acid Soluble Copper (CuS) Duplicate Analysis**

11.3.2 Quality Assurance/Quality Control Procedures - ALS

ALS analyzed the initial batch of drill core pulps and drill core from selected historical drillholes. The blank and standards inserted into the sample stream were the same as those used in sample batches submitted to Skyline. A review of the results for blank CDN-BL-10 identified 4 out of 17 that reported excessively high values (Figure 11-8). The elevated copper values in the blanks likely resulted from carry-over during pulverization. A review and comparison of data from samples that followed the blanks in the analytical sequence with historical data failed to identify any enrichment. Therefore the amount of carry-over is believed to have had minimal effect and re-submission of the sample batches was not necessary. The ALS analytical data does confirm that adequate care and proper procedures were used to obtain reliable total copper and acid soluble copper values for the Van Dyke project.

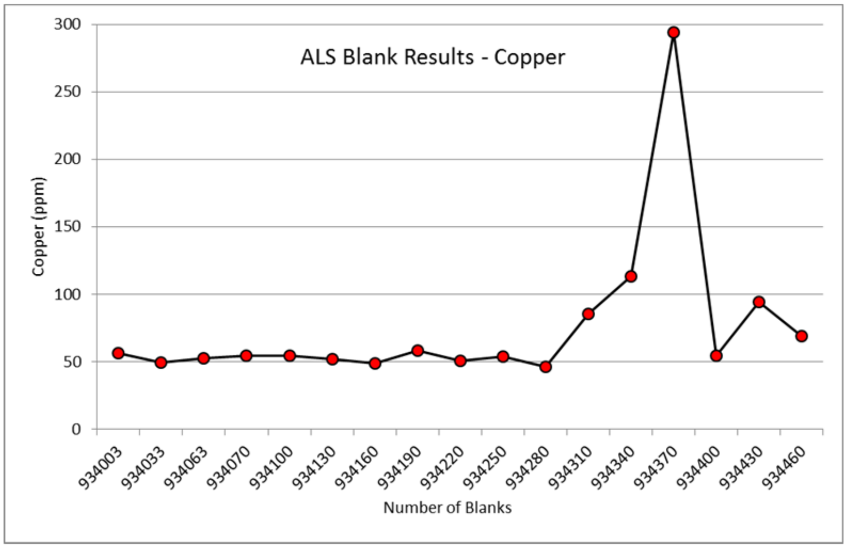


Figure 11-8 **Copper Blank Analysis**

A total of 31 CRS were analyzed along with the drill core and drill core pulps. Only one of the standard samples returned a value outside of the 'between lab' two standard deviations. Of note is that most of the CRS results plot between the certified value and near to + two standard deviations from it, suggesting a slight positive, albeit acceptable bias.

11.4 Adequacy of Sample Preparation, Security and Analytical Procedures

MMTS concludes that the sample preparation, security and analytical procedures utilized by Copper Fox meet or exceed current industry best management practices.

Continued use of a comprehensive QA/QC program is recommended to insure that all analytical data can be confirmed to be reliable. The consistent, positive bias observed for acid soluble copper results for certified reference standards OREAS-901, OREAS 092 and OREAS 904 from all three labs used in 2014 suggests that analytical procedures used were more aggressive in extracting soluble copper than those used to establish the certified values for each CRS. A review of commercially-available acid soluble copper (CRS) should be conducted, and Copper Fox should consider developing one or more of its own acid soluble copper (CRS) developed from local oxide copper mineralization.

Overall, the analytical data confirms that adequate care and proper procedures were used to obtain reliable total copper and acid soluble copper results values for the Van Dyke Copper Project.

12 DATA VERIFICATION

Copper Fox's 2014 exploration program of drillhole twinning and re-analysis of existing stored drill core and drill core pulps was designed to provide a modern data set that could be compared with, and used to verify, the historic results. In order to provide a resource estimate for the Van Dyke Copper Project, it was necessary to verify and integrate as much of the historic data as possible.

An audit of the historic exploration database obtained from Copper Fox was completed by MMTS. This included a review of all available information provided in the form of electronic files and of full-size hard electronic and hard copy versions of the detailed historical drillhole logs and plan maps.

The historic drillhole database was built from data and descriptive information recorded on copies of detailed and comprehensive, large format hard copy geological logs for 45 of holes. These hand-written logs list analytical results for total copper and acid soluble copper in percent (up to 3 significant figures), and sparse analytical data for molybdenum in parts per million (up to 3 significant figures), data that has been carefully compiled in Copper Fox's electronic files. Laboratory certificates for the historic drillholes have not been located.

Verification of available historic data was conducted utilizing two principal methods. Firstly, boxed drill core and drill core pulps retained from drilling completed from 1968-1975 were examined to identify drillholes with complete or near complete physical records, and therefore suitable for sampling and re-analysis. Drill core pulp samples from seven holes and drill core samples from one hole, representing complete or near complete mineralized intervals, were collected and submitted for analysis. Secondly, a six-hole diamond drilling program was completed. It included twinning of five historical drillholes, and drilling of one hole to assess an area west of the Van Dyke Shaft where ISL had been conducted in the late 1970s and late 1980s.

Laboratory certificates for the historic drillholes have not been located, but analytical data was recorded on detailed and comprehensive, large format hard copy geological logs for 45 of the holes. These hand-written logs list analytical results for total copper, acid soluble copper and in some cases molybdenum, data that has been carefully compiled in Copper Fox's electronic files.

12.1 Historic Drill Core and Drill Core Pulp Re-analysis

Late in 2013, MMTS selected six historic drillholes for review and comparison with detailed geological logs. Core boxes for each hole were laid out by Copper Fox staff at its core logging facility so that the geology, mineralization and sample intervals could be verified. The previously sampled historic drill core was stored in standard waxed cardboard core boxes on shelves in a locked building and adjacent sea cans. Each core box had previously been well-labelled with 'Drillhole ID', and 'From' and 'To' intervals measured in feet. Drillhole run marker blocks were occasionally found resting on top of the halved core and could not be relied upon for accuracy. As well, the original core collected was locally so intensely fractured, particularly in well-mineralized intervals, that it could not be halved in a conventional manner. Instead, each core run was bagged and fed through a jaw crusher; the resulting sample was homogenized and fed through a riffle splitter to provide two sample halves – one for submittal to the lab and the other for return to the core box. Core recoveries were found to be consistently good to excellent, although occasional zones of poor recovery are apparent. Overall, although the occasional core box was missing, the data recorded on the logs correlated well with the drill core for each hole examined, and no issues of concern were identified.

MMTS also examined core at random from several other holes as part of its account of the stored core boxes and stored drill core pulps from the 1968-1975 exploration programs. Drill core pulps were stored in well-labelled heavy manila envelopes, organized numerically in cardboard trays and stored on shelving in Copper Fox's office facilities. This review determined that specific historic drillholes are suitable for drill core and/or drill core pulp sampling and re-analysis. Core for drillhole OXY-27, among others, was found to be near complete and therefore suitable for re-analysis. Complete or near complete suites of drill core pulps were identified for a number of holes including OXY-6, OXY-8, OXY-15, OXY-17B, VD-73-2, and OXY-23 and OXY-26. Drill core pulps from the latter two holes were analyzed at Skyline, and the core and all other drill core pulps were analyzed at ALS. A total of 560 historic drill core and drill core pulp samples were collected and re-analyzed for a suite of 51 elements, including copper by three methods to determine total copper and acid soluble copper contents, and gold by fire assay/AA finish. Results from the historic drill core and drill core pulp re-analysis and diamond drilling programs were then compared on a sample by sample basis and on a mineralized interval by mineralized interval basis to evaluate the consistency and reproducibility of the total copper and acid soluble copper values.

Historical Drill Core – ALS

Shuffling of the contents of individual OXY-27 core boxes, including the location of drill measurement blocks, required that re-sampling of core be conducted on a core box by core box basis. The clearly legible 'from' and 'to' measurements recorded on each core box became the new sample intervals. A total of 23 of these intervals coincided with original OXY-27 sample intervals and can be directly compared (Figure 12-1). Based on these 23 sample-pairs, re-sampling of drillhole OXY-27 returned 100% of the original total copper value and 107% of the original acid soluble copper value. Two samples appear to have been switched (either in the boxes before Copper Fox's sampling or possibly at the lab). The effect of the switch is only to change the position of the values within the mineralized interval, but there is no other effect. With the exception of the suspected switched samples, overall correlation of the individual results is acceptable.

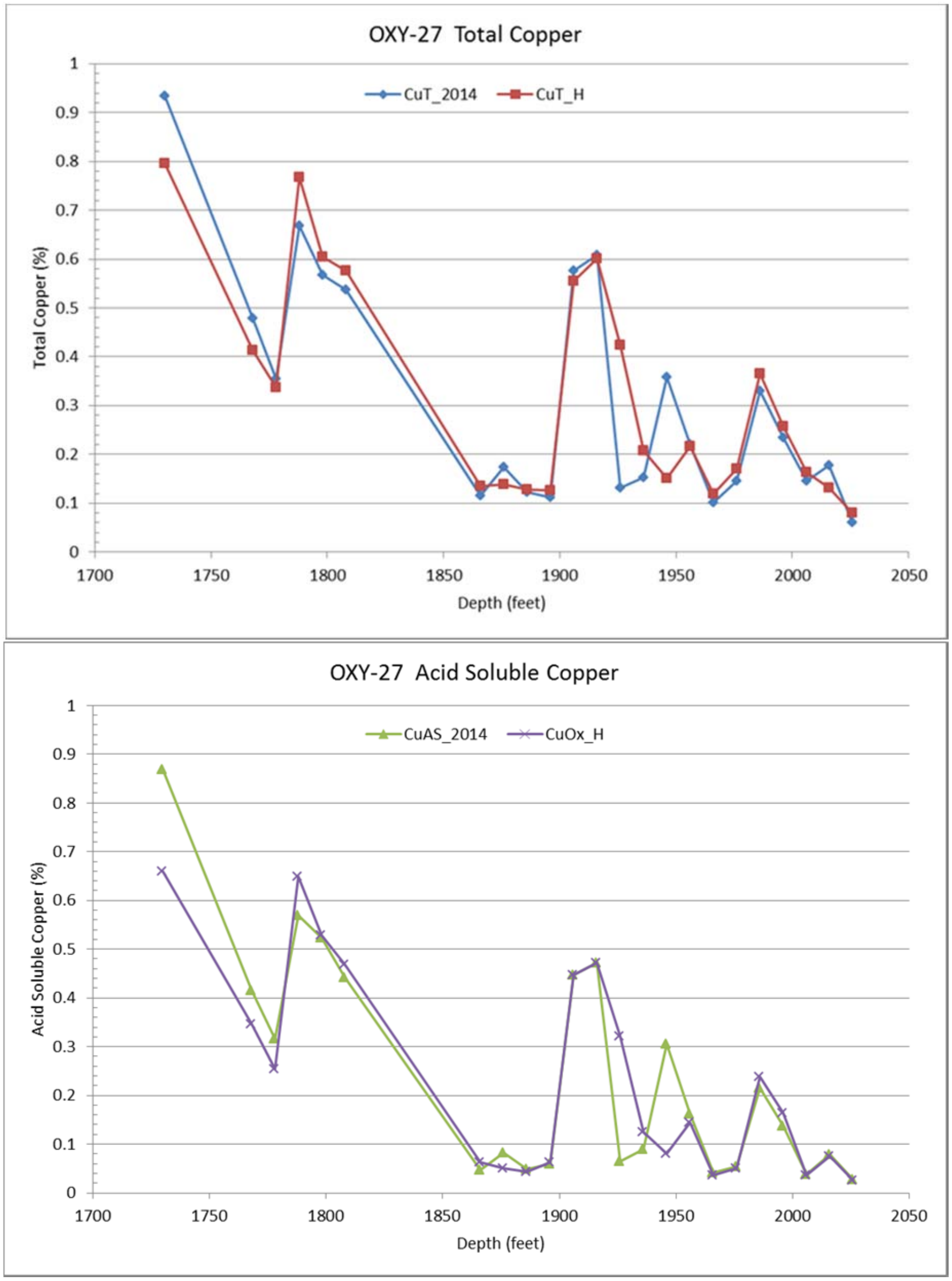


Figure 12-1 Sample-by-sample Comparison of Re-analyzed Core ('2014') versus Historical Values ('H') for both Total Copper (CuT, above) and Soluble Copper (below)

Samples believed to have been switched are apparent at depths of 1925' and 1950'

Drill Core Pulps – ALS and Skyline

All of the data from the re-analysis of drill core pulps could be compared directly with the original total copper values and soluble copper values on a sample by sample basis. Figure 12-2 compares all drill core pulps analyzed by ALS and demonstrates that there is a strong correlation between data sets.

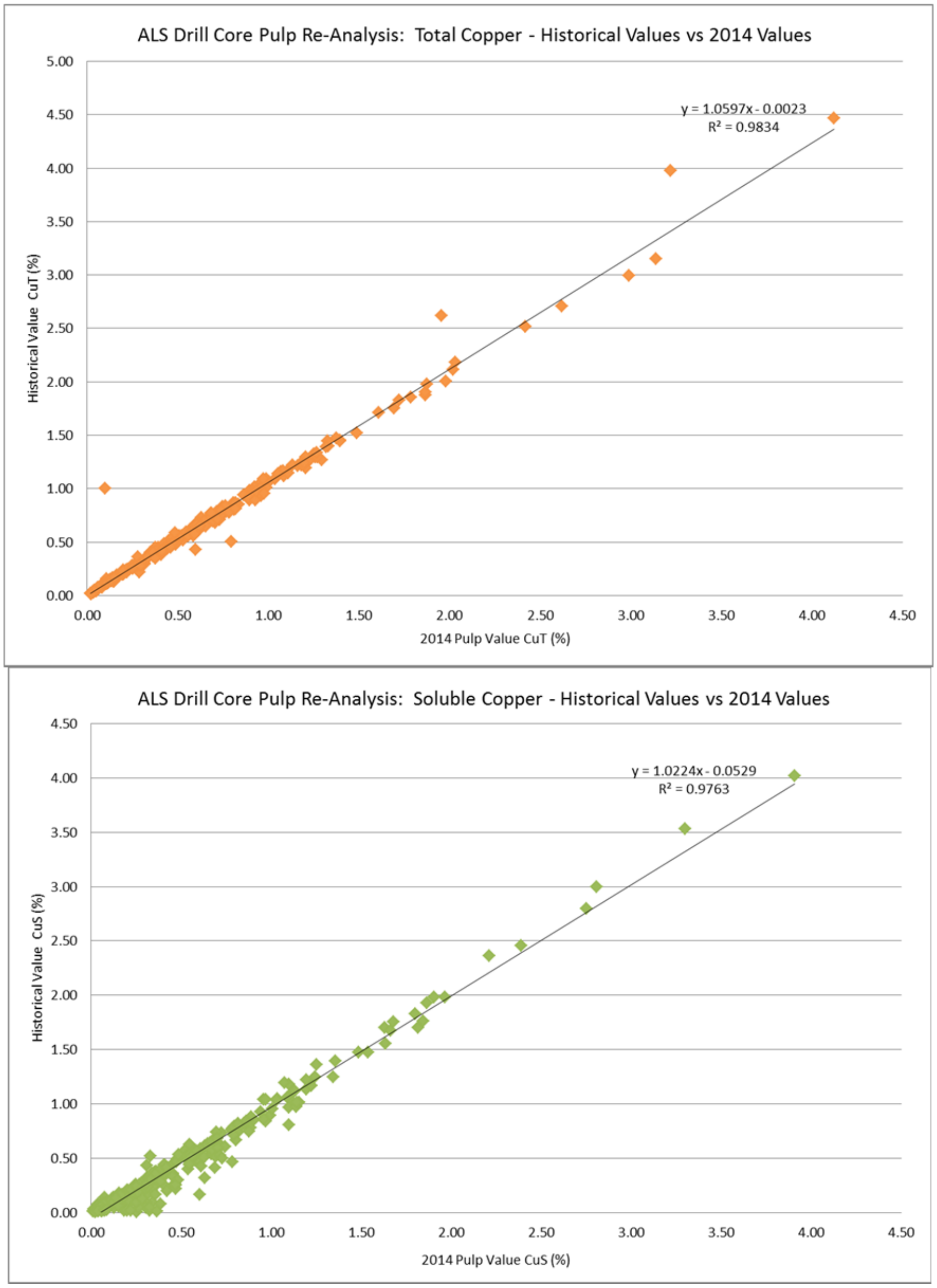
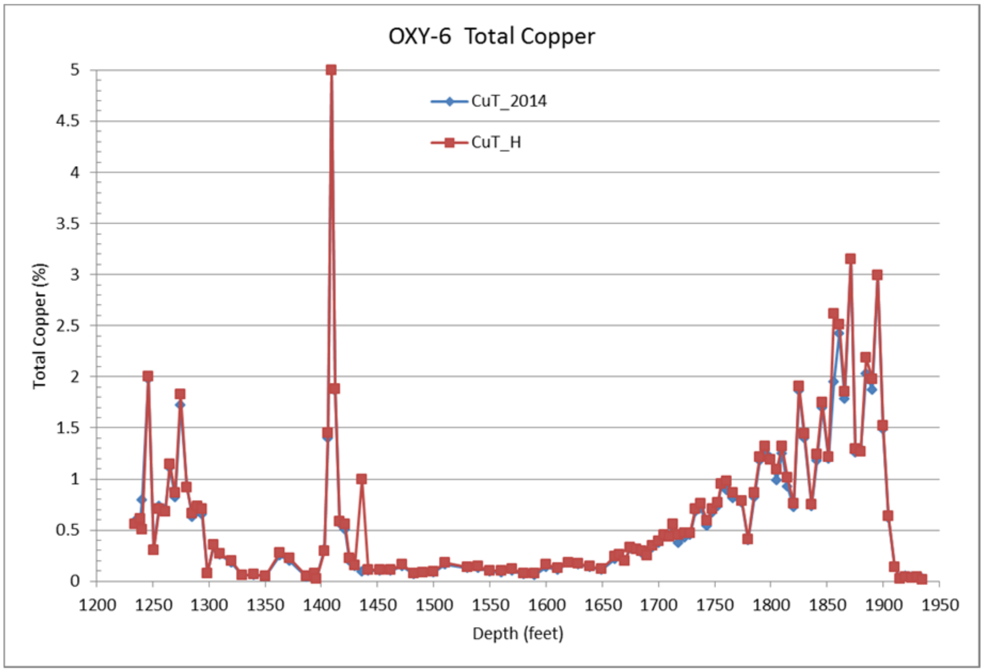


Figure 12-2 Re-analyzed Drill Core Pulps show Strong Reproducibility for Total Copper with Rare Outliers; re-analyzed drill core pulps show bias toward higher values at lower Soluble Copper concentrations

Figure 12-3 through Figure 12-9 compare new data with original values and show that there is limited variability on a sample by sample basis, even at higher grades where one might expect greater differences in grades due to a 'nugget' effect. The patterns in the figures below are very similar, but the new acid soluble copper values commonly are slightly elevated with respect to the original values.



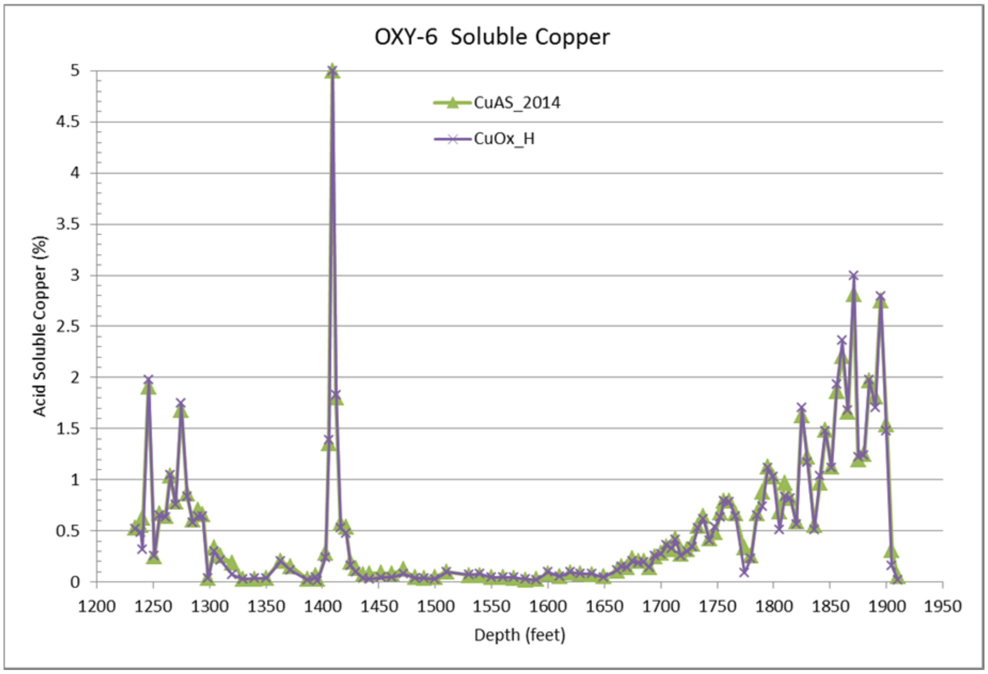


Figure 12-3 Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole OXY-6 shows Strong Reproducibility for both Total Copper (above) and Soluble Copper (below)

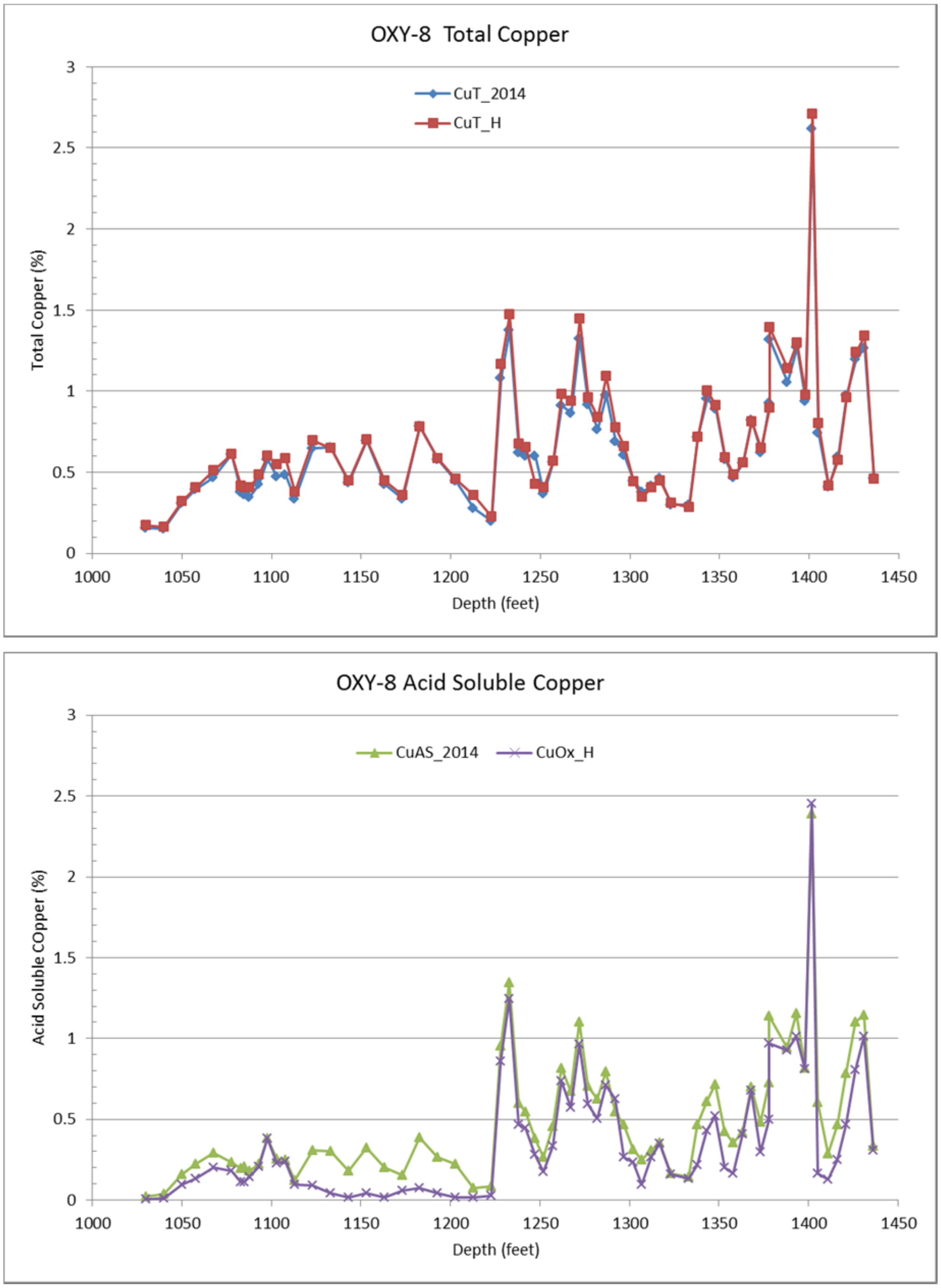
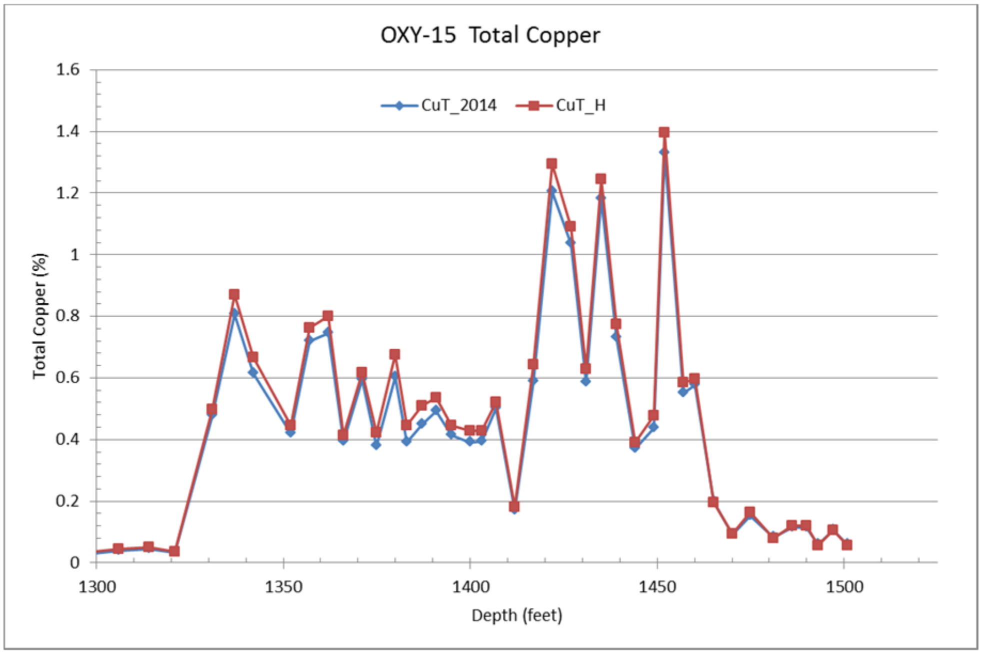


Figure 12-4 Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole OXY-8 shows Strong Reproducibility for Total Copper (above); new values for Soluble Copper (below) are consistently higher than the corresponding historical values



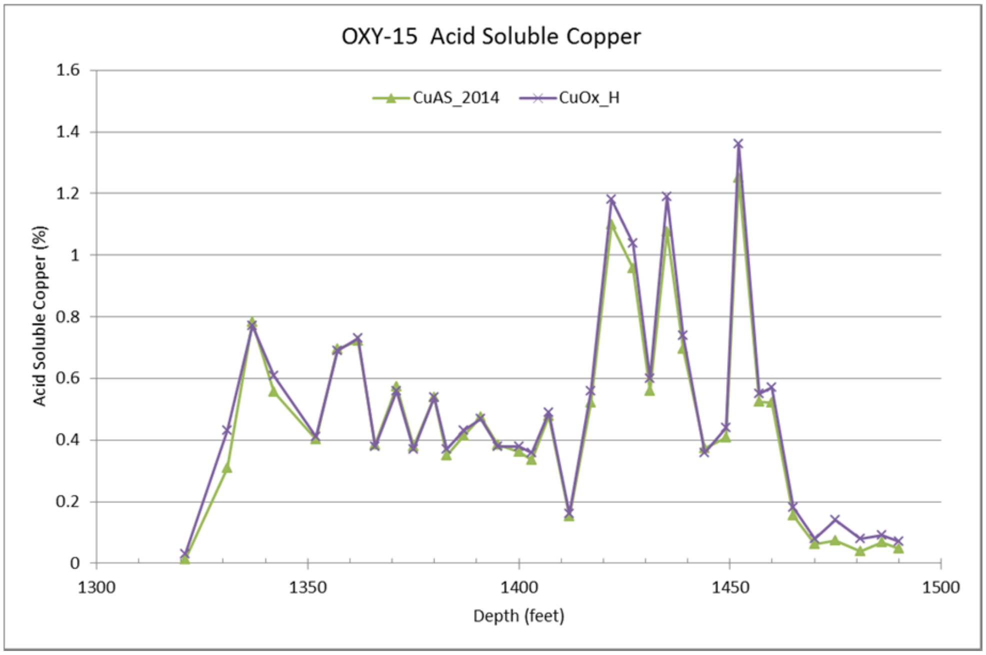
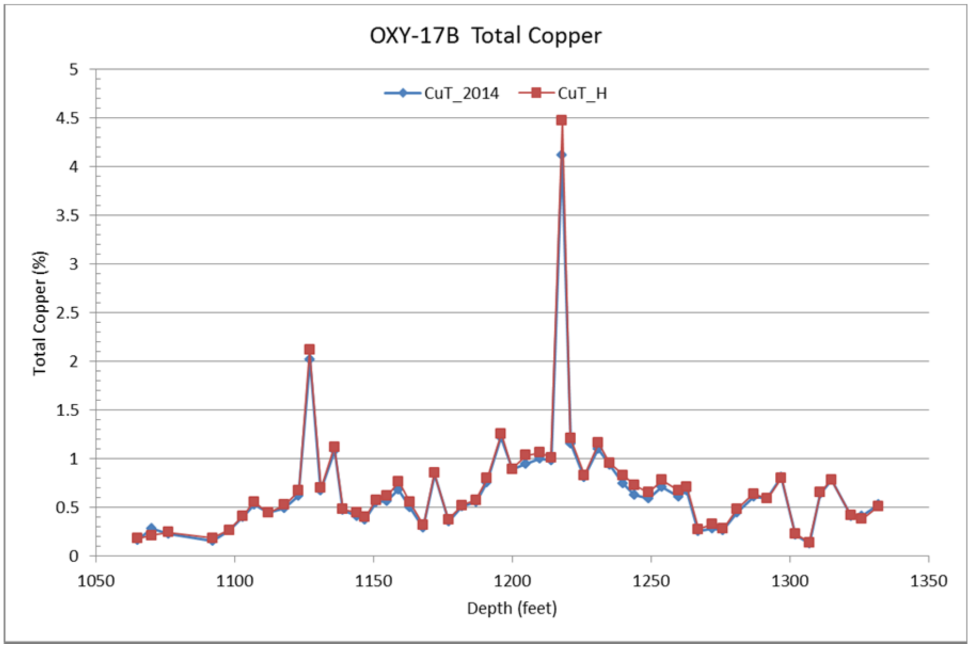


Figure 12-5 Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole OXY-15 shows Strong Reproducibility for Total Copper (above) and Soluble Copper (below) with historic values consistently incrementally higher than the new values



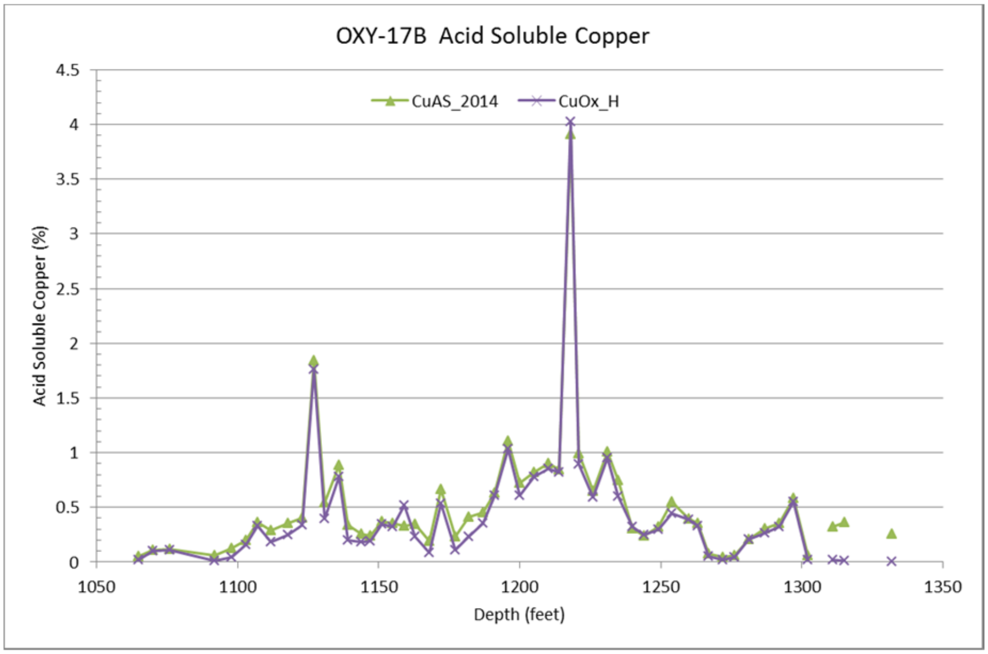
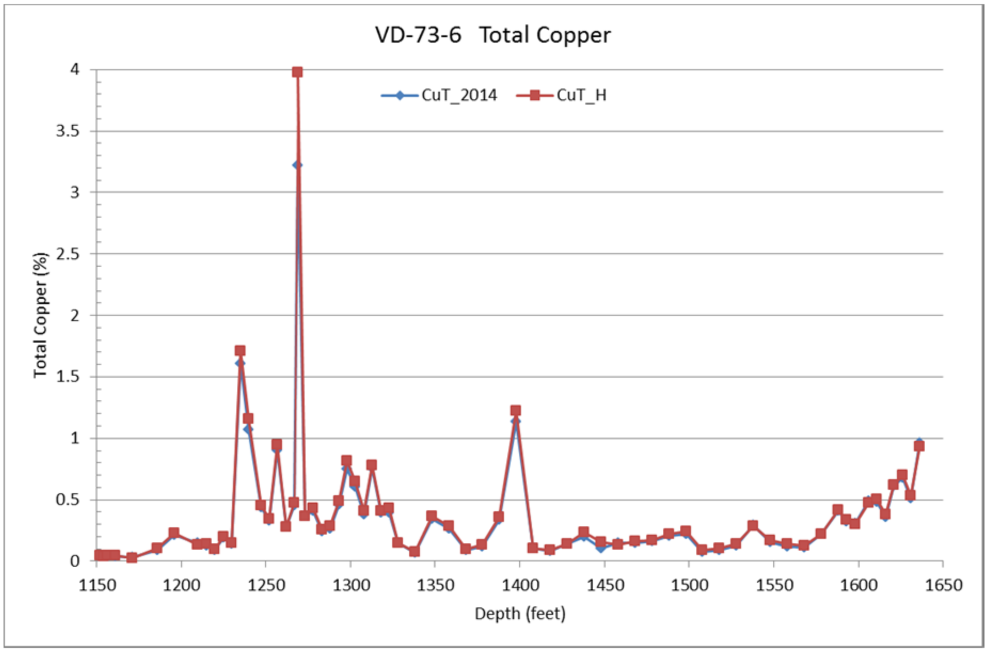


Figure 12-6 Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole OXY-17B shows Strong Reproducibility for both Total Copper (above) and Soluble Copper (below)



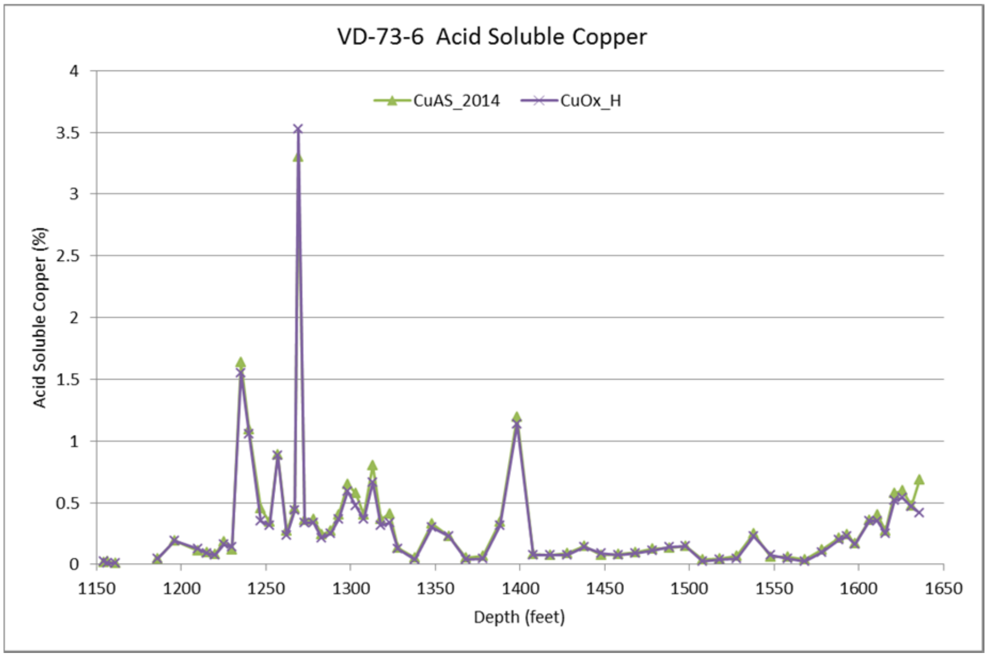
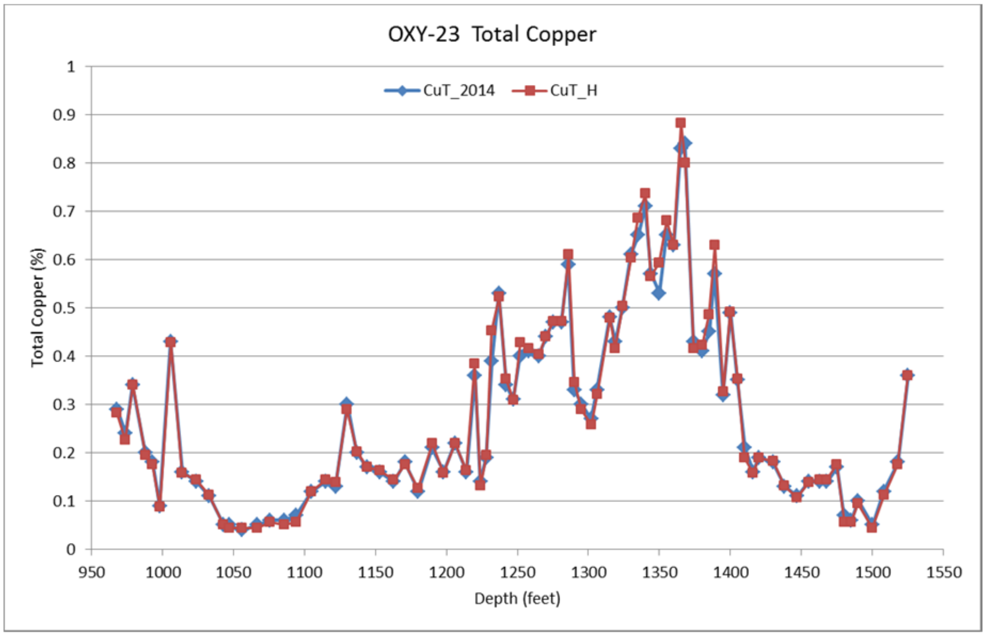


Figure 12-7 **Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole VD-73-6 shows Strong Reproducibility for both Total Copper (above) and Soluble Copper (below)**



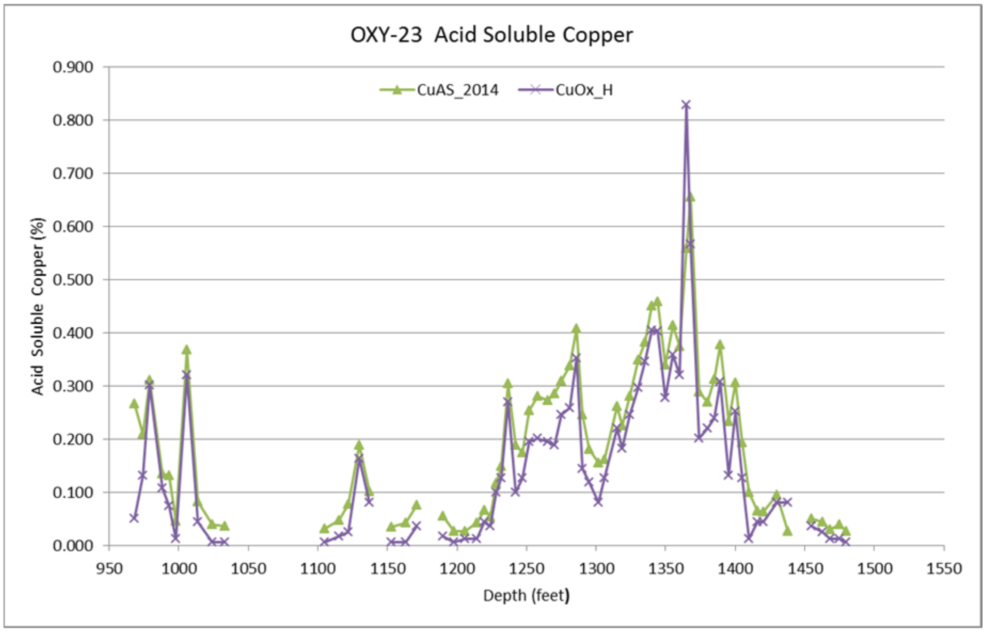
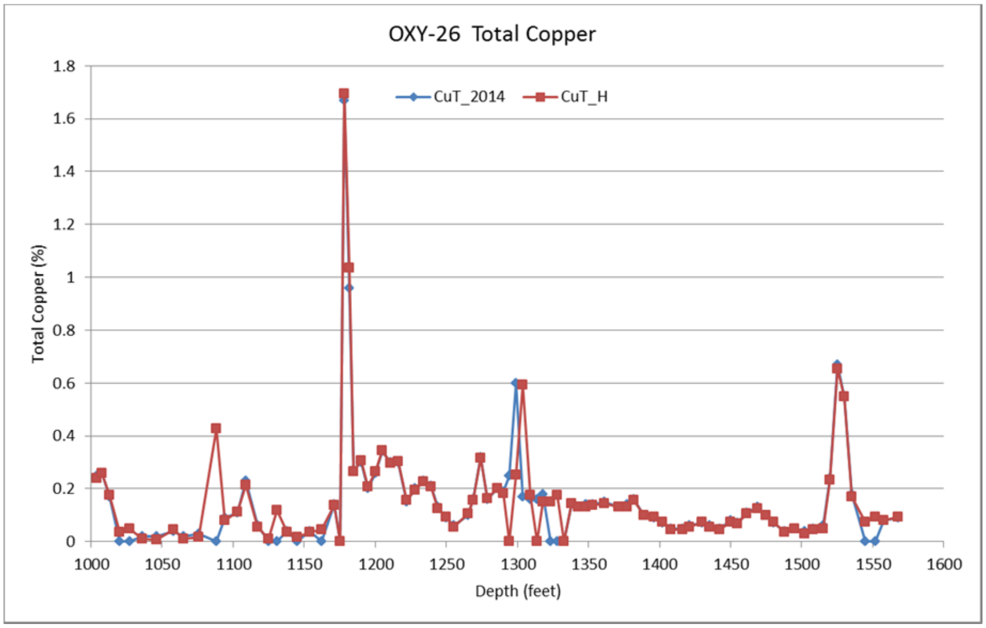


Figure 12-8 Sample-by-sample Comparison of Re-analyzed Drill Core Pulps for Drillhole OXY-23 shows Strong Reproducibility for Total Copper (above) and Soluble Copper (below) with new values consistently incrementally higher than original historic values. Gaps represent areas of missing samples or results below detection



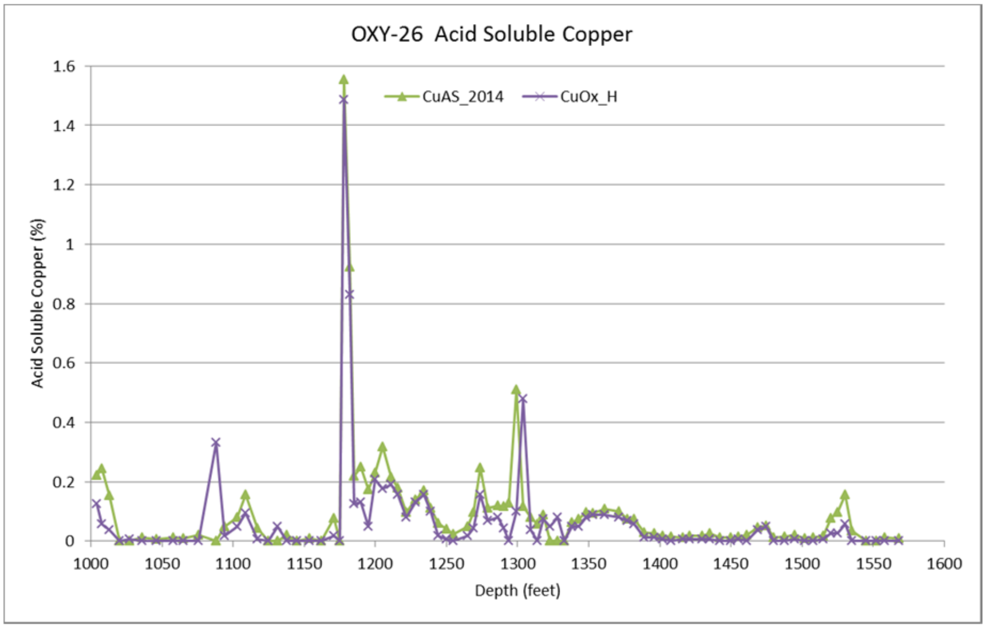


Figure 12-9 Sample-by-sample COXY-26 shows Generally Strong Reproducibility for Total Copper (above) and Soluble Copper (below) with new values consistently incrementally higher than original historic values

A comparison of weighted averages for continuously mineralized intervals of identical length for each of the historic drillholes that were sampled and re-analyzed is presented in Table 12-1. Data for Total Copper shows excellent reproducibility on an interval by interval basis (100% are within 8% of the original composited value). Data for Acid Soluble Copper shows a higher range of variability on an interval by interval basis, but the re-assays are consistently higher (50% are within 8% of the original composited value, and 50% range from 13% to 53% higher than the original composited value). The consistently higher acid soluble copper values in the re-assay data may be attributable to more complete digestion of soluble copper minerals in today's laboratory procedures.

