National Instrument 43-101 Technical Report: Preliminary Feasibility Study for the Copperstone Project, La Paz County, Arizona, USA

Report Date: May 18, 2018
Effective Date: April 1, 2018

Prepared for:

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HRC Project Number: 17-KMI-1001

Prepared by:

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IMPORTANT NOTICE

This report was prepared as a National Instrument 43-101 Technical Report for Kerr Mines, Inc. ("Kerr") by Hard Rock Consulting, LLC ("HRC"). The quality of information, conclusions, and estimates contained herein is consistent with the scope of HRC's services based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Kerr subject to the terms and conditions of their contract with HRC, which permits Kerr to file this report with Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other use of this report by any third party is at that party's sole risk.

CERTIFICATES OF QUALIFIED PERSONS

I, Zachary J. Black, SME-RM, do hereby certify that:

1. I am currently employed as Principal Resource Geologist by:

   Hard Rock Consulting, LLC
   7114 W. Jefferson Ave., Ste. 308
   Lakewood, Colorado 80235 U.S.A.

2. I am a graduate of the University of Nevada, Reno with a Bachelor of Science in Geological Engineering, and have practiced my profession continuously since 2005.
3. I am a registered member of the Society of Mining and Metallurgy and Exploration (No. 4156858RM)
4. I have worked as a Geological Engineer/Resource Geologist for a total of 12 years since my graduation from university; as an employee of a major mining company, a major engineering company, and as a consulting engineer with extensive experience in structurally controlled precious and base metal deposits.
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 association (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 am responsible for the preparation of the report titled "National Instrument 43-101 Technical Report, Preliminary Feasibility Study for the Copperstone Project, La Paz County, Arizona, USA," dated May 18, 2018, with an effective date of April 1st, 2018, with specific responsibility for Sections 1.5, 11, 12, and 14 of this report.
7. I have had no prior involvement with the property that is the subject of this Technical Report.
8. As of the date of this certificate and as of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information required to be disclosed to make the report not misleading.
9. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 18th Day of May, 2018.

"Signed" Zachary J. Black

Signature of Qualified Person

Zachary J. Black, SME-RM
Printed name of Qualified Person

CERTIFICATES OF QUALIFIED PERSONS

I, Jennifer J. Brown, P.G., do hereby certify that:

1. I am currently employed as Principal Geologist by:

   Hard Rock Consulting, LLC
   7114 W. Jefferson Ave., Ste. 308
   Lakewood, Colorado 80235 U.S.A.

2. I am a graduate of the University of Montana and received a Bachelor of Arts degree in Geology in 1996.

3. I am a:
   - Licensed Professional Geologist in the State of Wyoming (PG-3719)
   - Registered Professional Geologist in the State of Idaho (PGL-1414)
   - Registered Member in good standing of the Society for Mining, Metallurgy, and Exploration, Inc. (4168244RM)

4. I have worked as a geologist for a total of 20 years since graduation from the University of Montana, as an employee of various engineering and consulting firms and the U.S.D.A. Forest Service. I have more than 10 collective years of experience directly related to mining and or economic and saleable minerals exploration and resource development, including geotechnical exploration, geologic analysis and interpretation, resource evaluation, and technical reporting.

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 association (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 personally inspected the Copperstone Project on October 31 through November 2, 2017.

7. I am responsible for the preparation of the report titled "National Instrument 43-101 Technical Report, Preliminary Feasibility Study for the Copperstone Project, La Paz County, Arizona, USA," dated May 18, 2018, with an effective date of April 1st, 2018, with specific responsibility for Sections 1.1 through 1.4, 2 through 10 and 20 of this report.

8. I have had no prior involvement with the property that is the subject of this Technical Report.

9. As of the date of this certificate and as of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information required to be disclosed to make the report not misleading.

10. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.

11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 18th Day of May, 2018.

"Signed" Jennifer J. (J.J.) Brown

Jennifer J. (J.J.) Brown, SME-RM
Printed name of Qualified Person

CERTIFICATES OF QUALIFIED PERSONS

I, Jeffery W. Choquette, P.E., do hereby certify that:

1. I am currently employed as Principal Engineer by:

   Hard Rock Consulting, LLC
   7114 W. Jefferson Ave., Ste. 308
   Lakewood, Colorado 80235 U.S.A.

2. I am a graduate of Montana College of Mineral Science and Technology and received a Bachelor of Science degree in Mining Engineering in 1995

3. I am a:

   - Registered Professional Engineer in the State of Montana (No. 12265)
   - QP Member in Mining and Ore Reserves in good standing of the Mining and Metallurgical Society of America (No. 01425QP)

4. I have practiced my profession continuously since 1996. I have experience in project development, resource and reserve modeling, mine operations, mine engineering, project evaluation, and financial analysis. I have worked for mining and exploration companies for 15 years and as a consulting engineer for seven years. I have been involved in industrial minerals, base metals and precious metal mining projects in the United States, Canada, Mexico, Asia and South America.