Table 12-1 Comparison of Weighted Averages: 2014 Drill Core and Drill Core Pulp Re-analysis versus Original Results

Van Dyke	From	To	Interval	Total Copper (%)			Acid Soluble Copper (%)		
Drillhole ID	**(m)**	**(m)**	**(m)**	**2014 Pulp**	**Original**	**2014/Orig**	**2014 Pulp**	**Original**	**2014/Orig**
OXY-6	376.12	460.25	84.13	0.444	0.456	97.4%	0.418	0.390	107.2%
and	463.30	583.69	120.39	0.670	0.706	94.9%	0.556	0.546	101.8%
OXY-8	313.94	404.77	90.83	0.533	0.563	94.7%	0.334	0.222	150.5%
and	406.30	439.22	32.92	0.861	0.883	97.5%	0.704	0.544	129.4%
OXY-15	402.64	455.07	52.43	0.503	0.537	93.7%	0.458	0.489	93.7%
OXY-17B	324.61	396.85	72.24	0.662	0.699	94.7%	0.482	0.427	112.9%
VD-73-6	359.97	497.13	137.16	0.341	0.367	92.9%	0.299	0.278	107.6%
OXY-23	295.05	466.34	171.29	0.255	0.256	99.6%	-	-	-
and	362.71	441.05	78.34	-	-	-	0.277	0.181	153.0%
OXY-26	359.05	394.41	45.36	0.213	0.215	99.1%	0.166	0.126	131.7%
and	407.82	470.92	63.10	0.123	0.120	102.5%	-	-	-
Drillhole ID	**(m)**	**(m)**	**(m)**	**2014 Core**	**Original**	**2014/Orig**	**2014 Core**	**Original**	**2014/Orig**
OXY-27	527.3	620.57	93.27	0.408	0.407	100.2%	0.329	0.308	106.8%

2014 weighted averages for CuT range from 92.9 - 102.5% of historical weighted averages
2014 weighted averages for CuS range from 93.7 - 153.0% of historical weighted averages

Overall, the new data produced from the re-analysis of selected historical drill core and drill core pulps correlated strongly with the original values for total copper. However the new acid soluble copper values were consistently higher than the historical values. The variances in the latter may be the result of 40 years of oxidation that affected stored historic drill core and drill core pulps. Also, modern acid soluble copper or sequential copper analytical methods, such as the use of a ferric-bearing leachate, may be more aggressive, and therefore extract more copper, than the techniques used four decades ago. The re-analysis of a selection of historical drill core and drill core pulps verify that earlier operators followed proper procedures and used adequate care to obtain reliable results.

12.2 Twin Drillholes

Each of the five 2014 twin holes was drilled within 10m of its respective original collar location, and at the same inclination (-90°) as its historic counterpart, creating five 'twin pairs' of drillholes that could be directly compared. The twin pairs were compared on the basis of lithology, mineralization, and total copper and acid soluble copper grades. A summary of these comparisons is listed in

Table 12-2 and Table 12-3. Figure 12-10 through Figure 12-14 compare total copper and acid soluble copper with depth for the five twin pairs.

The first twin pair (OXY-6:VD-14-2) showed a good correlation of copper grades for the upper 84m of the mineralized interval with several multi-percent spikes at approximately the same depths. However the lower 120m of the mineralized interval in the twin hole is markedly different in mineralogy and in grade from that of the original hole. The four remaining twin pairs correlate well to very well and provide a high level of confidence in the historic data for those areas of the deposit.

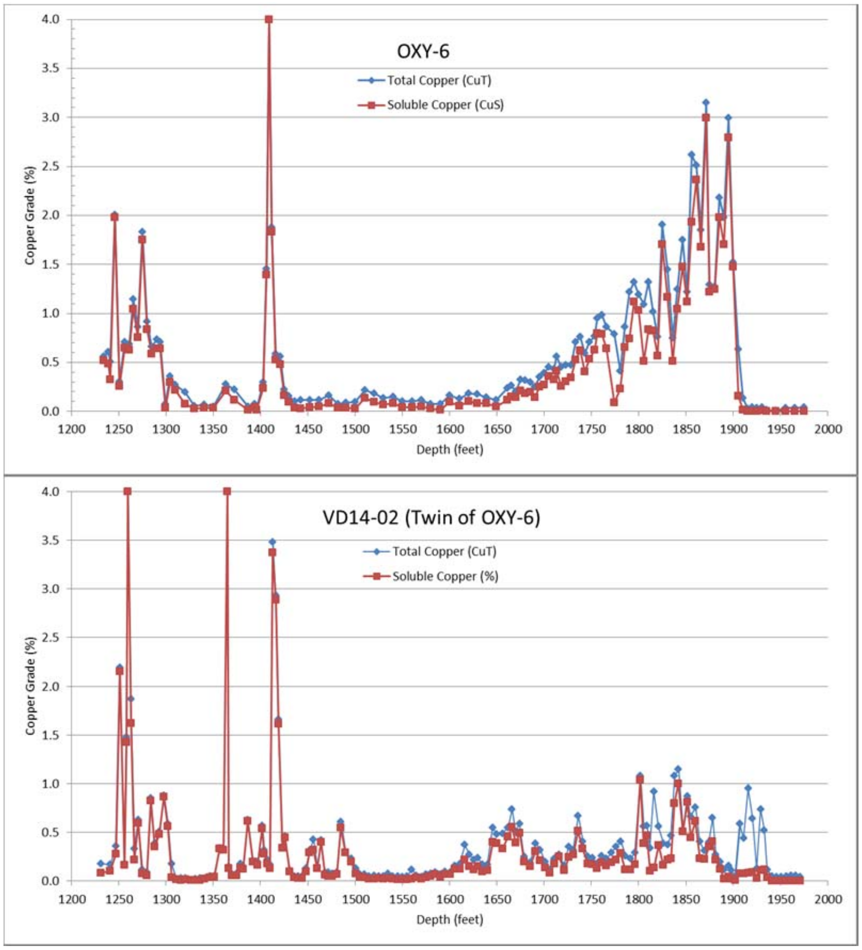


Figure 12-10 Comparison of Grade versus Depth for Drillhole OXY-6 and its Twin VD14-02

Both holes carry erratic values in their upper sections with individual sample values up to 8% in OXY-6 and 20% in VD14-02. Mid-section values are weak in both holes. The lower section of VD14-02 is significantly depleted in copper relative to OXY-6. All copper values > 4% have been cut to 4% for plotting purposes.

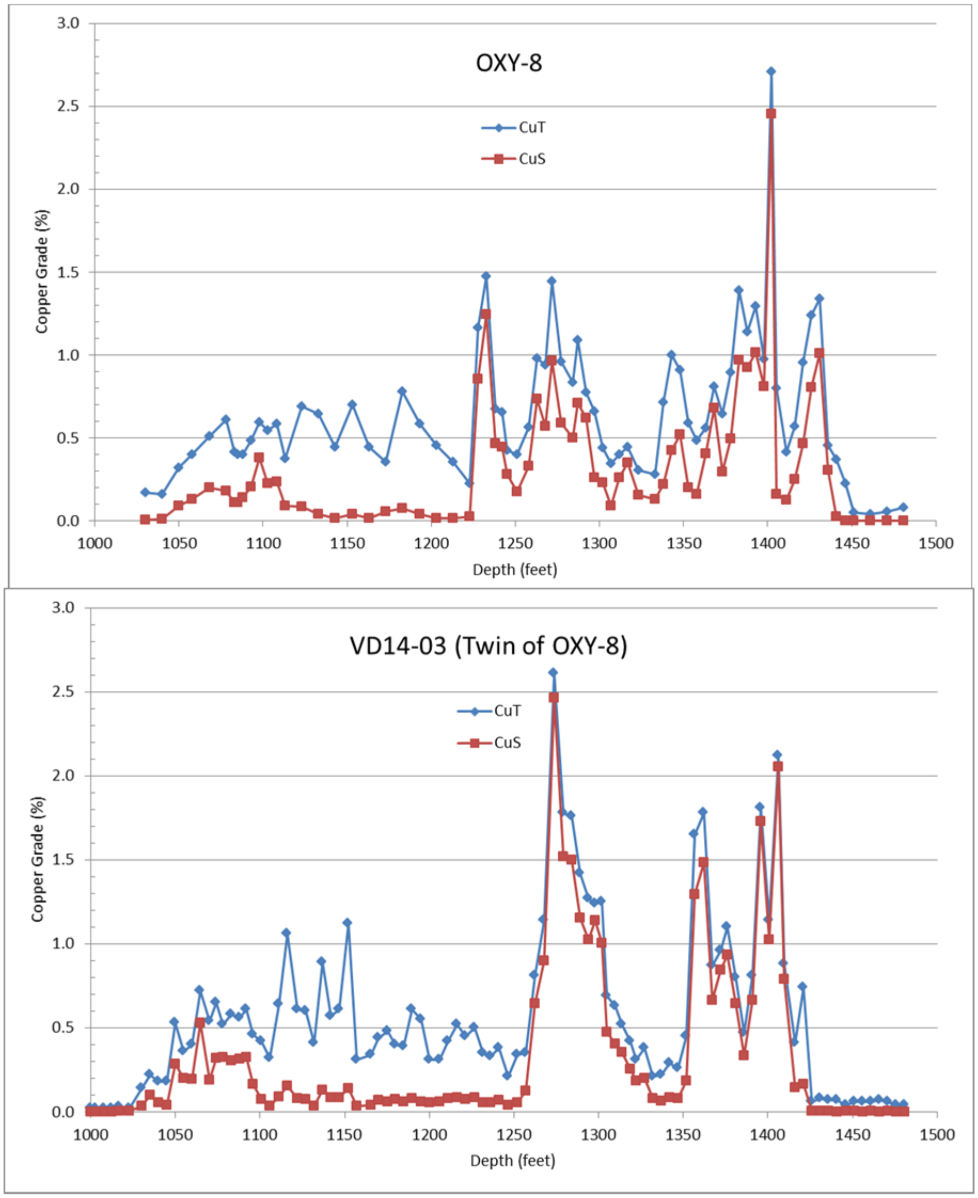


Figure 12-11 Comparison of Grade versus Depth for Drillhole OXY-8 and its Twin VD14-03

Both holes show consistently weaker values in upper sections, followed by stronger, albeit somewhat erratic values in lower sections. The lower section of stronger values in VD14-03 is 44 feet narrower than that of OXY-8.

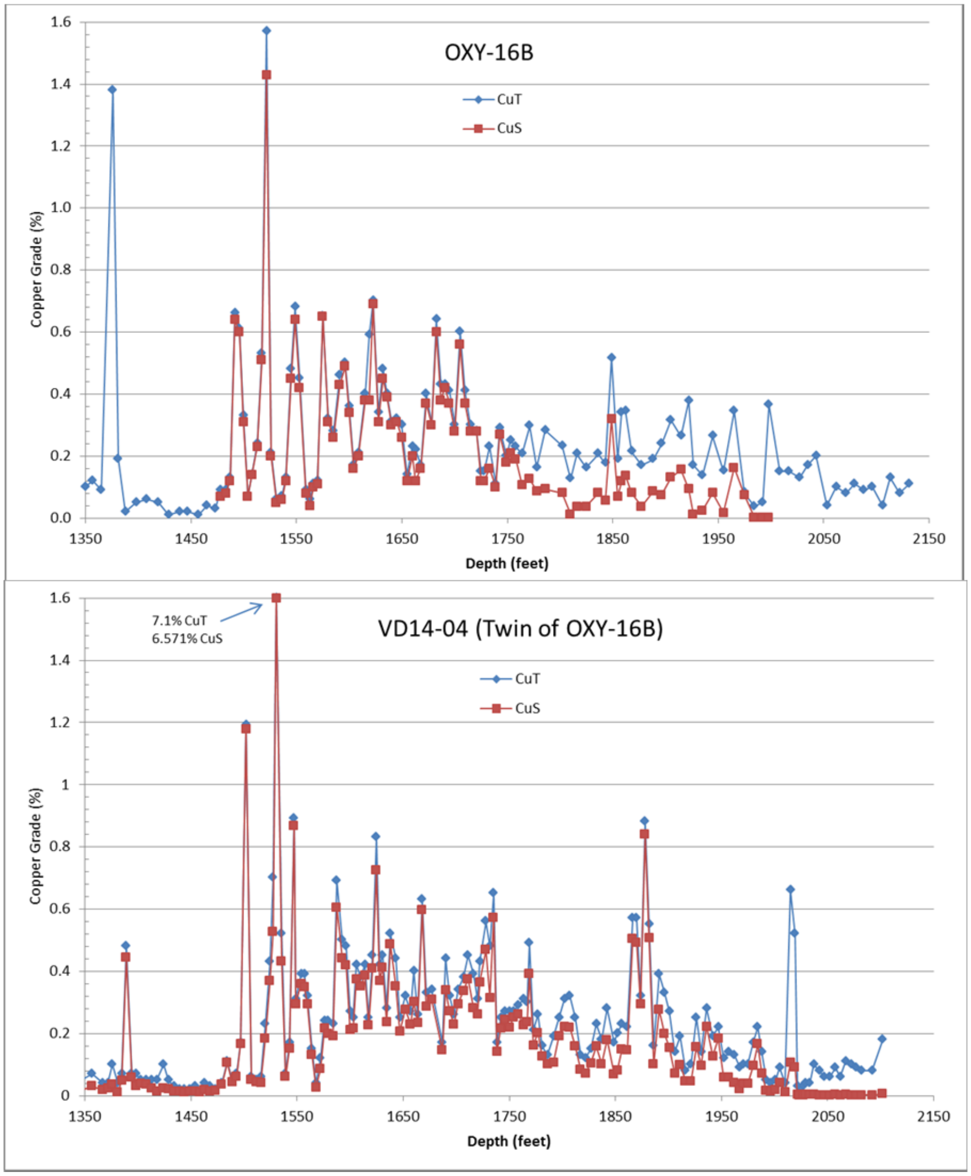


Figure 12-12 Comparison of Grade versus Depth for Drillhole OXY-16B and its Twin VD14-04

The plots illustrate the similarity in width and grade of the mineralized zone. Local higher grade copper spikes occur at approximately the same position in each hole. Each hole demonstrates that the strength of CuS mineralization weakens with depth, and that the holes terminate in CuT grades of greater than 0.1% Cu.

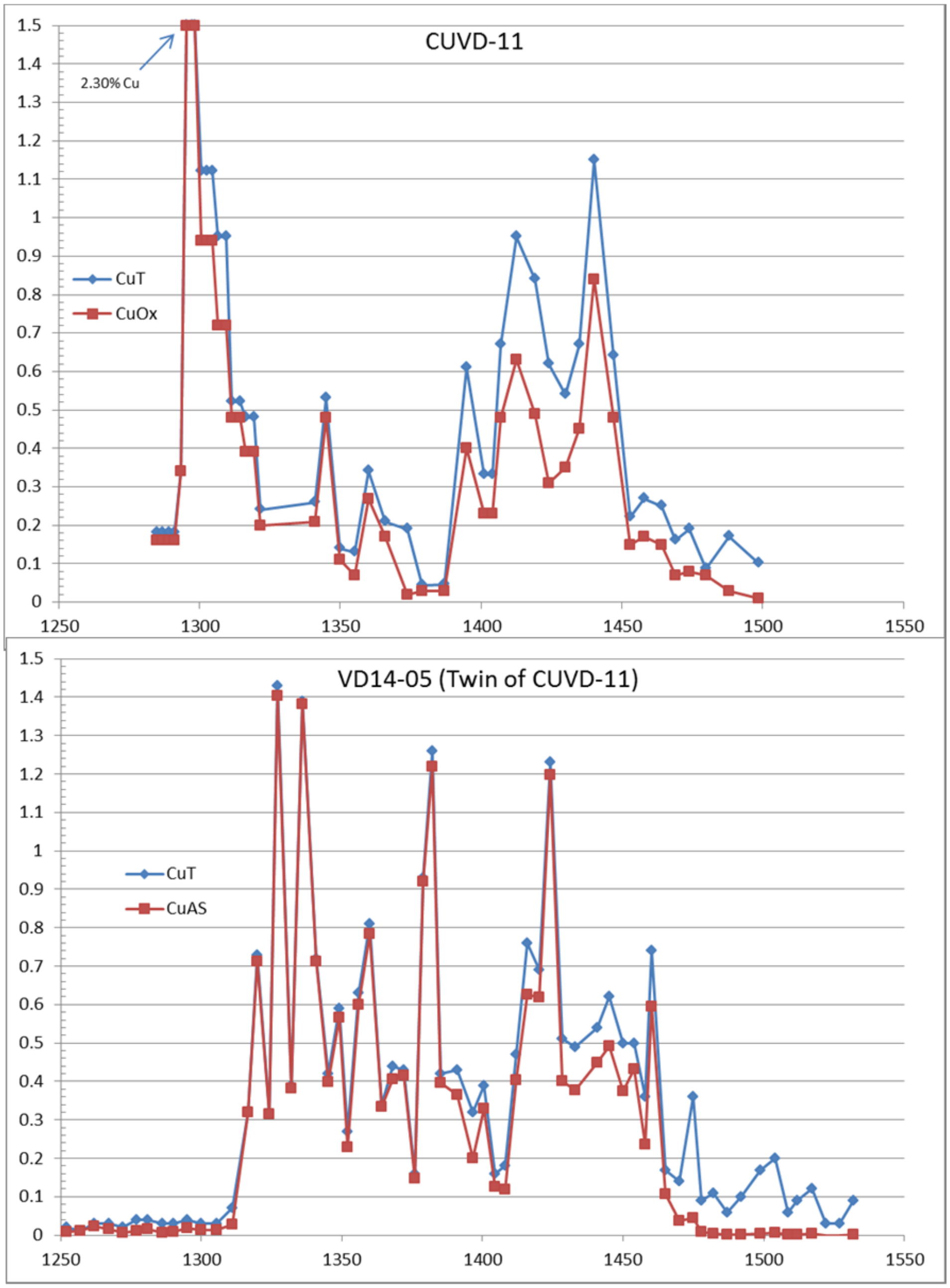
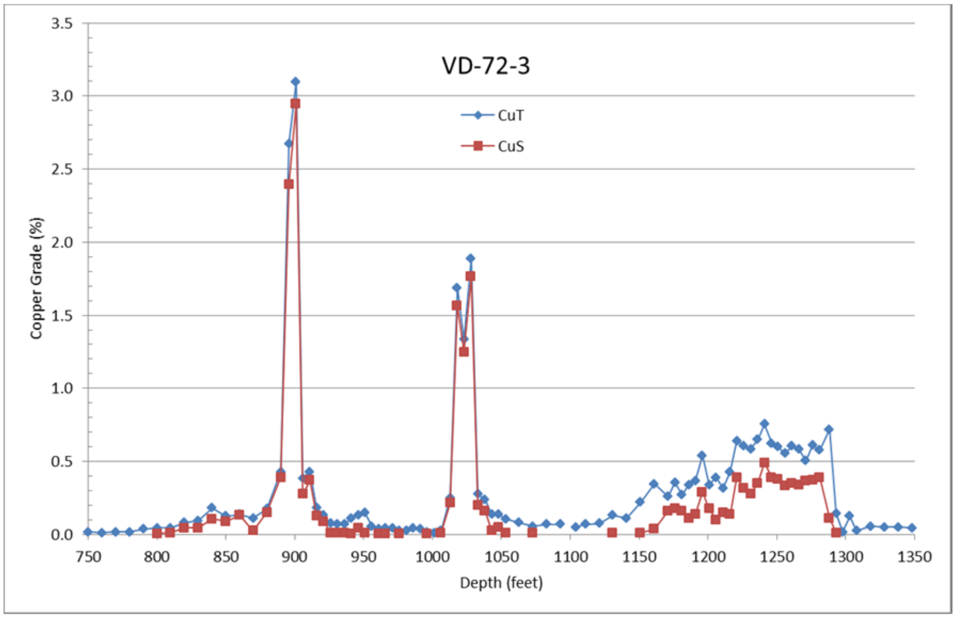


Figure 12-13 Comparison of Grade versus Depth for Drillhole CUVD-11 and its Twin VD14-05

Both holes show weaker copper values mid-section (although this feature is more pronounced in CUVD-11) that are flanked by sections with stronger values. The higher grade interval in CUVD-11 is approximately 25 feet wider in than in OXY-8, but the average grade for the mineralized intervals are comparable.



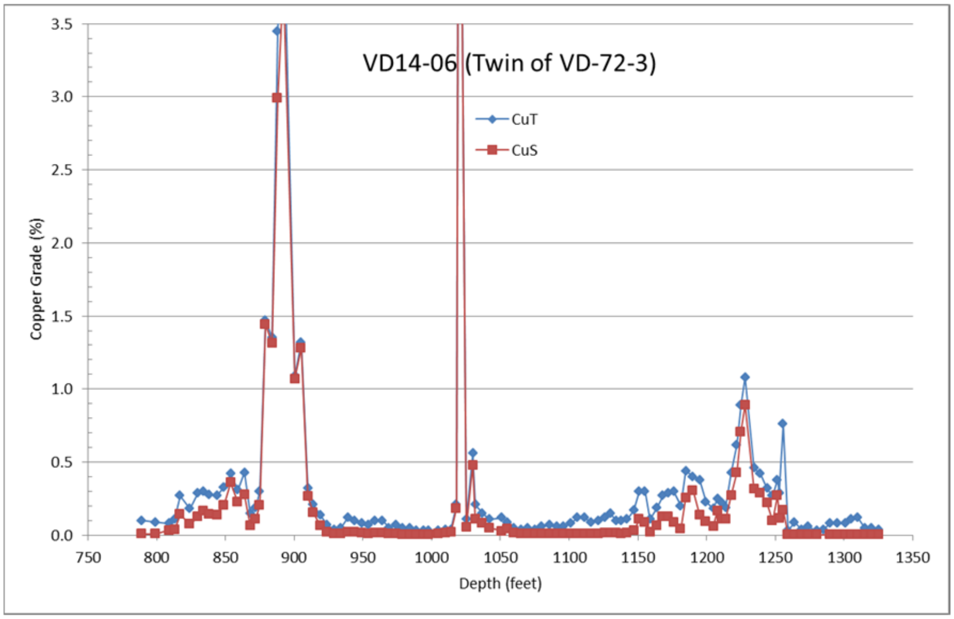


Figure 12-14 Comparison of Grade versus Depth for Drillhole VD-72-3 and its Twin VD14-06

The plots illustrate the similarity in width and grade of several bands of mineralization. Two high grade copper spikes occur at about the same position in each hole. The CuS zone in hole VD-72-3 appears to extend to a greater depth that the similar zone in its twin hole.

Table 12-2 Comparison of Drillhole Log Data for Five Twin Pairs of Drillholes

Drillhole ID		Easting (NAD27)	Northing (NAD27)	Elev (m)	Total Depth	Base of Gila	Base of Oxide
Original	OXY-6	512369.0	3695563.5	1032.8	631.24	376.12	580.64
Twin	VD14-02	512367.1	3695566.3	1032.2	602.28	381.40	598.02
Original	OXY-8*	512030.4	3695670.1	1053.1	489.51	301.75	440.74
Twin	VD14-03	512029.4	3695671.1	1051.7	453.24	301.14	433.61
Original	OXY-16B	512535.5	3695523.3	1034.7	651.66	416.66	608.99
Twin	VD14-04	512534.0	3695525.3	1029.6	642.21	416.66	620.27
Original	CUVD-11	512230.0	3695125.5	1045.4	465.12	364.24	447.75
Twin	VD14-05	512231.1	3695125.3	1049.4	468.48	374.14	448.21
Original	VD 72-3	512014.5	3695399.4	1038.5	431.29	246.89	394.11
Twin	VD14-06	512021.8	3695403.5	1037.2	405.51	249.02	383.74

**original drill collar calculated by regression to UTM from mine coordinates (Tim Marsh, March 19, 2014).*

Table 12-3 Comparison of Analytical Results for Five Twin Pairs of Drillholes

Drillhole ID		From (m)	To (m)	Interval (m)	CuT (%)*	CuS (%)*
Original	OXY-6	376.12	460.25	84.13	0.456	0.390
	and	463.30	583.69	120.39	0.706	0.546
Twin	VD14-02	375.21	458.72	83.51	0.636	0.585
	and	486.16	590.09	103.93	0.394	0.249
Original	OXY-8	313.94	439.22	125.28	0.64	0.304
Twin	VD14-03	313.94	439.22	125.28	0.652	0.372
Original	OXY-16B	450.49	604.72	154.23	0.285	0.207
Twin	VD14-04	452.32	607.16	154.84	0.361	0.302
Original	C-UVD-11	391.67	459.33	67.66	0.433	0.318
Twin	VD14-05	401.30	448.10	46.80	0.583	0.528
Original	VD-72-3	249.94	398.68	145.69	0.329	0.209
	incl	249.94	292.91	42.98	0.351	0.282
	and incl	308.76	324.00	15.24	0.617	0.525
	and incl	344.73	395.63	50.90	0.425	0.202
Twin	VD14-06	240.49	383.70	134.70	0.346	0.246
	incl	240.49	281.64	41.15	0.613	0.503
	and incl	310.29	318.82	8.53	0.628	0.556
	and incl	337.11	383.74	46.63	0.302	0.156

**calculated using a 0.05% CuT cut-off grade*

12.3 Drill Core Check Analysis 2014

A total of 77 pulps from the 2014 diamond drilling program were submitted to Inspectorate for check analysis. This total represents approximately 10% of the entire suite of core samples analyzed earlier in the program by Skyline. Results of the check assay program are shown in Figure 12-15. These results compare reasonably well with the initial analytical data for the 2014 drillholes and confirm the veracity of the Skyline data.

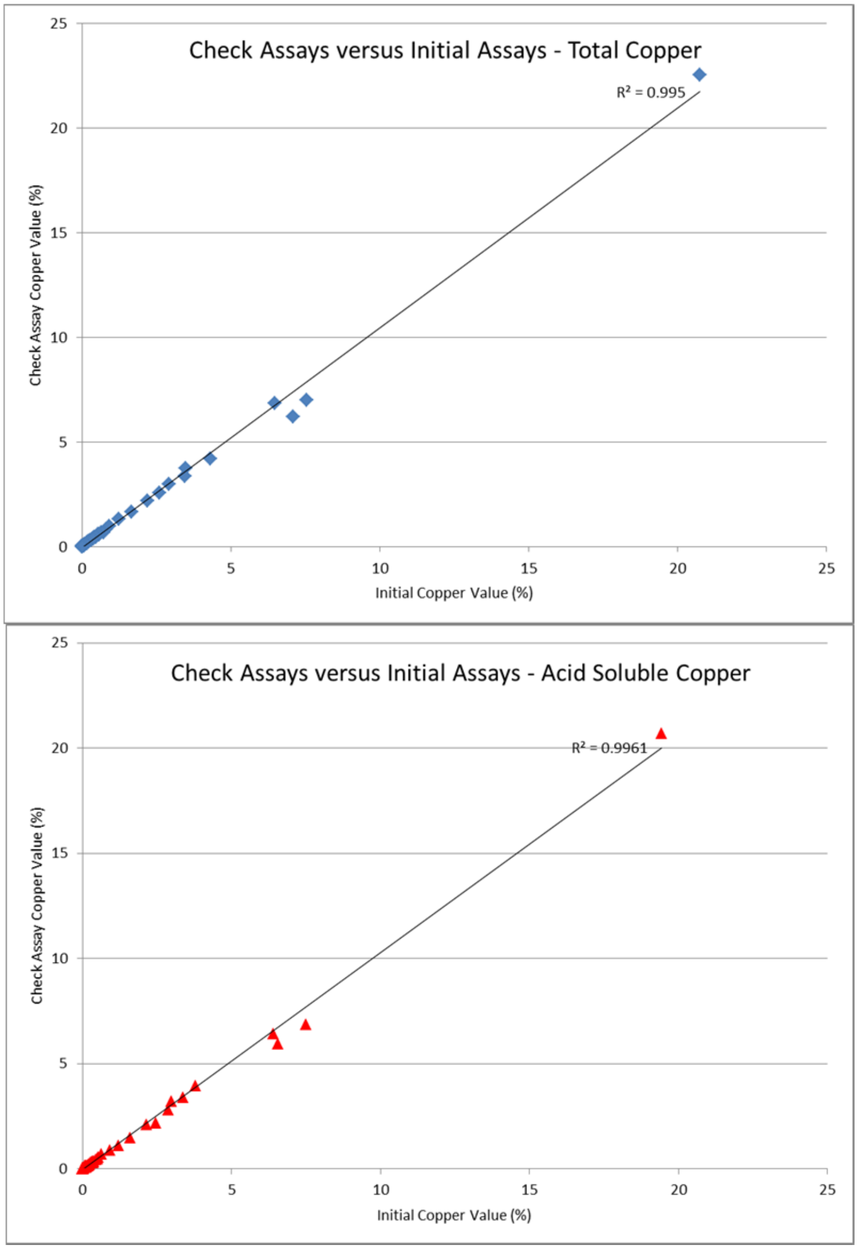


Figure 12-15 Check Assays versus Initial Assays for Total Copper (above) and Acid Soluble Copper (below)

12.4 Adequacy of Data

The verification program determined that the historical data captured from hard-copy drillhole logs, cross-sections and maps, and unpublished private reports, are valid and generally representative of the Van Dyke Copper Project.

The data generated from the re-analysis of drill core and drill core pulps generally correlated well with the historic data recorded on drillhole logs and compiled in electronically. Total copper content of the re-analyzed historic drill core and drill core pulps correlates very well with the original data. Acid soluble copper content of the re-analyzed historic drill core and drill core pulps is consistently higher than the original data. This may suggest that modern soluble copper analysis techniques are more thorough than techniques of the late 1960s and early 1970s. Overall, the re-analysis demonstrated that the historic data set is acceptable and representative of the Van Dyke Copper Project.

The drillhole twinning program, consisting of five twin pairs of holes, also verified the integrity of the historic drillhole data. In all cases lithology could be correlated between the twin pairs. The style of mineralization was found to be similar in all twin pairs, with mineralization occurring in moderately to intensely fractured and brecciated Pinal Schist and to a lesser extent in porphyritic quartz monzonite of the Schultze Granite. With one exception, mineralogy (malachite, azurite, chrysocolla, tenorite and cuprite) and total copper grades correlate well between twin pairs. The exception, VD14-02 drilled as twin of OXY-6 in the north-central part of the Project, intersected a mineralized interval with similar widths as the original hole, but one in which the lower 120m consists of different copper-bearing minerals, and carries markedly lower total copper and acid soluble copper grades. No physical evidence or records exist to suggest that the area was intentional leached. One possible explanation for observations is that the intensely fractured zone which hosts the mineralization acted as a conduit for latent solutions which resulted in incidental leaching and removal of previously deposited secondary copper minerals. None of the other historic holes drilled in the vicinity of OXY-6 were twinned, so the possible impact of any incidental leaching outbound of OXY-6 is unknown. The issue of incidental leaching is believed to be limited in its extent.

The only non-twin hole drilled in 2014 confirmed that the area immediately west of the Van Dyke shaft was the subject of ISL. However, this drillhole intersected significant grades of acid soluble copper over meaningful widths within the leached horizon indicating that not all of the copper was removed from this area of the Project.

All of the historic drillhole data, with the exception of that for OXY-6, is suitable for use in the calculation of a resource estimate for the Van Dyke Copper Project. All of the 2014 drillhole data is suitable for use in the calculation of a resource estimate for the Van Dyke Copper Project.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Copper has been extracted from copper oxide minerals in the Van Dyke Deposit periodically over the past 100 years using conventional copper oxide leach technology. Historical copper extraction has been carried out by underground extraction with surface leach operations, and in-situ leach (ISL).

ISL is a leach extraction process where barren leach reagent is injected into the orebody using injection wells allowing the leach reaction to occur in-situ. Pregnant solution (PLS) containing leached copper is extracted using recovery wells. This process is described in detail in Section 16. Copper is produced onsite using conventional solvent extraction (SX) and Electrowinning (EW) processes.

The depth, grade and minerology of the Van Dyke Deposit make ISL the preferred option for economic extraction.

This section summarizes the results of historical metallurgical testing programs including recent test work using drill core obtained in the 2014 exploration campaign.

13.2 Historical Metallurgical Testing

The Van Dyke copper deposit has been subject to underground mining and numerous metallurgical testing and research work since approximately 1916. Historical data (see Table 13-1) indicates that approximately 150 samples have been submitted to various laboratories for acid leaching studies including: bottle roll leach tests, agitated leaching, pressure leaching, and column leach tests.

Table 13-1 Historical Metallurgical Work at the Van Dyke Deposit

Year			Company	Work Completed
1916	to	1945	Van Dyke Copper Co.	Underground mining
1968	to	1980	Occidental Minerals Co.	Drilling and ISL pilot program
1970	to	1971	Occidental Minerals Co.	Bottle rolls, agitation leach tests at Metcon Lab, Tucson, AZ
1971	to	1972	Occidental Minerals Co.	Column leach, pressure leach at New Mexico Tech Research Foundation, Socorro, NM
1971			Occidental Minerals Co.	Bottle rolls, agitation leach tests at Colorado School of Mines Research Institute, Golden, CO
1972			Occidental Minerals Co.	Pressure leach tests at Arizona Bureau of Mines, Tucson, AZ
1973	to	1976	Occidental Minerals Co.	Column leach test, agitation leach at Mountain States R&D, Tucson, AZ
1973	to	1975	Occidental Minerals Co.	Column tests, computer simulation at New Mexico Bureau of Mines & Mineral Resources, Socorro, NM
1974	to	1977	Occidental Minerals Co.	Pressure leach and others at Colorado School of Mines, Golden, CO
1975			Occidental Minerals Co.	Columns leach test at Utah International, Palo Alto, CA
1979			Occidental Minerals Co.	Core leaching test at Exoil Services, Golden CO
1979			Occidental Minerals Co.	Core leaching test at Science Application Inc., La Jolla, CA
1986	to	1989	Kocide Chemical Co.	Drilling and ISL pilot program
2014	to	2014	Desert Fox Van Dyke Co.	Drilling, sampling and Metallurgical Laboratory Pressure Leach testing, SGS, Tucson, AZ

13.2.1 Occidental Laboratory Metallurgical Tests

Column leach tests conducted by Occidental with varying particle size distributions and head grades ranging from 0.3% to 0.8% Acid Soluble Copper (ASCu) recovered approximately 90% or more of the ASCu in leach times ranging from 3 days to approximately 15 days. Corresponding sulfuric acid consumption averaged approximately 2.7kg H_2SO_4/kg of Cu.

These positive metallurgical results are consistent with the highly soluble minerals contained in the Van Dyke deposit, i.e., Chrysocolla ($(Cu,Al)_2H_2Si_2O_5(OH)_4 \cdot nH_2O$), Malachite ($Cu_2(CO_3)(OH)_2$), and Azurite ($Cu_3(CO_3)_2(OH)_2$), with presence of Cuprite (Cu_2O) and Chalcocite (Cu_2S).

Results from historical bottle rolls tests and column leaching tests confirm the highly soluble nature of the copper mineralization in the Van Dyke Deposit.

13.2.2 Pilot ISL Tests

Data from Occidental pilot ISL tests in 1979 and 1980 shows daily average concentration of PLS ranging from 0.5g/l to 3.5g/l. The pilot ISL test operations suffered significant mechanical problems, and lacked proper process control. Future ISL operation using modern technologies should achieve significantly higher PLS concentrations than the historical pilot tests.

13.3 2014 Laboratory In-situ Pressure Leaching Test Results

In 2014, a total of eight fresh Van Dyke drill core samples were submitted to SGS E&S Engineering Solutions Inc. for simulated in-situ pressure leach tests (see Appendix A). The pressure leach tests were conducted using 26 inch long, 4 inch diameter pressurized stainless steel vessels in locked cycle regime for 120 days. The purpose of pressure (nominal pressure of 120psi) inside the vessels was to simulate the underground hydraulic pressure in in-situ leach process.

Mineralogical analysis of the samples sent to SGS is shown in Table 13-2. Copper oxide minerals account for most of the copper bearing minerals. Only one out of the six samples (VD14-03) contained primarily chalcocite, a copper sulphide mineral. It should be noted that this sample is outside of the Oxide Resource, and has been analyzed as an up-side potential in the material surrounding the oxide body which may contain soluble copper not accounted for in the leachable resource or cash flow.

Table 13-2 Overall Copper Distribution by Mineral

Sample ID	DH	From (m)	To (m)	Chrysocolla (%)	Malchite (%)	Copper (%)	Chalcocite (%)	Chalcopyrite (%)	Total (%)
PRT#1	VD14-02	549.2	550.3	59.5	0.6	38.9	0.3	0.7	100
PRT#2	VD14-02	386.1	387.3	59.3	39.8	0.5	0.2	0.2	100
PRT#3	VD14-03	354.0	355.2	0.4	1.1	0	98	0.5	100
PRT#4	VD14-04	512.7	514.1	2.3	96.4	0	1.2	0.2	100
PRT#5	VD14-05	438.0	439.1	0.6	75.3	23.7	0.1	0.3	100
PRT#6	VD14-06	273.1	274.5	99.3	0.4	0	0.2	0.1	100
PRT#7	VD14-06	311.2	312.6	66	33.7	0.2	0	0	100
PRT#8	VD14-06	375.2	376.3	99.4	0	0.6	0	0	100

Note: (1) PRT#3 copper content in the form of Azurite is report as Malachite

The 2014 metallurgical test work supports previous data indicating that Chrysocolla, Malachite, and Azurite are the primary copper bearing minerals in Van Dyke deposit, with secondary minerals Chalcocite and native copper.

13.3.1 Copper Extraction and Acid Consumption

The SGS pressure leach test results are summarized in Table 13-3. Highest TCu extraction (and iron extraction) was achieved in test PRT#06 which also has the highest chrysocolla content. ASCu extraction ranged from 53% to 93%.

Table 13-3 Summary of the 2014 Pressure Leach Test Results

Test	Leach Cycle	Calculated Head Assay			Cumulative Extraction			Gangue Acid Consumption
No.	Days	TCu	ASCu	Fe	TCu	ASCu	Fe	
		(%)	(%)	(%)	(%)	(%)	(%)	(kg/kg Cu)
PRT#01	126	0.47	0.33	2.23	65.37	93%	6.23	8.64
PRT#02	125	2.03	1.99	0.46	53.88	55%	1.61	0.72
PRT#03[1]	124	0.35	0.11	2.20	23.93	76%	5.7	23.69
PRT#04	124	0.38	0.36	2.16	77.01	81%	2.88	5.13
PRT#05	124	0.42	0.35	2.88	45.09	53%	4.95	12.24
PRT#06	124	1.04	1.03	0.22	86.63	88%	20.32	1.12
PRT#07	124	0.69	0.66	0.33	73.37	77%	10.05	2.01
PRT#08	124	0.76	0.66	0.74	78.96	92%	14.36	4.2

Note (1); Sample PRT#03 is in the mixed zone as is outside of the area considered for ISL

The lowest TCu extraction (and relatively low iron extraction) was 23.9% achieved in test PRT 03 that also has the lowest chrysocolla content (and the highest chalcocite content).

ASCu Recovery plotted against calculated ASCu head grade in Figure 13-1 shows variability in recovery at the various head grades. Leaching is strongly impacted by the leach conditions and the specific test procedure used has a high probability of solution channeling. In addition, samples PR#05 and PR#02 collected are known to have been previously leached and or contain chalcocite. The variability in the results confirms the importance of the physical conditions required for effective leaching including ensuring adequate permeability, proper solution presentation to mineral surfaces, and the prevention of channeling.

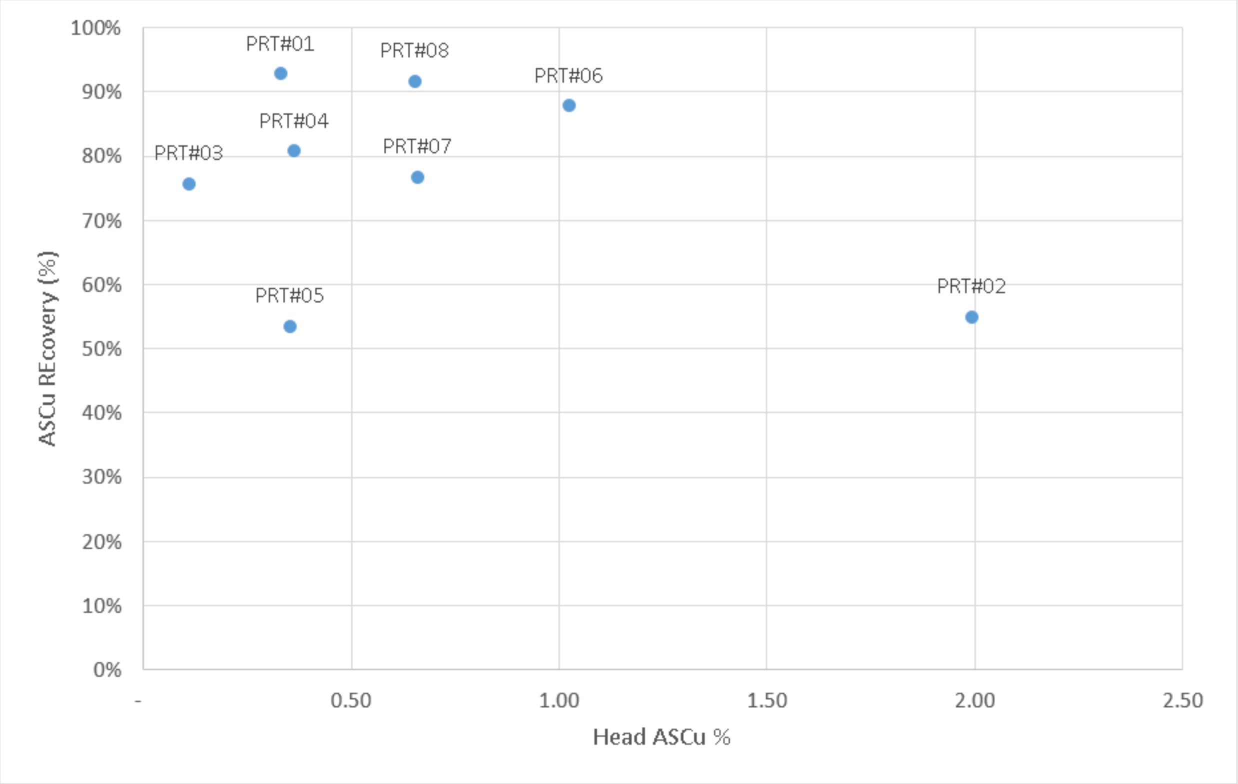


Figure 13-1 **ASCu Recovery vs Head Grade**

MMTS notes reconciliation between direct assays and calculated assays for head grades was poor for the 2014 testwork as shown in Figure 13-2, and consequently the copper extraction calculations are potentially subject to significant variation from the reported values in Table 13-3. The poor reconciliation could be due to the assay head sampling methodology not being a good representation of the sample tested, and also potentially due to some samples collected within a leach zone.

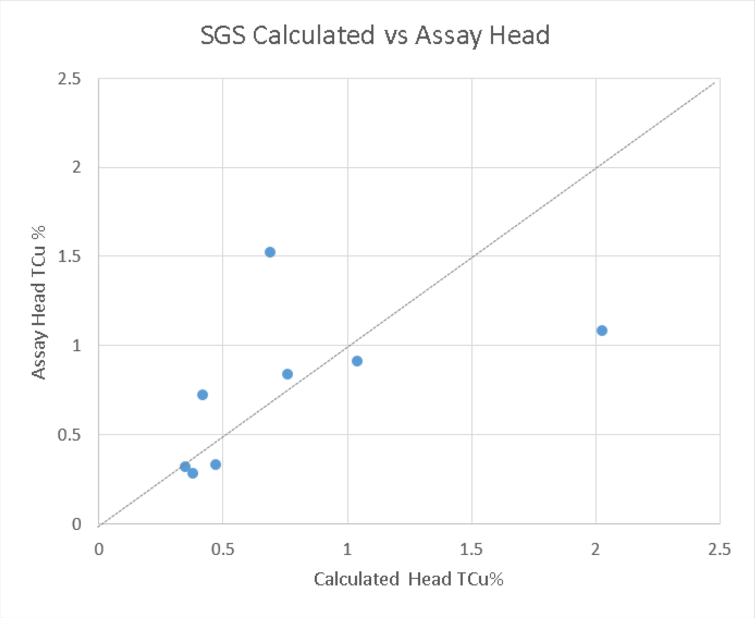


Figure 13-2 Calculated vs assay head grades

Net acid consumption (kg/kg Cu) is presented in Figure 13-3 as a function of the iron head grade. Once sample VD14-03 (PRT#3), which is primarily chalcocite, is excluded the correlation coefficient reaches a value of R^2=0.9. Note that Van Dyke's average copper head grade of approximately 0.35% Fe will be equivalent to approximately 1.5kg acid/kg Cu.

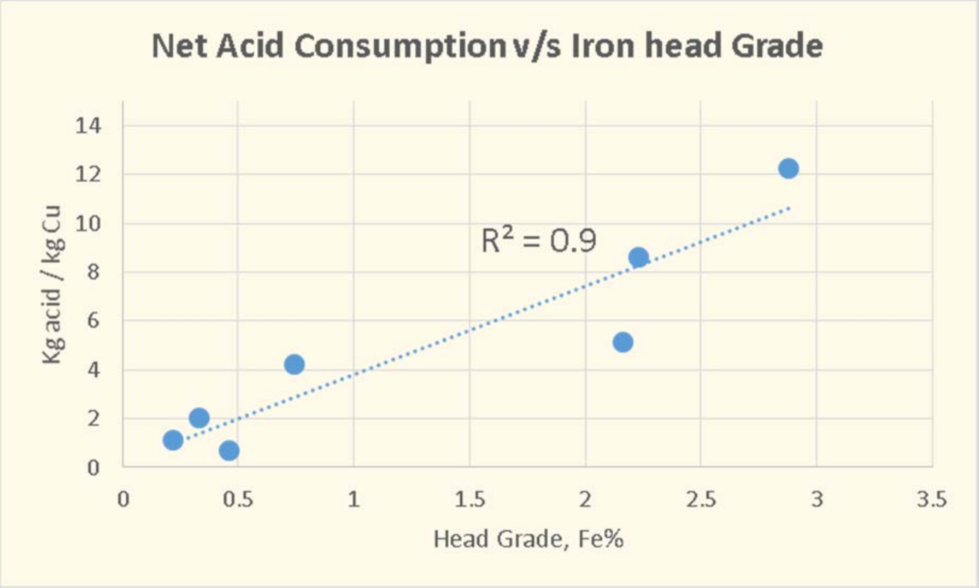


Figure 13-3 Net Sulfuric Acid Consumption

13.3.2 Leached Drill Core Preparation and Residue Assays

At the completion of rinse cycle, the pressure leach vessels were drained, unloaded and the leached drill core samples were unwrapped, weighed and dried in a laboratory oven at 100°C. The dried weight for each sample was recorded and the samples were stage crushed to 100% minus 10 mesh and a 1,000 gram sample was split, pulverized and a pulverized portion was submitted for total copper, total iron and sequential copper analysis (Table 13-4).