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 association (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 am responsible for the preparation of the report titled “National Instrument 43-101 Technical Report, Preliminary Feasibility Study for the Copperstone Project, La Paz County, Arizona, USA,” dated May 18, 2018, with an effective date of April 1st, 2018, with specific responsibility for Sections 1.6, 1.7, 1.9 through 1.11, 15, 16, 18, 19 and 21 through 27 of this report.

7. I have had no prior involvement with the property that is the subject of this Technical Report.

8. As of the date of this certificate and as of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information required to be disclosed to make the report not misleading.

9. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.

10. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 18th Day of May, 2018.

“Signed” Jeffery W. Choquette

MONTANA
JEFFERY CHOQUETTE
No. 12265 PE
LICENSED
PROFESSIONAL ENGINEER

Jeffery W. Choquette, P.E.
Printed name of Qualified Person

CERTIFICATES OF QUALIFIED PERSONS

I, Dr. Deepak Malhotra, Ph.D. do hereby certify that:

1. I am President] of [Resource Development Inc. (RDi), a testing and consulting company located at 11475 W. I-70 Frontage Road North Wheat Ridge, CO 80033, USA
2. This certificate applies to the technical report titled "National Instrument 43-101 Technical Report, Preliminary Feasibility Study for the Copperstone Project, La Paz County, Arizona, USA," dated May 18, 2018, with an effective date of April 1st, 2018 (the "Technical Report").
3. I graduated with a Master of Science in Metallurgical Engineering from Colorado School of Mines in 1973. In addition, I have obtained Ph.D in Mineral Economics in 1977 from Colorado School of Mines. I am a Registered Member in good standing of the Society of Mining, Metallurgy and Exploration Inc. (SME) (License # 2006420) and a member of Canadian Institute of Mining, Metallurgy and Petroleum (CIM). I have worked as a Metallurgist/Mineral Economist for a total of 45 years since my graduation from university. My relevant experience includes metallurgical testwork, plant design and troubleshooting of several dozen operations worldwide
4. 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 association (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.
5. I am responsible for the preparation of Sections 1.8, 13 and 17 of the Technical Report.
6. I personally inspected the Copperstone Project on February 6 through February 8, 2018.
7. I am independent of the issuer applying all of the tests in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 18th Day of May, 2018.

"Signed" Dr. Deepak Malholtra, PhD

Deepak Malhotra
Printed name of Qualified Person

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AAL	American Assay Laboratory	MRDI	Mineral Resources Development Inc
ADEQ	Arizona Department of Environmental Quality	MSGP	Multi-Sector General Permit
ADWR	Arizona Department of Water Resouorces	MSO	Mineable Shape Optimizer
Ag	Silver	MW	Megawatts
AISC	All-In-Sustaining-Cost	NaCN	Sodium Cyanide
AMEC	Association of Mining and Exploration Companies	NBM	Nevada Bureau of Mines
Amsl	Above mean sea level	NESHAPS	National Emission Standards for Hazardous Air Pollutants
APP	Aquifer Protection Permit	NGI	Norwegian Geotechnical Institute
APS	Arizona Public Service Company	NN	Nearest neighbor
ARD	Absolute relative difference	NOI	Notice of Intent
Au	Gold	NPV	Net Present Value
AWQS	Arizona Aquifer Quality Standards	NRC	National Response Center
AZMSG	Arizona Multi-Sector General Stormwater Permit	NSPS	New source performance standards
BADCT	Best available control technology	OK	Ordinary Krige
BDL	Below detection	opt	Ounces per ton
BHP	Break horse power	oz	ounce
BLM	Bureau of Land Management	oz/t	Troy ounces per short ton
CDH	Copperstone Drill Hole	PAX	Potassium amyl xanthate
CFI	Comprehensive Facility Inspection	PbO	Lead Oxide
Cfm	Cubic feet per minute	PFS	Preliminary Feasibility Study
CHF	Cemented Hydraulic Backfill	POC	Point of compliance
CIM	Canadian Institute of Mining, Metallurgy and Petroleum	ppm	Parts per million
CRF	Cemented rock fill	PRJ	Pearson, deRidder and Johnson, Inc.
CRIRSCO	Committee of Mineral Reserves International Reporting Standards	QA/QC	Quality Assurance/Quality Control
CS	Copperstone Sample	RBF	Radial Basis Function
DCU	Drill hole Copperstone	RC	Reverse Circulation
ft	Foot	RDi	Resource Development Inc.
FW	Footwall	RMR	Rock mass rating
g/t	Grammes per tonne	RQD	Rock Quality Data
Hp	Horsepower	SAMS	Shallow Angle Mining System
HRC	Hard Rock Consulting	Sfr	Steel fiber-reinforced
HW	Hanging wall	SPCC	Spill Prevention, Control and Countermeasure
ICMC	International Cyanide Management Code	SRM	Standard Reference Material
ID	Inverse distance	SRM	Standard Reference Material
IDS	International Directional Services	SWPPP	Storm Water Multi Sector General Permit
IDW	Inverse distance weighting	SWS	Schlumberger Water Services
in	Inches	TMI	Total Magnetic Intensity
IP	Induced Polarization	tpd	Tones per day
IRR	Internal Rate of Return	tph	Tones per hour
ISO	International Standards Organization	TSF	Tailings storage facility
JORC	Joint Ore Reserves Committee	UCS	Unconfined Compressive Strength
m	Meters	VLF	Very low frequency
M&I	Measured and Indicated	WELNAV	Welbore Navigation, Inc.
MDA	Mine Development Associates	WOCL	Whole-Ore Cyanidation Leaching
MIP	Maximum intensity projections	WOL	Whole Ore Leach
MPO	Mine Plan of Operations		