Table 13-4 Summary of Residue Assay Results

Test No.	Sample ID	Analysis		Sequential Copper Analysis[1]			(%) Soluble Copper[2]
		Cu (%)	Fe (%)	ASCu (%)	CNCu (%)	ResCu (%)	
PRT-01	VD14-02	0.163	2.11	0.024	0.002	0.137	15.95
PRT-02	VD14-02	0.95	0.46	0.9	0.017	0.025	97.35
PRT-03	VD14-03	0.269	2.1	0.027	0.17	0.067	74.62
PRT-04	VD14-04	0.088	2.11	0.07	0.002	0.015	82.76
PRT-05	VD14-05	0.248	2.92	0.165	0.006	0.078	68.67
PRT-06	VD14-06	0.148	0.19	0.125	0.002	0.02	86.39
PRT-07	VD14-06	0.186	0.3	0.154	0.003	0.025	86.26
PRT-08	VD14-06	0.169	0.67	0.055	0.002	0.106	34.97

*Remarks: (1) AsCu = acid soluble copper, CNCu = cyanide soluble copper, ResCu = residual total copper. (2) % Soluble Copper = [(ASCu + CNCu)/(ASCu + CNCu + ResCu)*100]*

The sequential copper analysis determined that copper in the leach residues was mostly soluble in sulfuric acid, indicating that the reduction or elimination of channeling or improved fracturing of the rock could significantly increase leach recoveries. The residual copper indicates copper mineralization that is associated with primary sulfide copper mineralization such as chalcopyrite, which is not soluble in sulfuric acid solution or cyanide solution.

ICP analyses conducted on the head samples of the eight drill core samples are summarized in the Table below.

Table 13-5 ICP Scan on Head Samples

Elements		VD14-02 (1801.9 - 1805.3)	VD14-02 (1266.6 - 1270.6)	VD14-03 (1161.5 - 1165.4)	VD14-04 (1682.0 - 1686.7)	VD14-05 (1437.0 - 1440.7)	VD14-06 (896.0 - 900.5)	VD14-06 (1021.0 - 1025.5)	VD14-06 (1231.0 - 1234.5)
Ag	ppm	<1	3	1	<1	<1	<1	<1	<1
Al	ppm	13,380	7,836	11,510	11,530	13,320	8,434	9,118	15,230
As	ppm	2	44	<1	<1	<1	<1	<1	<1
Ba	ppm	81	435	61	93	73	67	78	112
Bi	ppm	<1	<1	<1	<1	<1	<1	<1	<1
Ca	ppm	1,390	726	1,173	1,343	1,243	1,340	1,020	2,595
Cd	ppm	<1	<1	<1	<1	<1	<1	<1	<1
Co	ppm	9	<1	9	9	17	<1	<1	3
Cr	ppm	86	66	99	74	62	15	21	15
Cu	ppm	3,563	12,320	3,727	3,061	8,189	9,309	15,190	8,498
Fe	ppm	22,330	4,938	18,470	17,110	28,580	3,003	5,710	10,710
Hg	ppm	<1	<1	<1	<1	<1	<1	<1	<1
K	ppm	6,674	3,851	6,133	7,646	6,145	5,590	4,861	5,151
La	ppm	24	27	30	40	43	12	24	14
Mg	ppm	4,102	1,052	3,936	4,240	4,896	612	1,045	3,273
Mn	ppm	127	46	157	85	180	26	31	66
Mo	ppm	33	95	86	12	<1	<1	<1	<1
Na	ppm	2,722	2,494	2,433	2,508	3,084	3,499	3,777	3,913
Ni	ppm	98	79	95	101	77	5	6	17
P	ppm	356	179	250	470	133	130	125	212
Pb	ppm	6	29	18	15	19	2	2	<1
Sb	ppm	<1	<1	<1	<1	<1	<1	<1	<1
Sc	ppm	2	1	2	2	1	<1	<1	<1
Sr	ppm	12	102	34	4	24	54	105	106
Ti	ppm	740	124	763	659	1,135	59	114	333
Tl	ppm	<1	<1	<1	<1	<1	<1	<1	<1
V	ppm	25	8	24	25	30	2	4	10
W	ppm	<1	<1	<1	2	2	<1	<1	<1
Zn	ppm	69	37	55	90	118	25	22	45
Zr	ppm	8	8	7	7	8	<1	<1	<1

The ICP analysis indicates that copper, aluminum, iron, potassium, magnesium and sodium are the most abundant elements in the samples. Mercury was not detected in the samples and low concentrations of arsenic were detected in the VD14-02 (1801.9 - 1805.3) and VD-14-02 (1266.6-1270.6) samples.

13.3.3 Pregnant Leach Solution Impurities and Deleterious Elements

Historical records identified anomalous concentrations of calcium, aluminum, magnesium, and iron. No deleterious elements in the PLS were identified during the laboratory testing at SGS. At this stage there are no concerns of deleterious elements in Van Dyke PLS that may negatively impact the performance of the SX plant and therefore the recovery of copper.

13.3.4 Representativeness of Samples and Testing

The location of the 2014 drilling and sampling, as well as the location of the historical pilot test site are all contained within the boundaries of the project area. Figure 14-1 illustrates the location of the 2014

DHs used in the metallurgical sampling. Of the eight metallurgical samples, only PRT#3 is within the mixed zone. This has been included in order to determine the potential for recovery of the less oxidized portion of the deposit.

Sample used for laboratory testing at SGS are generally representative of the Van Dyke deposit spatially. Samples covered a wide range of head grades.

13.4 Conclusions and Recommendations

The predominant acid soluble copper minerals within the Van Dyke deposit are Chrysocolla, Malachite, and Azurite. There is also the minor presence of chalcocite. Its solubility in sulfuric acid under adequate oxidant conditions is common in industrial operations but has not been assessed at this stage.

Metallurgical test work shows that the Van Dyke deposit is suitable for ISL extraction of ASCu. For this PEA level study, it is reasonable to assume an overall ASCu recovery of 68% for a Van Dyke ISL. The overall recovery incorporates an allowance for the efficiency of injected solution reaching targeted mineralization (sweep efficiency), and recovery of copper from the PLS in an SX-EW process. This recovery is at the low end of recoveries achieved in the simulated ISL tests and is considered conservative.

Based on historical results from the pilot operation at the Van Dyke site, at this preliminary economic assessment level the net sulfuric acid consumption will be assumed at 1.5 kilograms of acid per kilogram of copper.

It is strongly recommended that the next study phase of Van Dyke Project incorporate an onsite modern pilot ISL operation to support the metallurgical parameters. The pilot ISL programs should include at least the following:

- Detailed monitoring of injected and PLS solutions including: flow rate, concentrations of copper, acid, iron, calcium, and base metals.
- Complete geochemistry on the core samples obtained from drilling the well holes.

Historical pilot ISL testing has been carried on the northwest end of the property in the vicinity of VD14-01. A future pilot test should be located in an undisturbed area of the deposit.

After completion of the pilot ISL additional holes should be drilled inside and around the five test wells to confirm the extraction of copper and other metals by assaying them by total copper, soluble copper, and complete ICP. The assessment should include physical inspection of the condition of the veins, barren rock, and assessment of any possible chemical fracturing.

14 MINERAL RESOURCE ESTIMATES

The Mineral Resource estimate for the Van Dyke deposit is prepared by Susan Bird, P.Eng of Moose Mountain Technical Services (MMTS). The resource model is built using MineSight®, an industry standard in geologic modeling and mine planning software. The three dimensional block model has block dimensions 30mx30mx10m and is rotated 25 degrees to the north-east to cover the extent of the mineralized zone and have an orientation consistent with the general strike of the deposit. The block size has been chosen to conform to the expected mining method of In-Situ Leach (ISL).

Total copper (TCu), and acid soluble copper oxide, (ASCu), grades are interpolated within geologic solids by ordinary kriging (OK). The geology has been interpreted in section and plan, with fault surfaces and solids of the zones used to restrict the interpolation volumes during ordinary kriging. The resource is classified as Inferred according to the CIM Definition Standards (CIM, 2014).

14.1 Introduction

The Van Dyke deposit is a copper oxide deposit that includes both an Oxide and Mixed zone. The term Mixed in the context of this Item of the report is defined as a zone surrounding the Oxides and that contains both oxide and sulfide Cu bearing minerals in a ratio of less than 50% oxides: sulfides. Chalcocite is the primary sulfide in the mixed zone.

Six new holes have been drilled in 2014, five of which are twin holes and one within the area of previous underground and in-situ leach (ISL) mining. The purpose of the 2014 drilling is to validate the historic assays and to provide specific gravity measurements and metallurgical samples. In addition, re-assaying of historic pulps was done in 2014 as further validation of the historic grade values.

A three dimensional geologic model has been created using both the historic dhs and underground samples. The geologic model includes interpretation of the Gila Conglomerate-Pinal Schist boundary, five major faults, and the oxide and mixed zones. A block model of the deposit has been created using the geologic boundaries to create domains and zones to constrain the interpolation of total copper (TCu) and acid soluble copper (ASCu) by domain and zone. Two zones per block are included with the percent of the block within each zone used to define the resource.

Statistical analysis (cumulative probability plots, histograms, and classic statistical values) of the assay data is used to confirm the domain selection and to determine if capping of metal grades for variography and interpolation is necessary. Assay data is then composited into 5m intervals, honoring the domain and zone boundaries. Composite statistics have been compiled for comparison with assay data. The composites are used to create correlograms for TCu, and ASCu grades using the MSDA module of the MineSight® software, thus establishing rotation and search parameters for the block model interpolation, as well as kriging parameters.

Validation of the model is completed by comparison of the block values with de-clustered composite values (Nearest Neighbor values corrected for change of support). A volume-variance correction factor is applied to the de-clustered data to calibrate the model using Grade-Tonnage curves. Further model validation is completed through comparisons of Swath Plots, Cumulative Probability Plots (CPP), as well by a visual inspection of assay and modelled values in section and plan across the mineralization.

14.2 Data Set

14.2.1 Historic Drilling, Underground Sampling and 2014 Drilling

The following outlines the data available for use in the interpolation of copper grades. Assay data within the Van Dyke model bounds includes 35 historic drillholes, historic channel samples from underground workings on three level, re-assayed historic drill core and core pulps, analytical results from recent metallurgical test work, and data from 6 drillholes completed in 2014. Five of the 2014 holes were twinned holes used to validate historic assay values. The total length of core sampled for TCu is 11,220m from drilling, with an additional 1,424m of underground sampling.

Figure 14-1 is a plan view of the drillhole collars (red are 2014 drillholes), the underground sampling area and the model boundary (in blue).

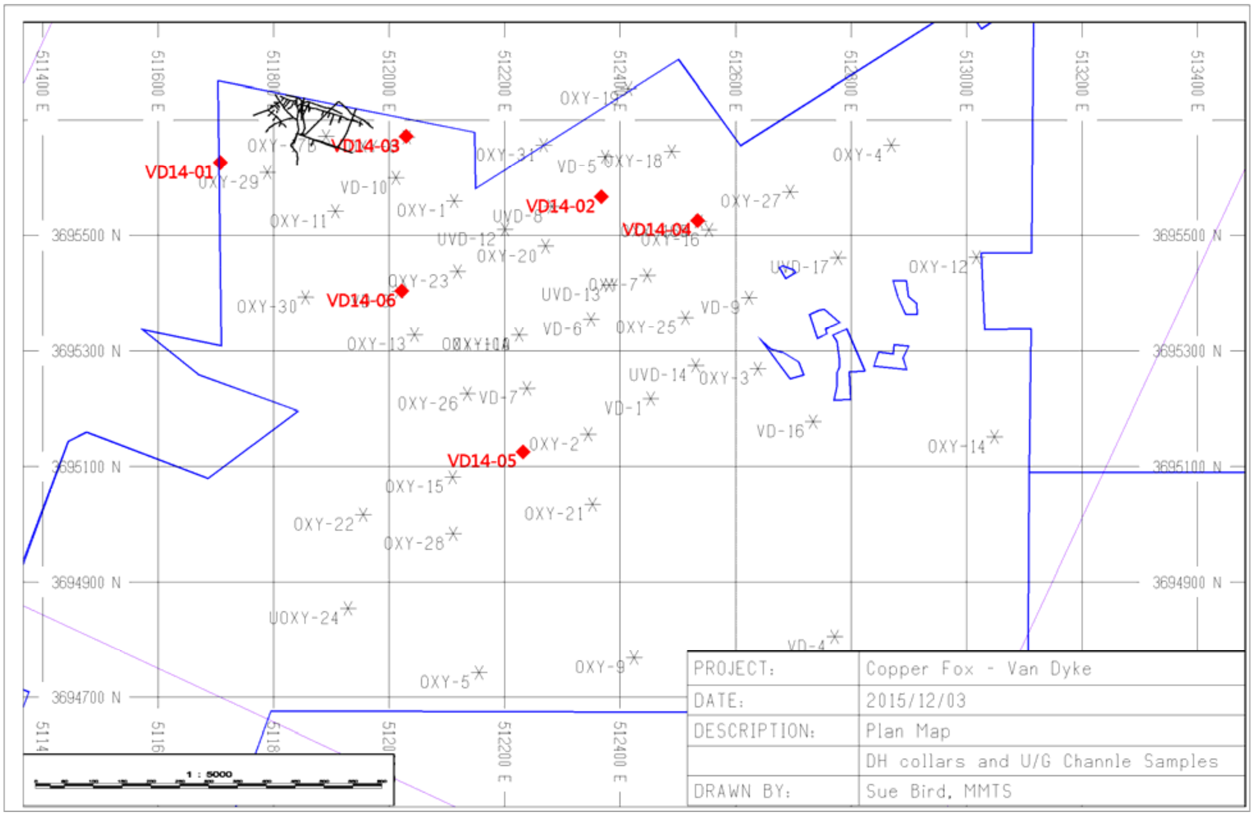


Figure 14-1 Historic DHs (black), 2014 DHs (red), Channel Samples (black) and Patent Boundary (blue)

14.3 Twinned Hole Analysis

Twinned assay values were compared from five new and five historic holes. These drillholes are identified in Table 14-1 below. Analysis shows that the historic data generally shows lower grades than the 2014 assay data, indicating use of the historic grades may be conservative. Exceptions to this are the lower portions of two historic holes, OXY-6 and UVD-11, which are to be removed from the resource estimates going forwards for reasons given in this section.

Table 14-1 Twin Holes for Comparison

Twin	Historic
VD14-02	OXY-6
VD14-03	OXY-8
VD14-04	OXY-16B
VD14-05	UVD-11
VD14-06	VD-3

The compared grades are composited on 10m intervals. Each hole was analyzed by downhole depth for grade ratios (TCu_{new}/TCu_{old}), the difference in ASCu ratio [$(ASCu/TCu)_{new}-(ASCu/TCu)_{old}$, and the difference in ASCu grade ($ASCu_{new}-ASCu_{old}$).

Figure 14-2 shows the downhole grade comparisons for VD14-03 with the historic OXY-8, indicating the typically higher grades for the new DH assay data for both TCu and ASCu. It is apparent that the ratios of new to old grades generally indicate a ratio above 1 showing the historic grades to be conservative.

The exception to the generally higher grades for the current drilling is found at the bottom of the twin drillholes VD14-02 (OXY-6) and VD14-05 (UVD-11). Figure 14-3 illustrates the VD14-05 and UVD-11 twinned holes, and indicates that the current drilling has lower TCu, ASCu and ASCu/TCu. Although this isolated grade discrepancy may be due to geologic changes between the holes (i.e. fault structures), it is considered prudent to remove these two historic holes (OXY-6 and UVD-11) for the resource estimates going forward.

Additional drilling will be required to further determine anomalies between the historic and current data.

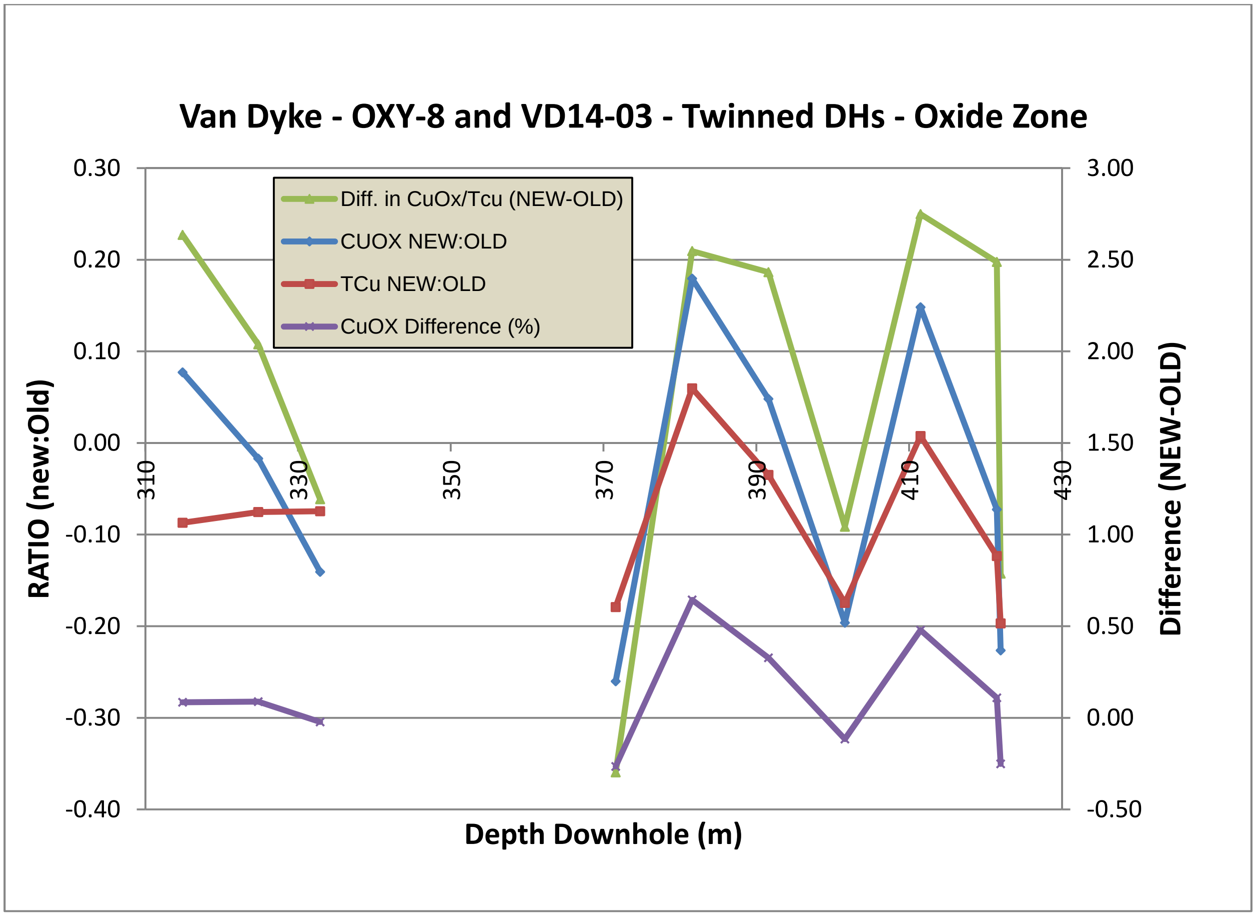


Figure 14-2 Downhole Comparison of VD14-03 and Twin OXY-8

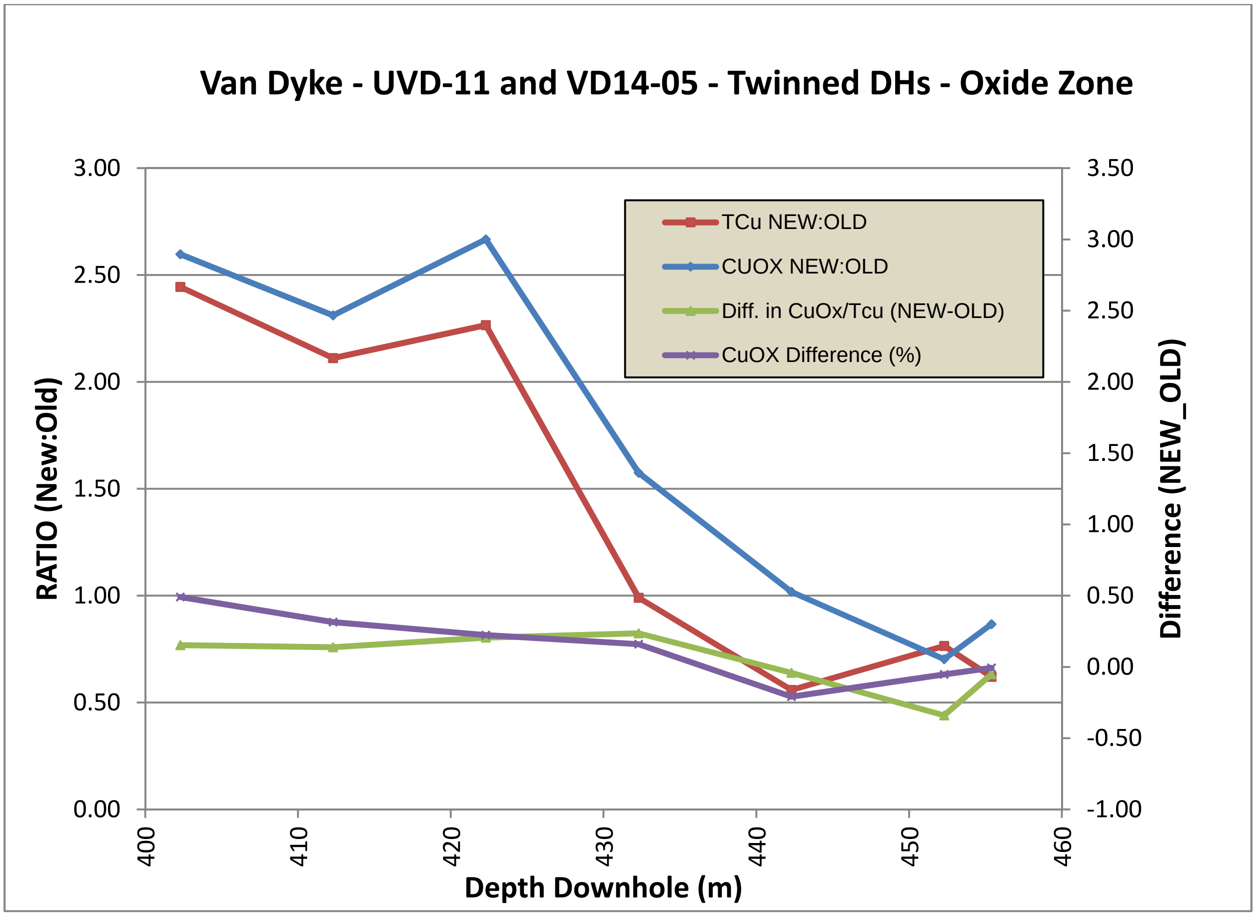


Figure 14-3 Downhole Comparison of VD14-05 and Twin UVD-11

14.4 Geologic Model

The oxide copper mineralization and surrounding mixed oxide-sulphide copper mineralization has been interpreted on 15 sections that are oriented perpendicular to the strike of the deposit (N25E).

Four major faults within and adjacent to the deposit are also modeled. The Miami East, Porphyry, and Azurite faults slightly offset the oxidized mineralization and tend to concentrate the copper oxide grades. The Van Dyke fault has been modelled to constrain the mineralization to the north. Mineralization remains open to the west and southwest.

The Gila conglomerate surface defines the upper boundary to the mineralization, as all mineralization is within the Pinal Schist or minor porphyritic intrusions. Comparison of grades within these two rock types did not indicate discrete differences. Therefore, the geologic model is defined by Domains based on the faults and on Zones based on the oxide and Mixed zone interpretations. An additional Domain has been created within the area of the previous underground workings, as higher grade oxide/mixed zone.

Solids of oxide and of mixed oxide-sulphide copper mineralization were created and used to code the assays, composites and the three-dimensional block model. Surfaces of the faults have been used to create domain boundaries and also used to code the assays, composites and block model. The block model has been created to encompass all of the drillholes and channel samples available, within 30mx30mx10m blocks.

Wireframes for both the oxide and mixed oxide-sulphide copper mineralization are based on a 0.05% TCu cut-off. Oxide copper mineralization is defined by the ratio ASCu/TCu > 50%, and mixed oxide-sulphide copper mineralization is defined by TCu > 0.05% with a ratio of ASCu/TCu of < 50%.

A three dimension view of the resulting fault surfaces and oxide solids is illustrated in Figure 14-4. A section illustrating the assignment of Domains is shown in Figure 14-5, with domains defined as follows:

- Domain 1 – west of the Miami East Fault
- Domain 2 – between Miami East and Porphyry Faults
- Domain 3 – between Porphyry and Azurite Faults
- Domain 4 – East of the Azurite Fault
- Domain 5 – high grade zone within Domain 2 defined by drilling and underground channel samples
- Domain 6 – un-mineralized rock above the Gila Conglomerate/Pinal Schist boundary and / or north of the Van Dyke Fault

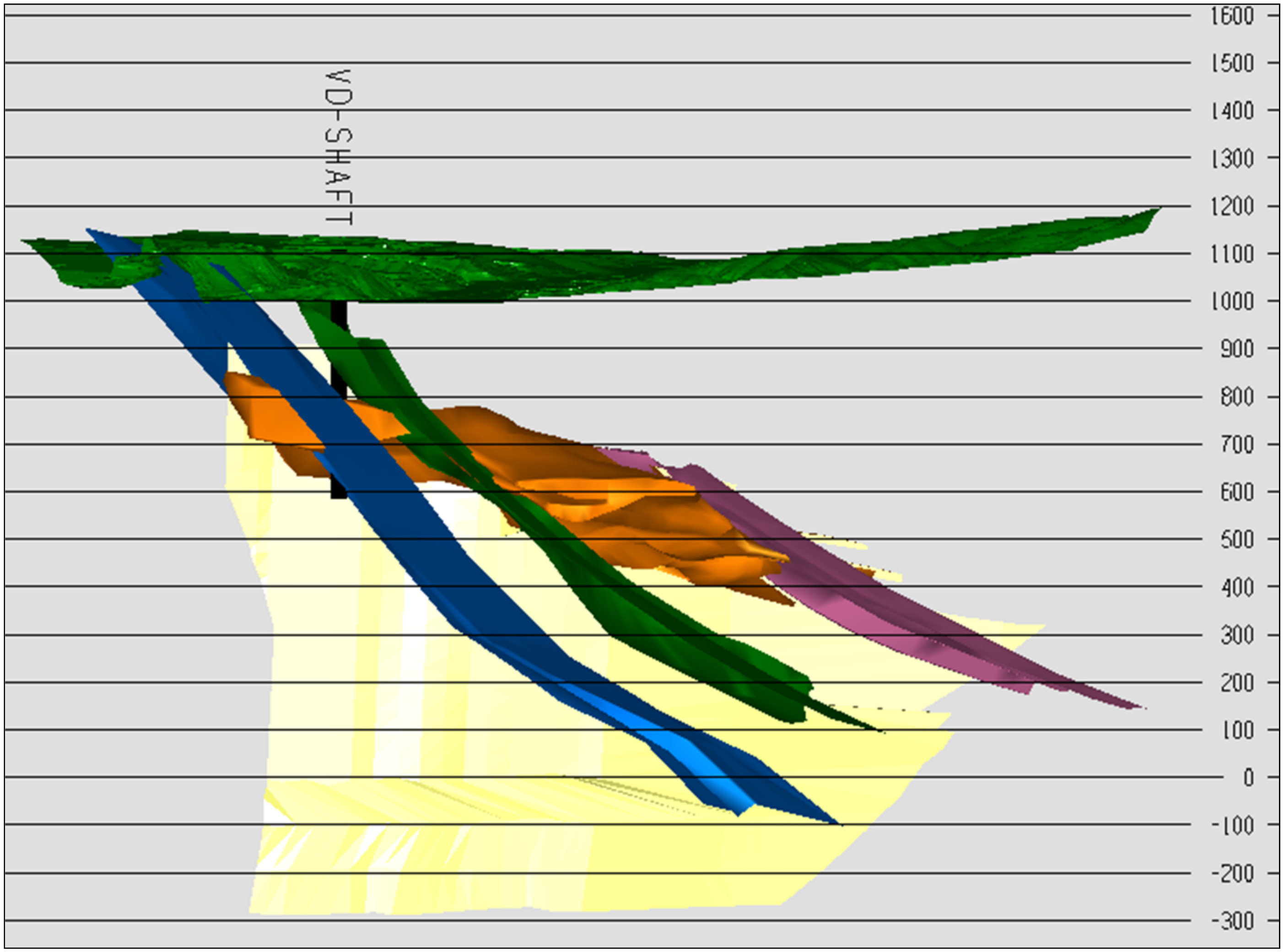


Figure 14-4 **3D View of Geology Looking N 35E, Dip-5 - Topography, Major Faults Surfaces and Oxide Zone (orange)**
Major Faults as follows: Blue: Miami East, Green: Porphyry, Pink: Azurite, Yellow: Van Dyke

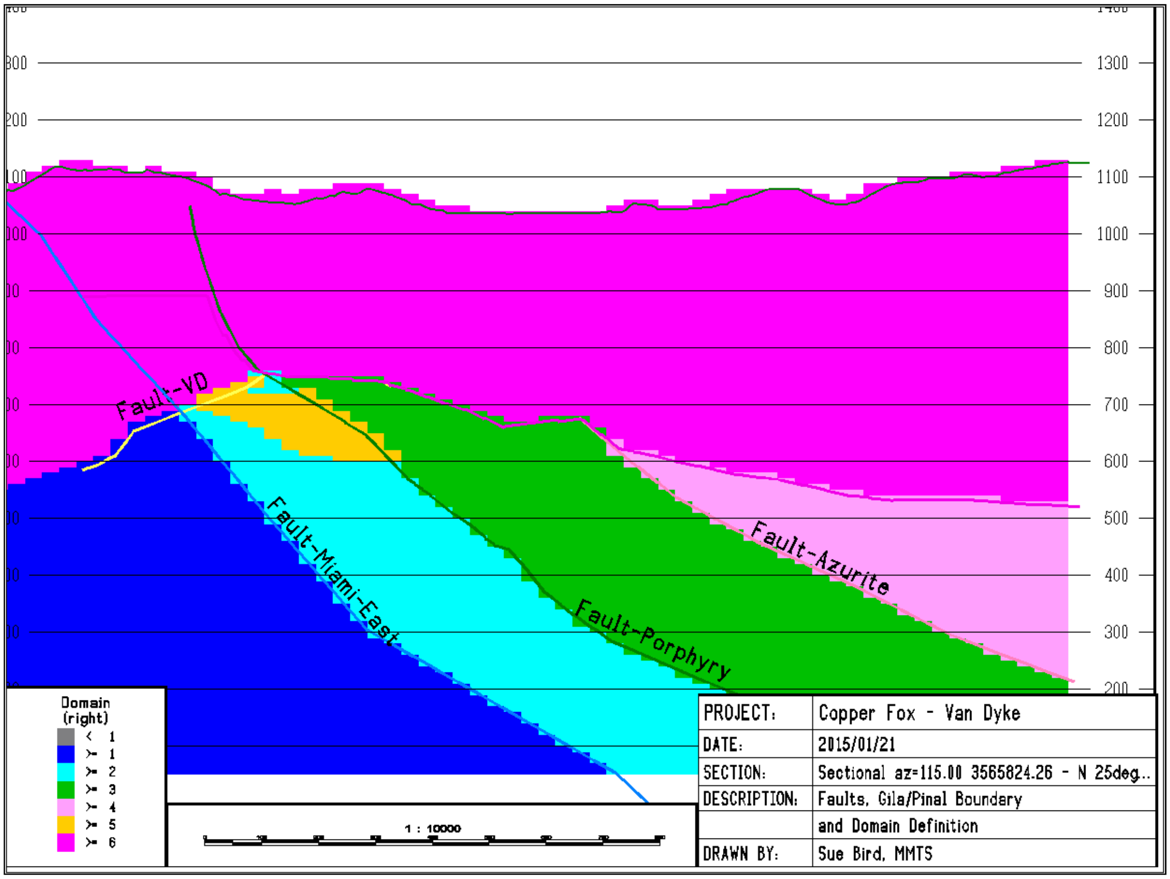


Figure 14-5 Cross Section looking N25E - Domains

14.5 Exploratory Data Analysis – Assay Data

14.5.1 Assay Coding

The assay data has been tagged by domain and zone for use in determining capping values, for compositing and eventually in block matching during interpolation. The assay coding using the geologic surfaces and solids is illustrated in the cross-section (A-A’) looking N25E of Figure 14-7, and the long-section (B-B’) in Figure 14-8. A plan view of the locations of sections A-A’ and B-B’ is found in Figure 14-6 which also plots the oxide zone (in orange), the drillholes locations and model bounds (in blue) for reference.

The sections plot both the oxide the mixed boundaries, the drillholes, as well as the major faults, and Gila Conglomerate / Pinal Schist surface boundary.

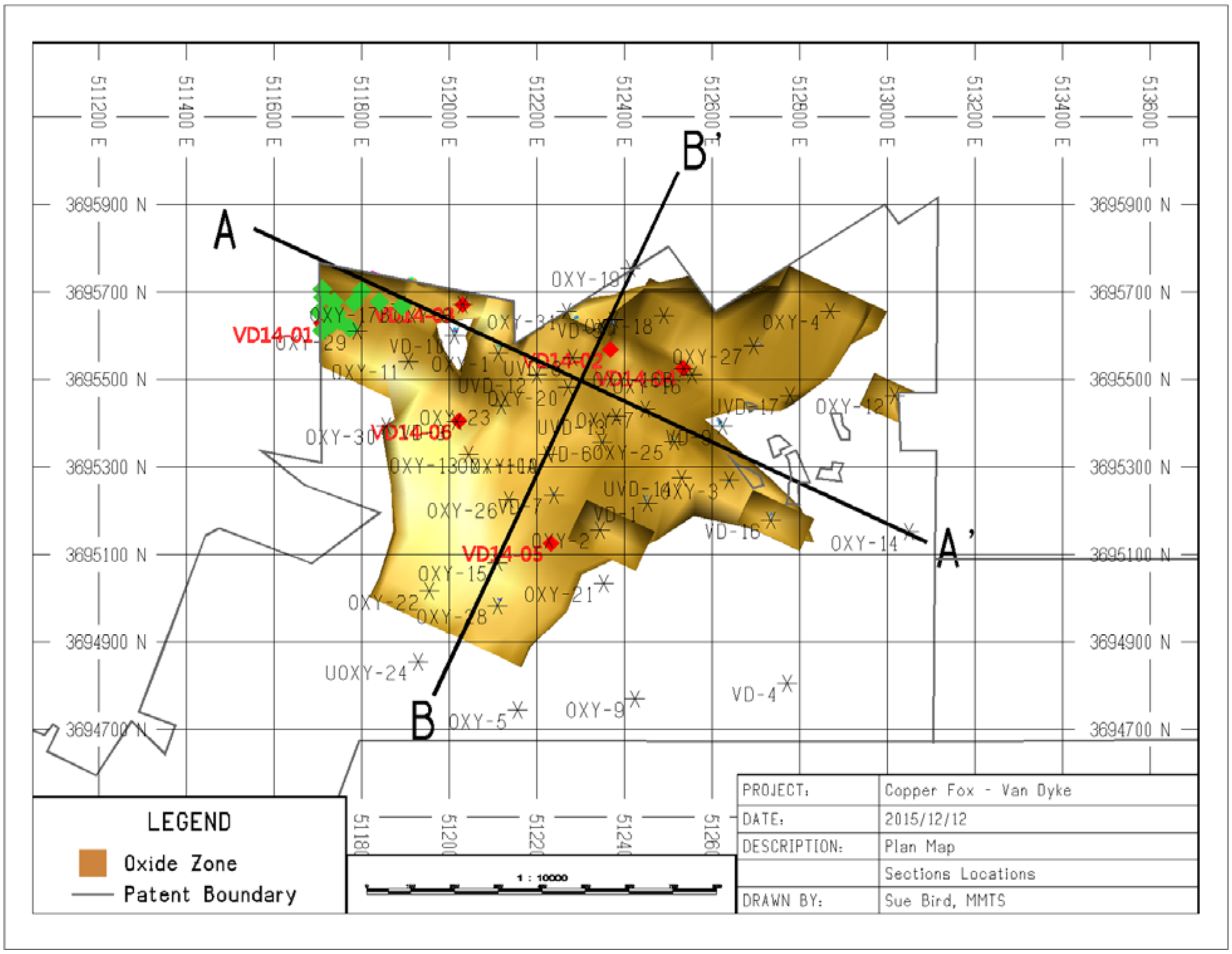


Figure 14-6 Plan Indicating Section Locations A-A’ and B-B’ relative to Oxide Zone and patent Boundary (ISL wells – green, 2014 DHs – red, historic DHs – black)

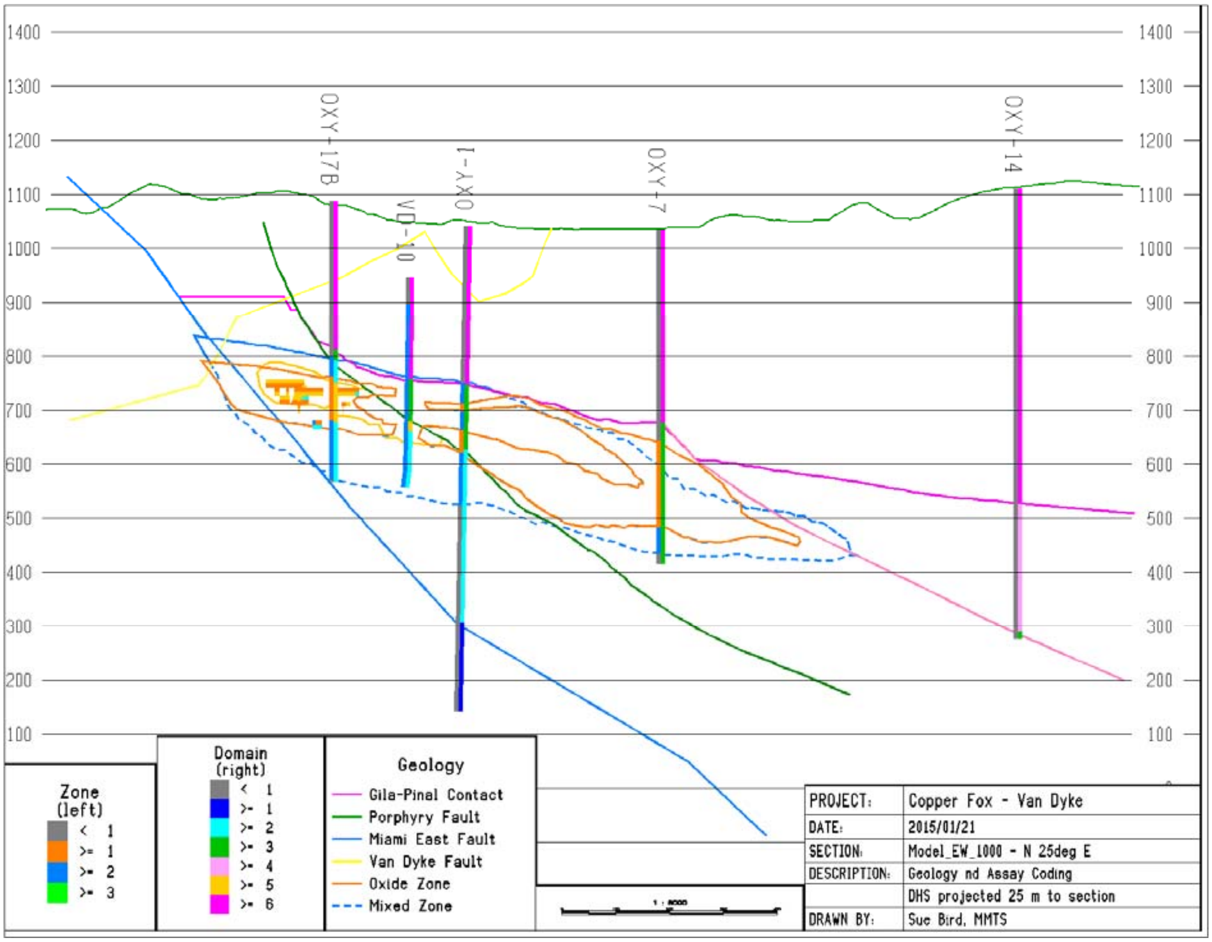


Figure 14-7 **Section A-A' – Cross Section Looking N25E – Faults, Gila/Schist Surface, Oxide and Mixed Oxide Solid Boundaries**

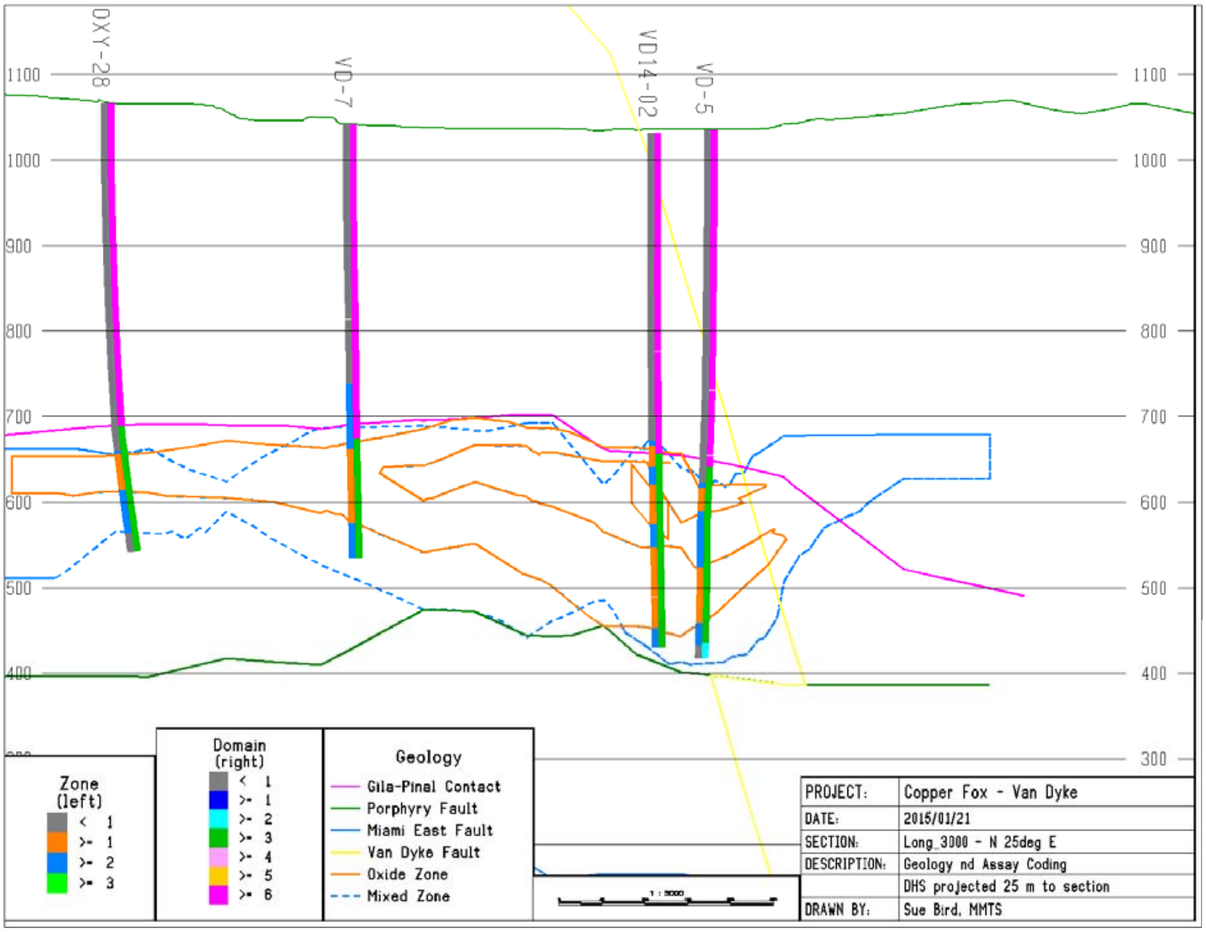


Figure 14-8 Section B-B' – Long Section Looking N65W – Faults, Gila/Schist Surface, Oxide and Mixed Oxide Solid Boundaries

14.5.2 Assay Capping and Compositing

Cumulative probability plots are used to determine that the grades are lognormally distributed and to define the capping of high grade outliers by domain and zone. The capped data is then composited for use in the interpolation. The capped values of assays and composites are compared to validate the compositing procedure used. This section summarizes the results of this analysis. Figure 14-9 through Figure 14-12 show the CPP plots for TCu and ASCu respectively, by domain and zone.