1. EXECUTIVE SUMMARY

1.1 Introduction

Kerr Mines Inc. ("Kerr") is a North American gold exploration company headquartered in Toronto, Canada. Kerr acquired the Copperstone Project (the "Project"), a historically productive high-grade gold mine located in La Paz County, Arizona in 2014. The mine is fully permitted with significant mining infrastructure, mineral resources and processing infrastructure in place. The Copperstone Project was previously mined by Cyprus Minerals Corporation, producing in excess of 500,000 ounces of gold (from 5.6 million tons of ore grading 0.089 opt Au) from the open pit between 1987 and 1993. Cyprus successfully recovered the gold through a combination of whole ore and heap leaching, with no known associated environmental liabilities resulting from the process. The results of ongoing exploration at the Project indicate that gold and copper mineralization with mineable potential exist at the site. In 2011 American Bonanza constructed a 450 tpd flotation mill on site and in 2012 started underground mining from two declines which were previously developed in the bottom of the open pit. American Bonanza's mining focused on the D zone which is to the north of the Cyprus open pit. From January 2012 to July 2013 American Bonanza produced approximately 16,900 oz of gold from 163,000 t of ore grading 0.104 oz/t of gold. In late 2017, Kerr completed a combined surface and underground drilling exploration program including the addition of 800 ft of additional underground access. Kerr plans to resume underground mining and mineral processing at Copperstone in 2019, pending positive results of detailed engineering studies and project financing.

Kerr has retained Hard Rock Consulting ("HRC") to complete a Preliminary Feasibility Study ("PFS") for the Copperstone Project. The PFS is a comprehensive study of a range of options for the technical and economic viability of the Project based on the proposed mining and processing methods. This study includes a financial analysis based on reasonable assumptions of modifying factors and evaluation of other factors sufficient to determine if all or part of the mineral resource may be converted to mineral reserves. This report presents the results of HRC's efforts and is intended to fulfill the Standards of Disclosure for Mineral Projects according to Canadian National Instrument 43-101 ("NI 43-101").

This report was prepared in accordance with the requirements and guidelines set forth in NI 43-101 Companion Policy 43-101CP and Form 43-101F1 (June 2011), and the mineral resources and reserves presented herein are classified according to Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards - For Mineral Resources and Mineral Reserves, prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on May 10, 2014. The mineral resource and mineral reserve estimates reported here are based on all available technical data and information as of April 1st, 2018.

1.2 Property Description and Ownership

The Copperstone Project encompasses approximately 13.8 square miles of surface area and mineral rights in La Paz County, County, Arizona, roughly 19 miles north of the town of Quartzsite. The Project is wholly owned by Kerr, which controls the 546 federal unpatented mining claims and two Arizona state mineral leases which together comprise the Copperstone Project area. The Project area covers all or portions of Sections 6 through 10 and 15 through 23, T6NR19W; Sections 1, 2, 10 through 14 and 22 through 27, T6NR20W; and Section 19, T7NR19W, Gila and Salt River Meridian. The federal claims cover approximately 10,920 acres (4,419 hectares) while the state mineral leases total approximately 1,338 acres (542 hectares). The approximate geographic center of the Project area lies at 33°52'6" N latitude, 114°17'42" W longitude.

The current Copperstone Project is an underground gold mining/mill project. Past and recent exploration activities have confirmed or identified the availability of approximately 884,000 tons of gold bearing material, with an estimated project life of approximately 4.4 years. This schedule estimates a mill through-put of approximately 600 tons per day, which translates into an annual mill through-put of approximately 210,000 tons per year. A majority of the construction crews are expected to come from the local areas; however, some may also come from other areas depending on skill levels available in the local communities.

All facilities will be placed on currently disturbed ground. No new surface disturbance is contemplated or expected. All non-ore bearing rock excavated in the underground mine will be used to back fill newly created openings from mining ore bearing material in the underground mine. The facility will be designed as a zero-discharge facility with all mine water created from pumping of the underground mine either used in the mill, for dust suppression on roads or directed to an evaporation/infiltration gallery. Existing wells supply any make-up water and non-potable water for buildings.

Mining of the ore will be conducted through conventional underground mining techniques. Waste rock will be blasted, transported by haul truck and placed into newly mined areas underground. Ore will be transported by haul truck from the pit area to the mill for crushing and processing. Ore will be processed by crushing, grinding and tank leaching. Gold doré bars will be produced and shipped off site to a refinery. Tailings generated by the new mining activities will be impounded in the existing, lined tailings storage facility (TSF). Water from the TSF is allowed to flow to a lined water collection facility to be re-used in the processing of gold bearing ores at the mill.

1.3 Geology and Mineralization

The Copperstone Project is situated at the northern tip of the Moon Mountains in west-central Arizona, regionally within the Basin and Range geo-physiographic province, and within the westernmost extent of the Whipple-Buckskin-Rawhide detachment system. The Whipple-Buckskin-Rawhide detachment system is centrally located within the Maria fold and thrust belt (Reynolds et al., 1986), which extends from southeastern California to central Arizona. Mid-Tertiary low-angle normal faults (detachment faults) are recognized as significant regional structures in this portion of the Basin and Range, where major detachment faults are associated with mylonitization of lower-plate rocks and brittle faulting and rotation of upper-plate rocks. In general, mylonitic foliations are low-dipping and contain well-developed northeast-plunging mineral lineations. Upper plate rocks as young as mid-Tertiary dip moderately to the southwest and are cut by northeast-dipping normal faults.

In the vicinity of the Copperstone Project, the Moon Mountain detachment fault carries sedimentary and volcanic rocks of Paleozoic, Mesozoic, and Tertiary age over a ductilely deformed footwall consisting primarily of granitic intrusive rocks. The top of the granitic lower plate rocks are marked by the brecciated Copper Peak granite, which is exposed over an area of roughly 2 km^2 surrounding and to the south of Copper Peak, in the northeastern part of the Moon Mountains. The northern margin of this unit is truncated by the

Moon Mountain detachment fault. A weakly to strongly developed tectonic fabric is present over much of the exposed extent of the granite and is characterized by flattened and stretched quartz grains and deformed potassium feldspar.

The primary lithologic units within the Copperstone Project area are Precambrian to Tertiary amphibolite metasediments, volcanics, and granitic intrusive rocks, with lesser amounts of sedimentary and volcanic supracrustal lithologies. Brecciated granite along the plane of the low-angle detachment separates the lower plate mid-Tertiary granitic rocks from upper plate rocks, which consist (from bottom to top) of Triassic phyllites and metasediments, Jurassic quartz latite porphyry, and Miocene sediments and olivine basalt. The basal unit encountered is described as a chlorite phyllite to calcareous chlorite phyllite, with a maximum known thickness of up to 230 to 300 ft.

Gold mineralization at Copperstone occurs in the hanging wall of the Moon Mountain detachment fault, which has not been penetrated in drilling to date. Gold mineralization is largely restricted to the immediate vicinity of the Copperstone fault (also referred to as the Copperstone shear or the Copperstone structure), a moderately northeast-dipping, semi-planar zone of shear which is interpreted as a listric splay of the Moon Mountain detachment, and which has hosted the bulk of the gold historically produced from the Copperstone mine. The Copperstone fault strikes about N30° to 60°W and dips from 20° to 50° to the northeast. The associated brecciated fault zone ranges from 45 ft to 180 ft in width with characteristic fault gouge, multi-phase breccia textures, shear fabric, and intense fracture sets across this width.

Kerr's current conceptual geologic model interprets the Copperstone structure as part of a detachment fault system related to regional mid-Miocene extension. More recently, Strickland et al. (2017) have recognized late Laramide detachment related to magmatism and the denudation of a Cretaceous subduction complex found across southern Arizona and California. Regardless of the age of the deformation, detachment faulting with an upper-plate-to-the-east sense of motion is presently considered the primary control/conduit for mineralization. The mineralized Copperstone fault is continuously present across the pit area from the A, B and C zones and may extend even farther south across the sparsely drilled South zone. It appears to break down or splay upon entering the D zone and there are indications of some up-dip flattening in the northern C zone.

1.4 History and Exploration

The first recorded commercial interest in the Copperstone property was as a copper prospect in 1968. Charles Ellis of the Southwest Silver Company ("Southwest Silver") controlled the Continental Silver claim group from 1968-1980. Newmont Gold Company ("Newmont") leased the property in 1975. A geophysical survey was conducted and one drillhole completed in an attempt to verify porphyry copper mineralization. The attempt was unsuccessful.

In 1980, Southwest Silver drilled six rotary holes with unknown results and then dropped the claims. In late 1980, Dan Patch staked 63 Copperstone claims and leased the property to Cyprus-Amoco. Cyprus then purchased the Iron Reef Claim group from W. Rhea. Additional claims were subsequently added, and the claim block expanded to 284 claims. Cyprus identified the Copperstone property as a gold target and undertook a drilling campaign from 1980 to 1986. Cyprus began baseline, financial and metallurgical studies that led to mine design, initial construction and a partially completed decline in 1986.