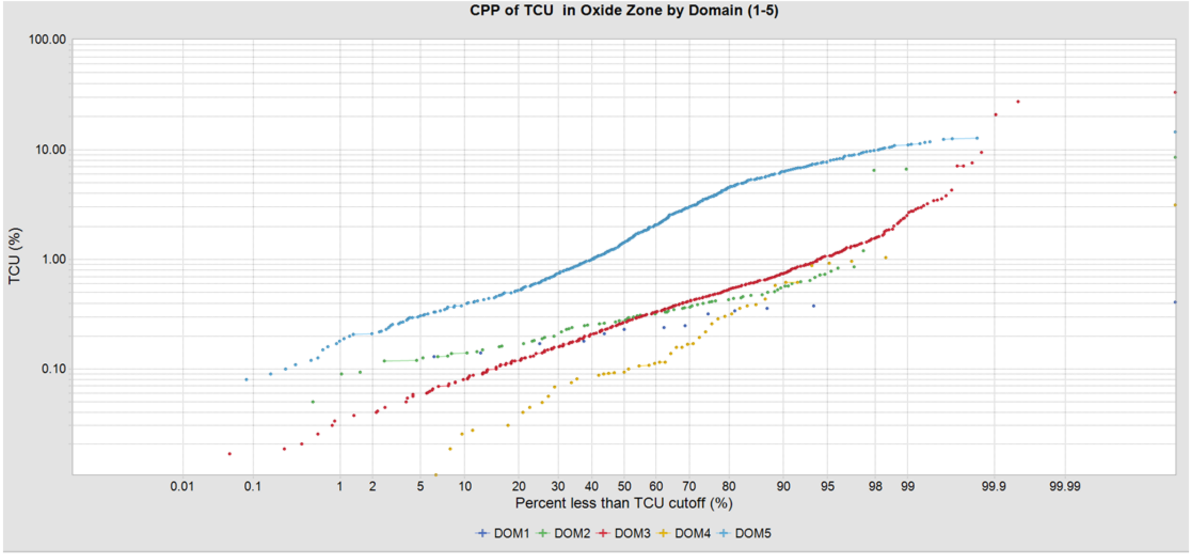


Figure 14-9 CPP Plot Assays – TCu for the Oxide Zone

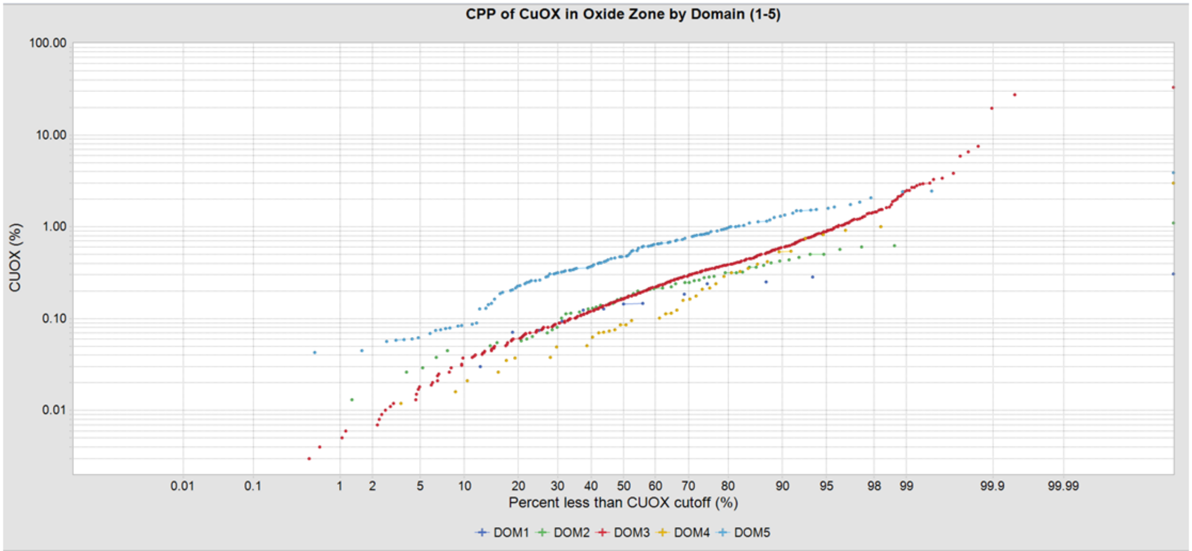


Figure 14-10 CPP Plot Assays – ASCu for the Oxide Zone

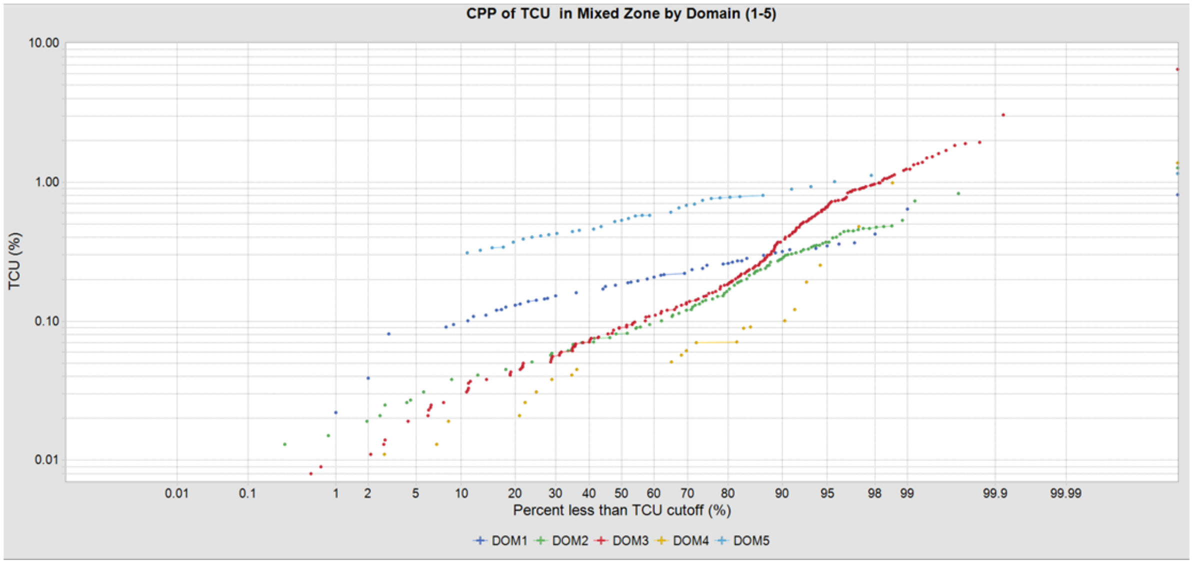


Figure 14-11 CPP Plot Assays – TCU in the Mixed Zone

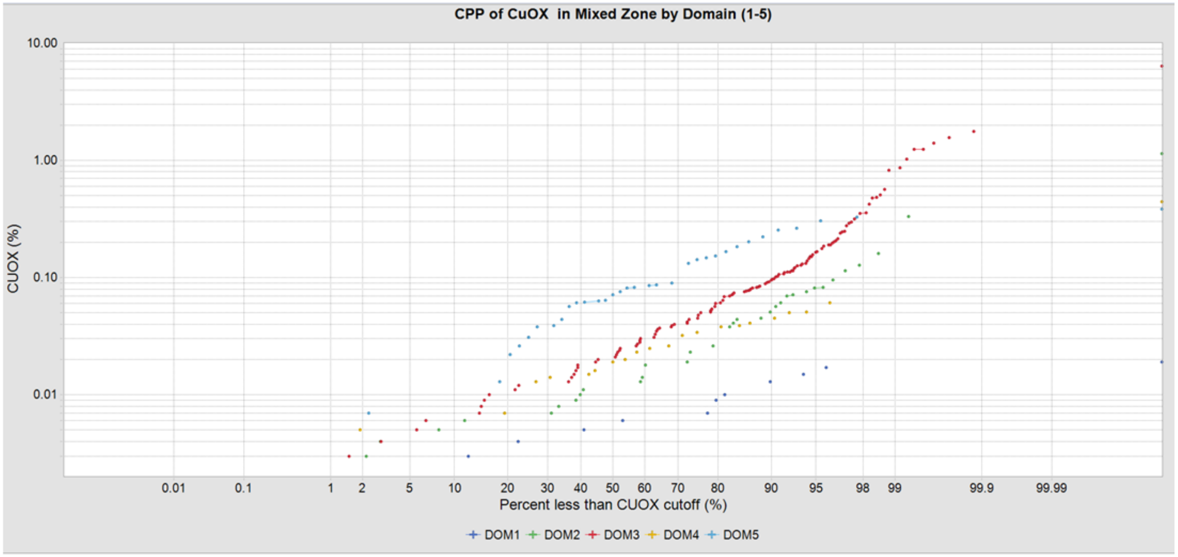


Figure 14-12 CPP Plot Assays – ASCu in the Mixed Zone

Based on the CPP plots, values at which to cap the assay grades have been defined for domains that illustrate a break in grades at the upper end of the distribution. Capping is considered necessary for TCu and ASCu values as indicated in the Table below by Zone and Domain. The capped, composited values are used for variography.

Table 14-2 Capping Values of Assays during Compositing

Zone	Domain	TCu (%)	# Values Capped	ASCu (%)	# Values Capped
Oxide	1	---	---	---	---
	2	2.5	0	2.5	0
	3	4.5	1	2.8	2
	4	1.1	1	2.5	1
	5	3.0	1	2.5	1
Mixed	1	---	---	---	---
	2	1.0	1	1.0	1
	3	3.0	1	3.0	0
	4	1.0	1	1.0	0
	5	1.0		---	---

14.5.3 Specific Gravity Data

Specific gravity measurements have been done for the 2014 drillholes. Samples are measured by Copper Fox prior to shipment, and also by Skyline using ASTM Method C127-01. The friability of the Gila Conglomerate required kerosene-based immersion in order to limit expansion of the clay component. The Gila conglomerate samples were sent to Mountain States R&D for this process.

The average specific gravity below the Gila Conglomerate (within the Pinal Schist and porphyritic units) is 2.60. This is the value used for all or and waste blocks in the reporting of the resource.

14.6 Compositing and Composite Statistics

Compositing of grades has been done as 5m fixed length composites and honoring the Domain and Zone boundaries. Table 14-3 and Table 14-4 compare the assay and composites statistics for domain for the oxide and mixed zones respectively.

Table 14-3 Summary Statistics by Domain – Oxide Zone

OXIDE ZONE					
	ASCu				
ASSAYS	**DOM1**	**DOM2**	**DOM3**	**DOM4**	**DOM5**
Num Samples	16	77	1939	57	186
Min (%)	0.029	0.012	0.001	0.011	0.042
Max (%)	0.307	1.1	2.8	2.5	2.5
Weighted mean (%)	0.164	0.221	0.267	0.231	0.613
COMPOSITES	**DOM1**	**DOM2**	**DOM3**	**DOM4**	**DOM5**
Num Samples	10	37	588	25	51
Min (%)	0.029	0.039	0.002	0.015	0.061
Max (%)	0.239	1.1	2.18	0.853	1.732
Weighted mean (%)	0.164	0.218	0.262	0.229	0.599
DIFFERENCE	**DOM1**	**DOM2**	**DOM3**	**DOM4**	**DOM5**
Weighted mean	0.0%	1.4%	1.9%	0.9%	2.3%

Table 14-4 Summary Statistics by Domain – Mixed Zone

MIXED ZONE					
	TCU				
ASSAYS	**DOM1**	**DOM2**	**DOM3**	**DOM4**	**DOM5**
Num Samples	100	356	1275	72	46
Min (%)	0.021	0.012	0.006	0.01	0.31
Max (%)	0.812	1	3	1	1.159
Weighted mean (%)	0.201	0.113	0.153	0.082	0.585

COMPOSITES	DOM1	DOM2	DOM3	DOM4	DOM5
Num Samples	40	152	505	34	17
Min (%)	0.087	0.024	0.006	0.01	0.377
Max (%)	0.457	0.578	1.494	0.986	0.874
Weighted mean (%)	0.202	0.111	0.149	0.077	0.588

DIFFERENCE	DOM1	DOM2	DOM3	DOM4	DOM5
Weighted mean	-0.5%	1.8%	2.6%	6.1%	-0.5%

14.7 Variography

Correlograms have been created within the oxide and mixed zone at 30 degree azimuth intervals and 15 degree plunges over the entire directional sphere. Due to lack of data in Domains 1 and 4, only domains 2 and 3 are used to define the variogram parameters for domains 1 through 4. The major and minor axes for all domains followed the generally south-easterly down dip and north-easterly strike directions of the mineralization.

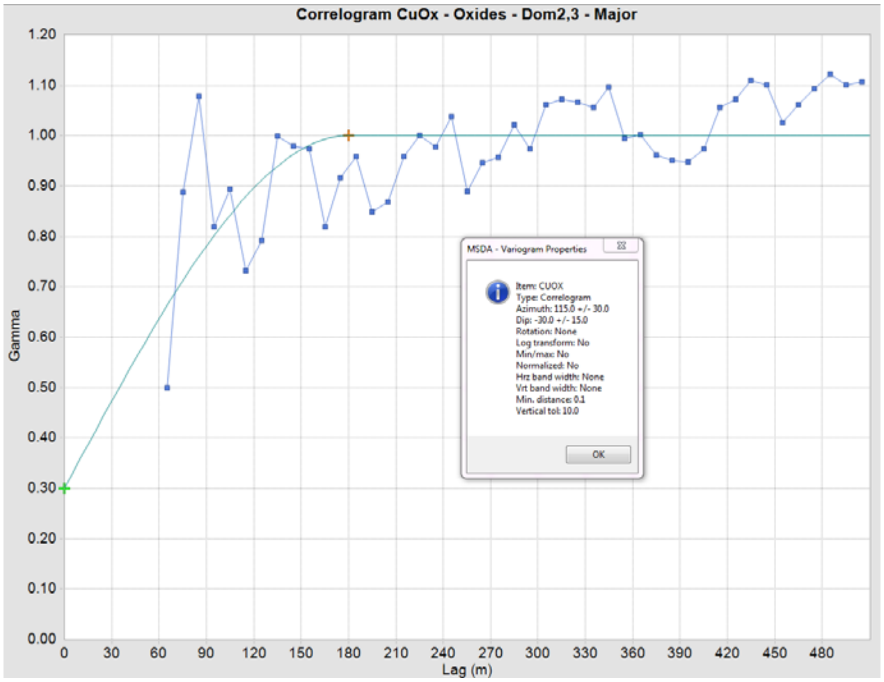
Downhole variograms of all DH data are used to define the nugget in each domain and zone.

The resulting variogram parameters are given in Table 14-5 for TCu and ASCu respectively. Note that the Rotation is given as ROT=Rotation of the azimuth from north of the major axis, DIPN=Plunge of the major axis in the ROT direction, DIPE=Plunge of the minor axis as an east axis (down is negative).

Table 14-5 Variogram Parameters

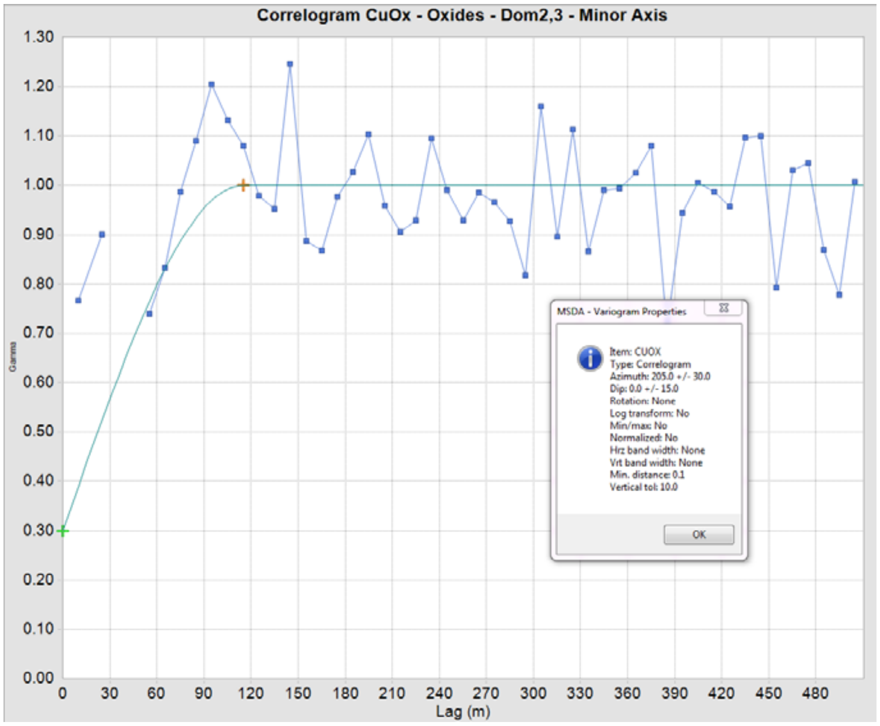
Zone	Element	Nugget	Axes Rotation (degrees)	Sill1	Range1 (m)			Sill2	Range2 (m)		
					Major	Minor	Vertical		Major	Minor	Vertical
Oxide	ASCu	0.3	115/-20/0	0.7	160	115	60	0	---	---	---
	TCu	0.3	115/-25/0	0.7	135	120	30	0	---	---	---
Mixed	ASCu	0.3	115/-10/-10	0.7	150	150	20	0	---	---	---
	TCu	0.3	115/-25/0	0.7	140	140	30	0	---	---	---
Dom5	both	0.3	115/-20/-20	0.6	65	45	10	0.1	205	100	20

The major and minor axes of the variogram model for ASCu in the Oxide Zone (represented with Domains 2 and 3) are illustrated in Figure 14-13 and Figure 14-14 below.



Item: CUOX
Type: Correlogram
Azimuth: 115.0 +/- 30.0
Dip: -30.0 +/- 15.0
Rotation: None
Log transform: No
Min/max: No
Normalized: No
Hrz band width: None
Vrt band width: None
Min. distance: 0.1
Vertical tol: 10.0

Figure 14-13 Variogram Model for ASCu Oxide Zone Major Axis



Item: CUOX
Type: Correlogram
Azimuth: 205.0 +/- 30.0
Dip: 0.0 +/- 15.0
Rotation: None
Log transform: No
Min/max: No
Normalized: No
Hrz band width: None
Vrt band width: None
Min. distance: 0.1
Vertical tol: 10.0

Figure 14-14 Variogram Model for ASCu Oxide Zone Minor Axis

14.8 Block Model Interpolation

The coordinate system used for all Van Dyke project files is NAD27. The block model limits and block size are as given in Table 14-6.

Table 14-6 Block Model Limits

Direction	Origin	Length (m)	Block Dimension (m)	# of Blocks
Easting	511020	1980	30	66
Northing	3695020	1980	30	66
Elevation	50	1250	10	120

Interpolation of TCu, and ASCu is done by Ordinary Kriging (OK). Interpolation is restricted by the geologic boundaries, with composites and block codes required to match within each domain and zone. There are two zones per block, with a block percent of each zone. The final grades used in the resource estimate are the weighted average grades of the block grades in each zone. The Interpolation is done in four passes based on the variogram parameters. Search criteria for each pass for TCu and ASCu by domain are summarized in Table 14-7 and Table 14-8.

Table 14-7 Interpolation Search Distances by Domain

Domain	Zone	Element	Axes Rotation (degrees)	Interpolation Pass	Search Distance (m)		
					Major	Minor	Vertical
1-4	**Oxide**	**ASCu**	115/-20/0	1	40	29	15
				2	80	58	30
				3	160	115	60
				4	500	500	100
		TCu	115/-25/0	1	34	30	8
				2	68	60	15
				3	135	120	30
				4	500	500	100
	Mixed	**ASCu**	115/-10/-10	1	38	38	5
				2	75	75	10
				3	150	150	20
				4	500	500	100
		TCu	115/-25/0	1	35	35	7
				2	70	70	15
				3	140	140	30
				4	500	500	100
5		**TCu and ASCu**	115/-20/-20	1	33	22	5
				2	65	45	10
				3	103	50	10
				4	500	500	100

Table 14-8 Composite Restriction during Interpolation

Interpolation Pass	Search Composite Restrictions				
	Min # Comps	Max # Comps	Max Comps / DH	Min # DHs	Min # Quadrants
1	6	16	2	3	4
2	4	16	2	2	3
3	3	12	2	2	1
4	2	8	2	1	1

14.9 Resource Classification

Due to the preliminary nature of the Van Dyke project, the resource has been classified as Inferred. This is consistent with the CIM Definition Standards, in that:

“It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.” (CIM, 2014)

It is considered that further drilling is required to further validate the historical data. The five twinned holes drilled in 2014, indicated that current assaying methods have overall higher grades than was found historically. It is therefore expected that this trend will continue to improve the historic result as further drilling is undertaken.

14.10 Block Model Validation

Validation of the model is completed by comparison of the Ordinary Kriged (OK) grades, with Nearest Neighbor (NN) interpolated block value, which has been corrected for the Volume-Variance effect due to the change in sample size from composite to block. Validation is completed through inspection and analysis of swath plots, grade tonnage curves, mean grade comparisons, comparison of CPP plots, and a visual inspection in section and plan across the property.

14.10.1 Volume-Variance Correction

Grade-Tonnage curves have been constructed for both acid soluble copper and total copper to check the validity of the change of support in the grade estimations. The Nearest Neighbour (NN) grade estimates are first corrected by the Indirect Lognormal (ILC) method using the Block Variance, the weighted mean and Coefficient of Variation (C.V.) values of the NN model for TCu and ASCu in each of the two zones. The corrected values for TCu and ASCu in each zone have been plotted and compared to the kriged (OK) value. These plots have been used in each of the five domains, to aid in determining appropriate interpolation parameters. See Figure 14-15 and Figure 14-16 for an example in oxide and mixed layers respectively.

The comparison tables for tabulated values for the NN-Corrected model versus Ordinary Kriged block values are summarized below in Table 14-9. Results are included for the zone1 block values for ASCu in the Oxide Zone, and zone 2 block values for TCu in the Sulfide zone.

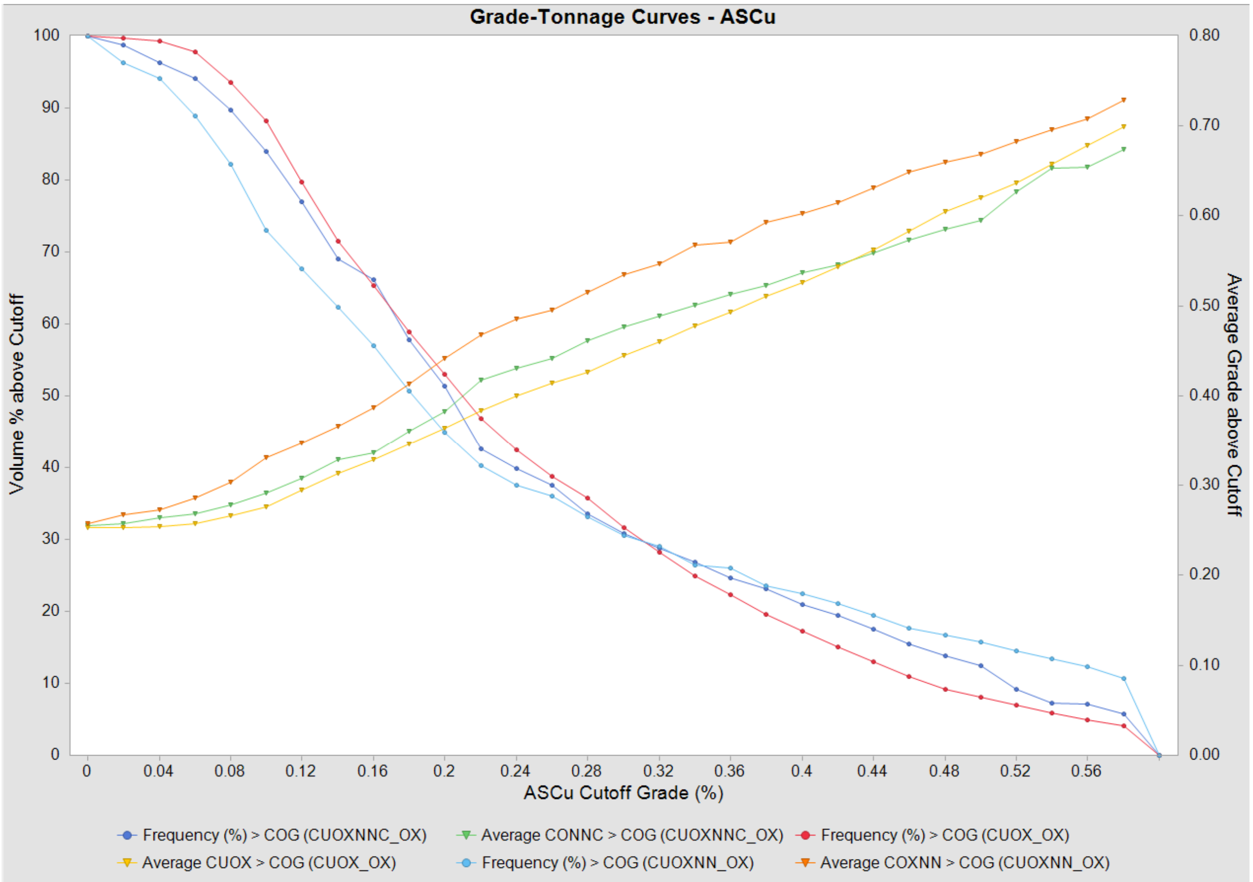


Figure 14-15 Tonnage-Grade Curves for ASCu in Leach Zone – Comparison of Interpolation Methods

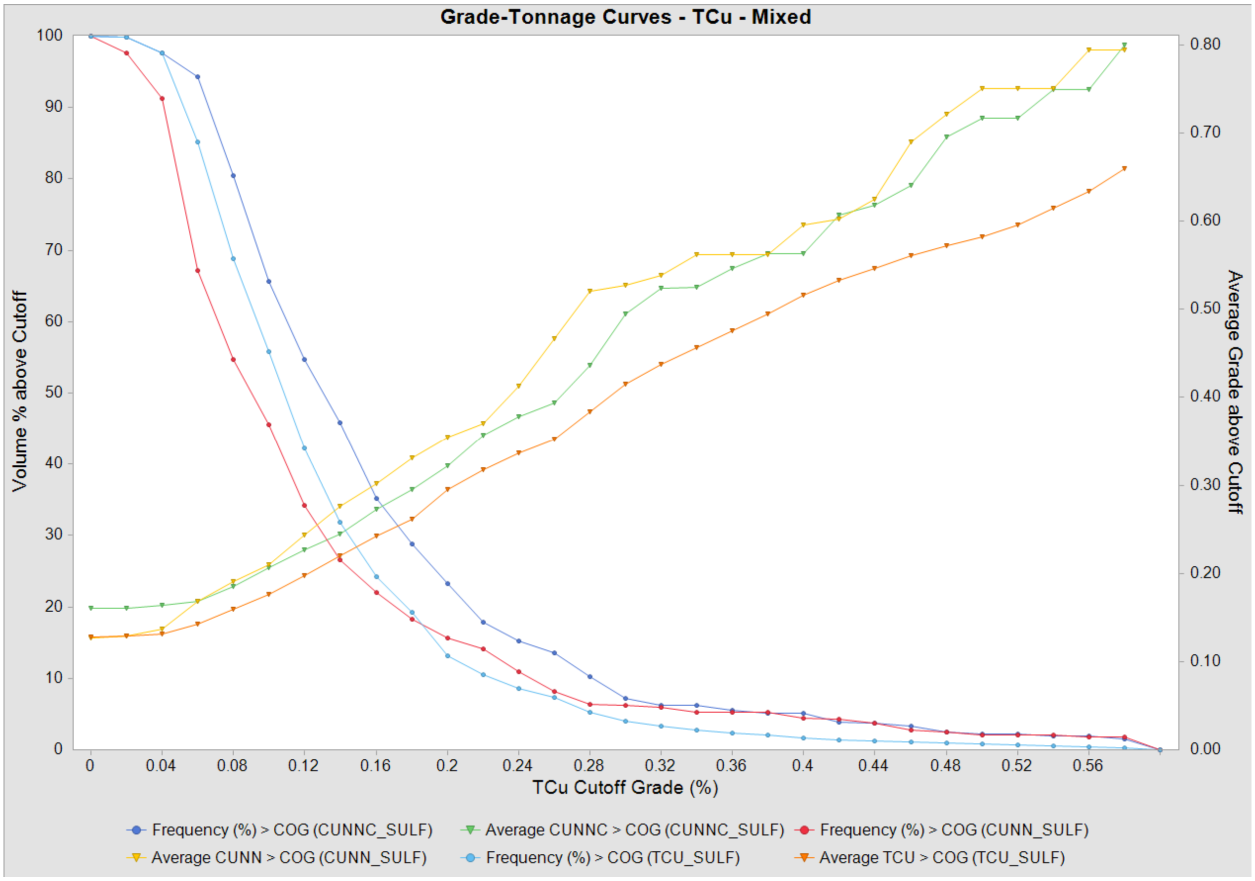


Figure 14-16 **Tonnage-Grade Curves for TCu in Mixed Zone – Comparison of Interpolation Methods**

Table 14-9 **Comparison for NNC vs OK Grades**

Method	**Parameter**	**ASCU-OK (oxide zone)**	**TCu-OK (mixed zone)**
OK	Num Samples	8914	14204
	Min (%)	0.01	0.02
	Max (%)	1.21	1.17
	Mean (%)	0.274	0.145
Method	**Parameter**	**ASCU-NNC (oxide zone)**	**TCu-NNC (mixed zone)**
NNC	Num Samples	8914	14204
	Min (%)	0.01	0.02
	Max (%)	0.97	1.12
	Mean (%)	0.278	0.152
DIFFERENCE			
Weighted mean (%)		-1.4%	-4.7%

14.10.2 Comparison of Cumulative Probability Plots

The entire distribution of interpolated block grades is compared to the Nearest Neighbour (NN) and NN-corrected distributions for TCu, and ASCu using Cumulative Probability Plots. Each comparison indicates good correlation throughout the grade range. The CPP plots for ASCu and TCu, are given in Figure 14-17 and Figure 14-18.

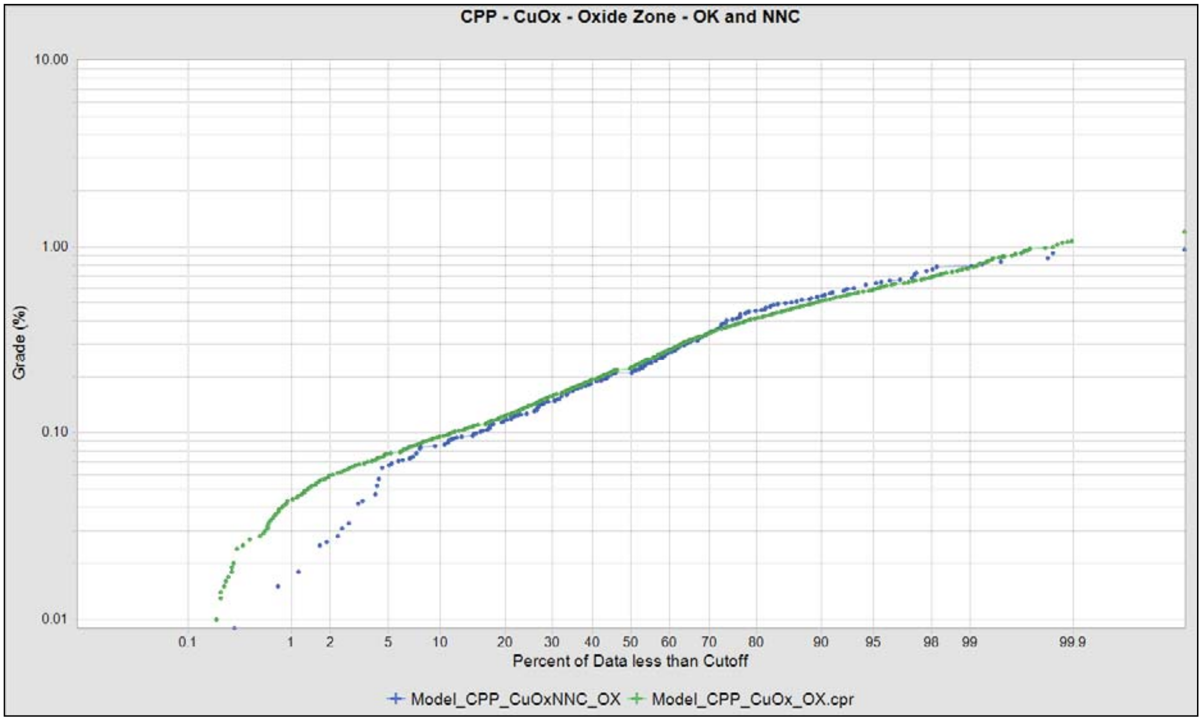


Figure 14-17 Comparison of ASCu-OK (green) with ASCu-NNC (blue) - Oxide Zone

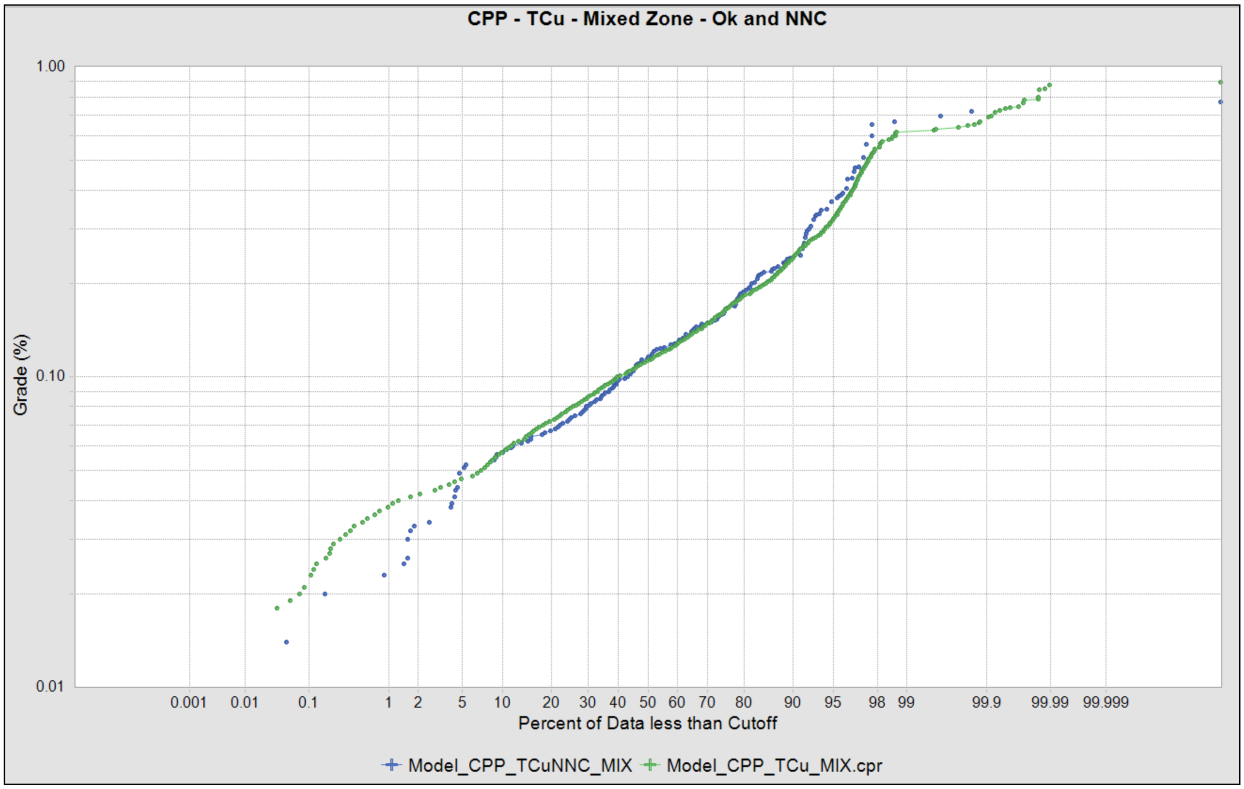


Figure 14-18 Comparison of TCu-OK (green) with TCu– NNC (blue) - Mixed Zone

14.10.3 Swath Plots

Swath plots by zone are created along strike (N25E), across strike (N115E) and in vertical directions to compare the OK grades, the Nearest Neighbour (NN), and Nearest Neighbour-correct (NNC) grades in red, green and yellow respectively in the figures below. Acid soluble copper oxide grades in the oxide zone (ASCu) are illustrated in Figure 14-19 through Figure 14-21, with total copper (TCu) in the mixed zone plotted in Figure 14-22 through Figure 14-24. The bar graph in each plot indicates the volume of blocks used for the swath plot averaging.

The swath plots indicate no global bias in the kriged values, and good correlation in the main body of the data.

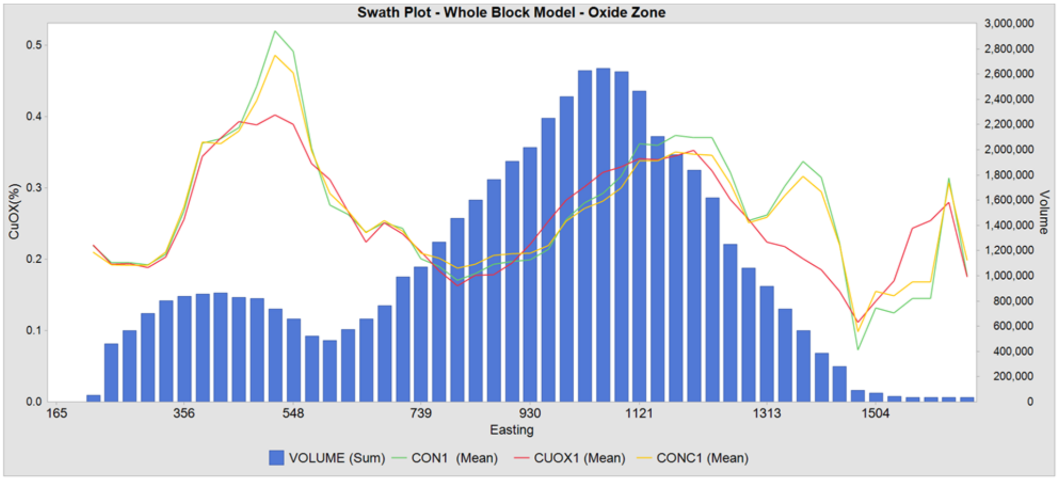


Figure 14-19 **Swath Plot by Easting of ASCu Grade in the Oxide Zone**

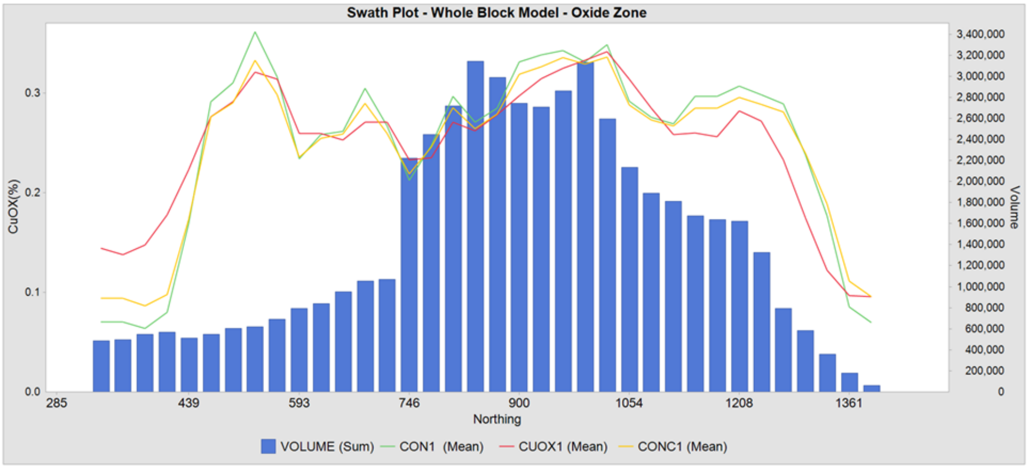


Figure 14-20 **Swath Plot by Northing of ASCu Grade in the Oxide Zone**

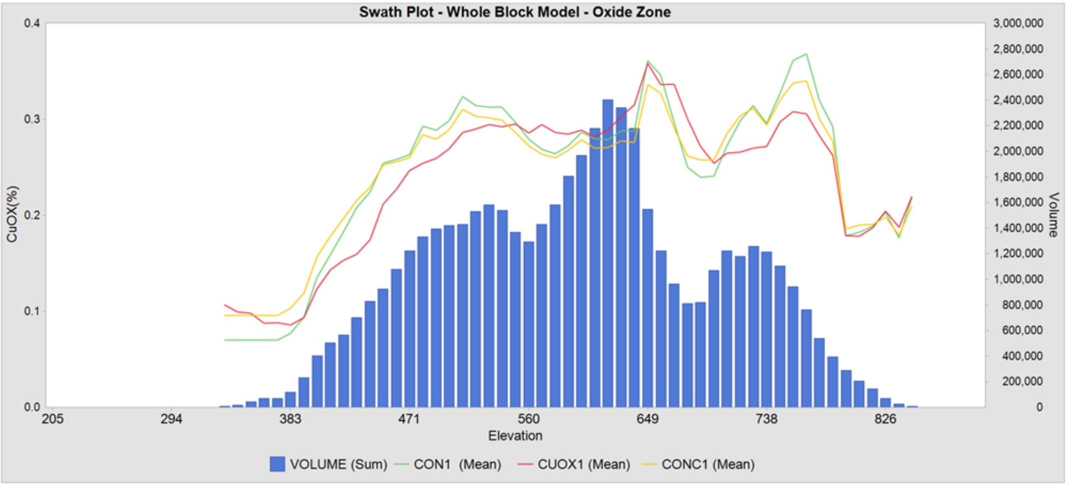


Figure 14-21 **Swath Plot by Elevation of ASCu Grade in the Oxide Zone**

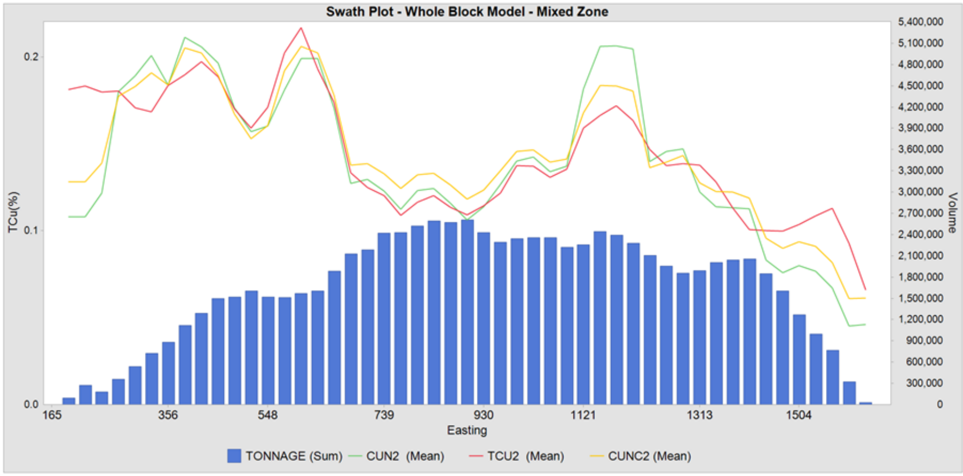


Figure 14-22 Swath Plot by Easting of TCu Grade in the Mixed Zone

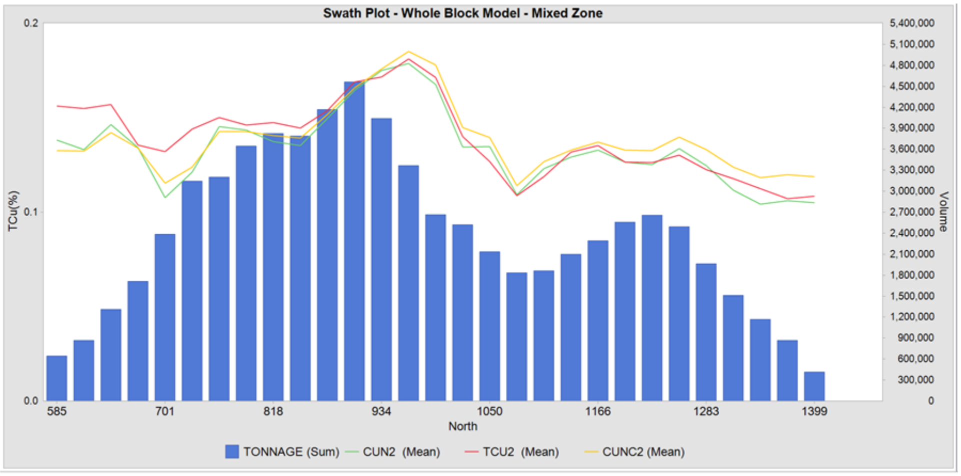


Figure 14-23 Swath Plot by Northing of TCu Grade in the Mixed Zone

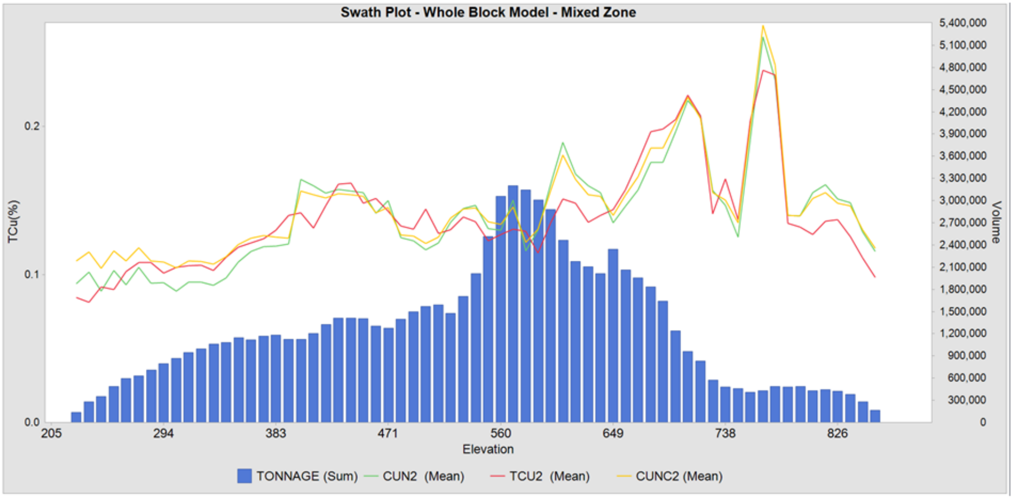


Figure 14-24 Swath Plot by Elevation of TCu Grade in the Mixed Zone

Visual Validation

A series of E-W, N-S sections (every 30m) and plans (every 10m) corresponding to the block dimensions have been inspected to ensure that the OK interpolation is representative of the original assay data throughout the model. Figure 14-25 and Figure 14-26 are cross and long sections respectively. These sections are at the same locations as illustrated in the plan of Figure 14-6. Plots throughout the model confirmed that the block model grades corresponded well with the assayed grades.