In 1987, Cyprus commissioned construction of a 2,500 ton/day carbon-in-pulp mill and started open-pit mining. The mine was designed, constructed and operated as a zero-discharge facility (Miller et al., 1994). Mining continued until 1993 when the pit neared the groundwater table, which was the limit of the original mining permits. Ackerman (1998) reported production by Cyprus at Copperstone of 514,000 oz of gold from 5,600,000 Mt of ore grading 0.089 oz/t of gold.

Santa Fe Pacific Gold Corporation ("Santa Fe") leased the property in 1993, while reclamation activities were underway. Santa Fe completed 12,500 ft (3,810 m) of RC drilling on seven exploration targets. Gold mineralization was encountered in one hole in the footwall of the Copperstone Fault.

Royal Oak Mines ("Royal Oak") leased the property from the Patch Living Trust in 1995. Royal Oak drilled a total of 25,875' (7,887 m) in 35 holes between 1995 and 1997. Several high-grade gold intercepts to the north and east of the open-pit showed potential for underground mining.

Asia Minerals entered into a joint venture with Arctic Precious Metals Inc., a subsidiary of Royal Oak in August 1998. Asia Minerals drilled 15 holes (A98-1 to 15) in November 1998 for a total of about 10,050' (3,063 m). Each hole was drilled with RC methods from the surface to a predetermined depth and then core drilled through the target interval. The drilling program was designed to explore the C and D Zones (MRDI, 1999). Golder Associates and MRDI Canada completed a scoping level study after the 1998 drilling program was completed.

Asia Minerals drilled 11 more holes in early 2000. Total footage was 7,470' (2,277 m). Holes were designed to test the strike length of the D Zone, with the best intercept in hole A00-10 which assayed 0.943 opt Au over 10.5' (3.2 m). On July 7, 2000, the BLM approved an application from Asia Minerals to construct a 2,000-foot (610 m) decline (Mine Development Associates, 2000). The purpose of the decline was to explore high-grade gold mineralization which had been discovered during surface drilling (AMEC, 2006). On July 26, 2000, the Arizona Department of Environmental Quality approved the proposed underground activity and granted Asia Minerals an exemption from an Aquifer Protection Permit (Mine Development Associates, 2000).

Asia Minerals began a joint venture with Centennial Development Corp. of Salt Lake City in September 2000 (AMEC, 2006). The permitted decline was started from the north end of the pit in a northward direction. It provided a platform for further exploration drilling and allowed for the removal of bulk sample material for metallurgical and milling tests. To that end, a 64-lb highgrade sample was sent to McClelland Labs in Sparks, Nevada. It was during this time that Asia Minerals changed its name to American Bonanza Gold Mining Corp. to better reflect the geographic, metal and grade focus of the company.

On March 4, 2002, American Bonanza announced that it had gained control of a 100% equity interest in Copperstone subject only to the royalty schedule payable to the Patch Living Trust. They also announced an agreement with Trilon Securities whereby Trilon would arrange a US$1.1 million secured credit facility for the company. In November 2002, American Bonanza selected Merritt Construction of Kingman, Arizona to expand the underground development. American Bonanza announced on May 5, 2003 that significant high-grade gold mineralization was sampled in the decline in the D Zone. In June 2003, an underground drill station was completed. Drilling began in July, and by May 17, 2004, American Bonanza had drilled 33 underground core holes in the D Zone for a total of 9,234' (2,815 m).

American Bonanza continued drilling in 2004, including underground drilling from a drill bay in the exploration decline. The company retained certain specialized firms to assist it with collecting environmental, geotechnical, hydrological and metallurgical baseline data in 2004, and in 2005, submitted a Mine Plan of Operations ("MPO") to the BLM. Additional drilling was completed in 2006 and 2007. A variety of studies and reports were commissioned by American Bonanza between 2007 and 2010, culminating in a feasibility study, including an updated mineral resource estimate, completed in 2010. In 2011 American Bonanza constructed a 450 tpd floatation mill on site and in 2012 started underground mining from two declines that were previously developed in the bottom of the open pit. American Bonanza's mining focused on the D zone which is to the north of the open pit. From January 2012 to July 2013 American Bonanza produced approximately 16,900 oz of gold from 163,000 t of ore grading 0.104 oz/t of gold. American Bonanza maintained control of the Copperstone Project until Kerr's acquisition in June of 2014.