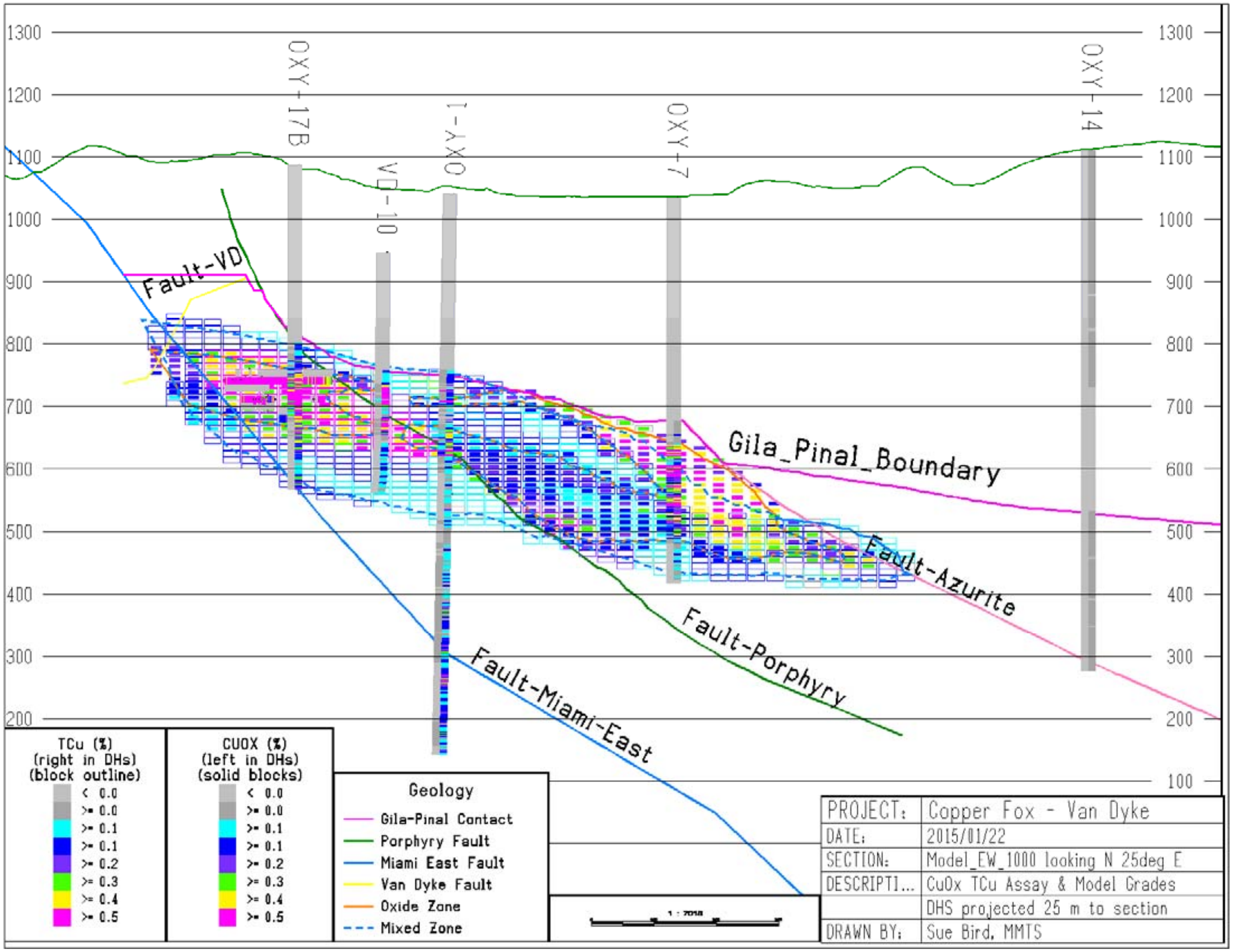


Figure 14-25 Cross Section at Model-1000 looking N25E - Model and Assay Grades

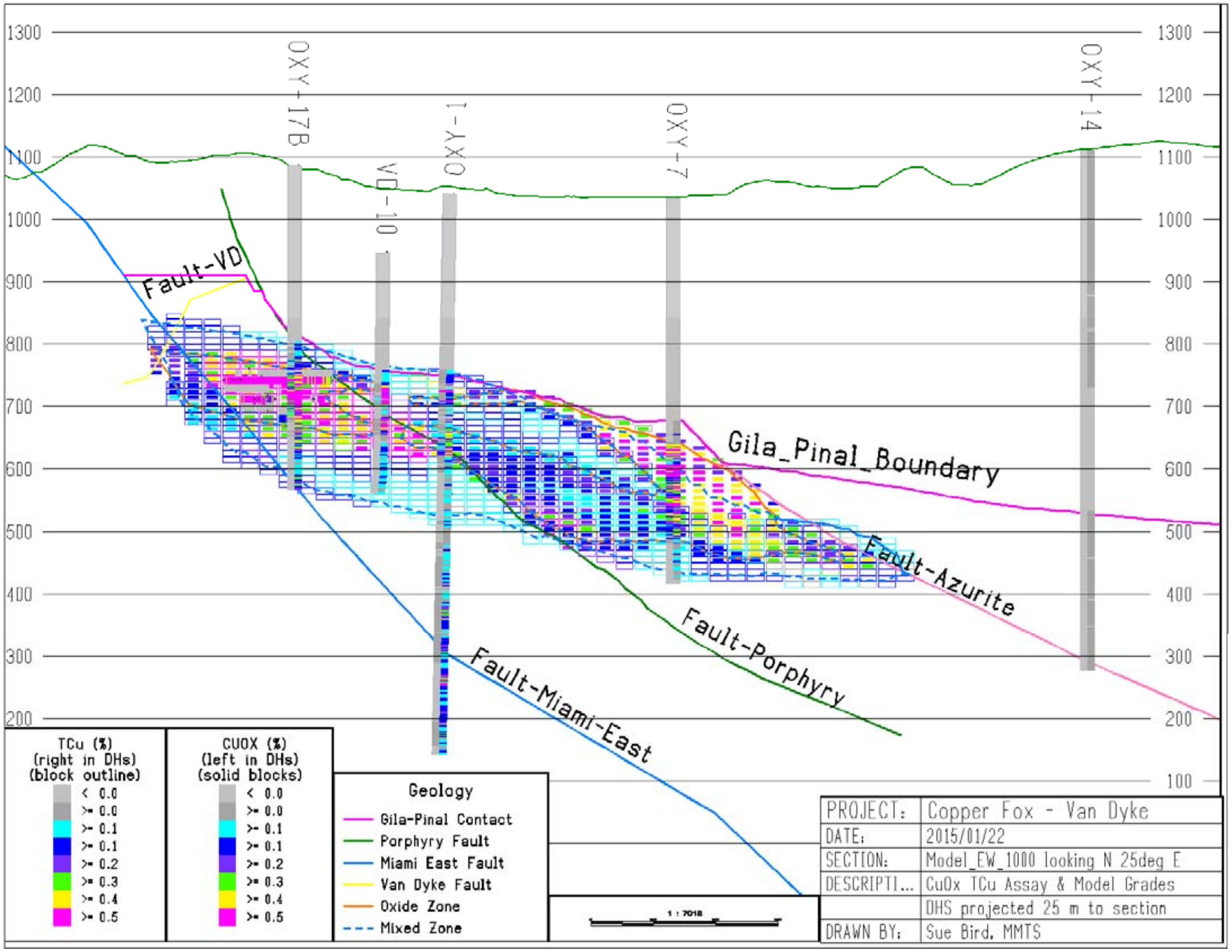


Figure 14-26 Long Section looking N65W - Model and Assay Grades

14.11 Van Dyke Resource Estimate

The updated resource estimate of the Van Dyke deposit has an effective date of November, 18, 2015.

The mineral resource is estimated uses criteria consistent with the CIM Definition Standards (2014) and in conformity with CIM “Estimation of Mineral Resources and Mineral Reserves Best Practice” (2003) guidelines. The estimated Inferred mineral resource is categorized and tabulated in Table 14-10.

In order to account for 12.7 Mlbs of Cu removed during historic mining operations, it has been assumed that all previous mining occurred in the Oxide Zone. The tonnage has been reduced by the amount required to reduce the total resource by the mined amount, with the average grades remaining constant.

The potentially economic confining shape has been created in a similar manner to creating a Lerchs-Grossman pit, but assuming vertical walls and “mining” of blocks only below the underground galleries used for well drilling. Only the acid soluble material in the model is considered to have potentially economic values for the reasonable prospect shape analysis.

Costs are estimated for wells drilled from each of the production blocks, as described in Section 16 and illustrated below. Plotted on Figure 14-27 is the access ramp, the galleries above the oxide resource used for well drilling, and model blocks within the area to be leached, numbered and coloured by production area. Each numbered area uses a different underground gallery and thus has a different drill configuration and associated cost.

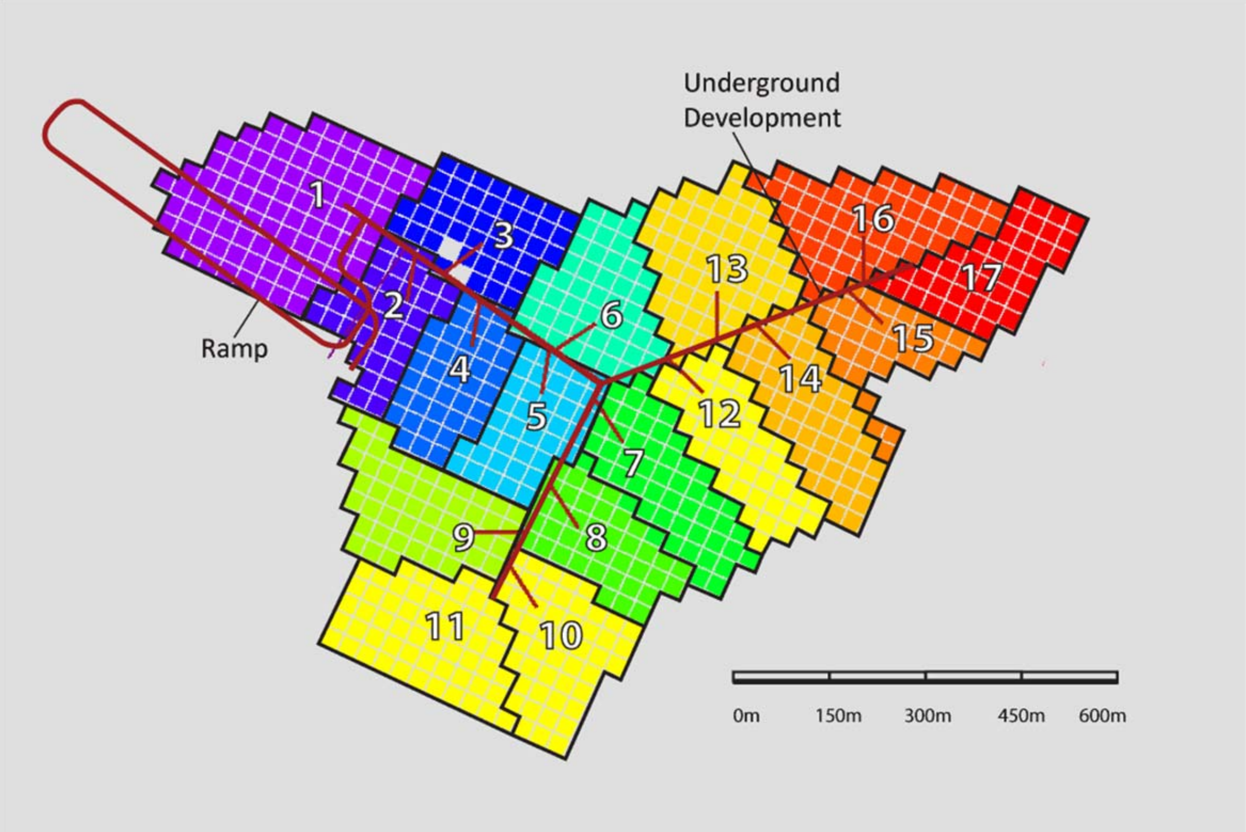


Figure 14-27 **Plan view of Underground Galleries and Production Areas for Well Drilling**

The variable drilling cost used to determine a reasonable prospect for economic extraction, is based on the average well configuration required to leach blocks at the furthest distance from the gallery, thus creating the outer bound for a potentially economic extraction shape at this stage of knowledge. The recovery used was preliminary and conservative at 50%. However, even with this conservative recovery, the majority of the modelled acid soluble material remains inside the potentially economic shape, as illustrated in Figure 14-28. Mixed material included in the Resource estimate is within the potential economic shape which targets only acid soluble material.

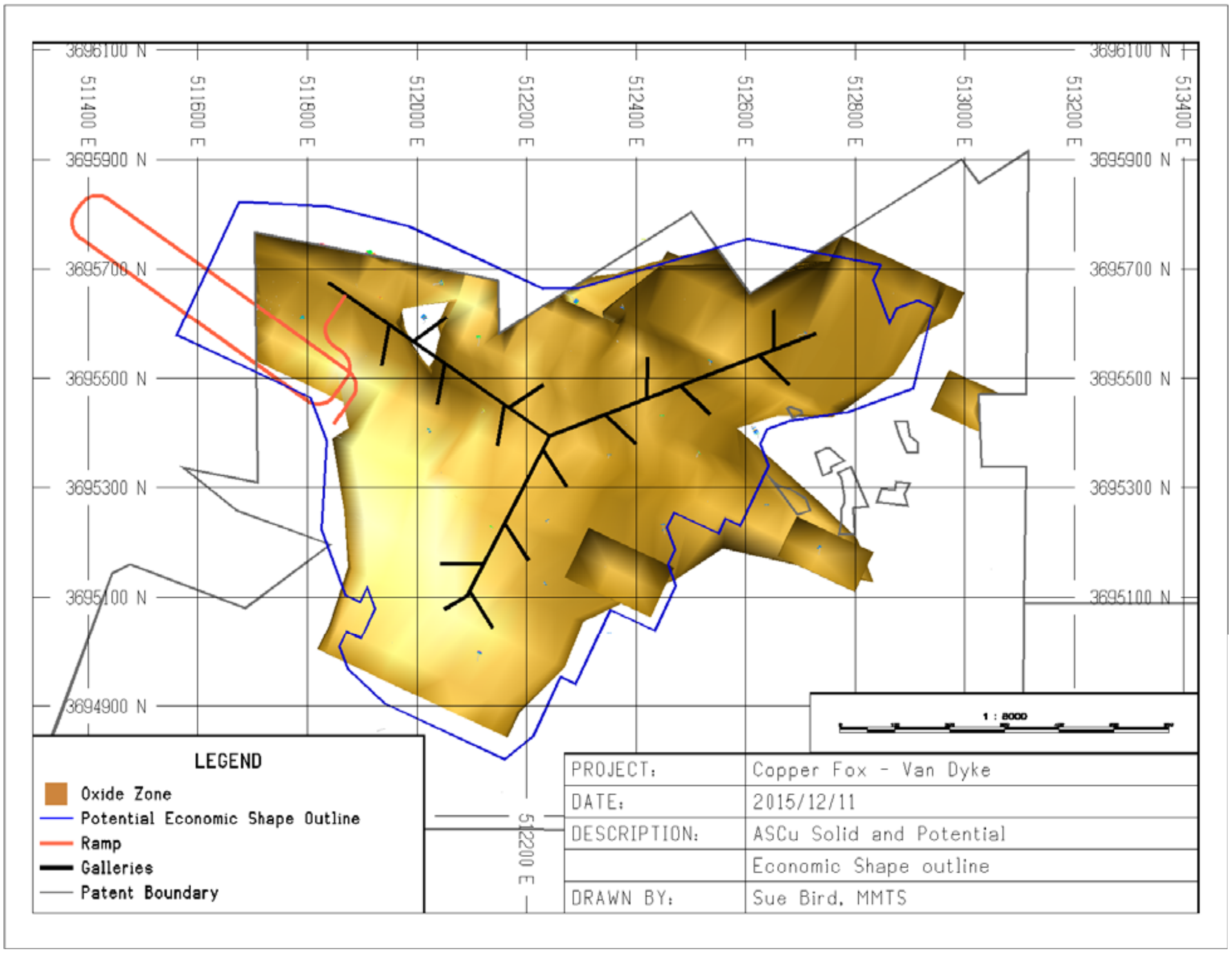


Figure 14-28 Plan view of Oxide Zone and Potential Economic Shape Outline

Table 14-10 summarizes the economic inputs used to define the reasonable prospect shape.

Table 14-10 **Economic Inputs for Potentially Economic Shape of Oxide Material**

Economic Input	Value
Copper price ($US/lb)	2.75
Recovery (%)	50
ISL Pumps ($US/tonne)	0.10
ISL Infrastructure ($US/tonne)	0.10
Rock Fracturing Cost ($US/tonne))	0.76
Drilling Cost	$195/m and 2 wells/block
Processing Cost ($US/lb Cu)	0.60
ISL unit size – contains 1 injection and 1 recovery well	30m x 30m

Table 14-10 Inferred Mineral Resource Estimate within Potentially Economic Confining Shape

Zone	Cut-off - TCu(%)	tonnes	TCu (%)	ASCu (%)	ASCu/TCu	Total Cu (Mlb)	Oxide Cu (Mlb)
Oxide	0.05	113,143,000	0.434	0.284	0.676	1,083	704
Mixed	0.05	69,918,000	0.167	0.060	0.403	245	93
Total	0.05	183,061,000	0.332	0.198	0.598	1,328	797

Notes:

1. *All numbers are rounded following Best Practice Principles.*
2. *The total copper and oxide copper are expressed in millions of pounds ('Mlb').*
3. *The terms Oxide and ASCu represent the acid soluble copper.*

Mineral resources that are not mineral reserves do not have demonstrated economic viability.

14.11.1 Handling of Quiet Title Area within Van Dyke Claims

There is an area comprising roughly 18% of the total deposit which is within the Oxide Zone (the "Defunct Entities Area"). However mineral title ownership was last held by companies that are long defunct, and as such are defined as "Quiet Title", in the area illustrated in Figure 14-29. The public records of Gila County show that mineral rights in the Defunct Entities Area were last held by one of three related companies who were dissolved in the 1990s. Desert Fox's investigation concluded that none of their corporate records now exist, and that the companies ceased doing business without conveying title to the mineral rights in this area to any other party. Desert Fox is pursuing legal strategies to secure title to these mineral rights. In this regard, it has obtained rights to exercise interests of former shareholders who owned approximately 38 percent of these companies, and knows the identities of third parties entitled to an additional approximately 38 percent of the former shares.

Since Desert Fox can claim the rights attributable to 38% of the defunct entities' shares, it has decided to include the Defunct Entities Area in the PEA, but using only 38% ownership in the cash flow.

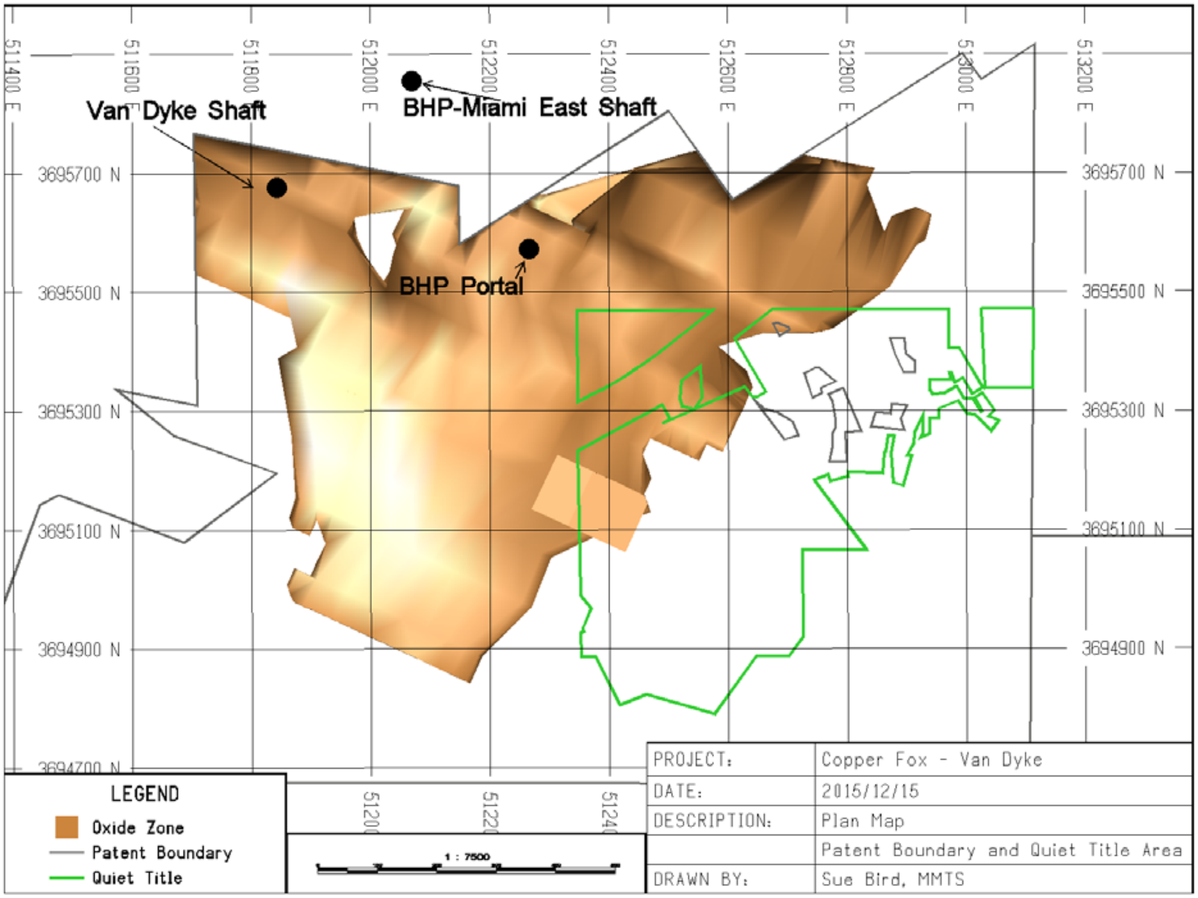


Figure 14-29 Final "Reasonable Prospect" ASCu Shape with Claims Areas Including Quiet Title

15 MINERAL RESERVE ESTIMATES

This technical report is a PEA; therefore, reserves are not reported. Economic reserves will be defined in future Pre-feasibility and Feasibility studies.

16 MINING METHOD

16.1 General In-Situ Copper Recovery

The proposed mining method for copper recovery from the Van Dyke deposit is in-situ leaching (ISL). ISL is a proven technology and has been successfully commercially evaluated in Arizona at Santa Cruz (1988-1999), Florence from 1992 to the present (HDI-Curis, 2013), and Gunnison from 2010 to the present (Excelsior, 2014) as well as historically at the Van Dyke Property.

ISL has been chosen based on the fact that at the Van Dyke mineralization does not support either conventional underground mining or open pit mining due to the close proximity of the deposit to the town of Miami AZ. Further to this, the fractured nature of the host rock, the presence of saturated joints and fractures within the mineralized zone, and copper mineralization that preferentially occurs along fracture surfaces makes the project a good candidate for ISL. The technical criteria listed above are based on scoping level assumptions and will need to be quantified and verified in future studies.

The in-situ well field will leach and extract copper from the deposit from a series of wells. The dissolved copper in solution, called pregnant leach solutions, (PLS) will be pumped to the surface for processing. It is proposed that the well-established Solvent Extraction and Electrowinning (SX-EW) technology will be applied where the copper is removed and deposited as copper cathode. Once the copper is removed, the solution is recirculated in the well field. The final product on site is Grade A copper cathode (99.99% pure) for shipment to the market.

Management of surface and underground water, and control of the leach solutions is paramount to the successful application of this technology and has been demonstrated to be successful at other existing operations. The purpose of this scoping level study, is to test the economic viability of an ISL project using a range of typical values for the above parameters. The results of this study establish where additional data and field testing is required and justify that the project should advance into a Pre-feasibility Study.

16.2 Surface vs Underground In-situ Leaching

A trade-off study has been completed as the initial analysis of extraction of the Van Dyke oxide copper. The study analyzed various underground mining methods as well as in situ leaching from surface using directional drilling, and drilling from underground development. Due to the grade, depth and location of the deposit, conventional underground methods are deemed inappropriate for the current oxide resource. Therefore, the trade-off study concentrated on in situ leach options.

Analysis of in situ leaching included three options, directional drilling from surface, passive drainage from underground galleries, and active pumping from underground. Based on this study, the chosen option is active pumping from underground as the best combination of both lower risk and costs. Below is a brief summary of each of the three options considered.

16.2.1 Directional Drilling from Surface

Directionally drilled wells pose the highest cost estimate of the three ISL methods considered, due to the length and expense per well, and the number of wells estimated for in situ leaching. Drilling directional wells are believed to be technically feasible given the land holding footprint and depth to the mineralization body. However, there are potential risks with maintenance of the wells and complete coverage of the deposit (SWS, 2015).

16.2.2 Passive Drainage from Underground

Passive drainage from an underground tunnel is the least expensive option owing to the smaller diameter drainage holes and reduced equipment to collect pregnant solution from the formation. This option also requires additional hydrogeologic characterization and analysis to constrain and optimize the design of drainage bays and arrays. This option has not been used in this PEA as a viable option for in situ mining due to the recognition of potentially poorer recovery than with active pumping.

16.2.3 Active Pumping from Underground

Angled pumping of well arrays from underground galleries is considered the best option for ISL at Van Dyke. This option uses active pumping of injection and recovery wells in order to maintain a saturated rock mass. Injection and extraction of lixiviant from above, maintains saturation in the mineralization, which increases recovery of copper. Active pumping also maintains a stress field that is more likely to contain and capture pregnant solution than the passive drainage option (SWS, 2015).

16.3 Existing Development

As described in Section 6, there has been historical underground and ISL mining within and in the immediate vicinity of the current Van Dyke deposit.

Existing development and infrastructure at Van Dyke and the surrounding area is illustrated in the plan map of Figure 16-1. Mining development in the immediate vicinity includes:

- a 520m deep shaft at Van Dyke, completed in 1912 by the Van Dyke Copper Company
- drifts and stoping at Van Dyke on three levels (the 1212, 1312 and 1412 levels) with total extraction of 11.85 Mlbs of Cu having an average grade of 5% Cu from underground mining
- ISL wells drilled by Occidental from 1976 to 1977 including 2 test wells, a 5-spot pattern of production wells and eight monitoring wells (15 ISL wells total)
- A recovery well intercepting the main drift at the 1312 level, drilled by Kocide in 1987 to recover ISL copper from the underground workings
- A shaft at the adjacent BHP Miami East mine, approximately 500m to the northeast of the Van Dyke shaft
- A portal on the BHP surface rights area, but within Desert Fox's underground rights, adjacent to and connected with the Van Dyke deposit
- An SX/EW plant at the adjacent BHP-Miami East property, currently on care and maintenance
- An open pit, smelter and rod mill at Freeport-McMoRan's Miami operation adjacent to and just north of the Van Dyke deposit

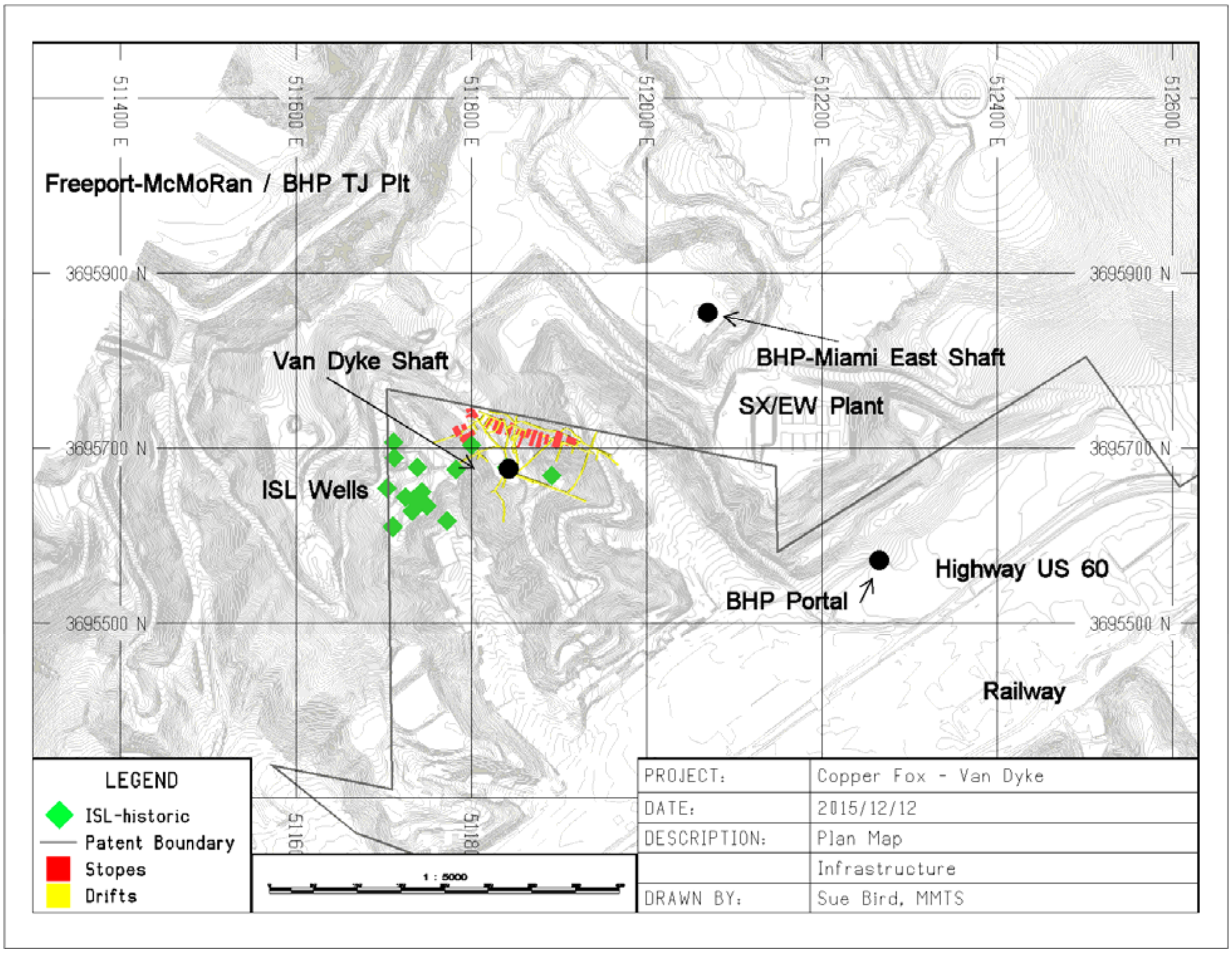


Figure 16-1 Existing Infrastructure

16.4 Geotechnical Parameters for Mine Design

16.4.1 General

Knight Piésold Ltd. has carried out a site investigation to investigate the hydrogeologic and geotechnical parameters of the site (see Appendix B) and has prepared a supporting memorandum which comprises a preliminary assessment of the ground support requirements for the underground development (Knight-Piésold, 2015). The purpose of this assessment is to support PEA level design and costing and to provide recommendations for rock mechanic considerations that will require further investigation during Pre-feasibility and Feasibility Level engineering.

16.4.2 Lithology and Rock Mass Characteristics

The geology at the project area comprises of the Gila conglomerate overlying of the Pinal schist with minor Granodioritic intrusions. West of the Miami East fault, there is Schultze Granite based on regional geology and 2014 drilling of VD14-01 which intersected Schultz Granite at depth. Within the Pinal Schist, Granites and Gila Conglomerate there are numerous faults, as well as breccia zones and landslide breccias, particularly at the contact between the conglomerate and the schist. These in turn are overlain by alluvium up to approximately 30m (100ft) thick within the valley bottom. The primary rock types include:

- Gila Conglomerate
- Pinal Schist
- Granodioritic Intrusions

Data collected during the 2014 Geological and Hydrogeological Site Investigation Program by Knight-Piésold on the 6 holes drilled in 2014, has been used to characterize the rock mass in the vicinity of the proposed underground development. Table 16-1 summarizes the main geotechnical parameters by both the rock type (as logged by Copper Fox geologists), and by the zones as modelled for the Resource estimate. Based on Bieniawski's 1989 Rock Mass Rating (Bieniawski, 1989) the rock types are categorized as "FAIR", except for the Gila Conglomerate, which is categorized as "POOR". It should be noted that the Gila Conglomerate is a heterogeneous material that has few fractures (0-2 fractures per 10 foot interval), but poor strength of the matrix (Knight- Piésold, 2015a). Additional investigation of this rock type is necessary at the next stage of investigation to better define the rock mass strength of this material for underground development purposes.

Table 16-1 Summary of Geotechnical Parameters by Rock Type and Zone

		Rock Type			**Zone (all rock types)**		
		Gila Conglomerate	**Pinal Schist**	**Granite**	**Breccia**	**Oxide**	**Mixed Oxide/Sulfide**
Number of Samples		**472**	**701**	**118**	**107**	**570**	**324**
RQD	Wtd. Mean	n/a	53.2	52.8	43.8	53.3	43.1
	Wtd. CV	n/a	0.7	0.6	0.8	0.7	0.8
RMR89[1]	Wtd. Mean	30.26	48.61	52.22	43.81	47.92	44.05
	Wtd. CV	0.06	0.25	0.29	0.24	0.27	0.25
FRACTURE SPACING (m)	Wtd. Mean	n/a	0.263	0.285	0.158	0.261	0.186
	Wtd. CV	n/a	1.034	1.062	1.335	1.042	1.375
UCS (MPa)[2]	Wtd. Mean	9.6	26	58.6	20.8	21.6	18.8
	Wtd. CV	0.8	1	0.8	0.7	0.7	0.8

[1] *RMR89 – Bieniawski's 1989 Rock Mass Rating. Note that no adjustment for Joint orientation has been made to this average rating.*

[2] *UCS- the unconfined compressive strength of the intact rock has been estimated in the field based on hardness*

16.4.3 Ground Support Recommendations

The following recommendations are based on typical mechanical parameters for rocks in the characteristic ranges above. The major portion of the proposed underground development will be constructed within the Gila Conglomerate with a minor portion of the decline and ventilation raise within the Schultze Granite, west of the Miami Fault. A three-dimensional view of the proposed ramp, underground galleries for ISL drilling, and related geology is illustrated in Figure 16-2. For costing purposes, the majority of the underground is assumed to be in the Gila Conglomerate in order to be somewhat conservative.

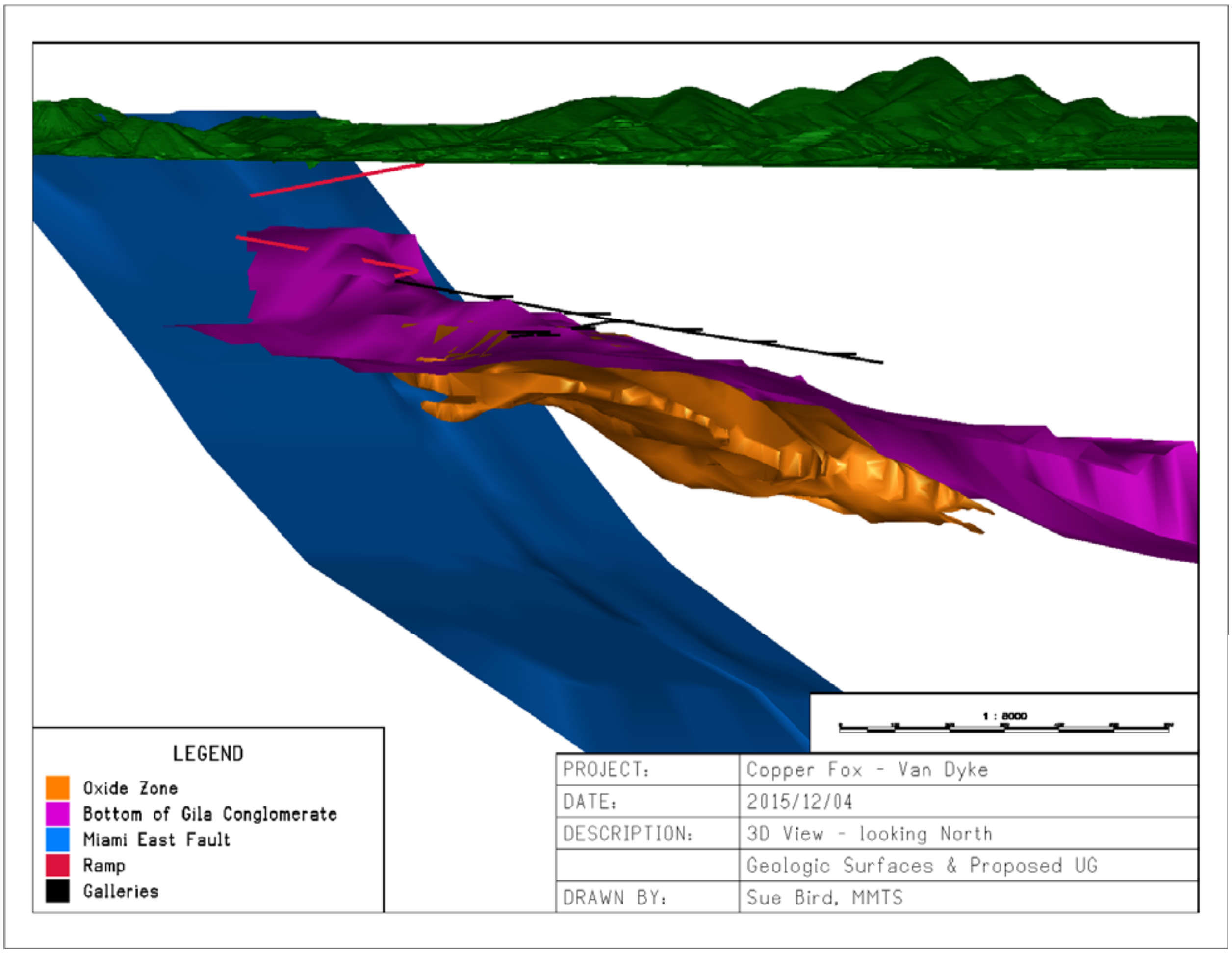


Figure 16-2 **Proposed Underground Development as related to Main Geologic Components**

Gila Conglomerate

The ground support design for the Gila Conglomerate will be controlled by the need to limit ravelling and rock mass deformations. The design concept will be to provide a stiff arch around the periphery of the excavation to control the weak rock mass. The following preliminary ground support recommendations are provided to support PEA level costing:

- An approximately 100mm (4”) thick lining of fibre reinforced shotcrete should be applied to the walls and backs of the heading as soon as practical following mucking. The shotcrete will provide immediate stiff support to the rock mass and to help with collaring the bolt holes.
- Bolts should be installed in the backs and walls of the excavation to further reinforce the rock mass and help the shotcrete manage potential deformations. For the purpose of these preliminary recommendations, it should be assumed that the bolts are 1.8m (6ft) long on a 1.2m (4ft) square pattern to within 1.5m (5ft) of the invert. Either an MN12 plastic coated Swellex or #6 un-tensioned fully resin grouted dowel are considered appropriate bolt options. Split sets are not expected to be an appropriate bolt option given the expected difficulties in maintaining the drillhole diameter within the required tolerances.
- Additional support or alternative support strategies may be required in the following cases:

- In particularly weak areas, pre-supporting (sub-horizontal forepoling) in advance of the heading in order to better control ravelling and deformation within the back. Shotcrete on the face of the heading may also be required.
- If higher load carrying capabilities are required, shotcrete arches (reinforced ribs of shotcrete) could be utilized.
- Longer bolts in large span areas (e.g., intersections), in the case where there are persistent discontinuities present in the back.
- Vertical access or ventilation development in the Gila Conglomerate is expected to require a 100mm (4”) fibre-reinforced shotcrete.

16.5 Hydrogeological Characterization

16.5.1 General

Knight Piésold Ltd. has carried out a review of historic groundwater data for the project in order to develop a conceptual hydrogeological model describing groundwater flow at the site. The purpose of the study is to support PEA level costing and to provide comments on permeability and the groundwater flow regime relevant for the proposed development and provide direction for future investigation. The conceptual model is presented in a technical memorandum dated December 15, 2015 (Knight- Piésold, 2015).

Groundwater data were historically collected at the site in support of underground mining activities and several phases of testing of in-situ leach mining conducted in the late 1970s by Occidental Minerals Corporation (Occidental) and Kocide. The available data includes permeability estimates based on hydraulic testing, water level measurements, and effects of hydraulic fracturing and well stimulation within the mineralized zone. The following key activities and groundwater data collection efforts were conducted by Occidental as part of the historic leach testing:

- Installation of seven production wells and eight monitoring wells
- Hydraulic testing, including water level response tests, packer testing, and a pump test to assess permeability within the mineralized zone at seven wells
- Tracer tests to assess hydraulic connection between production wells
- Downhole geophysical surveys of exploration holes and production wells
- Several phases of leach testing to assess feasibility of in-situ leach technologies. Testing was initially conducted between two wells, Oxy-41 and Oxy-42, and then extended to a 5-spot well pattern. Hydraulic fracturing within the leach interval was conducted at several wells and resulted in a noted improvement in hydraulic connection between wells. Copper recovery by in-situ leaching was successful over a testing period of approximately one year.
- Water level measurements and water quality sampling as part of ongoing monitoring during leach operations

Desert Fox Van Dyke collected groundwater data during a geotechnical site investigation in 2014. Three drillholes instrumented with vibrating wire piezometers and downhole geophysics surveys, including an acoustic televiewer (ATV) survey, were conducted in each drillhole as part of this program.

The following sections describe the key water bearing units and groundwater flow at the site based on the available groundwater data.

16.5.2 Hydrostratigraphic Units/Water-Bearing Units

The following groundwater units are expected to control groundwater flow at the site:

- Alluvium
- Gila Conglomerate
- Gila Clay
- Weathered Pinal Schist
- Pinal Schist, and
- Faults

Alluvium – The alluvial deposit, existing above the Gila Conglomerate, is the primary water bearing unit at the site and considered an aquifer. The unit consists of unconsolidated sand, silt and gravel deposits along the floodplain of Bloody Tanks Wash. The alluvium unit in the vicinity of the Project is less than 30 m thick based on historic drillhole logs (Harshbarger, 1975) and drillholes advanced in 2014 (Knight-Piésold, 2015a4). The unit is approximately 100 to 250 m wide within the Project footprint and widens eastward toward the intersection with Miami Wash. Depth to water in Occidental monitoring wells MW-1 and MW-2 installed in the alluvium aquifer was historically reported to be between 12 and 17 metres below ground surface (mbgs).

The hydraulic conductivity of the alluvium unit is expected to be high and is estimated regionally to be on the order of 10^{-3} m/s (Neaville and Brown, 1994). Historic municipal wells completed in this unit just downstream of the Project were reported to have produced up to 500gpm in the wet season, with a decrease in production (200gpm) in the dry season when water levels declined (Harshbarger, 1971). Water for historic leach operations has been obtained from one of two wells installed in the alluvium aquifer (Huff & Associates, 1988). Several monitoring wells in the groundwater monitoring network for the Pinal Creek WQARF site are installed in the alluvium unit near the Project, and as a result an abundance of groundwater data for the hydrostratigraphic unit are available.

Gila Conglomerate – The conglomerate is a semi-consolidated and consolidated unit with a matrix of clay and silt. The unit ranges in thickness in the immediate project area between 140 and 600m with thickness increasing to the east. Well logs indicate that the conglomerate is not homogeneous throughout its depth and that several lenses likely consisting of water bearing sand and gravel zones occur at varying depths throughout (Young and Clark, 1978). Instances of lost circulation during drilling in the Gila Conglomerate suggest the presence of local zones of enhanced permeability, such as that noted, between 220 and 260mbgs while drilling at Oxy-41 and Oxy-42 (Jacoby, 1977).

Onsite estimates of hydraulic conductivity of the Gila Conglomerate are limited to tests conducted adjacent to the Miami East fault. The results of this limited testing suggest a hydraulic conductivity in the order of 10^{-9} to 10^{-8} m/s (Harshbarger, 1978). This calculated apparent hydraulic conductivity may be lower than actual conditions due to the proximity of faults to these sites and therefore is not considered representative of the bulk unit in areas located away from the faults. Regional reports describe the Gila Conglomerate in the Miami-Claypool area as having low transmissivity and storage capacity with hydraulic conductivity locally estimated to be less than $5x10^{-7}$m/s (Harshbarger and Associates, 1971). The Gila Conglomerate is described to have increased water bearing potential beyond the Van Dyke project area, with hydraulic conductivity in the Gila Conglomerate ranging from $3x10^{-7}$m/s to $6x10^{-6}$m/s (Young and Clark, 1978; Brown and Favor, 1996). Pumping tests conducted to the east of the Project at wells owned by City Services Corporation and installed in the Gila Conglomerate yielded hydraulic conductivity estimates ranging from $2x10^{-7}$ to $1x10^{-6}$m/s (Envirologic Systems Inc., 1981).

The Gila Conglomerate is cut by several major and small faults that are expected to have a strong effect on impeding and directing groundwater flow (Young and Clark, 1978). Groundwater flow within the unit is expected to be focused within fracture zones and more permeable lenses.

Gila Clay – Swelling (hematitic) clays may be present in and at the contact of the Gila Conglomerate and the Pinal Schist. Clay deposits are inferred to be of lower permeability. The clay was encountered at the location of the 5-spot wells installed for the historic leach testing conducted by Occidental as a 40m thick clay unit (Moon and Axen, 1980). A clay layer is noted in 2014 drillholes at the base of the Gila Conglomerate that is up to 0.3m thick (Knight Piesold, 2014). Where present, the Gila Clay is expected to serve as an aquitard and limit vertical groundwater flow between the Gila Conglomerate and the underlying bedrock. Therefore, it is expected to act as a barrier between the ISL operation and the overlying Gila Conglomerate.

Weathered Pinal Schist – A weathered zone at the top of Pinal Schist has potential to have a higher permeability than the underlying schist and serve as a preferential groundwater flow pathway. Estimates of hydraulic conductivity were not encountered during review of historic data, but circulation losses were reported in this unit during drilling at several locations. Where present, the weathered zone may be up to 20m thick based on descriptions provided on geotechnical logs from 2014 drillholes (Knight Piésold, 2014) and notes from geophysical logging conducted on the historic Occidental production wells and monitoring wells (Harshbarger, 1971).

Monitoring well M-1 was installed in the weathered schist zone to monitor water level conditions during historic leach testing. An increase in water level was reported in the well concurrent with solution injection, which suggests that hydraulic connection may have existed between the leached interval and the weathered interval and that fluid may have been lost to the weathered zone (Harshbarger, 1979; Walters, 1979 and 1980). Results of groundwater sampling suggested that water quality remained unchanged at the well.

Pinal Schist –The unit is extensively faulted and is highly fractured with an RQD of 53% and Fracture Spacing of 0.26m, based on drill logging. Fractures within the Pinal Schist range from 4 to 10 fractures per 3 m interval (Fracture Spacing of 0.3 to 0.75) based on Acoustic Televiewer Survey data (Knight Piésold , 2014). The Pinal Schist is a low permeability unit with groundwater flow limited to fractured zones (Young and Clark, 1978). Primary porosity of the unit is sealed off by intense silicification (Jacoby, 1978) and secondary porosity (i.e., fractures) is infilled with mineralization.

Permeability testing carried out within the Pinal Schist at the site is mostly limited to the area near the Van Dyke Shaft where historic leach testing was conducted. The range of values from permeability testing conducted onsite in the Pinal Schist is presented in Table 16-1 and on Figure 16-2. The site data suggests a typical range of permeability values centered between 10^{-9} to 10^{-8}m/s. Since the available test results are focused within a small area of the Project they may not characterize the variability of permeability that exists across the site. Regional estimates of permeability in the Pinal Schist based on testing conducted at nearby properties and regional studies are provided in Table 16-1 and Figure 16-3 for comparison with onsite values. In general, permeability values at the adjacent sites (Miami and Copper Cities) have a higher upper range of values than the results of onsite testing.

Hydraulic fracturing, inducing fractures in the bedrock by injecting water into a drillhole at a pressure that exceeds the critical formation pressure of the rock, was successfully conducted during historic leach testing by injecting to a bottom hole pressure of between 0.8 to 1.3psi/ft depth (Dames and Moore, 1971). Hydraulic testing conducted after inducing fractures in the Pinal Schist suggests that hydraulic connection between wells was achieved and that the effective permeability of the bedrock between the injection and recovery wells was between $2x10^{-9}$m/s and $5x10^{-7}$m/s (0.15 and 50 millidarcies (md); Szyprowski, 1977; Poollen, 1979; Walters, 1980). Copper recovery using in-situ leaching techniques was successful following hydraulic fracturing of several production wells at the Van Dyke project. It should be noted that the historic ISL wells had a larger distance from injection to recovery wells than the average distance for the current PEA plan.

Faults – Faults at the project site contain gouge and are generally expected to act as barriers to groundwater flow perpendicular to the fault. Faults can be expected to act as preferential pathways for groundwater flow along strike. Post-mineralization faults within the Gila Conglomerate may serve as conduits for flow. One such fault, the Eureka Fault, is suspect to provide a source of groundwater inflows to the Van Dyke shaft at the 300 level (Golder, 1997). Several secondary faults exist at the site in addition to the primary faults.