1.5 Mineral Resource Estimate

HRC's Zachary J. Black, SME-RM, is responsible for the mineral resource estimate presented herein. Mr. Black is a Qualified Person as defined by NI 43-101 and is independent of Kerr. HRC estimated the mineral resource for the Project based on drillhole data constrained by geologic boundaries with an Ordinary Krige ("OK") algorithm. Gold is the metal of interest at the Project. The mineral resources estimate reported here was prepared in a manner consistent with the Committee of Mineral Reserves International Reporting Standards ("CRIRSCO"), of which both the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") and Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") are members. The mineral resources are classified as Measured, Indicated and Inferred in accordance with "CIM Definition Standards for Mineral Resources and Mineral Reserves", prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on May 10, 2014. Classification of the resources reflects the relative confidence of the grade estimates.

In order to support the mineral resource estimate, Kerr completed over 26,50 ft of infill and step-out drilling in the summer and fall of 2017. In total, 960 drillholes totaling 481,348 ft were incorporated into the geologic model and resource estimate.

The Copperstone deposit is a mid-Tertiary, detachment fault related gold deposit. Mineralization is predominantly controlled by the northwest trending shallow angle Copperstone fault and shear zone. These structures are not confined to any lithologic unit, although the majority of the mineralization is hosted in quartz latite porphyry. Breccia textures as well as chloritization, silicification, and hematite and specularite flooding are reliable indications of gold mineralization.

Gold grades were constrained within estimation domains modelled with 3D wireframe solids. Estimation domains follow the overall northwest, shallowly dipping structural trends, and were defined by drillhole interval selections of gold grades greater than or equal to 0.100 troy ounces per short ton, "oz/ton". Domains were reviewed in 3D to ensure the models agree with the overall geologic interpretation and maintained continuity along strike and down dip. Samples were composited inside estimation domains to a target length of 5 ft. Composite gold grades within each domain were reviewed for statistically high outliers, which were then constrained and capped. The capping analysis considered each domain separately and a global gold cap was not used. Semi-variograms from composites were used to inform the search ellipse. Densities were determined inside and outside estimation domains by lithology from drill core. The strike length of the deposit is approximately 4,000 ft and mineralization has been encountered by drillholes to a depth of -330 ft (approximately 1,200 ft below surface). The geologic model was created using Leapfrog, and is comprised of four structural domains, six stratigraphic units, and 42 estimation domains.

The undiluted Copperstone project mineral resource statement is presented in Tables 1-1 below. The results reported in the mineral resource have been rounded to reflect the approximation of grade and quantity which can be achieved at this level of resource estimation. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. Mineral resources are quoted inclusive of mineral reserves. Mineral resources that are not mineral reserves do not have demonstrated economic viability and may be materially affected by modifying factors including but not restricted to mining, processing, metallurgy, infrastructure, economic, marketing, legal, environmental, social and governmental factors. Due to the uncertainty that may be attached to Inferred mineral resources, it cannot be assumed that all or any part of an Inferred mineral resource will be upgraded to an Indicated or Measured mineral resource as a result of continued exploration.

The mineral resources are confined to material exceeding the cut-off grade of 0.100 opt within coherent wireframe models and meet the test of reasonable prospect for economic extraction. The cutoff is calculated based on the operating costs, royalties, recoveries and metal prices as presented in Table 14-24. The effective date of the mineral resource estimate is April 1, 2018.

Table 1-1 Mineral Resource Statement for the Copperstone Project, La Paz County, Arizona, U.S.A., Hard Rock Consulting, LLC, April 1, 2018

Mineral Resource Classification	Tons ('000's)	oz/ton	Contained Gold ('000 oz)
Measured	527.0	0.243	128.0
Indicated	712.9	0.208	148.0
Measured + Indicated	**1,239.8**	**0.223**	**276.1**
Inferred	734.1	0.198	145.7

1. The effective date of the Mineral Resource estimate is April 1st, 2018. The QP for the estimate is Mr. Zachary J. Black, SME-RM of Hard Rock Consulting, LLC. and is independent of Kerr Mines, Inc.
2. Mineral resources are quoted inclusive of mineral reserves. Mineral resources that are not mineral reserves do not have demonstrated economic viability. Due to the uncertainty that may be attached to Inferred mineral resources, it cannot be assumed that all or any part of an Inferred mineral resource will be upgraded to an Indicated or Measured mineral resource as a result of continued exploration.
3. Mineral resource is reported at an underground mining cutoff of 0.100 oz/ton Au beneath the historic open pit and within coherent wireframe models. The cutoff is based on the following assumptions: a long-term gold price of $1,375/oz; assumed mining cost of $74/ton, process costs of $40/ton, general and administrative and property/severance tax costs of $14/ton, refining costs of $4.65/oz and metallurgical recovery for gold of 95%.

4. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. Grades are reported in troy ounces per short ton.

1.6 Mineral Reserve Statement

Mr. Jeff Choquette, P.E., MMSA QP, of HRC is responsible for the mineral reserve estimate presented herein. Mr. Choquette is Qualified Person as defined by NI 43-101 and is independent of Kerr. The mineral reserve estimate was prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines. Stope designs for reporting the reserves were created utilizing the mineral resources presented in Section 14 of this report. A mechanized cut and fill mining method is planned to extract the Copperstone deposit. Ore is planned to be processed in a whole ore leach process plant capable of processing 850 tpd.