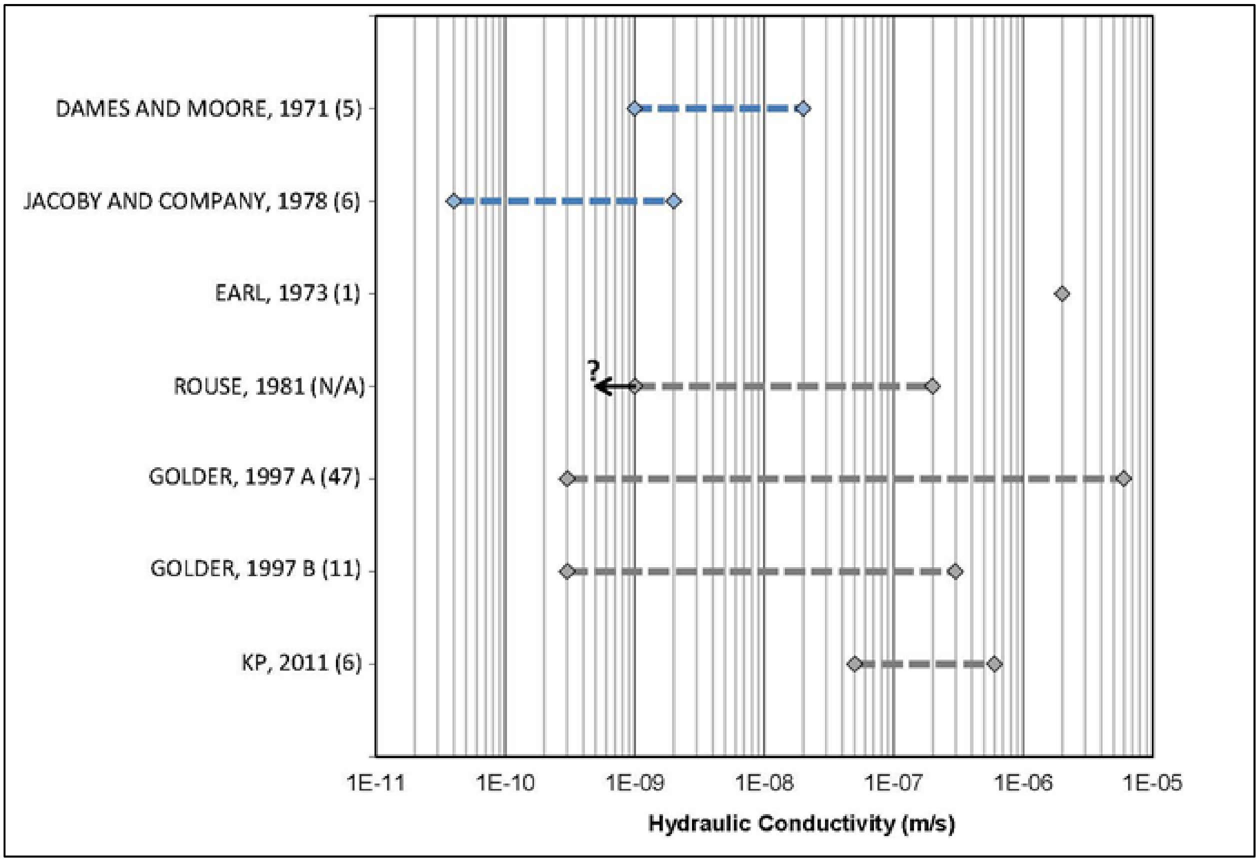


Figure 16-2 Range of Hydraulic Conductivity Values in the Pinal Schist

NOTES:

1. *BLUE LINES REPRESENT HYDRAULIC CONDUCTIVITY ESTIMATES FROM TESTING CONDUCTED ONSITE IN THE PINAL SCHIST AND GREY LINES REPRESENT REGIONAL ESTIMATES.*
2. *INFORMATION ON HYDRAULIC CONDUCTIVITY ESTIMATE FOR EACH REFERENCE PROVIDED IN TABLE 16-1.*
3. *VALUES IN BRACKETS REPRESENT THE NUMBER OF TESTS/ANALYIS. N/A INDICATES THE NUMBER OF TESTS IS NOT AVAILABLE.*
4. *GOLDER 1997A IS THE RANGE OF HYDRAULIC CONDUCTIVITY VALUES FOR TESTS CONDUCTED WITHIN 12 m (40 FEET) OF THE TOP OF THE PINAL SCHIST AND ARE LIKELY REPRESENTATIVE OF WEATHERED BEDROCK CONDITIONS. GOLDER 1997B IS THE RANGE OF VALUES FOR TESTS CONDUCTED AT A DEPTH GREATER THAN 12 m BELOW THE TOP OF THE SCHIST UNIT.*
5. *DATA FROM EARL, 1973 AND ROUSE, 1981 WAS PRESENTED IN BROWN AND FAVOR, 1996.*

Table 16-1 Hydraulic Conductivity in Pinal Schist

SUMMARY OF HYDRAULIC CONDUCTIVITY VALUES IN PINAL SCHIST

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SOURCE	LOCATION	TEST OR ANALYSIS METHOD	NUMBER OF TESTS	HYDRAULIC CONDUCTIVITY OF PINAL SCHIST (m/s)	NOTES
VAN DYKE SITE DATA					
DAMES AND MOORE, 1971	OXY-16B	PACKER TESTING	5	<2E-9 to 2E-8	
JACOBY AND COMPANY, 1977	OXY-41, OXY-42	INFILTRATION TESTS	2	NEGLIGIBLE [1]	TIGHT FORMATION, WOULD NOT ACCEPT FLUID WHEN WELLS FILLED WITH WATER
JACOBY AND COMPANY, 1978	5-SPOT WELLS (OXY-44, OXY-45A, OXY-46, OXY-48); MONITORING WELLS M-3 AND M-4	INFILTRATION AND RECOVERY TESTS	6	4E-11 to 2E-9 [2]	
REGIONAL DATA					
KP, 2011 [3]	CONFIDENTIAL	PACKER TESTING	6	5E-8 to 6E-7	
GOLDER, 1997 [4]	CYPRUS MIAMI MINE	N/A [5]	47	3E-10 to 6E-6	UPPER 12 m (40 FEET) OF PINAL SCHIST, LIKELY REPRESENTATIVE OF WEATHERED BEDROCK UNIT
	CYPRUS MIAMI MINE	N/A	11	3E-10 to 3E-7	RESULT OF TESTS CONDUCTED MORE THAN BELOW 12 m (40 FEET) BELOW TOP OF UNIT
BROWN AND FAVOR, 1996	CYPRUS MINE, OXHIDE PIT	PACKER TESTING	N/A	NEGLIGIBLE TO 2E-7 [6]	VALUES FROM LOWER OXHIDE PIT (REFERENCE ROUSE, 1981)
	COPPER CITIES MINE, SLEEPING BEAUTY PIT	FLOW NET ANALYSIS	1	2E-06 [6]	FRACTURED BEDROCK IN PIT (REFERENCE EARL, 1973)
	REGIONAL	-	-	-	"GROUNDWATER IN ROCKS OF PRECAMBRIAN TO TERTIARY AGE IS RESTRICTED TO INTENSELY FRACTURED AND (OR) FAULTED AREAS. ELSEWHERE, THESE ROCKS ARE IMPERMEABLE"
HAZEN AND TURNER, 1946	REGIONAL	-	-	-	"UNIT IS NOT SUFFICIENTLY POROUS OR PERMEABLE TO STORE OR TRANSMIT GROUNDWATER TO LOWER ELEVATIONS"

\\knightpiesold.local\VA-Prj$\1\01\00565\05\A\Correspondence\VA15-03565 Van Dyke - Conceptual Hydrogeologic Model\Table\[PEA Table 16-1 -Pinal Schist Permeability.xlsx]Table 1 - Pinal Permeability

<u>NOTES:</u>

1. QUANTITATIVE VALUE NOT PROVIDED.

2. VALUES PROVIDED IN PERMEABILITY UNITS OF MILLIDARCIES (md) AND CONVERTED TO HYDRAULIC CONDUCTIVITY (m/s) USING 1 md = 1X10-8 m/s.

3. CONFIDENTIAL PROJECT IN GILA COUNTY. DATA NOT PUBLICALLY AVAILABLE.

4. VALUES PROVIDED IN TABLE II-6.2.1-2 AND FIGURE II-6.2.9-1 OF REPORT. A DISCUSSION OF THE TESTING METHODS WAS NOT IN THE DOCUMENT SECTIONS AVAILABLE FOR REVIEW.

5. N/A = NOT AVAILABLE.

6. VALUES ARE FOR CRYSTALLINE ROCK.

16.5.3 Groundwater Occurrence and Flow

The Project is located within a dry environment; therefore, average annual groundwater recharge is expected to be low and limited to the wet season. Recharge in the regional Salt River Basin (in which the project is located) is 10 to 20mm/year (Arizona Department of Water Resources, 2009. The surface water drainage at the project site, Bloody Tanks Wash, is an ephemeral stream reach that only flows in response to rainfall. When flowing, infiltration of surface water from the Bloody Tanks Wash will recharge the groundwater system. Groundwater from the alluvial aquifer may discharge to the wash during wet periods.

The water table at the site is located in the alluvium unit or in the Gila Conglomerate where the alluvium unit is not present. The elevation of the water table is generally between 1020masl and 1040masl and generally ranges from 15 mbgs within the alluvium to 100mbgs near the Van Dyke shaft. The Van Dyke Oxide Resource is located several 100m below the water table and is fully saturated.

Groundwater level data are available at three drillholes that had vibrating wire sensors installed in 2014 (Knight Piésold , 2014). Five vibrating wire sensors were installed in each drillhole at depths ranging from 145 to 568mbgs. Piezometric heads reported at the sensors range from 1,030masl in the alluvium at Bloody Tanks Wash to 960masl at deeper sensors located in the Pinal Schist. The water level data at the vibrating wires indicates the shallow groundwater flow direction (145m – 167m) is to the east/northeast and groundwater flow at depth is toward the north. The vibrating wire piezometer data indicates the vertical direction of groundwater flow is primarily downward at a gradient of approximately 0.1 to 0.2m/m. A negligible or slightly upward hydraulic gradient is only observed between the uppermost sensors at drillhole VD14-02. These relatively deep bedrock groundwater levels and the variety of vertical gradients near the wash are indications that the groundwater flow regime is significantly influenced by the presence of the nearby mine workings. The elevation of the water level in the TJ Pit during a site visit in 2015 was 983 masl (3,225 ft asl). This water level is significantly lower than the water level in the alluvium (approximately 1,020 masl), and suggests the open pit likely influences groundwater flow directions at the site by acting as a sink.

Information on groundwater flow directions in the area is available from historic groundwater reports compiled using water level measurements in monitoring wells at adjacent properties (Golder, 1997; Montgomery Watson Harza, 2003). These reports show a groundwater flow direction within the alluvium unit that is toward the northeast and parallel to the Bloody Tanks Wash drainage. The groundwater flow direction within the Gila Conglomerate is similarly reported to follow topography and flows toward Bloody Tanks Wash, except where influenced by two groundwater sinks that exist on the neighbouring mining properties. The first sink is created by Freeport-McMoRan/BHP's joint open pit (the TJ Pit) and active in-situ leach in a block-caved section of the Pinal Schist located north of the Van Dyke shaft. The second notable hydraulic sink is the No. 5 shaft of BHP's Miami East mine, which is hydraulically connected to the first sink by shafts and tunnels where ongoing pumping is reported to maintain the depressed water level below the Gila Conglomerate (see Figure 16-1 for pit and shaft locations; Golder, 1997). Under the influence of these two sinks, groundwater flow in the vicinity of the Van Dyke shaft is expected to be northwest toward the open pit, northeast toward the No.5 shaft, and southeast toward Bloody Tanks Wash.

Historic underground workings are located within the north-western extent of the Van Dyke Oxide Resource and within the adjacent BHP property and these open tunnels will be preferential pathways for water flow. Historic underground drifts on the Van Dyke property were advanced to approximately 700 masl (1412 level) and the bottom of the No. 5 shaft extends to an elevation of 75 masl (250 ft asl; Golder, 1997). A drift connects the Van Dyke shaft with the No. 5 shaft of the Miami East mine at the 1120 level (790 masl. The difference in water levels measured recently in the two shafts suggests the drift is currently sealed.

Additional permeability testing is recommended to optimize the potential ISL operation at Van Dyke. Historic testing was constrained to a small area near the Van Dyke shaft and future testing should be conducted across the project site to evaluate the variability of hydrogeological conditions.

16.6 ISL Production - Well Field Design

In situ leaching of the oxide resource at Van Dyke is proposed to occur by an injection and recovery well system from underground galleries located just above the oxide deposit, within the Gila Conglomerate (see Figure 16-2 for location of galleries relative to the oxide zone). Injection wells will deliver the leachate to the oxide zone, with recovery wells then transporting the dissolved copper in solution to the SX/EW plant at surface.

Injection wells will inject a dilute solution (approximately 10g/L) of sulfuric acid (H_2SO_4) until the incremental copper recovery diminishes to uneconomic levels. The wells are then left for four months and then flushed for four months to recover any residual copper. This is then followed by several months of rinsing to restore groundwater quality within the mined areas to levels specified in the project permits.

The well holes will follow a 5-spot pattern with four recovery wells will surround a single injection well in a repeating pattern with the average distance between injection and recovery wells of 21m, as illustrated in Figure 16-3.

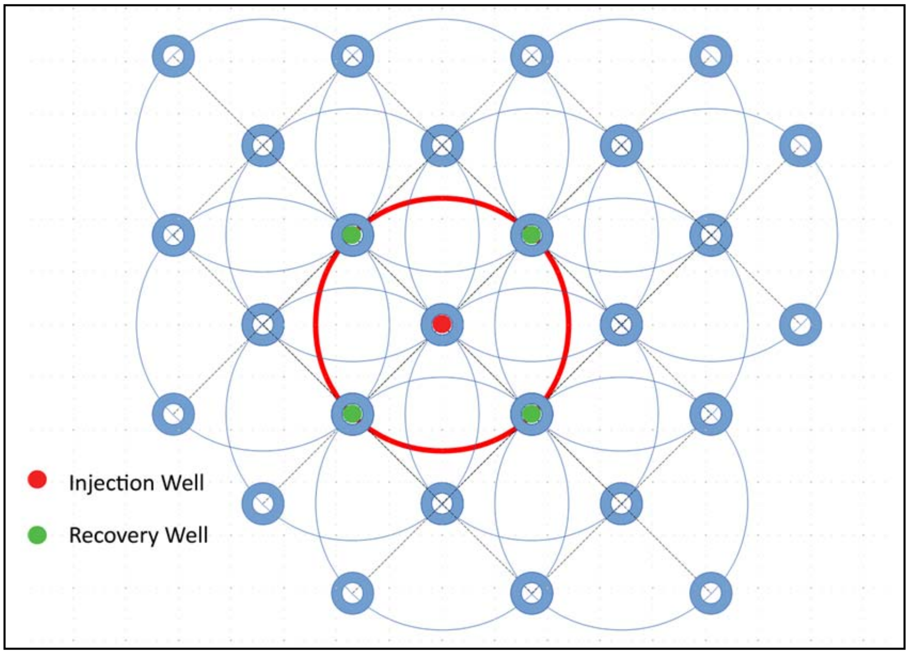


Figure 16-3 **5-Spot Well Configuration**

Angled drillholes from the underground galleries (see Figure 16-2 for gallery layout) will access the mineralized zone. Figure 16-4 illustrates a schematic layout of the injection and recovery wells shown for one fence of drilling. The figure shows a slice through the oxide zone, with wells drilled from the galleries above. Spacing of fences will be 30m, to apply one 5-spot array per 30mx30m horizontal area.

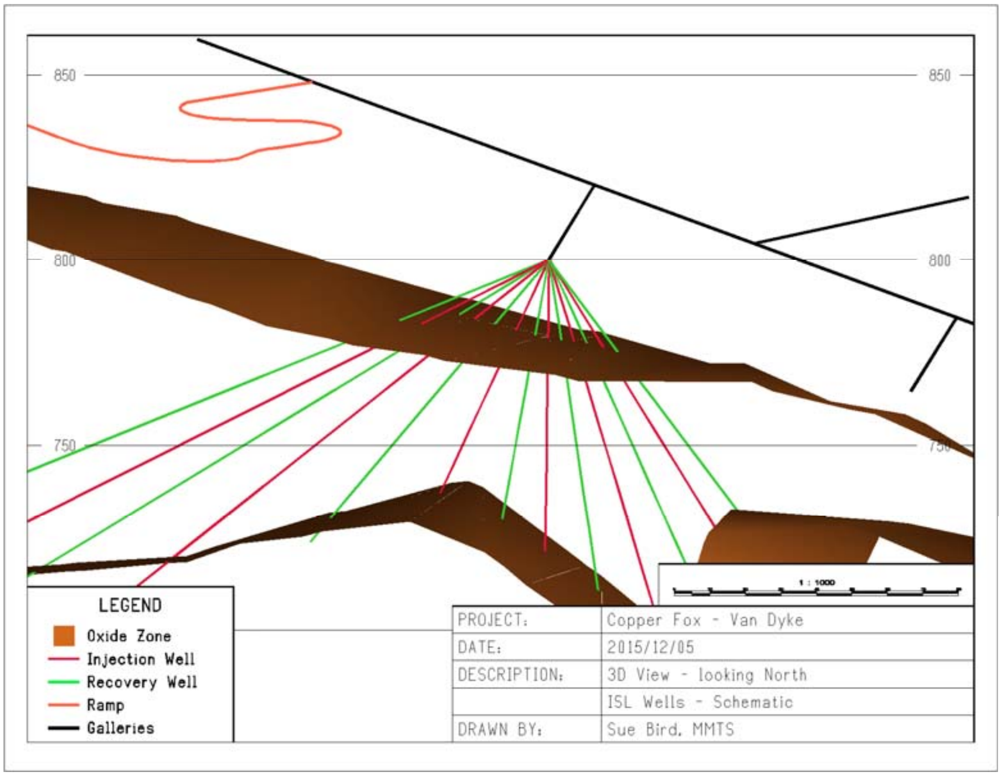


Figure 16-4 Schematic of Layout for 1 Fence of Injection/Recovery Well from Underground Gallery

Total number of recovery wells in a 5-spot well pattern geometry is slightly more than a 1:1 ratio to the number of injection wells. The ratio of recovery wells to injector wells in the current wellfield array for the Project is simplified to 1:1.

Some effort has been put into optimization of the well field and balancing the number of wells against the length of injection and recovery holes, but more work is recommended in this area. Increasing the spacing between wells would result in fewer wells and lower initial and sustaining capital costs for the project.

During the operation phase, it is anticipated that crews will enter the underground workings on a daily basis to check the injection and recovery wells, drill future developments, and make necessary changes to pump parts. Additionally, as one well bay is reaching the end of the recovery cycle, these crews will remove the pumps from the exhausted well bay and reinstall them in a well bay later in the schedule.

16.6.1 Well Design and Construction

Well construction details will meet the criteria of the Arizona Department of Environmental quality (ADEQ) for the Pinal Creek WQARF zone. Injection wells must also be constructed to meet well design criteria specified by the EPA’s UIC regulation group for Class III wells. Class III wells are wells used to inject fluids into rock formations to dissolve and extract minerals. Additional requirements for well drilling and installation will apply because the project is located within a State-designated Water Quality

Assurance Revolving Fund (WQARF) site. To meet these requirements, all wells will be drilled and constructed in accordance with the criteria set out in the document *Special Well Construction and Abandonment Procedures for Pinal Creek Water Quality Assurance Revolving Fund Site* (ADWR, 2007).

The proposed well design has been developed by Schlumberger Water Services (SWS, 2015). Underground wells will be drilled with a downward plunge to access a greater range of the mineralization from a specific drill gallery. Wells are designed to be open boreholes to allow packers to be set down hole at discrete zones, and control the injection/extraction of lixiviant. Open boreholes will also reduce construction costs. The diameter of these boreholes is designed to be 140mm (5.5in) which is the smallest practical diameter for underground reverse circulation (RC) drilling, and will allow the use of the ST-114 packer assembly manufactured by IPI. A 6m (20ft) long pre-collar will be drilled to a 248mm (9.75in) diameter and set with 178mm (7in) surface casing and a cement seal.

Figures 16-5 and 16-6 are diagrams of the proposed injection and recovery well designs.

For the underground RC 140mm well completion:

- Drill and set 178mm conductor casing to 6m.
- Drill 140mm borehole to roughly length required to cover extent of oxide zone.
- Construct surface seal for lixiviant injection, extraction, or hydraulic fracturing.
- development wells using airlift and surging techniques.

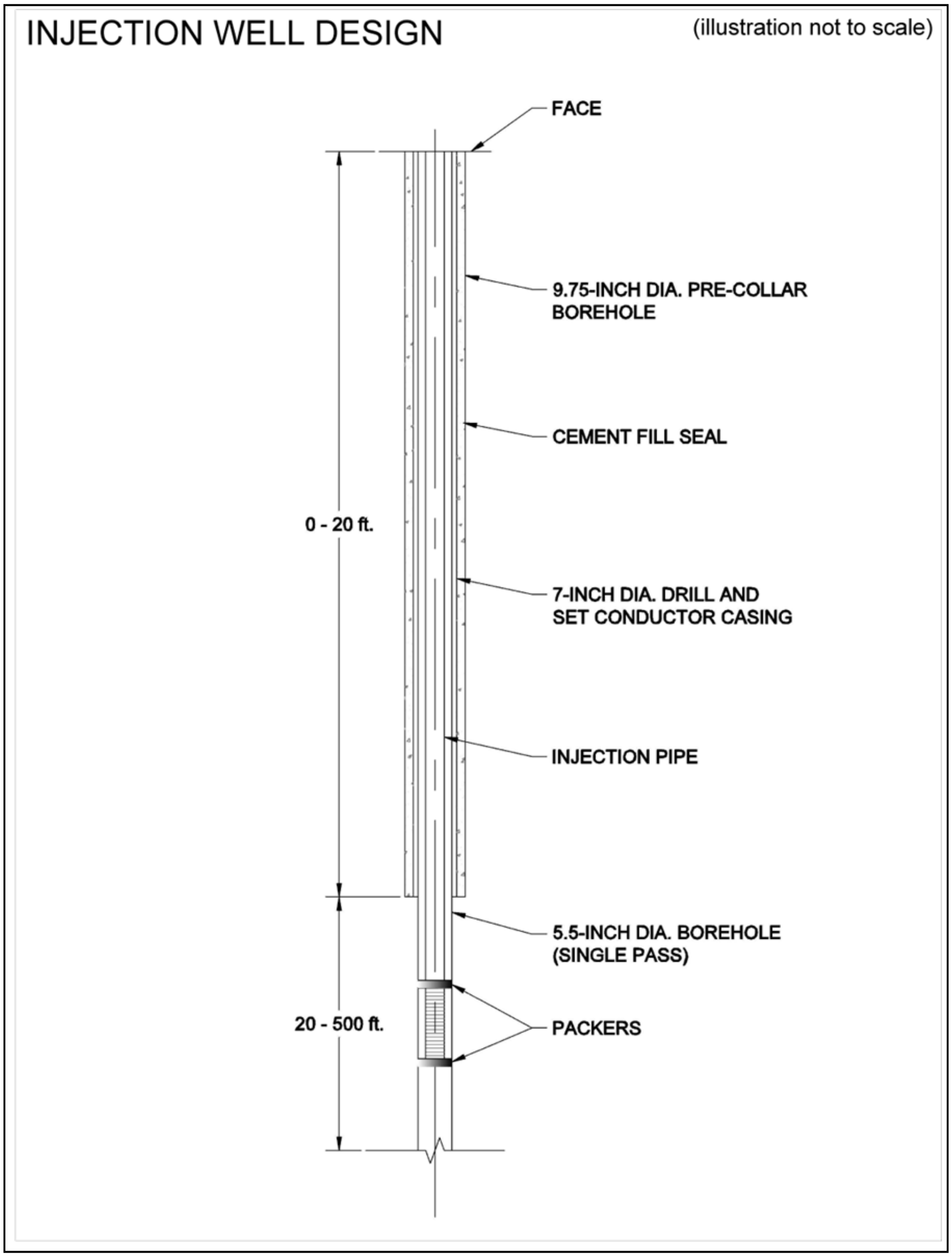


Figure 16-5 **Injection Well**

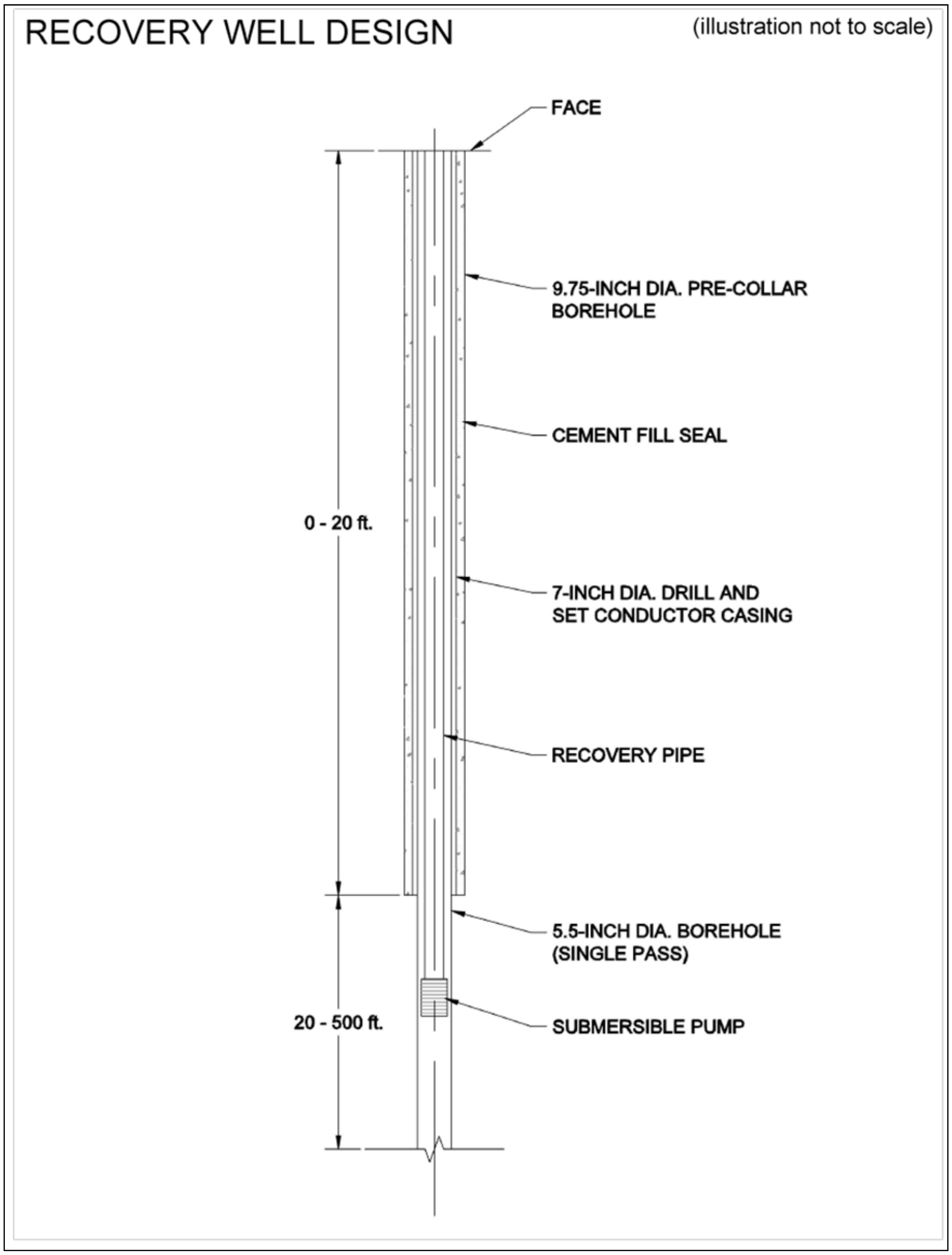


Figure 16-6 Recovery Well

A geophysical survey will be conducted on the open borehole following completion of drilling to characterise the in-situ rock conditions and determine the best locations to set up packers.

16.7 ISL Recovery, Sweep Efficiency and Fluid Flow

Copper recovered and used in the cash flow analysis is based on recovery of oxide copper only. The oxide copper recovery used in this PEA is 68%. This value is based on the ISL simulation studies completed by SGS (see Section 13). The oxide copper recovery from the ISL simulation is 85% for representative samples (Samples #4,#6,#7,#8).

The SGS results have been reduced in order to account for inefficiencies in the contact of the dilute acid solution with the mineralization rock. These inefficiencies can be modelled with the use of a "sweep efficiency" to account for the following:

1. Low fracture density
2. Lack of interconnectedness of the fractures
3. Slower than predicted leaching of the rock mass

At this stage of data collection and analysis, estimation of a meaningful sweep efficiency is not possible. Therefore a reduced recovery of 68% oxide copper has been used. It is expected that in the next study a sweep efficiency model will be produced for more accurate overall recovery values throughout the deposit.

The sweep efficiency is primarily dependent on the ability to maintain flow and establish hydraulic communication between an injection well and a recovery well which in turn depends on the permeability of the rock mass within the zone to be leached.

Details on the theory of radial flow from an injection (with no additional fracturing applied) and on linear fluid flow with hydraulic fracturing applied are available in Appendix C. Based on the theory and assumptions presented in this Appendix, and the configuration proposed for Van Dyke, the required rate of fluid flow of 1.7 L/s (26gpm) could be produced between wells if the leach zone permeability is 15md (equivalent to a hydraulic conductivity of $1.5\text{x}10^{-7}$m/s). The permeability of the Pinal Schist, which is the host to the mineralization, has been estimated to range from "negligible" (Jacoby and Company, 1977) to $6\text{x}10^{-6}$ m/s within the upper weathered zone of the rock (Golder, 1997) as summarized in Table 16-1. Because of the variability in results, the requirement to hydraulically fracture the rock mass between wells has been assumed and has been accounted for in the cost of this PEA.

Fluid flow between wells in a rock mass that has been hydraulically fractured is modelled to flow as illustrated in Figure 16-7 along the induced fracture planes. Fracture planes are assumed to be nearly horizontal and independent of the angle of the well. In this depiction, fluid is injected into a fracture plane located at the top of the leach interval and is pumped from a fracture plane connected to the recovery well and located at the bottom of the leach interval. Intervals between fracture planes are leached one at a time starting at the bottom of the hole and progressing upward (see Figure 16-11 and Figure 16-12).

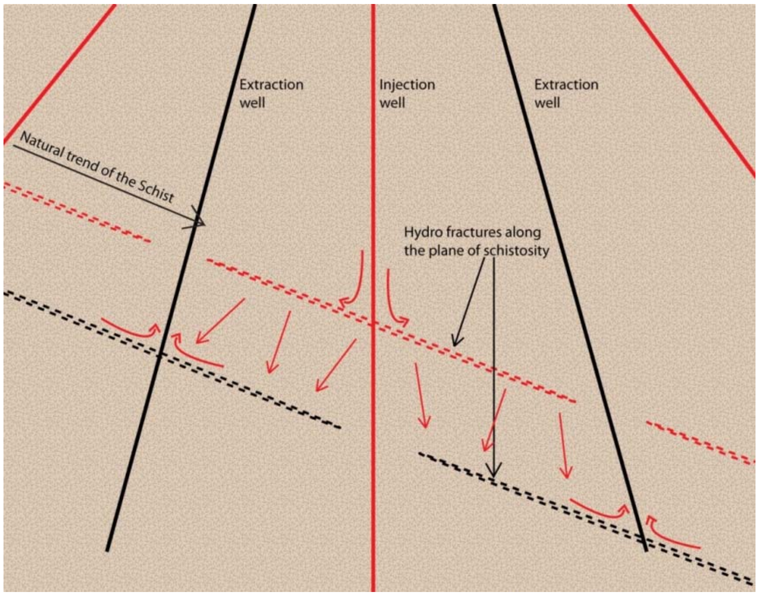


Figure 16-7 Progression of Fractures up Drillhole: Fracture Stage 1

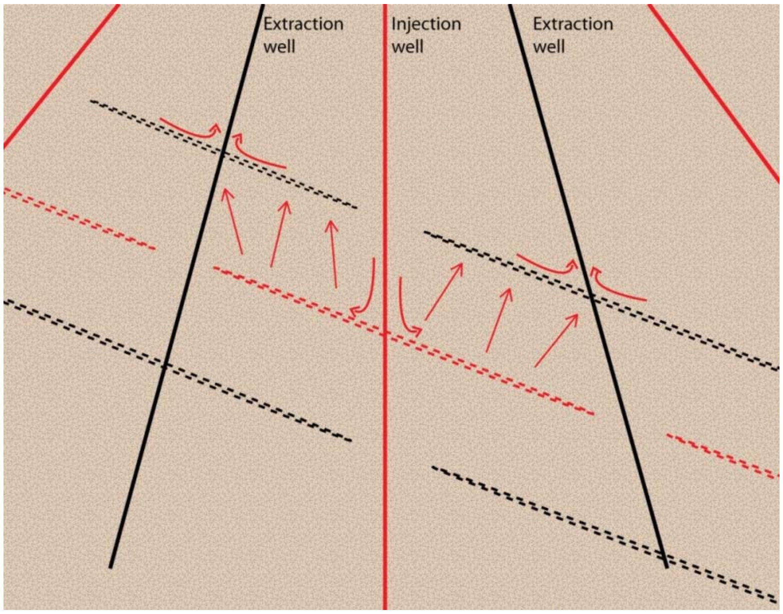


Figure 16-8 Progression of Fractures up Drillhole: Fracture Stage 2

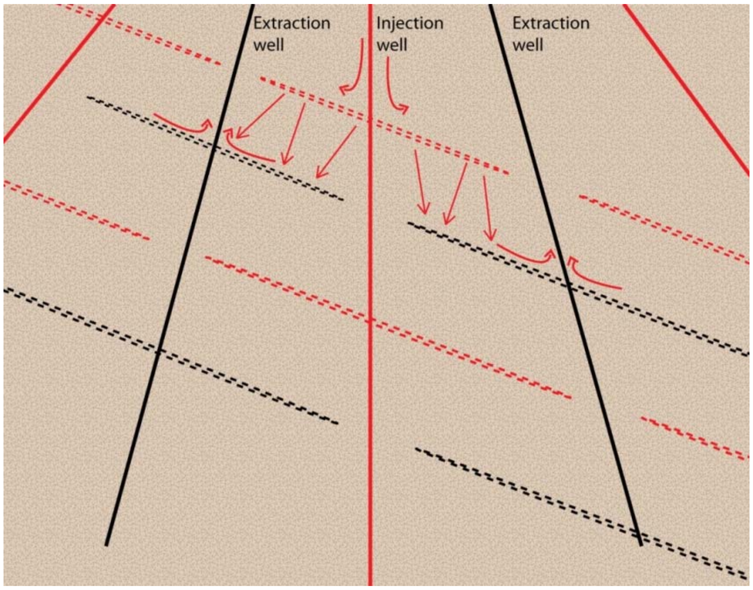


Figure 16-9 Progression of Fractures up Drillhole: Fracture Stage 3

Hydraulic fracturing in the mineralized zone was conducted at the Project during historic leaching testing by Occidental Minerals Corp. (Harshbarger, 1978 and 1979). The leach testing was conducted near the Van Dyke shaft using a 5-spot well pattern geometry with well spacing ranging from 24 to 38m. Hydraulic testing conducted prior to fracturing suggested limited to no hydraulic communication between the test wells. Hydraulic fractures were developed in the wells by pressurizing the test interval to a pressure that exceeded the critical fracture pressure of the formation, which ranged from 0.8 to 1.3psi/foot of depth (Dames and Moore, 1971; Jacoby, 1977; Occidental, 1979). Hydraulic fractures were created at the bottom of the leach interval in the injection well and at the top of the leach interval in the recovery well. After fracturing, hydraulic communication was established between injection, and recovery wells and injection rates varied between 15 to 45gpm (Walters, 1979 and 1980). Observed extraction rates are used to estimate an average effective permeability of the test zone after hydraulic fracturing was conducted. These calculations suggest an effective permeability 0.15md assuming linear fluid flow was established between fracture planes or 5.5md assuming radial fluid flow is the dominant model of flow between the wells. These calculated permeability values bracket the 1.7 L/s (26gpm) and leach zone permeability of 15md (equivalent to a hydraulic conductivity of $1.5\text{x}10^{-7}$m/s).

Field experience will dictate how many vertical leach intervals and fracture planes, if any, are required. The results of pilot testing will inform the wellfield design along with permeability testing and geophysical surveys conducted in each drillhole to further refine the wellfield design on a well block basis. If fracturing is conducted in the leach interval to increase production rates, the effect of fracturing on the production rates that can be achieved will depend on the geometry, length, and spacing of the fracture planes. Hydraulic fracturing will generally create horizontal fracture planes at shallow to moderate subsurface depths due to the lower lithostatic pressure. Fracture orientation is favoured along the rock formation bedding plane. A high pressure/moderate flow rate pump with a packer system is proposed to induce a fracture set with 10m to 30m radius (see Appendix D: SWS, 2015). Schistosity of the Pinal Schist is reported to be at 70° to vertical with secondary joint sets oriented at a

35 to 70° to vertical (Jacoby, 1978; Knight Piésold, 2014). The near horizontal schistosity is favorable for creating near horizontal fracture planes. Efforts to determine fracture plane orientation during historic leach testing wells were unsuccessful except in one case where results of a downhole geophysical survey suggested that an induced fracture plane may have been dipping at a 49° angle (Axen and Cole, 1980).

16.7.1 Copper Extraction Sequence

The resource has been broken into seventeen recoverable zones of mineralized material. The zones are based on the underground gallery from which the wells will be drilled, on the angle and length of drilling required to access the mineralization, and roughly on the amount of copper they will be able to produce. Each zone is accessed by its own well bay as illustrated in Figure 16-10. The number of each zone is based on its place in the production schedule and colours from cold to hot serving to further illustrate this.

An average drillhole length is used for all drillholes within a zone. Drillhole length is estimated by averaging the vertical distance between an underground gallery and two reference points in a zone. One reference point is at the extreme end of the zone, the other is a point directly beneath the well bay.

The number of drillholes in each zone is assumed to be the same as surface 5 Spot covering the same area.

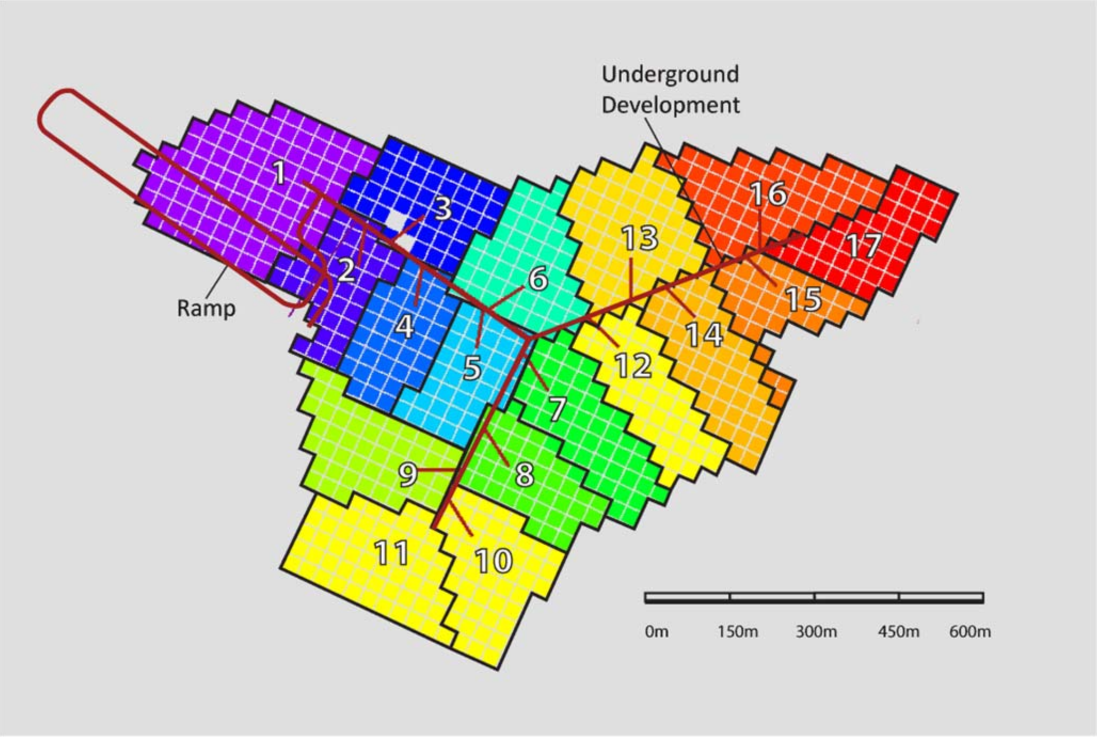


Figure 16-10 Plan View Showing Sequence of Well Bay Development and Extraction of Copper by Zone

The copper extraction plan is designed to provide the SX-EW plant with enough PLS to produce 24,000 tonnes per year. The schedule is detailed in Section 17.

16.7.2 Monitoring Wells

Monitoring wells will be installed along the perimeter of the leach area to monitor groundwater quality. Monitoring wells will be installed at various elevations in and above the mineralized zone. Monitoring wells will be constructed of nominal 4-inch diameter fibreglass reinforced pipe (FRP).

16.7.3 Well Abandonment

Clean water will be circulated through the leach field at the completion of operations in order to restore water quality in the leach field to concentrations established in the ADEQ discharge permit. Water will be pumped through each leach interval, starting with the lowest interval, until return water meets acceptable levels. Rinsing will take place by block as leaching operations within the block are complete. Rinsing of each leach interval is estimated to take four.

Production wells will be abandoned in compliance with the APP and UIC permit after groundwater quality criteria have been met. The process will be documented and reported to the regulating authorities. Wells will also be abandoned in accordance with criteria established for the WQARF zone, as specified in the document *Special Well Construction and Abandonment.*

16.8 Mine Plan

The mine plan comprises underground development followed by a production or extraction phase. Some development for access and set-up for production will be needed before copper production can commence and will be treated as Initial Capital with continued development once copper production has commenced is treated as sustaining capital. Both the development and production phases are discussed in the following sections.

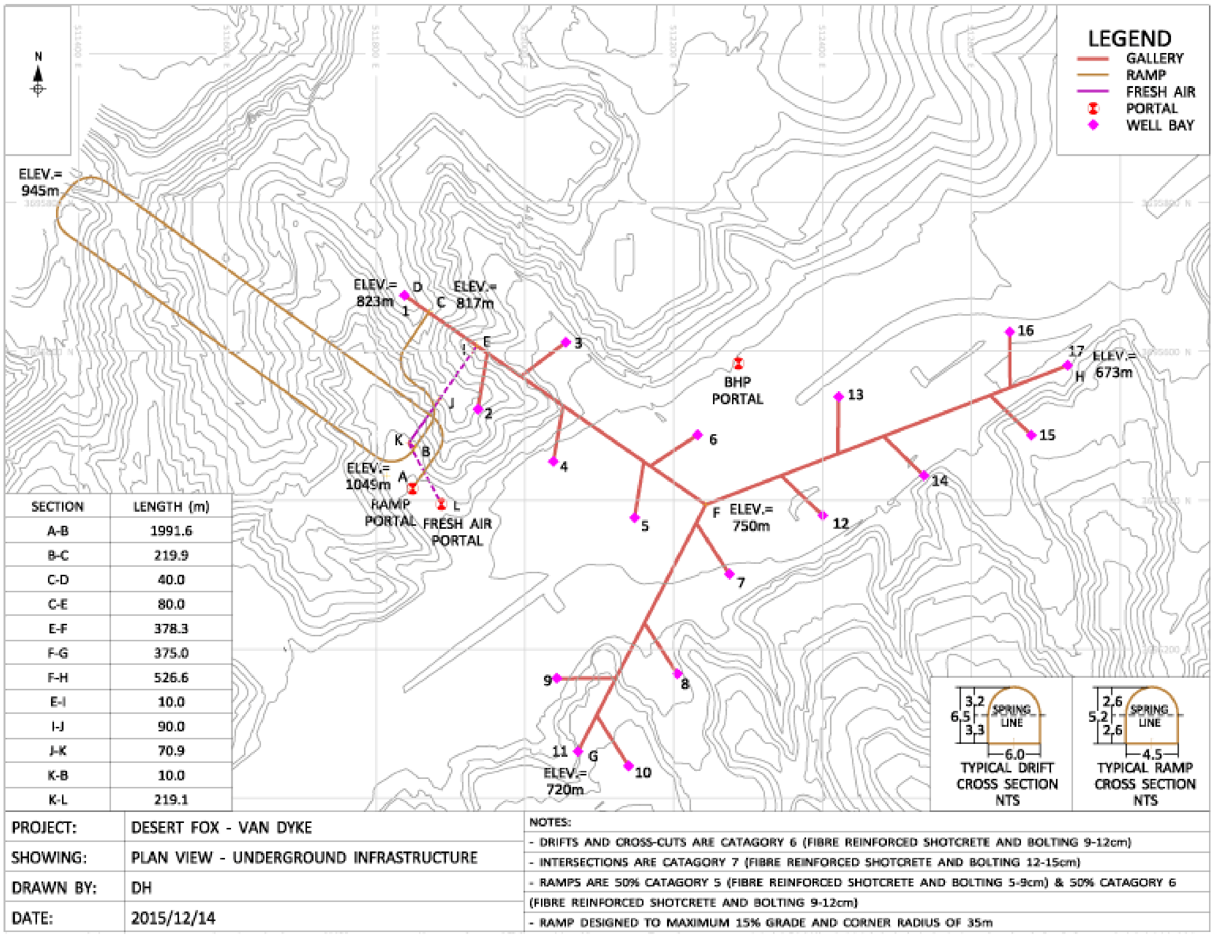
16.8.1 Mine Development Plan

The mine development plan is comprised of a ramp access from surface for rubber tired mobile equipment, level development within the targeted production zone, and service and ventilation facilities. These are the following excavations:

- 2,212 metres of ramp 4.9m wide x 4.9m high with arched back driven at a grade of -15%.
- 1,400 metres of level development (galleries) driven at 6.1m wide x 6.1m high.
- Fresh Air Route (Secondary Egress): This comprises 213 metres of 4.9m diameter borehole raise driven in two segments and connected via 181 metres of 4.9m wide x 4.9m high drifts.
- 1,484 metres of well bays 6.1m wide x 6.1m high.

All underground development is carried out using conventional drill and blast tunneling techniques with mechanized equipment. Appropriate ground support has been estimated at a scoping study level of detail, according to the Knight Piésold criteria based on ground conditions and size of openings. More detailed rock mechanics studies will be required in future studies.

Figure 16-11 shows the planned underground development with production following the numerical order of the well bays.



SECTION	LENGTH (m)
A-B	1991.6
B-C	219.9
C-D	40.0
C-E	80.0
E-F	378.3
F-G	375.0
F-H	526.6
E-I	10.0
I-J	90.0
J-K	70.9
K-B	10.0
K-L	219.1

PROJECT:	DESERT FOX - VAN DYKE
SHOWING:	PLAN VIEW - UNDERGROUND INFRASTRUCTURE
DRAWN BY:	DH
DATE:	2015/12/14

NOTES:
- DRIFTS AND CROSS-CUTS ARE CATAGORY 6 (FIBRE REINFORCED SHOTCRETE AND BOLTING 9-12cm)
- INTERSECTIONS ARE CATAGORY 7 (FIBRE REINFORCED SHOTCRETE AND BOLTING 12-15cm)
- RAMPS ARE 50% CATAGORY 5 (FIBRE REINFORCED SHOTCRETE AND BOLTING 5-9cm) & 50% CATAGORY 6 (FIBRE REINFORCED SHOTCRETE AND BOLTING 9-12cm)
- RAMP DESIGNED TO MAXIMUM 15% GRADE AND CORNER RADIUS OF 35m

Figure 16-11 Underground Development

The access ramp will be collared at the 1,049m elevation and will be driven to the gallery elevation of 817m. From there, the galleries will be driven at negative grades with the two wings terminating at the 720m and 670m elevations respectively so that they are situated with a vertical offset above the mineralized zone. The offset distance is determined by the requirement to be able to fans the production wells at the required spacing within the leach zone.

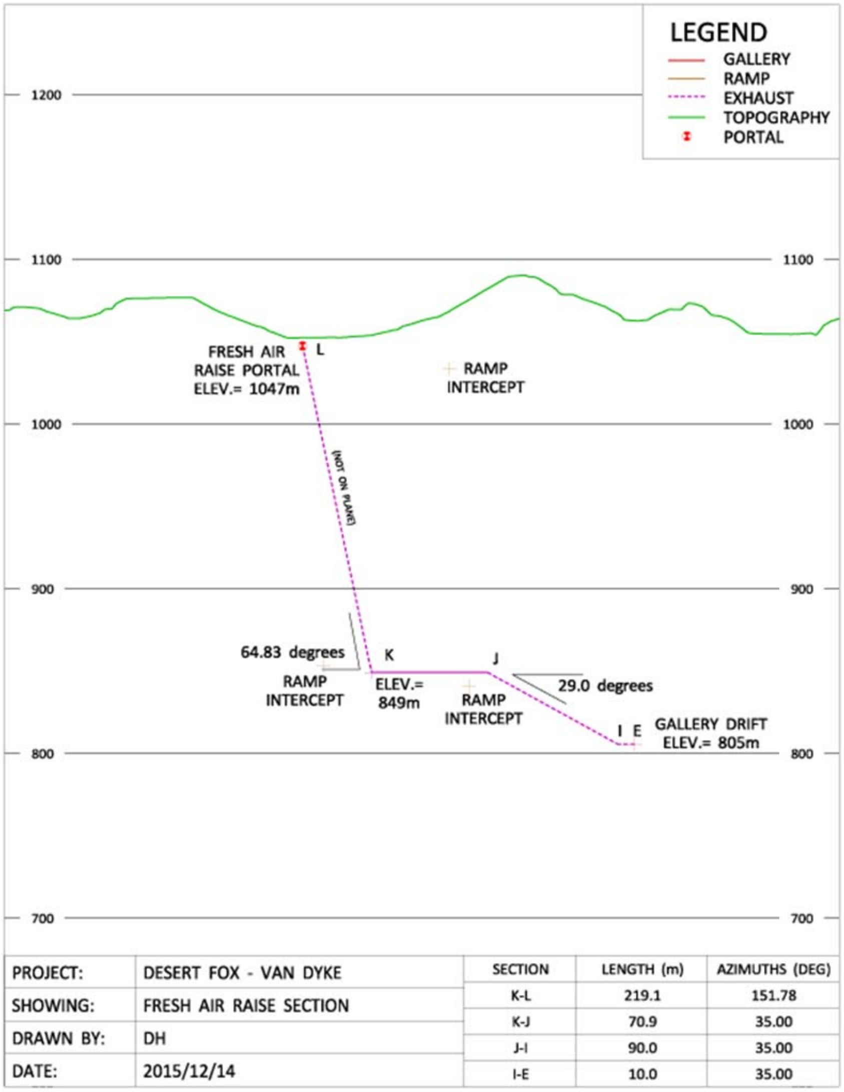
16.8.2 Contractor Mining Services

The Majority of the underground development is complete during preproduction. For this study, hiring a contractor mining service is deemed the most cost effective manner in which to carry out the development. The contractor will provide all operating labour, maintenance labour and supervision as well as all mobile and stationary equipment.

Upon demobilizing after development is completed, most of the mobile equipment is removed except for a service truck which will be used in the operations phase. Stationary equipment comprising ventilation fans, a compressor and dewatering pumps will also be left underground for the operations phase.

16.8.3 Ventilation

For the first 1,350 metres of ramp development, ventilation is provided by a primary fan located at the portal delivering air to the face through ventilation ducting which is extended as the face advances. Exhaust air then flows from the face, up the ramp to surface. Beyond this point, the first segment of the ventilation raise will be installed and the primary ventilation circuit is established by locating the main fan in a bulkhead at the top of the upper section of the ventilation raise.



PROJECT:	DESERT FOX - VAN DYKE
SHOWING:	FRESH AIR RAISE SECTION
DRAWN BY:	DH
DATE:	2015/12/14

SECTION	LENGTH (m)	AZIMUTHS (DEG)
K-L	219.1	151.78
K-J	70.9	35.00
J-I	90.0	35.00
I-E	10.0	35.00

Figure 16-12 Ventilation Raise

This fan will bring fresh air down the raise under positive pressure. The fresh air at the raise bottom will be picked up by the secondary fan which conducts it to the advancing ramp face from where it exhausts up the ramp. Once the ramp has accessed the gallery elevation, the second segment of the fresh air raise is driven and the face fan relocated next to it to intercept fresh air to bring fresh air to the remainder of the development work comprising the galleries and the well bays. This ventilation arrangement is permanent and will function[2] in this manner throughout the remainder of the operations phase of the project. The ventilation raise will be equipped with a ladder way and serve as an escape route during development of the galleries and well bays as well as throughout the operating phase. During development, as much as 60,000CFMs of ventilating air will be required. Once into operations, only 25,000CFMs will be needed.

16.8.4 Underground Development Schedule

Mobilization of contractor underground crews and equipment commences midway through Year -3 through to demobilization at the end of Year 4. Crews generally complete 13m/day in the main access ramp once full productivity has been reached. All development will be carried out by crews working 12 hour shifts dayshift and nightshift. After four weeks, crews will be sent out and replaced by a team of fresh workers. The contractor will need three crews when working at full productivity levels, two of which will be on site at any one time, with the third crew on days off. The contractor's crew at peak development is shown in the following Table:

Table 16-2 Contractor Labour Requirements per Crew

	Project Labour	On Site
Indirect	Project Superintendent	1
	Night Captain	1
	Safety Superintendent	1
	Project Engineer	1
	Purchaser/Clerk	1
	Lead Mechanic	1
	Mechanics	2
	Electrician	1
Direct	Shift Bosses	2
	Jumbo Operators	2
	Bolter Operators	2
	Scooptram Operators	2
	Truck Operators	2
	Raise Miners	2
	Nippers	2
	Total:	**23**

16.8.5 Production Schedule

The production schedule assumes an annual copper production of 27,200 tonnes and follows the extraction sequence outlined in section 16.7.1. The results are detailed in the following Table.

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[2] *Ventilation of the underground development only needs to be carried out when service personnel are entering the workings.*

Table 16-3 Production Schedule

Period		Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12
ZONE	Tonnes/Cu			27,200	27,200	27,200	27,200	27,097	26,671	20,214	9,497	7,962	6,975	50	-
1	21,909	0	0	21909	0	0	0	0	0	0	0	0	0	0	0
2	5,434	0	0	4104	1330	0	0	0	0	0	0	0	0	0	0
3	10,903	0	0	1187	9716	0	0	0	0	0	0	0	0	0	0
4	7,104	0	0	0	5200	1904	0	0	0	0	0	0	0	0	0
5	8,546	0	0	0	5142	3404	0	0	0	0	0	0	0	0	0
6	12,458	0	0	0	3779	6387	2292	0	0	0	0	0	0	0	0
7	16,170	0	0	0	2033	7923	6214	0	0	0	0	0	0	0	0
8	10,780	0	0	0	0	5976	4803	0	0	0	0	0	0	0	0
9	3,985	0	0	0	0	1606	2379	0	0	0	0	0	0	0	0
10	8,879	0	0	0	0	0	4460	4420	0	0	0	0	0	0	0
11	3,260	0	0	0	0	0	1194	2065	0	0	0	0	0	0	0
12	16,421	0	0	0	0	0	2578	6253	6253	1336	0	0	0	0	0
13	28,899	0	0	0	0	0	1475	4562	4562	4562	4562	4562	4562	50	0
14	20,361	0	0	0	0	0	1678	5716	5716	5716	1535	0	0	0	0
15	8,961	0	0	0	0	0	126	1895	3861	3078	0	0	0	0	0
16	17,445	0	0	0	0	0	0	1434	3400	3400	3400	3400	2412	0	0
17	5,752	0	0	0	0	0	0	752	2879	2122	0	0	0	0	0

16.8.6 Mining Waste Rock

The underground development will produce roughly 440 thousand tonnes of waste rock. All waste rock will be stored in the valley directly adjacent to the portal (see Figure 16-13). The waste rock dump will be built in lifts with an overall slope of 26 degrees. Funds are set aside to reclaim the rock pile at the end of the mine life (see Section 20).

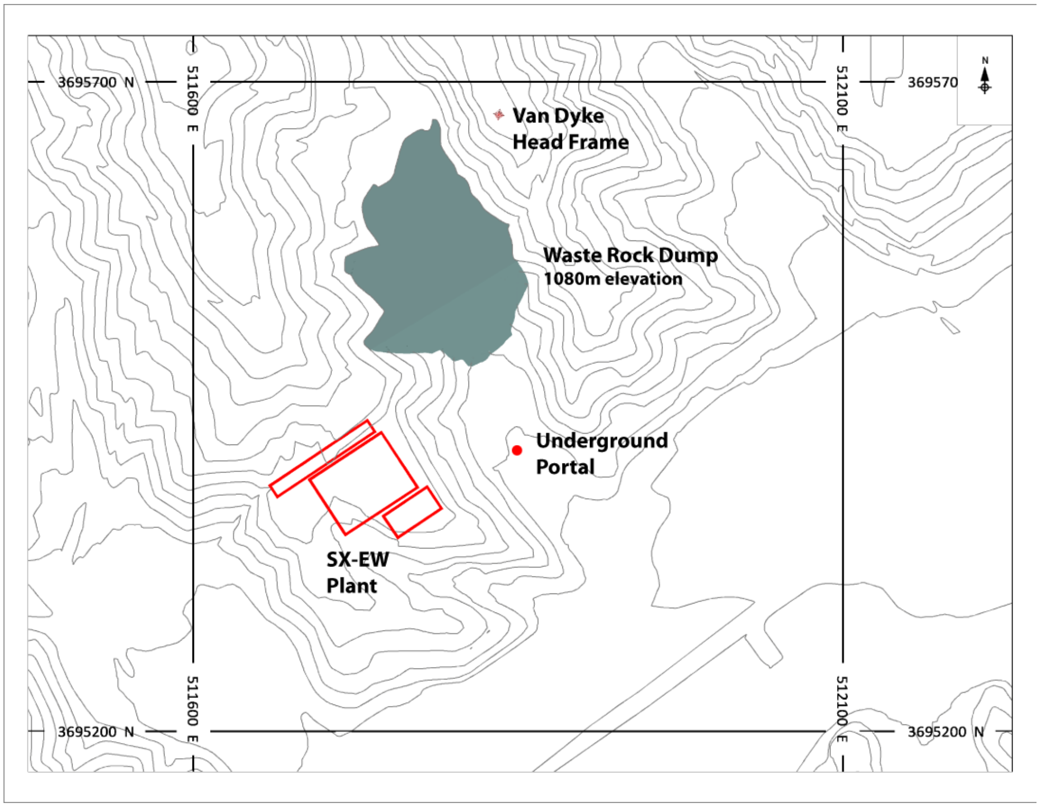


Figure 16-13 Waste Rock Dump

17 RECOVERY METHODS

The Van Dyke ILS Leach Project uses conventional solvent extraction (SX) and Electrowinning (EW) to recover copper from the pregnant leach solution (PLS) it receives from the in-situ leaching operation. Leaching is carried out with weak sulphuric acid bearing solution.

PLS recovered from the ISL is pumped to the PLS pond and then the SX plant. After the extraction of copper from the PLS the SX plant raffinate is recycled back to the ISL.

The SX plant processes approximately 1,200m^3/h of PLS with an approximate copper concentration of 2.6 grams per liter. Copper cathode production will total approximately 27,000 tonnes per year from an EW plant. A simplified process flowsheet is shown in Figure 17-1.

Final production of “Grade A” copper cathodes are trucked off-site.

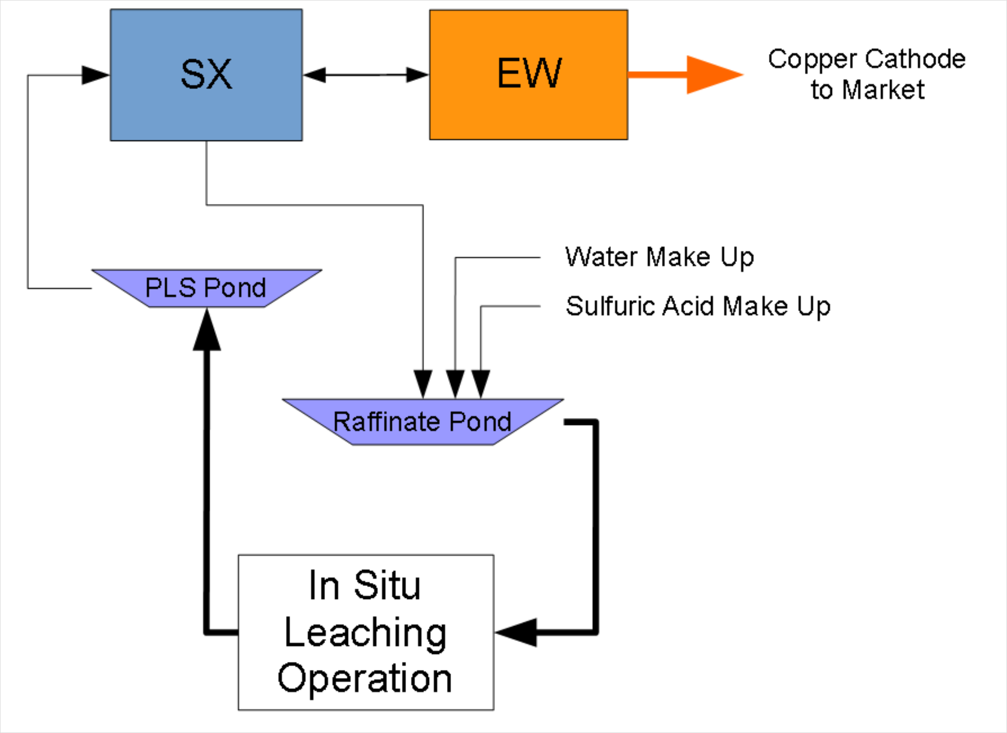


Figure 17-1 **Simplified Van Dyke Process Block Flow Diagram LIX-SX-EW**

17.1 Water & Solution Balance

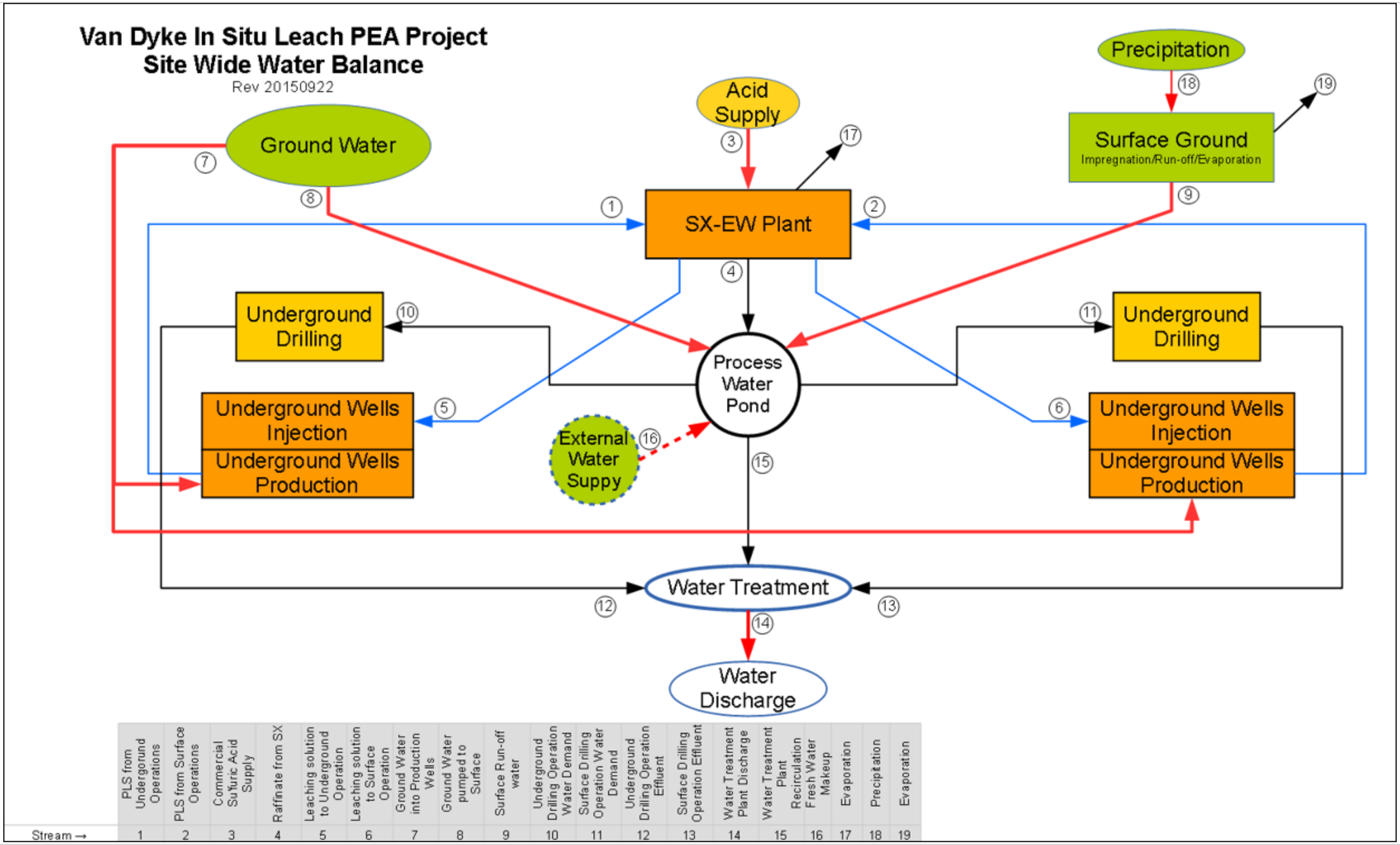
The overall water and solution balance in Van Dyke Project is shown in Figure 17-2. Ground water contained in the deposit is collected along with the PLS from each recovery well and pumped to the SX plant. It is expected that an additional 5% of the injected flow is contributed by the ground water see stream 7.

The volumetric flow equivalent to 1.5 kg acid/kg of Cu is shown in stream 3.

The seasonal precipitation at 2.7 inches per year, along with the average evaporation in the area at 10 L/m2/d is expected to contribute in negligible quantities to ground water inventories, see streams 9, 18, and 19.

A water treatment plant collects any excess water in the systems that after neutralization is discharged at a rate of 55.6m^3/h, see stream 14.

An external water supply is shown in stream 16, but likely not required for industrial use because all make-up water requirements are satisfied with the available ground water contained in the deposit.



	PLS from Undergorund Operations	PLS from Surface Operations	Commercial Sufuric Acid Supply	Raffinate from SX	Leaching solution to Underground Operation	Leaching solution to Surface Operation	Ground Water into Production Wells	Ground Water pumped to Surface	Surface Run-off water	Underground Drilling Operation Water Demand	Surface Drilling Operation Water Demand	Underground Drilling Operation Effluent	Surface Drilling Operation Effluent	Water Treatment Plant Discharge	Water Treatment Plant Recirculation	Fresh Water Makeup	Evaporation	Precipitation	Evaporation
Stream →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Figure 17-2 Van Dyke ISL Project, Water & Solution Balance

17.2 Processing Facilities Location

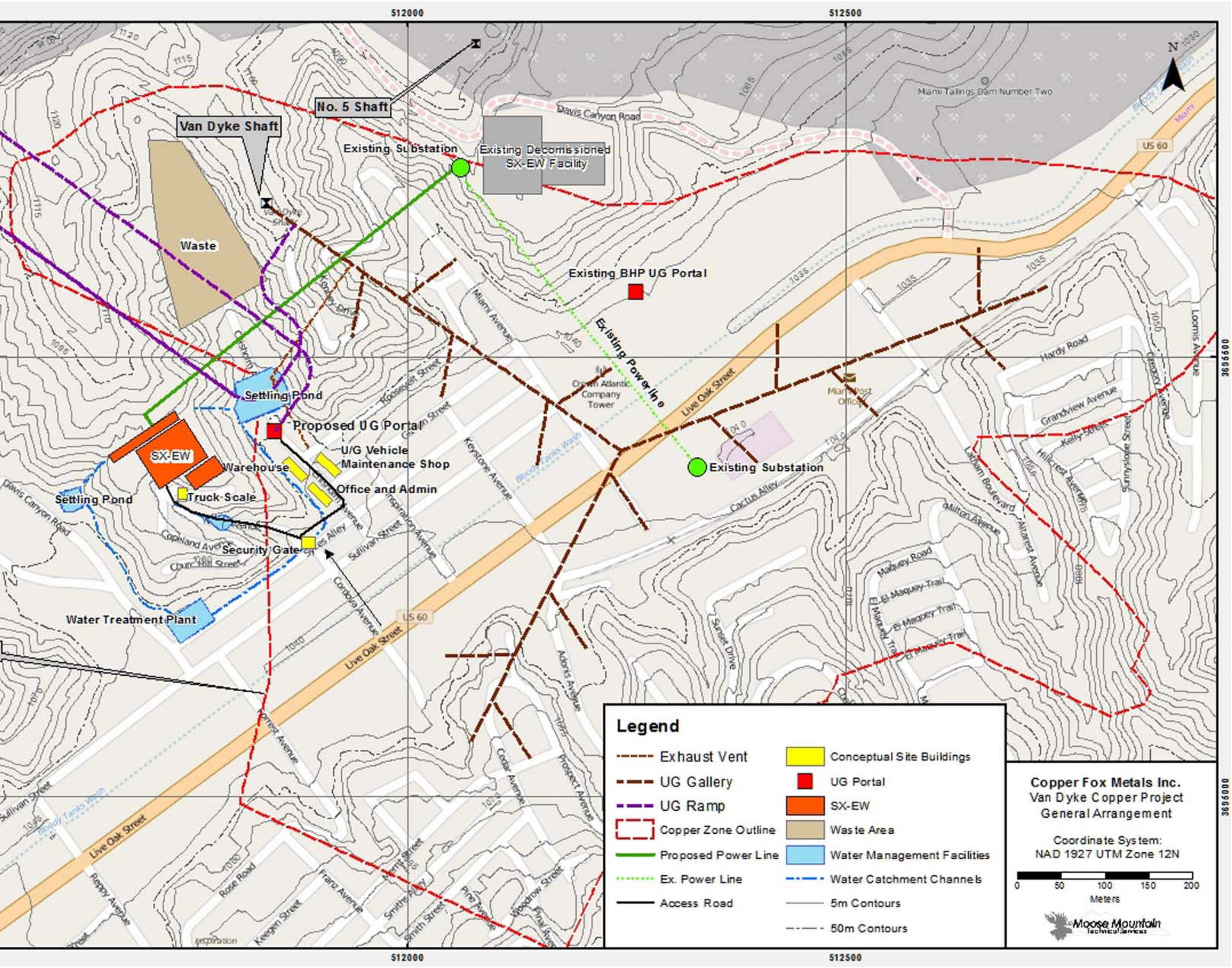
The Van Dyke processing facilities are located within the limits of the Van Dyke Project's property. The processing facilities include the following main areas.

- In-situ well field located underground
- Solvent extraction plant
- Electrowinning tankhouse
- Tankfarm for the auxiliary vessels
- Solution pond to handle: PLS, Raffinate, Process Water, Emergency pond
- Water treatment plant
- Ancillary facilities, including warehouse and maintenance shop
- Administration offices

18 PROJECT INFRASTRUCTURE

The Van Dyke Copper project is located within the town limits of Miami, Arizona. The Globe-Miami district is an active mining district, and currently supports several mining operations including: Freeport-McMoRan operates an open pit mine, smelter and rod mill. Capstone mining operates the Pinto Valley open pit copper mine, and KGHM operates the Carlota SX-EW copper plant and open pit copper mine, BHP owns the adjacent Miami underground operation and SW/EW plant which is currently under care and maintenance. As such, there are mining services and support in the local area, in the municipality adjacent to the property as well as infrastructure from previous operations on and surrounding the property.

A wide array of infrastructure exists nearby and can be utilized for the planned ISL project. The property lies along the northern town limit and town services such as sewer, water, and communications are assumed to be present on or nearby the property. Powerlines run adjacent to the property to a closed SX-EW facility adjacent to the east. The planned main site buildings (administration, maintenance, and warehouse) are sited along Chisholm Avenue, the main access road. To the west, the SX-EW and truck scale are sited at the end of Nash Avenue. See Figure 18-1.


512000
512500
3696500
3696000
N
No. 5 Shaft
Van Dyke Shaft
Existing Substation
Existing Decomissioned SX-EW Facility
Davis Canyon Road
Miami Tailings Dam Number Two
US 60
Waste
Existing BHP UG Portal
Existing Power line
Settling Pond
Proposed UG Portal
U/G Vehicle Maintenance Shop
SX-EW
Warehouse
Office and Admin
Truck Scale
Settling Pond
Security Gate
Water Treatment Plant
Existing Substation
Live Oak Street
Cactus Alley
Miami Avenue
Keystone Avenue
Hardy Road
Grandview Avenue
Loomis Avenue
Latham Boulevard
Miami Post Office
Cross Atlantic Company Tower
Legend
Exhaust Vent
UG Gallery
UG Ramp
Copper Zone Outline
Proposed Power Line
Ex. Power Line
Access Road
Conceptual Site Buildings
UG Portal
SX-EW
Waste Area
Water Management Facilities
Water Catchment Channels
5m Contours
50m Contours
Copper Fox Metals Inc.
Van Dyke Copper Project
General Arrangement
Coordinate System:
NAD 1927 UTM Zone 12N
0
50
100
150
200
Meters
Moose Mountain Technical Services

rrangement

18.1 Access

Highway 60 is the main corridor through the town of Miami, and the project is located 0.5km from the highway, with direct access on Live Oaks Street via Cordova Avenue. Live Oaks is a 4-lane road. An allowance for road upgrades for site traffic is included in the capital estimate. This is assumed to cover turning lanes for trucks and upgrades to traffic signals. Additional allowance is included for road widening and access road construction along Chisholm Ave.

Access to the site is controlled by a security gate at Cordova Avenue, and perimeter fencing installed along the west, south, and eastern sides of the site.

18.2 Power

Site power is assumed to be available from nearby de-commissioned SX-EW facility adjacent to the proposed Van Dyke property. An approximately 500m long powerline and new substation are included in the capital costs to connect the Van Dyke facilities (see Figure 18-1) Future studies must confirm ownership of the existing powerline and substation.

18.3 Water

Potable water is assumed to be drawn from new wells for drinking, shower, and washroom facilities. Fresh and fire water will be supplied by new wells, with sufficient storage capacity provided by on-site tanks. An allowance for tanks and water services is included in the capital estimate. Process water is addressed in Section 17.

18.4 Waste Management

Because the project is located within municipal service area, septic, sewer, and solid and sanitary waste disposal are assumed to be provided by the town.

18.5 Communications

Telephone and internet services are assumed to be present within Miami town limits, and readily accessible to the project.

18.6 SX-EW Processing Facility

The Van Dyke project produces copper using a Solvent Extraction and Electrowinning (SX-EW) plant. The plant site is located on the west of the property, with access from Nash Avenue, past the security gate at Chisholm Ave. The site is located on a plateau west of the administration and maintenance buildings. The plant consists of the SX facility, the EW facility, and tank farm. Trucks load at the plant loading dock and exit past the truck scale and through the gate.

18.7 Underground Mine Portal and Infrastructure

Access to the underground is via the main mine portal located on Chisholm Avenue, approximately 200m south of the existing Van Dyke mine shaft. Underground infrastructure, including power supply and distribution, dewatering, compressed air and ventilation air are all included in the contract mining capital costs, and managed by the contractor.

18.8 Buildings and Facilities

An office facility for administration, management, engineering, and other office personnel are situated along the main access corridor of Chisholm Ave. Nearby are the maintenance and warehousing facilities serving the underground mining operations and underground ISL operations.

A main contractor laydown facility is also provided for the underground mining operations. The maintenance facility, warehouse, and laydown area are nearby and have easy access to the underground portal.

18.9 Water Management

18.9.1 General

The site water management plan is shown schematically on Figure 18-1 and will include the following features:

- A water management pond (WMP) below the waste rock dump from the underground development muck. The WMP will collect runoff and toe seepage
- Clean water diversion ditches as required to route water around the project infrastructure
- Contact water collection channels down gradient of the project infrastructure
- Sediment control ponds (storm water collection ponds) down gradient of disturbed areas, particularly during construction
- A water treatment plant (WTP) to treat all surplus water from the site before it is discharged.

The design of the ponds, ditches, and channels for the Project will be in accordance with the Best Available Demonstrated Control Technology (BADCT) guidance manual (Publication # TB 04-01), entitled "Arizona Mining Guidance Manual BADCT". The impoundments will be designed to meet or exceed the prescriptive criteria and requirements set out in the BADCT manual.

18.9.2 Water Management Pond

The WMP will be located immediately down gradient of the toe of the waste rock dump shown on Figure 18-1. The WMP will be constructed and commissioned prior to the start of underground development and placement of waste rock within the dump.

The pond will be designed to manage runoff and seepage from the waste rock dump, as well as surplus process flows from the Project, before removal to the WTP. The impoundment will be classified as a Process Solution Pond under the BADCT guidelines and will therefore need to be designed based on the criteria outlined in Section 2.3 of the BADCT manual.

The WMP will be designed to manage up to approximately $60m^3/h$ of surplus water from the ISL process that will be generated throughout the operations phase of the project and an additional $4m^3/h$ of runoff and seepage that is expected from the waste rock dump on an average annual basis. The water level in the WMP will be maintained as low as possible by promptly transferring water directly to the WTP prior to discharge. The WMP has been sized with capacity to attenuate the inflow resulting from approximately the 1 in 100-year storm. Flood flows in excess of the 1 in 100-year storm will be discharged via an overflow spillway. The WMP will be maintained in the closure phase of the project until such time that the seepage and runoff from the waste rock dump can be discharged directly to the environment.

The pond will be constructed using a balanced cut and fill grading plan to the extent possible, while providing an allowance for potentially unsuitable excavated material. An appropriate quantity of excess cut will be stockpiled during construction to provide material for reclamation at closure. The pond will be constructed with a double liner and a leakage collection and recovery system (LCRS).

18.9.3 Plant Site Runoff Ponds

The plant site runoff ponds will be constructed directly down gradient of the SX-EW plant site as shown on Figure 18-1. All storm water runoff from the plant site area during construction will be collected in the plant site runoff ponds. Water will be promptly transferred to the WMP, thereby keeping the runoff ponds empty to the extent possible. The plant site runoff ponds will be maintained throughout operations as a contingency measure, but are not expected to be active since internal ditching and ponds will be used to manage runoff within the plant site.

The ponds will be classified as Non-Stormwater Ponds under the BADCT guidelines and will therefore be designed based on the criteria outlined in Section 2.2 of the BADCT manual.

18.9.4 Water Treatment

The operational phase of the project will generate a net surplus of water from the following sources:

1. The requirement for hydraulic control within the ISL area: a positive hydraulic gradient will be maintained towards the mining area at all times during operations which will result in a net inflow of groundwater to the project area.
2. Raffinate bleed from the SX-EW process: a portion of the raffinate stream will be bled off to accommodate the addition of sulfuric acid to the process.
3. Rinsing water: clean water will be flushed through the exhausted leach interval until target return water quality objectives are met.
4. Runoff and seepage collected from the waste rock pile.

These water sources will be combined in the water management pond below the waste rock dump and treated at a WTP prior to discharge. The total estimated design flow for the WTP during operations is 600,000m^3/y. The WTP will continue to operate for 2 years into the closure phase of the project to treat rinse water from ongoing reclamation of the resource blocks still undergoing rinsing and drainage from the waste rock dump. It is expected that the flows requiring treatment in closure will be less than the total WTP design flow during operation.

The WTP has been assumed to comprise a lime neutralization process designed to increase pH and remove metals from the influent. The plant design may incorporate the addition of other reagents to effectively meet the treatment targets. A high density sludge or similar process will be used to reduce the volume of the solids that will be produced at the plant. The actual treatment process is to be determined during future design work once the influent has been characterized and the treatment objectives have been defined.

The deposition of the underflow solids from the WTP will be sent to a secure cell for permanent disposal or removed from the site.

19 MARKET STUDIES AND CONTRACTS

No formal marketing study has been completed for Van Dyke.

Van Dyke will produce and sell a Grade A copper cathode (99.99% pure) to generate revenue for the Project. Sales contracts that may be entered into are expected to be consistent with standard industry practice and similar to typical contracts for the supply of copper cathode. The majority of the copper cathode produced at Van Dyke is expected to be sold on the spot market, and prices are expected to be metal spot prices fixed by the London Metals Exchange (LME).

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Permitting

Environmental permitting for the Van Dyke mine is prescribed by the federal US Code (USC) laws, the US Code of Federal Regulations (CFR) and Arizona Revised Statutes (ARS). The environmental permitting process is managed by the USEPA and the Arizona Department of Environmental Quality (ADEQ). Other federal and state agencies could also be involved, e.g. compliance with the Endangered Species Act would be managed under the authority of the US Fish and Wildlife Service and the Arizona Game and Fish Department. Permitting and environmental information for this report is provided by Greenwood Environmental.

There is a high likelihood that pilot testing will be a permitting necessity. Such tests will need to demonstrate hydraulic control of sub-surface liquids.

The main environmental permits required for the Pilot Test (see Section 26.3) and the commercial-scale operation are presented in Table 20-1. The table also shows to which project phase the permit applications should be submitted as well as key components of the permit applications. The authority agency is indicated in brackets for each permit.

Table 20-1 Major Steps for Environmental Permitting

Project Phase	Permit Application for in-situ leaching - pilot test (no SX-EW process)	Permit Application for in-situ leaching – commercial- scale operation (with SX-EW process)	Key Components
Feasibility Study and Pilot Test Design (one year prior to pilot testing)	Aquifer Protection Permit for leaching operations and surface impoundments (ADEQ)	-	- Best Available Demonstrated Control Technology - compliance with Aquifer Water Quality Standards - hydrogeological study demonstrating pollutants will not reach the aquifer - monitoring plan - contingency plan with alert levels - closure plan
	Underground Injection Control Permit for injection wells (USEPA)	-	- hydrogeological study demonstrating hydraulic control of injected fluids - well casing integrity - injection conditions - monitoring plan - contingency plan - injection wells closure plan
Basic Engineering of the commercial-scale operation (1 year prior to commercial-scale plant construction)	-	Aquifer Protection Permit (ADEQ) for leaching operations and surface impoundment	- Best Available Demonstrated Control Technology - compliance with Aquifer Water Quality Standards - hydrogeological study demonstrating

Project Phase	Permit Application for in-situ leaching - pilot test (no SX-EW process)	Permit Application for in-situ leaching – commercial- scale operation (with SX-EW process)	Key Components
			pollutants will not reach the aquifer - monitoring plan - contingency plan with alert levels - closure plan
	-	Underground Injection Control Permit for injection wells (USEPA)	- hydrogeological study demonstrating hydraulic control of injected fluids - well casing integrity - monitoring plan - injection conditions - contingency plan - injection wells closure plan
	-	AZPDES/Stormwater Pollution Prevention Plan for “point source” discharge to waters of the US, including stormwater, mining activities and process water (ADEQ)	- surface water drainage plan including discharge points, effluent characteristics and flow rates - control measures - effluent limitations (technology based and Water Quality Standards) - monitoring plan
	-	Air Quality Control Permit for point sources e.g. SX-EW and area sources e.g. impoundments, dust (ADEQ)	- air emission rates and factors - control equipment - air dispersion model - compliance with National Air Quality Standards
Detailed Engineering of the commercial-scale operation (6 months prior to commercial-scale plant construction)	-	Survey of cultural resources (SHPO) and endangered species and migratory birds (USEPA)	If cultural resources, endangered species and/or migratory birds are present, mitigation measures will be developed in consultation with government agencies.
	-	Native Plants Notice (ADA)	Authorization to remove protected Native Plants prior to construction.
	-	CWA 404 (USACE) and 401 (ADEQ) for discharge of dredged or fill material into waters of the US	USACE assesses the requirement for a certification managed by ADEQ.
	-	Hazardous waste generator Identification Number (ADEQ)	A system that tracks hazardous materials from their point of generation to their ultimate disposal site.

The main permits required for the pilot test are the APP and the UIC permits with an expected processing time of one year. After the pilot test is designed (at least six months prior to initiating testing), it will be determined if additional environmental authorizations are required for air emissions, storm water, native plants and hazardous waste. Surveys could also be required for potential cultural resources and endangered species and migratory birds.

For the commercial-scale operation, during the Detailed Engineering phase (at least six months prior to commercial-scale plant construction), a review will be performed to ensure compliance to all applicable environmental legislation.

A review of the major permits and regulatory requirements for the Project is presented in Major Permit Requirements (Knight-Piésold, 2014a).

Key steps to obtain the APP and UIC permits are expected to include the following:

1. Develop APP and UIC Work plans in consultation with ADEQ and EPA. Consultation will be sought from the regulatory agencies to ensure that the data collection program is designed to support an efficient permit application process.
2. Groundwater sampling will be conducted at monitoring wells prior to operations to establish baseline water quality at the site. The results of monitoring and water quality sampling will be used to characterize baseline groundwater conditions and to define site specific water quality conditions for permitting, such as alert levels (AL) and aquifer quality limits (AQLs).
3. Point of Compliance (POC) wells will be installed outside the perimeter of the mineralized zone to monitor the water quality and confirm that no solution migrate downgradient of the facility. POC wells will be installed at various elevations within multiple geologic formations, including the mineralizated oxide and mixed zones. Results of groundwater monitoring at POC wells will be reported to EPA and UIC as part of the permit requirements.
4. Hydraulic testing will be conducted to confirm hydraulic control and refine the understanding of test zone hydrogeology, such as porosity and permeability. Numerical models will be developed to evaluate groundwater flow, transport and geochemistry. This information will be used to support applications for APP and UIC permits that are required for pilot testing.
5. A pilot test will be conducted to evaluate copper recovery rates within a targeted area of the mineralization. Monitoring and reporting criteria during the pilot test will be the same as full-scale commercial operations, including a rinsing period to restore water quality to permit requirements. The pilot test facility will be operated for a period of approximately one year.
6. Application for the commercial-scale APP permit will be made that incorporates results of the pilot test.
7. Quarterly reporting during pilot testing and commercial-scale operations is required to the EPA and ADEQ as part of the UIC and APP permits, respectively.

20.2 Archeological Investigations

To ensure compliance with the National Historic Preservation Act, Desert Fox will consult with the State Historic Preservation Officer who will determine if a cultural resources field survey is needed. If the cultural resources field survey is conducted and indicates that cultural resources are present, the State Historic Preservation Officer will be informed and consulted on cultural resources treatment measures.

According to A.R.S § 41-865, if burial sites, human remains or funerary objects are discovered on site, all activities will be ceased temporarily, and the director of the Arizona State Museum will be notified of the discovery and will determine the appropriate treatment in consultation with the landowner.

20.3 Community Relations

On April 2014, Desert Fox held an open house in Miami to present the project to community members and answer questions about its activities at the Van Dyke project. An information pamphlet was distributed to participants. Desert Fox Project Manager and Corporate personnel also had informative and collaborative meetings with Miami Mayor and other representatives of the Town of Miami. Desert Fox is committed to meet and effectively inform the Town of Miami and its community members at each phase of the Van Dyke project. These meetings will provide opportunities for two-way dialogue and active public involvement in project design and associated mitigation strategies.

The Desert Fox office in Miami is opened to the public for inquiries about the project.

By using in-situ leaching, the copper will be extracted through underground wells with minimal effects for local communities related to surface land use, visual landscape and noise level during mine operation.

20.4 Environmental Management Plans

Environmental Management Plans are site-specific plans developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with environmental legislation. They include legislative requirements, best management practices, mitigation measures, and monitoring and reporting commitments. Environmental management plans may include but are not limited to:

- Surface Water Management and Monitoring Plan
- Groundwater Management and Monitoring Plan
- Contingency Plans including alert levels and aquifer quality limits
- Sediment and Erosion Control Plan
- Air Quality Management and Monitoring Plan
- Emergency and Spill Response Plan
- Wildlife Management and Monitoring Plan
- Hazardous Materials Management Plan
- Archaeological and Cultural Resources Management Plan
- Transportation Management Plan

20.5 Water Rights and Water Usage

Under the Water Rights Registration Act (A.R.S. § 45-180, et seq.), Desert Fox will file a Statement of Claim of Rights to use public (surface) water of the State of Arizona[3]. There is no groundwater right system (Active Management Areas) in Gila County.

In order to maintain hydraulic control (an inward hydraulic gradient) in the leach zone, the ISL operation will operate with a net water surplus and water is not expected to be needed for the leach operations. If

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[3] *ADWR, 2015. http://www.azwater.gov/AzDWR/SurfaceWater/SurfaceWaterRights/SurfaceWater_FAQ.htm#Statement. 30 June 2015*

water is needed to support operations, it can be sourced from groundwater wells installed in the alluvium unit. Water supply wells installed in the alluvium unit supplied water to historic leach operations. These wells were reported to produce 250 to 500 gpm. If no longer accessible, similar wells will be installed and used as needed. Water from these wells will have to be reviewed to ensure the water quality is appropriate for use in the process.

20.6 Mine Closure

Closure will require remediation, decommissioning, removal, and reclamation of the project components at such time that they are no longer required and in accordance with the project permits.

The following major activities will be carried out:

- The wellfield will be remediated (rinsed) to restore groundwater quality within the mined areas to levels specified in the project permits
- Buildings and other infrastructure, including the SX-EW plant will be decommissioned and removed
- The earth structures and disturbed areas will be reshaped to achieve long term stability and protection against erosion
- The waste rock dump containing mine development muck will be reshaped and a vegetative cover will be constructed
- Excess water generated from the site, including wellfield rinse water will be treated and released for two years following the cessation of commercial operations
- The water management structures will be decommissioned
- The water treatment plan will be decommissioned

The total estimated closure and reclamation cost for the site is approximately $13M as summarized in Table 20-2. The key activities are described below.

Table 20-2 Estimated Closure and Reclamation Cost

Reclamation and Closure		(000's)
Wellfield Decommissioning		$3,700
Infrastructure Decommissioning		$4,000
SX-EW Decommissioning		$3,200
Closure Water Treatment (2 Years)		$1,200
Water Treatment Plant Decommissioning		$1,000
Total Reclamation and Closure Costs		**$13,100**

20.6.1 Wellfield Decommissioning

The groundwater within the mining area will be remediated by rinsing with water or other solutions as described in Section 16 such that groundwater quality meets the objectives set out in the project permits. It is assumed that two years of rinsing will be required after mining is completed. Rinse water and solutions will be disposed of in accordance with the permit requirements; this may include treatment at the water treatment plant prior to discharge.

The individual wells will be decommissioned and abandoned after the rinsing objectives are met, in accordance with agency and permit requirements. All piping, cables, instrumentation, equipment, and other minor infrastructure will be removed and disposed of.

20.6.2 Infrastructure and Process Plant Decommissioning

Buildings, equipment, and other facilities will be decommissioned as follows:

- All surface facilities and buildings will be removed.
- All equipment will be removed from the underground mine and the access portal will be sealed.
- Concrete foundations will be demolished and buried on site.
- Building materials, pipelines, pumps, electrical equipment, septic systems, and machinery will be trucked to the nearest acceptable disposal facility.
- Solution ponds will be inspected, removed, and disposed of in accordance with the permit and regulatory requirements.
- Disturbed areas will be scarified, re-contoured, and revegetated as needed to minimize erosion.

20.6.3 Waste Rock Dump Reclamation

The waste rock dump and other disturbed areas will be graded to attain a stable configuration, establish effective drainage, minimize erosion and protect surface water resources. To the extent practicable, grading will blend the topography of disturbed areas with the surrounding natural terrain. The regraded surface will be scarified where necessary prior to placement of topsoil to establish a bond between subsoil and topsoil. The stable surfaces of the waste rock dump will be revegetated in accordance with applicable post-mining land use plans and permit requirements.

20.6.4 Water Management Ponds and Water Treatment Plant

Closure of the water management pond (WMP) and plant site runoff ponds will consist of water removal, characterization testing of the residual sediment, liner removal, regrading, and revegetation. Water or solutions contained within the ponds will be pumped to the water treatment plant (WTP) prior to discharge. Following removal of all free liquids from the WMP and plant site runoff ponds, any deposited sediments will be allowed to desiccate to the extent possible to permit safe access for personnel and equipment. Sediment will be removed and disposed of as appropriate.

The liners will be washed with water following removal of all remaining liquid from the pond. The wash water will be pumped to the WTP prior to discharge. The liners will be cut, removed and inspected for potential use elsewhere, sold, or disposed of in an off-site landfill. The embankment fill material and stockpiled soils will be removed and used to fill the pond excavations. The area will be re-graded to its natural slope, covered with any stockpiled growth medium (topsoil), and revegetated with appropriate plant species.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimate

21.1.1 Basis of Estimate

The Van Dyke Copper Project estimated cost is prepared at a scoping level. This estimate conforms to the American Association of Cost Engineers (AACE) Class 5 estimate and the accuracy level is considered to be -30% to +50% based on an engineering definition of 0-2%. A detailed Work Breakdown Structure (WBS) is not provided, however, a WBS code is assigned to separate the estimate into sections, described in Table 21-1.

All costs expressed in this section are in US dollars for Q4 2015. Escalation, financing interest, force majeure, labour disputes, currency fluctuations, or property acquisition costs are excluded from this estimate. All costs for exploration testing and continued study are excluded from this estimate.

21.1.2 Capital Estimate Sources

The Class 5 estimate is prepared by Moose Mountain Technical Services (MMTS) with contributions from Schlumberger (SWS), Cementation USA Inc., and Knight-Piésold (KP). The following table describes the estimate methodology, source, and expected accuracy of the estimate by WBS code.

Table 21-1 Estimate Type, Source, and Accuracy

WBS Code	Description	Estimate Type	Source	Expected Accuracy
A	General Site	Factored	MMTS	-20% / + 50%
B	ISL Drilling and Development	Estimated	SWS	-20% / + 30 %
C	Underground Mining	Estimated	Cementation USA Inc.	-20% / + 20 %
D	SX-EW Plant and Processing	Factored	MMTS	-20% / + 50%
E	Buildings And Facilities	Factored	MMTS/KP	-20% / + 50%
X	Project Indirects	Factored	MMTS	
Y	Owner's Costs	Factored	MMTS	
Z	Contingency	Factored	MMTS	

21.1.3 Capital Cost Summary

The capital cost estimate consists of the above direct costs, plus indirect cost factors, for the underground mining, ISL drilling and wellfield development, the SX-EW plant, and buildings and facilities. (See Section 18 for descriptions of the facilities and services). MMTS uses factored estimates for Work Breakdown (WBS) codes A, D, E, and all Indirects. For Code B, ISL drilling costs, SWS analyzed and produced detailed estimates for drilling unit costs. For Code C, Underground Mining, Cementation USA Inc., an Arizona underground mining contractor produced cost estimates based on recent work in the region.