The mining breakeven cut-off grade was used to generate the stope designs in DataMine's MSO (Minable stope optimizer) for defining the reserves. The estimated operating costs and mill recoveries developed for the PFS are used to calculate the reserve breakeven cut-off grade. A gold price of $1,250/oz was chosen, which is three-year historical as of January 1st, 2018. Mineral reserves are reported within the mine stope designs at an underground mining cutoff of 0.111 oz/ton.

The Proven and Probable mineral reserves for the Project as of April 1st, 2018 are summarized in Table 1-2. The reserves are exclusive of the mineral resources reported in this report.

Table 1-2 Proven and Probable Mineral Reserves, Effective Date April 1st, 2018

Mineral Reserve Classification	Tons ('000's)	oz/ton	Contained Gold ('000 oz)	Dilution
Proven	382.2	0.213	81.4	23.5%
Probable	501.9	0.187	93.7	26.8%
Total Proven + Probable	**884.1**	**0.198**	**175.1**	**25.3%**

1. The effective date of the Mineral Reserve estimate is April 1st, 2018. The QP for the estimate is Mr. Jeffery Choquette P.E. of Hard Rock Consulting, LLC. and is independent of Kerr Mines, Inc.
2. The mineral reserve estimate was prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines.
3. Mineral reserves are reported within the mine stope designs at an underground mining cutoff of 0.111 oz/ton. The cutoff is based on the following assumptions: a long-term gold price of $1,250/oz; assumed mining cost of $74/ton, process costs of $40/ton, general and administrative and tax costs of $14/ton, refining costs of $4.65/oz and metallurgical recovery for gold of 95%. Reserves are estimated based on delivery to the mill stockpile.
4. Mining recoveries of 95% were applied. Overall dilution factors averaged 25.3%, dilution factors are calculated based on internal stope dilution calculations and external dilution factors of 10% for cut and fill mining.
5. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. The mineral reserves are exclusive of the mineral resources.

1.7 Mining Methods

The Copperstone Mine had historic open pit production from 1987 through 1993 by Cyprus and in 2012 American Bonanza Gold Corp started underground mining from two declines which were developed in the bottom of the open pit. American Bonanza's mining focused on the D zone, which is to the north of the open pit, and mined 163,000 t of ore form January 2012 to July 2013. Due to the historic underground mining that has taken place on the property and the exploration drift developed by Kerr in the summer of 2017 there is a currently 12,800 ft of access development. This existing access includes two declines from the bottom of the pit and extends across 500 ft of strike. Therefore, a reduced amount of development is required to get the mine up to full production. The PFS mine plan for the Coppertone Project includes approximately 884,100 tons of mineral reserves to be extracted by underground mining in 4.4 years. The mine production schedule calls for the production of 600 tpd of ore seven days per week and 840 tpd of ore processed per mill working day, 5 days per week. Mining recoveries of 95% were applied and overall dilution factors averaged 25.3%. Dilution factors are calculated based on internal stope dilution calculations and external dilution factors of 10%. The ore will be placed on a stockpile at the mill and a loader will be employed to feed the mill at three eight-hour shifts, five days per week.

The mine plan for the reserves is based on the following criteria.

- Cut and Fill mining method using Rock Fill (RF) and Cemented Rock Fill (CRF);
- Cut-off grade of 0.111 opt gold for underground mining;
- An ore production rate ramped up to 600 tpd over 350 operating days/year;
- The underground design allowed for 15.3% planned dilution, 10% unplanned, and a mining recovery of 95%;
- Development drifting and raising of approximately 43,619 ft. for the LoM;
- Four operating crews with an average of 16 workers/crew –crews work 10hr shifts, four days on and four days off.

The mining method proposed for the Copperstone Project is a mechanized cut and fill using RF and CRF. Cut and fill was chosen for its flexibility in handling the low vein dip angles. The method also minimizes the amount of dilution during mining by careful geological and management control of the mining.

Underground mining methods were reviewed that will minimize dilution, capital, and operating costs and maximize recovery of the ore resources while maintaining the design production throughput at the mill. The Copperstone orebody is relatively flat with an average dip of 38° degrees. Although there are some areas where the ore is steeper and will flow by gravity, above a 45-degree dip, the majority of the deposit is too flat to facilitate a long hole mining method. Mining costs comparisons were completed on mechanized overhand cut and fill versus conventional overhand cut and fill utilizing slushers and hydraulic backfill. Conventional cut and fill does reduce the required capital for stope access development by about 14,000 feet and $8 million dollars but the required operating stoping costs for stoping are estimated to increase by approximately 74% or $11.5 million dollars. As a result of the total estimated operating costs being higher than the savings in development, mechanized cut and fill was chosen as the preferred option.