The capital cost estimate is a factored estimate using similar projects in the region as data sources. As such, material and labour costs are not detailed, but are assumed part of the line item cost. The capital estimate is divided into Initial Capital and Sustaining Capital. Initial Capital is defined as all costs incurred until start-up of the processing facility, including pre-production operating costs. Sustaining capital is all capital required after start-up for additional or replacement equipment. Initial Capital costs are presented in the following table:

Table 21-2 **Initial Capital Cost Summary**

Capital Estimate Summary (000's)		
WBS Code	**Description**	**Cost**
A	General Site	$10,000
B	ISL Well Field	$3,200
C	Underground Mining	$32,280
D	Processing	$49,210
E	Buildings and Facilities	$9,750
PP	Pre-Production Operating Costs*	$10,183
Total Direct Costs		**$114,626**
X	Indirect Costs	$36,905
Y	Owner's Costs	$10,444
Total Indirect Costs		**$47,349**
Z	Contingency (30% of Direct and Indirect))	$42,404
Total Capital Cost		**$204,380**

**Indirects, Owner's Costs, or Contingency is not applied to Pre-Production Operating costs.*

21.1.4 Indirect Costs

Factors used for estimating indirect costs are shown in Table 21-3.

Construction Indirect costs are calculated as a percentage of direct construction costs. This line captures charges that construction contractors might apply or include in their rates, including but not limited to:

- Temporary facilities and structures, support systems, fencing
- Temporary utilities such as power, sewer, waste disposal
- Mob and Demob charges
- Construction tools, small tools, and other consumables
- Safety training, orientation, safety officers and inspections
- Medical/First Aid facilities
- Contractor margin, supervision, and staff support.

Table 21-3 **Indirect Cost Factors**

Indirect Categories and Factors	
Construction Indirects - % of Direct Costs	15%
Spares - % of Processing Costs	5%
Initial Fills - % of Processing Costs	0%
Freight And Logistic - % of Direct Costs	5%
Commissioning And Pre-operational Start-up	Allowance
EPCM - % of Direct Costs	10%
Vendors	Allowance
Taxes and Duties	3%

21.1.5 Contingency

Contingency is included based on the expected level of accuracy and engineering definition. Recognizing this is a scoping level estimate with engineering definition consistent with a scoping study; the contingency covers undefined items of work within the scope of the project and is set at 30% of direct and indirect costs.

21.2 Sustaining Capital Costs

Sustaining capital costs are all capital expenditures incurred after production start-up. The Van Dyke project requires additional underground development and continuous well field expansion. Sustaining capital costs for the Van Dyke project, excluding closure and reclamation are shown in Table 21-4.

Table 21-4 Sustaining Capital Cost Summary

Sustaining Capital Estimate Summary (000's)		
WBS Code	**Description**	**COST**
A	General Site	$0
B	ISL Well Field	$39,437
C	Underground Mining	$29,943
D	Processing	$220
E	Buildings and Facilities	$0
PP	Pre-Production Operating Costs	$0
Total Sustaining Capital		**$69,600**
		$0.15 /lb cu

21.3 Operating Costs

Operating costs are summarized in Table 21-5 below for Life of Mine (LOM).

Table 21-5 Operating Cost Summary

Operating Costs	LoM Cost (000's)	LoM Unit Cost ($/lb Cu)
Drilling Cost	$91,300	$0.20
Frac Cost	$155,700	$0.34
Pump Replacement	$18,000	$0.04
ISL Well Field Acid Costs	$25,000	$0.05
Wellfield Monitoring (KP)	$2,000	$0.00
Pumping Electricity Costs	$19,500	$0.04
Maintenance Costs	$19,200	$0.04
Processing Costs	$123,400	$0.27
G&A, Offsite Costs	$77,700	$0.17
Water Treatment	$6,600	$0.01
Reclamation and Closure Costs	$11,800	$0.03
TOTAL OPEX	**$551,200**	**$1.20**

** All numbers are rounded following Best Practice Principles.*

21.3.1 ISL Well Field Acid Costs

See Section 16 for details on drilling and stimulation For operating the well field, a cost for procuring acid required for the ISL operations is used. This cost is based upon a delivered sulphuric acid cost of $100/ton and a consumption rate of 0.6kg acid per lb Cu.

All other costs for well field development, instrumentation, piping, etc., are included as capital and sustaining capital costs.

21.3.2 ISL Pumping and Electrical Costs

Pumping costs are based on an average flow requirement of 1200m^3/hr. An average operating depth is used over the LoM to estimate the required head pressure, and thereby estimate the horsepower and power consumption required to maintain 1200m^3/hr flow rate.

21.3.3 ISL Well Maintenance Costs

For this study, a detailed analysis of well field maintenance requirements was not completed. A factored estimate using $1,000/well is used based on comparable projects.

21.3.4 Processing Costs

Processing costs include labour, power, reagents, and maintenance of the SX-EW facility. This is a factored estimate based on similar projects, and scaled for throughput volume.

21.3.5 G&A and Offsite Costs

G&A costs include labour and administration costs, office supplies, insurance, legal fees, and head office expenses. This is a factored estimate based on similar projects, and scaled for throughput volume.

Offsite costs include all transport and transaction fees associated with the copper product sales.

21.3.6 Water Treatment Costs

Water Treatment costs are estimated by Knight-Piesold. Section 18.9.418.9.4 describes the water treatment facilities and activities, including the water treatment plant.

21.3.7 Manpower Estimate

The Van Dyke Project is estimated to employ up to 134 workers directly. Indirect jobs are estimated as a factor of three times direct jobs for an additional 402 jobs (see Table 21-6).

Table 21-6 Direct and Indirect Jobs

Department / Area	# Positions		Department / Area	# Positions
ISL Operations	**19**		**Processing**	**56**
Operations Superintendent	1		Plant Superintendent	1
Surveyor	1		Maintenance Superintendant	1
Drilling Engineer	1		Metallurgist (Snr. and Plant)	2
Geologist	2		Gen Foremam	2
Environmental Superintendent	1		Foreman	4
Environmental Engineer	1		Operator	8
Environmental Tech	4		Labourers/Helpers	8
Hydrologist	1		Mechanics	8
Sampling Technician	4		Electricians	4
Laboratory Scientist	1		Welders	4
Laboratory Technician	2		Instrumentation Technician	4
			Crane Operators	2
Underground	**24**		Clerks	2
Underground Project Manager	1		Maintenance Planner	2
Project Superintendent	1		Lab Technicians	4
Night Captain	1			
Safety Superintendent	1		**ISL Maintenance**	**20**
Project Engineer	1		Maintenance Superintendent	1
Purchaser/Clerk	1		Pipefitter	4
Lead Mechanic	1		Mechanic	4
Mechanics	2		Electrician	4
Electrician	1		Instrument Mechanic	4
Shift Bosses	2		Field Technician	4
Jumbo Operators	2			
Bolter Operators	2		**General and Administration**	**15**
Scooptram Operators	2		General Manager	1
Truck Operators	2		Administrative Assistant	1
Raise Miners	2		Warehouse Supervisor	2
Nippers	2		Warehouseman	8
			Purchasing Manager	1
			Purchasing Assistant	2
			Estimated Total	**134**
			Indirect Jobs (factor of 3)	**402**

22 ECONOMIC ANALYSIS

22.1 Cash Flow Model Description and Parameters

Economic Analysis for the Van Dyke Copper project is based upon the following inputs:

- LoM Copper price of $3.00/lb Cu as recommended by Desert Fox. No inflation or escalation applied to revenues or costs.
- Capital Cost Estimates prepared by MMTS. Factored estimate including Indirects, EPCM, Owner’s Costs and Contingency. Capital Costs also include a 3% tax factor for the Arizona Privilege tax.
- Mine Production Schedule and Operating Costs prepared by MMTS, based on copper production rate and factored $/lb Cu operating costs.
- Water treatment capital and operating cost estimate prepared by KP. (A factored estimate).
- Revenue split based on ownership and copper production of the Quiet Title area.
- Taxes are calculated based on information received from the Arizona State Tax Department.
- Property taxes are not included in this study
- Results: Net Cash Flow, NPV, and IRR.

Table 22-1 Pre-tax Cash Flow

Pre-Tax	Period	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	LoM
Total Copper Produced	lbs		-	-	59,965,664	59,965,664	59,965,664	59,965,664	59,738,840	58,799,598	44,564,961	20,936,500	17,553,042	15,376,421	110,225	-	-	-	**456,942,243**
Total Revenue	**(000's)**		**$ -**	**$ -**	**$ 179,897**	**$ 179,897**	**$ 179,897**	**$ 179,897**	**$ 179,217**	**$ 176,399**	**$ 133,695**	**$ 62,810**	**$ 52,659**	**$ 46,129**	**$ 331**	**$ -**	**$ -**	**$ -**	**$ 1,370,827**
																			$ -
Royalties			$ -	$ -	$ (4,497)	$ (4,497)	$ (4,497)	$ (4,086)	$ (3,842)	$ (3,618)	$ (2,734)	$ (1,469)	$ (1,316)	$ (973)	$ (5)	$ -	$ -	$ -	**$ (31,536)**
Initial Capital	(000's)	$ (911)	$ (36,841)	$ (156,445)															**$ (194,197)**
Sustaining Capital	(000's)				$ (27,449)	$ (12,618)	$ (6,127)	$ (6,597)	$ (5,986)	$ (4,954)	$ (3,130)	$ (1,151)	$ (959)	$ (587)	$ (43)	$ 2,554	$ -	$ -	**$ (67,045)**
Operating Costs																			
ISL Well Field Operating Costs	(000's)		$ -	$ (9,766)	$ (31,061)	$ (41,547)	$ (43,604)	$ (46,877)	$ (44,459)	$ (38,412)	$ (24,135)	$ (9,342)	$ (7,822)	$ (4,445)	$ (195)	$ (70)	$ (70)	$ -	**$ (301,807)**
ISL Pumping Costs	(000's)		$ -	$ (221)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ (1,769)	$ -	$ -	$ -	**$ (19,679)**
ISL Maintenance Costs	(000's)		$ -	$ (195)	$ (2,139)	$ (2,868)	$ (2,969)	$ (3,198)	$ (2,900)	$ (2,397)	$ (1,507)	$ (542)	$ (448)	$ (267)	$ (2)	$ -	$ -	$ -	**$ (19,433)**
Processing Costs, Incl GA, Offsite	(000's)		$ -	$ -	$ (26,985)	$ (26,985)	$ (26,985)	$ (26,985)	$ (26,885)	$ (26,472)	$ (20,209)	$ (9,812)	$ (8,323)	$ (7,366)	$ (648)	$ -	$ -	$ -	**$ (207,655)**
Reclamation and Closure Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,102)	$ (6,303)	$ (2,021)	$ (2,365)	**$ (11,792)**
TOTAL COSTS		$ (911)	$ (36,841)	$ (166,627)	$ (93,900)	$ (90,285)	$ (85,951)	$ (89,512)	$ (85,841)	$ (77,621)	$ (53,484)	$ (24,085)	$ (20,638)	$ (15,406)	$ (3,765)	$ (3,819)	$ (2,091)	$ (2,365)	**$ (853,143)**
PRE-TAX PROFIT AND LOSS	(000's)	$ (911)	$ (36,841)	$ (166,627)	$ 85,997	$ 89,612	$ 93,946	$ 90,385	$ 93,376	$ 98,778	$ 80,211	$ 38,724	$ 32,021	$ 30,723	$ (3,434)	$ (3,819)	$ (2,091)	$ (2,365)	**$ 517,683**
Quiet Title Revenue Split	62.5%	$ -	$ -	$ -	$ -	$ -	$ -	$ (12,913)	$ (20,784)	$ (27,705)	$ (22,789)	$ (3,911)	$ -	$ (7,482)	$ 2,141	$ -	$ -	$ -	**$ (93,444)**
Quiet Title Capital Allocation:																			
$/Tonne Cu	$ 1.12	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,343	$ 6,740	$ 8,360	$ 6,418	$ 1,072	$ -	$ 1,898	$ 35	$ -	$ -	$ -	**$ 28,866**
Net Quiet Title Revenue Split		$ -	$ -	$ -	$ -	$ -	$ -	$ (8,570)	$ (14,044)	$ (19,345)	$ (16,371)	$ (2,839)	$ -	$ (5,584)	$ 2,175	$ -	$ -	$ -	**$ (64,577)**
*royalty =Profit * 62.5% ownership * % of copper production. Capital Allocation is Initial Capital / Total lb Cu = $/lb Cu * lb Cu from Quiet Title *62.5% ownership*																			
Pre-Tax Profit and Loss after Quiet Title		**$ (911)**	**$ (36,841)**	**$ (166,627)**	**$ 85,997**	**$ 89,612**	**$ 93,946**	**$ 81,814**	**$ 79,332**	**$ 79,433**	**$ 63,840**	**$ 35,885**	**$ 32,021**	**$ 25,139**	**$ (1,258)**	**$ (3,819)**	**$ (2,091)**	**$ (2,365)**	**$ 453,106**
PRE-TAX P&L Cumulative	**(000's)**	**$ (911)**	**$ (37,752)**	**$ (204,380)**	**$ (118,383)**	**$ (28,770)**	**$ 65,175**	**$ 146,990**	**$ 226,322**	**$ 305,755**	**$ 369,595**	**$ 405,480**	**$ 437,501**	**$ 462,640**	**$ 461,382**	**$ 457,563**	**$ 455,472**	**$ 453,106**	

Table 22-2 Post-tax Cash Flow

Post-Tax	Period	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	LoM
Total revenue	(000's)	$ -	$ -	$ -	$ 179,897	$ 179,897	$ 179,897	$ 179,897	$ 179,217	$ 176,399	$ 133,695	$ 62,810	$ 52,659	$ 46,129	$ 331	$ -	$ -	$ -	$ 1,370,827
Operating Costs		$ -	$ -	$ (10,183)	$ (61,954)	$ (73,169)	$ (75,327)	$ (78,830)	$ (76,013)	$ (69,049)	$ (47,620)	$ (21,465)	$ (18,363)	$ (13,846)	$ (3,716)	$ (6,373)	$ (2,091)	$ (2,365)	$ (560,366)
Depletion	*Note 1*	$ -	$ -	$ -	$ (26,310)	$ (26,310)	$ (26,310)	$ (26,206)	$ (24,258)	$ (23,450)	$ (14,636)	$ (9,201)	$ (7,701)	$ (6,773)	$ -	$ -	$ -	$ -	$ (191,156)
Depreciation	*Note 2*	$ -	$ -	$ -	$ (31,664)	$ (33,466)	$ (34,342)	$ (35,284)	$ (36,139)	$ (36,847)	$ (37,294)	$ (5,795)	$ (4,129)	$ (3,338)	$ -	$ -	$ -	$ -	$ (258,296)
Royalties		$ -	$ -	$ -	$ (4,497)	$ (4,497)	$ (4,497)	$ (4,086)	$ (3,842)	$ (3,618)	$ (2,734)	$ (1,469)	$ (1,316)	$ (973)	$ (5)	$ -	$ -	$ -	$ (31,536)
Severance tax (Arizona)	*Note 3*	$ -	$ -	$ -	$ (1,078)	$ (916)	$ (878)	$ (715)	$ (663)	$ (639)	$ (405)	$ (409)	$ (377)	$ (292)	$ -	$ -	$ -	$ -	$ (6,373)
Net quiet title revenue split		$ -	$ -	$ -	$ -	$ -	$ -	$ (8,570)	$ (14,044)	$ (19,345)	$ (16,371)	$ (2,839)	$ -	$ (5,584)	$ 2,175	$ -	$ -	$ -	$ (64,577)
Taxable Income		$ -	$ -	$ (10,183)	$ 54,394	$ 41,539	$ 38,543	$ 26,206	$ 24,258	$ 23,450	$ 14,636	$ 21,632	$ 20,772	$ 15,323	$ (1,215)	$ (6,373)	$ (2,091)	$ (2,365)	$ 258,524
Cumulative taxable income		$ -	$ -	$ (10,183)	$ 44,211	$ 85,749	$ 124,293	$ 150,499	$ 174,757	$ 198,207	$ 212,842	$ 234,474	$ 255,247	$ 270,569	$ 269,354	$ 262,981	$ 260,890	$ 258,524	
Total income taxes		$ -	$ -	$ -	$ 18,126	$ 17,031	$ 15,803	$ 10,745	$ 9,946	$ 9,615	$ 6,001	$ 8,869	$ 8,517	$ 6,282	$ -	$ -	$ -	$ -	$ 110,933
POST-TAX Profit and Loss (Cash Flow)		$ (911)	$ (36,841)	$ (166,627)	$ 67,870	$ 72,582	$ 78,143	$ 71,070	$ 69,386	$ 69,818	$ 57,840	$ 27,016	$ 23,504	$ 18,857	$ (1,258)	$ (3,819)	$ (2,091)	$ (2,365)	$ 342,173
POST-TAX P&L Cumulative (Cash Fl	**(000's)**	$ (911)	$ (37,752)	$ (204,380)	$ (136,509)	$ (63,928)	$ 14,215	$ 85,285	$ 154,672	$ 224,490	$ 282,330	$ 309,346	$ 332,850	$ 351,707	$ 350,448	$ 346,630	$ 344,538	$ 342,173	

22.2 Results: Net Cash Flow, NPV, and IRR

The Van Dyke Copper Project base case economics on a pre-tax basis are shown in Table 22-1. The project is evaluated based on a production target of 74 tonnes/day (27,000 tonnes/year) of copper product at 99.99% pure copper produced in the SX-EW plant.

The results of the economic analysis are below:

- Pre-production period of 2.5 years
- Life of Mine (“LoM”) of copper production of 11 years
- LoM Gross Revenue of $1.37 billion
- Cumulative Net Free-Cash-Flow before tax of $453.1 million and $342.2 million after tax
- Annualized Net Free Cash Flow before tax of $85 million in Years 1-6, declining thereafter
- Pre-tax NPV at 8% of $213M
- Post-tax NPV at 8% of $149M
- Pre-tax IRR of 35.5%
- Post-tax IRR of 27.9%
- LoM direct operating cost of $0.60 pound (“lb”) copper
- Production plan of 60 million lbs of copper in Years 1-6, declining thereafter
- Initial Capital Cost (including pre-production costs) totals $204.4 million, which includes contingencies of $42.4 million
- LoM soluble copper recovery estimated at 68% with acid consumption of 1.5 lb acid/lb copper produced
- After-tax Payback of Initial Capital in 2.9 years

22.3 Sensitivity

The Van Dyke Copper Project has been evaluated for sensitivity to the following parameters:

- Copper Price
- Operating Cost
- Capital Cost
- Oxide Recovery

The project is most sensitive to copper price and oxide recovery (see Figure 22-1 and Figure 22-2).

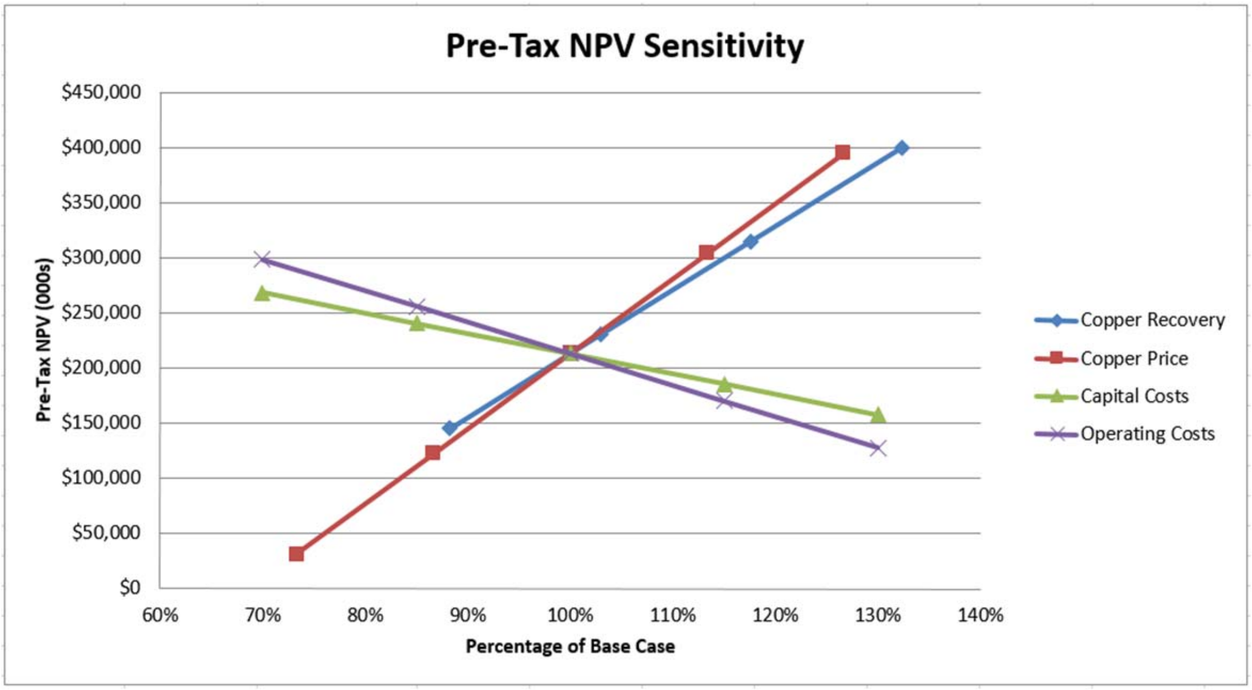


Figure 22-1 **Pre-tax NPV Sensitivity**

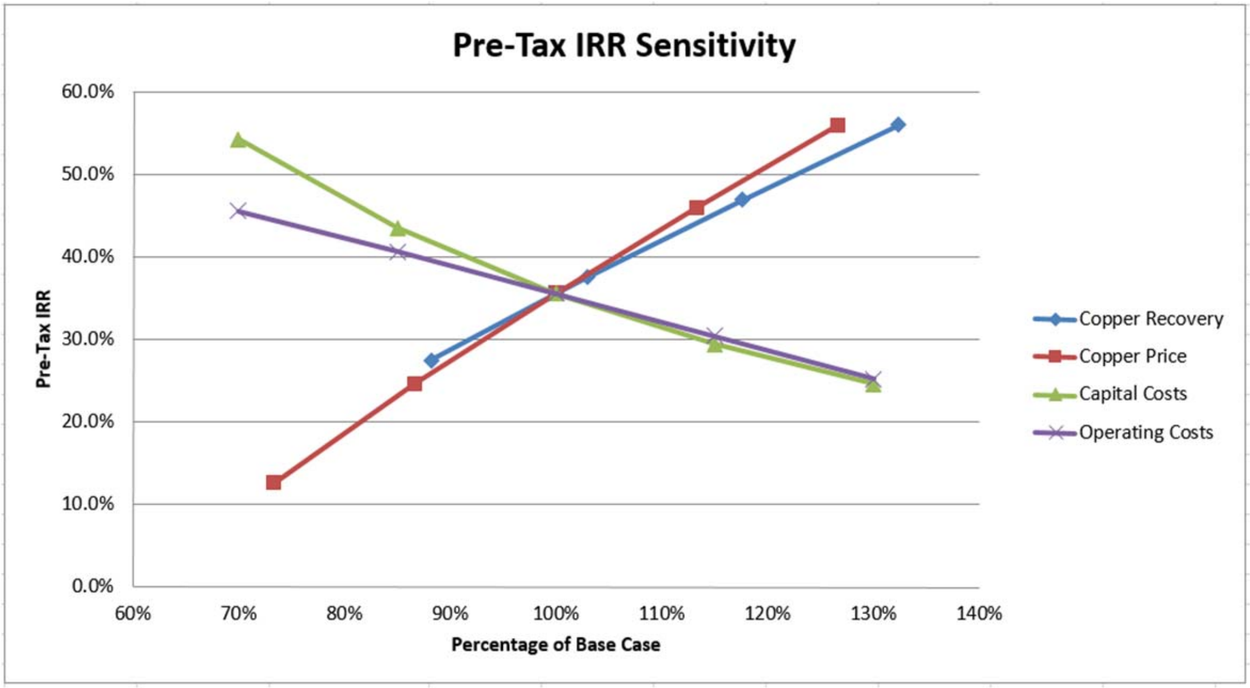


Figure 22-2 **Pre-tax IRR Sensitivity**

23 ADJACENT PROPERTIES

The Van Dyke project is situated in the Globe-Miami mining district, a historically prominent and current copper producing region in southeastern Arizona. The Van Dyke copper deposit occupies a position within the Miami-Inspiration trend of porphyry copper deposits, two of which are adjacent to the Van Dyke project. The Van Dyke copper deposit is separated from the two adjacent copper deposits by faults which are believed to be predominantly extensional. The structural deformation dismembered what was once a contiguous zone of mineralization.

The Miami Unit (Miami-East) property of BHP Copper, Inc. (BHP) lies north and northeast of the Van Dyke property. It was a leaching-only facility since underground mining was completed in 1959; producing copper through in-situ leaching of the former block caved underground mine. Additionally, copper was produced by hydraulic mining and reprocessing of historical tailings. Full-scale operations were discontinued in July, 2001; while the site has been primarily on care-and-maintenance since that time, limited production has occurred, but has been included in the company's annual summaries for the Pinto Valley Unit.

The Inspiration mine of Freeport McMoRan Copper & Gold Inc. (Freeport) is located immediately west and northwest of the Van Dyke property. Freeport is approaching closure at Inspiration. Current operations include leaching by solution extraction/electrowinning (SX/EW), and a smelter and rod mill that also treat cathodes shipped to Inspiration from several of Freeport's other Arizona copper mines.

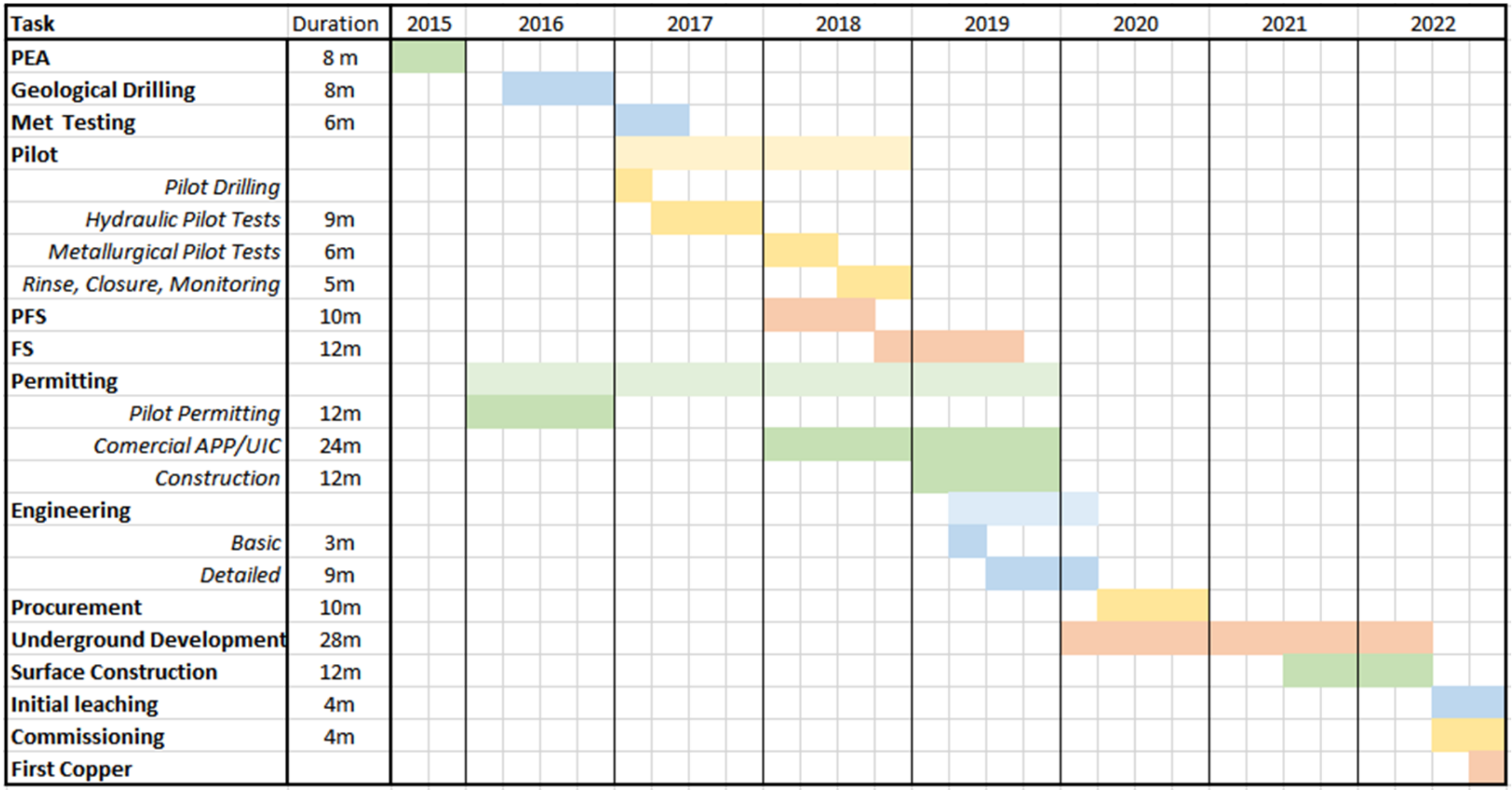
The principal orebodies of the Miami-Inspiration trend formed along the intrusive contact equally within fractured to brecciated Proterozoic Pinal Schist and Early Tertiary Schultze Granite. The deposits at Inspiration and Miami Unit consisted of irregular, elongate zones of disseminated supergene copper mineralization in which chalcocite was by far the most important mineral until later development of lower grade copper oxide zones became economically attractive.

Mineralization on adjacent properties is not necessarily indicative of the mineralization on the Van Dyke project.

24 OTHER RELEVANT DATA AND INFORMATION

24.1 Project Execution

The Project Execution Plan (PEP) for the Van Dyke Project is conceptual in nature. At this stage of study, critical milestones are focused around hydrogeology permitting and testing. These tasks are the main drivers of the project timeline, as such; other areas such as construction have a minimum level of detail. The following project execution schedule assumes a reasonable level of risk by advancing some tasks ahead of some permitting and test results. This approach must be evaluated as test results and permit process tasks are advanced. Results and feedback from test and permitting processes will impact the project timeline.



Task	Duration
PEA	8 m
Geological Drilling	8m
Met Testing	6m
Pilot	
Pilot Drilling	
Hydraulic Pilot Tests	9m
Metallurgical Pilot Tests	6m
Rinse, Closure, Monitoring	5m
PFS	10m
FS	12m
Permitting	
Pilot Permitting	12m
Comercial APP/UIC	24m
Construction	12m
Engineering	
Basic	3m
Detailed	9m
Procurement	10m
Underground Development	28m
Surface Construction	12m
Initial leaching	4m
Commissioning	4m
First Copper	

Figure 24-1 Execution Plan

24.1.1 Pre-feasibility: 12 Months

For the project to proceed, the first priority is testwork sufficient to complete the PFS. Geological, metallurgical, and pilot programs will gather data required for the PFS.

24.1.2 Feasibility

Following the PFS, the metallurgical pilot test program and feasibility study are completed. Similar to the PFS, results from the pilot well program must guide the feasibility.

24.1.3 Engineering, Procurement, Construction

The Van Dyke Project will utilize an EPCM (Engineering, Procurement and Construction Management) approach to engineering and construction. An EPCM contractor will be selected to oversee Basic and Detailed Engineering, which will produce construction drawings to be bid on by general contractors. These contracts will include Underground, Civil, Structural Steel, Mechanical, Electrical, Instrumentation, Piping, etc.

24.1.4 Underground Development and Initial leaching

The construction phase is driven by the underground mining development. The current schedule and basis for the cashflow model, requires 28 months of UG development. This timeline allows for ramp and well bay development as well as 3 months of drilling and 3 months of development: Piping, Electrical, instrumentation, etc. An additional 4 months initial leaching period is required before PLS can be sent for processing in the SX-EW.

24.1.5 SX-EW Construction and Commissioning

The PEP estimates a 12-month construction period for the SX-EW. Other buildings and facilities will also be built in this period. Commissioning requires another 4 months. In this way, commissioning is occurring during the initial leaching period. After commissioning, First Copper is expected in Q4 2022.

24.2 In-Situ Leaching in Arizona

Arizona has nine historical and current copper ISL projects. ISL recovery methods were employed at the Pinto Valley and Miami-East mines in the Globe-Miami mining district. The large San Manuel copper mine, Pinal County, Arizona, was a successful operation that integrated ISL methods with open pit and underground mining methods.

The Florence Copper project of Taseko Mines Ltd., located approximately 65km southwest of the Globe-Miami area, is currently in the process of environmental permitting for an in-situ leaching production test facility. The intent of the Florence Copper pilot-scale facility is to demonstrate that the proposed in-situ copper recovery process can be carried out in an environmentally safe manner that protects the groundwater resources of the area.

At the Van Dyke Copper Project, detailed descriptions of the Phase 1 and Phase 2 ISL tests conducted by Occidental are presented in Huff et al. (1981) and Huff et al. (1988). The later ISL performed at Van Dyke by Kocide is summarized by Beard (1990).

24.3 Liabilities and Risks

24.3.1 Resource

In the preparation of the Resource estimate, MMTS reviewed historical geological data, and laboratory results to develop an understanding of the Project. In 2014, verification work included resampling of drill core and drill core pulps from eight historic drillholes, drilling of six drillholes, five of which twinned historic drillholes, and a robust QA/QC program.

The results of the work are believed to adequately characterize the deposit for a PEA. It should be noted that the shape, length, width, depth, and continuity of the mineralized body may change with additional infill drilling, re-assaying and exploration drilling. The mineralized intervals reported represent core lengths and do not necessarily represent the true thickness of mineralized intervals.

24.3.2 Environmental

Environmental risks include the permitting process which could cause delays in exploration, the Pilot Test process and start-up.

24.3.3 Water Management

The current water balance is based on current knowledge and can be expected to require updates as additional studies are completed. Risks include:

- The possibility that the site generates more surplus water than currently predicted could result in larger water management infrastructure requirements and increased water treatment costs.
- The Project could require a more expensive treatment process than currently assumed for the PEA level cost estimate, due to the chemical composition of the surplus water.

24.3.4 Mine Closure

The primary risks associated with mine closure include:

- Wellfield rinsing and the associated water treatment could need to continue beyond the assumed two year period. This would lead to increased closure costs and a longer timeline (with associated increases in indirect costs during this longer closure period). This risk needs to be addressed in the next phase of study.
- Waste rock drainage chemistry necessitates long-term management and treatment. This would result in higher closure costs.

24.3.5 Geotechnical

The geotechnical data used for this PEA is limited to the 6 drillholes from the 2014 drilling. Additional data collection and analysis is expected to alter geotechnical parameters and offer both risks and opportunities. Potential risks include:

- Actual conditions may necessitate more ground support work than is anticipated causing increased development costs and potentially slower advancement rates.

- The implications of in situ leach (ISL) mining and hydro-fracturing on the strength of the rock mass and the redistribution of stresses are not well understood at this stage may impact the mine design.

24.3.6 Hydrogeological

The permeability of the rock mass is based on a literature review of historic data and testing. Additional permeability testing of the rock mass and its response to hydraulic fracturing with current technology through the planned Pilot Test is required. Potential risks related to hydrogeology include:

- Hydraulic fracturing of the bedrock does not yield the anticipated increases in flow in the ore zone. Short circuiting of solution could develop between the injection fracture and one or more recovery fractures.
- The complexity of the regional groundwater system may require that additional mitigation measures are necessary such as additional recovery wells to increase hydraulic confinement within the Project area. For example the Weathered Pinal Schist at the top of mineralization, while enhancing potential recovery within this zone could also complicate fluid recovery

24.3.7 Other Project Specific

Several risks have been identified that are specific to the Van Dyke Project. Mitigation responses are recommended by MMTS as applicable:

- Land Acquisition: The site chosen for the Project requires properties be acquired from residents in the town of Miami along Chisholm Avenue, Copeland Avenue, and Churchill Street. Because the properties are owned by many parties, negotiations may be complex, costs may be difficult to estimate, and there are social license risks when homes and individuals (as opposed to corporations) are involved in mining projects.
- Access: The Project requires access from the main road corridor through the town of Miami. This corridor is already developed. This study assumes the increased traffic from mining activities can be accommodated along this corridor. Future studies must determine the Project’s impact on traffic along Live Oak Street and at the intersection of Live Oak Street and Cordova Avenue. Other routes or roads to the site are not immediately apparent.
- Power: This study assumes power is available from the state utilities, and accessible from locations adjacent, or nearby, the Project. Future studies must determine the availability and location of the power supply.

24.4 Opportunities

24.4.1 Resource

Several opportunities exist to expand and upgrade the current resource, including:

- The current resource is open to the south and south-east. It is expected that additional drilling will expand the footprint of the mineralization.
- Based on the continuity of the mineralization observed, it is expected that the Inferred material will be upgrade to a Measured+Indicated Classification with additional infill drilling.

- The cutoff grade used in the interpretation of the mineralized gradeshell is currently defined at 0.05%TCu. Based on this PEA, the cutoff grade could be lowered to 0.03%, therefore increasing the amount of material defined as a Resource.
- Enhanced recovery of both the oxide and chalcocite through better definition of the metallurgy and overall recovery could further reduce the cutoff grade and increase the Resource.

24.4.2 Metallurgic and ISL Recovery

The overall acid soluble recovery used in this PEA is 68%. This has been estimated based on limited metallurgical testing which simulated ISL conditions. The recovery from these tests has been reduced due to the preliminary nature of the testing and to account for potential aspects of the sweep efficiency not modelled in the SGS testing. Because of this conservativism, it is expected that additional metallurgical testing, as well as the Pilot Test results will further define values used for sweep efficiency and likely increase overall recovery.

24.4.3 Geotechnical

As discussed in the Risks section above, the geotechnical data is limited to the six holes drilled in 2014.

Opportunities which can be expected to arise when additional data is collected include:

- Reduction of ground support requirements for the underground workings, which have been designed conservatively due to the data limitations.
- Better delineation of the variability of fracturing within the rockmass could reduce the hydraulic fracturing requirements and therefore the associated costs.
- Definition of the rock stresses at depth to be 1:1 (H:V) as suggested in previous studies (Dames and Moore, 1971) rather than the 1:3 (H:V) would mean the rock mass is more conducive to hydraulic fracturing and therefore could reduce these costs.

24.4.4 Mining

Opportunities from a mining perspective include optimization of location of underground workings, use of surrounding infrastructure from mines that have shut down, and possible reduction in ground support requirements, as summarized below:

- Optimization of the ramp location to be within stronger ground and/or negotiations with BHP to potentially use the portal for underground access could reduce costs and start-up time.
- It may be possible to negotiate for the use of additional infrastructure from adjacent mine sites no longer in production, including a sub-station, SX/EW plant and ancillary buildings and equipment.
- The ground support requirements are based on conservative rock mass strength parameters, with the RQD considered zero throughout the Gila Conglomerate. Reduced ground support requirements would reduce costs and pre-production time associated with underground development.

24.4.5 Hydrogeological

- The permeability of the rocks within the ISL mining area has the potential to be higher than predicted and used in the PEA. In this case, the total number of wells that would be needed to achieve the target production rate would be reduced.
- Optimization of hydraulic fracturing placement and technique could reduce the costs and improve permeabilities beyond that assumed for this PEA.
- The characteristics of the regional groundwater system may reduce the risks associated with hydraulic control. For example, certain faults or clay zones may be proven to act as aquicludes that prevent groundwater flow past the mineralized zone.

24.4.6 Water Management

Additional water management analysis can be expected to offer the following opportunities:

- The site generates less surplus water thereby reducing the water management and water treatment requirements. The associated costs could be lower.
- The chemical composition of the surplus water may be more favorable than assumed and a less costly treatment process may be possible.

24.4.7 Mine Closure

- Wellfield rinsing takes less time than predicted thereby reducing the closure timeline and associated costs.
- Waste rock drainage chemistry and/or quantity results in reduced closure liability and a lower associate costs.

24.4.8 Economic

The economic analysis includes built-in conservatism in the capital costs, and a large contingency. The owner's costs are also considered to be conservative. Additional investigation into costs can be expected to lower the initial capital costs. The employment of maximum hydraulic fracturing has been assumed for this study. If additional geotechnical and site investigation data warrants, it is possible that the hydraulic fracturing requirements and costs can be reduced.

25 INTERPRETATION AND CONCLUSIONS

The Van Dyke Copper Project hosts a copper deposit of significance within the prolific Miami-Inspiration trend of porphyry copper and related deposits. The Van Dyke Copper Project has been the subject of limited historic underground development, widespread surface exploration drilling and localized in-situ leaching. These previous activities have contributed immensely to the understanding of the Project and generated a valuable data set that forms the basis for advancing the Project.

This PEA has indicated that, based on industry standards, the project is technically sound and has positive economics. Therefore, it is concluded that the project should proceed to the next level of study, which is a Pre-feasibility study.

26 RECOMMENDATIONS

This PEA has shown the Van Dyke deposit to be a technically sound potential in situ leach (ISL) operation with positive economic indicators. Therefore, it is recommended to advance the project to higher levels of study, to eventually support a production decision and financing. The first step will be the Pilot Test and associated analysis required, followed by the additional testing and analysis required for the Pre-feasibility.

Data collection and analysis is required to further the understanding of the geology, geotechnical, hydrogeology, metallurgy and costs related to the project. The components of the data collection and their estimated costs are summarized in the Table below.

Table 26-1 Cost of Future Studies

Required Component for PFS	Estimated Cost ($000)
Drilling	4,675
Geologic, Structure and Resource Model	300
Pilot Test	8,496
Pilot Permitting	1,000
Metallurgic Testing	500
Geotechnical Testing and Analysis	200
Water Management	200
Pre-feasibility Engineering and Report	1,200
Total	**16,571**

26.1 Drilling

Additional drilling for data collection is recommended to include:

1. An infill drill program to gain increased confidence in the continuity and grade of the acid soluble mineralization. This include a 10-hole, 6000-metre program of infill diamond drilling to provide tighter drill spacing in areas east-southeast of the Van Dyke Shaft in order to upgrade material Classification to Measured or Indicated in future resource estimate.

   An exploration drill program to potentially extend the acid soluble copper mineralization to the south and southeast. An 8-hole, 4200-metre diamond drill program is recommended to evaluate these untested areas.
2. Geotechnical data collection during drilling for a better understanding of the rock mass strength for underground support requirements, as well as for creation of a structural model of sweep efficiency for better prediction of ISL recoveries.
3. Hydrogeological data collection during drilling including hydraulic testing and vibrating wire piezometer installation to provide a better understanding the rock mass permeability and to aid in the sweep efficiency modelling. Mineralogical data collection during drilling will also assist in acid solubility estimates.
4. Metallurgic sample collection for additional testing of acid solubility including bottle roll, vat and simulated ISL testing.

Table 26-2 Summary of Recommended Drill Expenditures

Drilling	$3,500,000
Assaying	$225,000
Geological Staff	$200,000
Field Work & Contract Labour	$150,000
Downhole Geophysics	$50,000
Accommodation & Meals	$300,000
Field Supplies	$50,000
Transportation	$50,000
Travel	$25,000
Community Relations	$50,000
Permitting & Legal	$50,000
Data Compilation & Reporting	$25,000
Total	**$4,675,000**

26.2 Update Geologic Model and Resource Estimate

Based on the recommended drill program the geologic model and geotechnical model needs to be updated to enhance the understanding of the mineralization and sweep efficiency throughout the deposit. Additional analysis to update the geologic model, create a structure model for sweep efficiency, and to re-assay historic core is estimated to cost $300,000 and includes:

1. Re-assaying of additional historic drill core and drill core pulps.
2. A robust QA/QC program similar to that done for the 2014 drilling.
3. Re-interpretation of the major faults, breccia zones and oxide/mixed zones.
4. Modelling of geotechnical parameters including RQD and RMR for better rock mass strength and ISL recovery estimates.
5. Updating the geologic, structural and geotechnical models.
6. Creation of a sweep efficiency model.
7. Update the Resource estimate.

26.3 Pilot Test

It is recommended that a Pilot Project of a 5-spot ISL injection and recovery well system be set up in an area of the deposit east of the historic underground workings and previous ISL development. The estimated cost for this Pilot Project is $7.0M - $8.5M, with costs as summarized in Table 26-3. Testing procedure is detailed in Appendix E.

Table 26-3 Summary of Pilot Test Costs

Item	QTY.	Cost
Pilot Test Wells	8	$ 3,480,000
Hydraulic Test Wells	3	$ 780,000
Monitoring Wells	5	$ 240,000
Hydrofracture Tests	8	$ 2,040,000
Tracer Tests	1	$ 540,000
Sub Total		$ 7,080,000
Contingency	20%	$ 1,416,000
Total		**$ 8,496,000**

There are two main permits needed to support the Pilot Project: Arizona Protection Permit (issued by the Arizona Department of Environmental Quality) and the Underground Injection Control Permit for Class III Wells (issued by the US Environmental Protection Agency). It is anticipated to take about a year to develop the applications and collect the necessary environmental data and it would take 6 months to one 1 year to go through the review process. Permitting for the pilot program is estimated to cost $1M as summarized in Table 26-4.

Table 26-4 Summary of Pilot Permitting Costs

Baseline Water Quality	$ 120,000
Aquifer Protection Program	$ 310,000
Underground Injection Control Permit – Class III Well	$ 370,000
Application Review Process	$ 200,000
Total Cost	**$ 1,000,000**

26.4 Metallurgical Testing and Costs

Additional testing of metallurgical samples collected during the proposed drill program is expected to cost $500,000.

26.5 Geotechnical

Additional geotechnical work and analysis recommended is estimated to cost $200,000 and includes:

- Geotechnical data collection during drilling to define RQQ, RMR, to better define major Fault locations and ATV to better define joint set orientations
- Laboratory strength and index testing on samples recovered from the drill program, including Unconfined Compressive Strength Point Load and potentially Atterberg Limits on the clay material
- Review of the ground support requirements based on a review of existing mining experience in the area, as well as the updated information from drilling, from testing and from the Pilot Test.
- Better definition of the corrosion protection requirements for the ground support
- Report and analysis

26.6 Water Management

Additional water management work is expected to cost $200,000 and includes the following goals:

- Characterize the hydrometeorology of the site.
- Characterize the expected effluent water quality for the sources of surplus water on the site.
- Confirm the period over which the resource blocks need to be rinsed in closure and what the flow rates are expected to be.
- Define the water quality targets for discharge.

26.7 43-101 PFS Report

Once the data gathering is complete it is recommended that the project progress to the Pre-feasibility stage. Engineering and composition of 43-101 PFS report is estimated to cost $1.2M.

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