The primary ramp development is planned in the footwall of the orebody to access the cut and fill stopes. The main haulage drifts and ramps are planned to be developed at a 14 ft height x 14 ft width which is similar to the size of the existing development. The main ramp is designed to limit curves and turns to promote efficient truck haulage and reduce ventilation constraints. Muck bays 30 ft. deep are planned every 500 ft along the ramp to facilitate the development mucking process. As the development progresses these muck bays will be converted for use as sumps, transformer bays, storage areas and exploration drill bays.

The total length of the new main haulage ramps is 16,369 ft. Two new additional portals in the pit bottom are planned, the first portal will be started during the preproduction period and will provide access to the B zone. The second portal will be developed during the third quarter of year two. Both portals will tie into the same ramp system, so the entire mine will be connected. A vent raise from the C zone to the pit bottom is also planned in the first quarter of year one to provide an escapeway on the C zone and provide flow through ventilation for this area.

The main haulage ramps are developed approximately 160 ft. beyond the ore zone in the footwall. The stope access ramps are developed from the main haulage ramps and are planned at 12-ft height x 10-ft width to allow sufficient access height for highly-productive mining equipment. A nominal level spacing of 60 ft was selected, providing access to five 12 ft high drift and fill cuts from a single access point. The first access ramp is driven at -15% to access the first of five lifts of the stope. The remaining four lifts are developed by backslashing and ramping up at +15% for each successive lift. Every lift provides access to the next drift and fill ore production cut which is immediately above the previous cut. Figure 16-4 presents a typical stope access development layout. Each stope access point also includes a 30 ft. muck bay. The total length of stope access ramps is planned at 13,813 ft. and the total length of stope access backslash ramps is planned at 13,437 ft.

The mine operations schedule is based on 350 days/year, 7 days/week, with two 10-hour shifts each working day. The development, stope mining and backfill schedules were all created on a monthly basis. There are four crews scheduled working a four-on, four-off schedule. The ore production rate at full production is 600 tons per day with a 3-month ramp up period. Each stope is calculated to be able to produce 168 tpd, based on that assumption 3.5 active faces are required to meet production requirements. Slower activity in developing new stopes, backfill placement and unplanned delays brings the total to six active areas to be scheduled in the mine plan.

Table 1-3 presents the annual mining schedule based on these assumptions. The mine schedule starts month one as of January 1, 2019 (Year -1) with development from the current underground ramp to the first mining area beginning August 1st, 2019 (month 8 of Year -1). The new portal and ramp to access the B zone will also begin in month 8 of Year -1 so there will be two main development faces being advanced at the same time. Mining of some development ore is planned for three months, with this material being stockpiled until November 1st, 2019 when the process plant will start up.

Table 1-3 Annual Mining Schedule

Production Schedule	Life-of-Mine	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
MINE PRODUCTION							
Tons Ore Mined	884,106	57,418	228,543	241,901	188,151	158,810	9,283
Au, oz/ton	0.198	0.211	0.195	0.200	0.194	0.199	0.199

Development Feet	43,619	3,287	16,907	11,854	6,364	4,842	364
Development Waste	537,001	44,317	223,457	153,988	63,384	48,226	3,628
Total Tons Mined	**1,421,107**	**101,735**	**452,000**	**395,889**	**251,535**	**207,037**	**12,911**

1.8 Mineral Processing

Kerr Mines and HRC contracted Resource Development Inc (RDi) who provided new metallurgical testing of the Copperstone deposit, confirmed prior metallurgical testwork and economically evaluated processing options. Metallurgical test work focused on the A, B, C, and D zones of the Copperstone Zone. Testing also confirmed bond work indexes, abrasion and density values. The production and sale of a doré bar versus sale of a gold concentrate has much lower offtake costs. Listed below is a description and results for three processing options:

Flotation Producing a Concentrate: This is the approach taken by the previous operators. The flotation concentrate is estimated to assay ± 500 g/tonne Au and would be sold to a broker or smelter. A marketing study is needed to determine the marketability and cost of sales for this grade of gold concentrate. The flotation circuit would consist of rougher flotation followed by two stages of cleaners to produce the required grade of concentrate. This confirms historical testwork and production results. Recoveries for gold from flotation for high grade saleable concentrate averaged 88%.

Flotation and Cyanide Leach of the Concentrate: The objective of this process is to produce a rougher concentrate maximizing recovery of gold, then leach the concentrate and produce a doré bar. Recoveries for gold from flotation concentrate produced for final leach averaged 90%. Testing for final recovery of gold from leaching the flotation concentrate is inconclusive and further testing is required.

Whole Ore Leach (WOL): WOL utilizes direct cyanidation leaching of the entire ore feed. This option also includes the production of a doré bar. WOL resulted in gold extraction of 88% to 97%. There exists an opportunity to decrease the Processing Cash Operating cost below the Study results with further cyanide consumption testwork, which is in progress.

WOL of Copperstone ore exhibits the highest operating costs of the three options but the increase in recoveries and elimination of concentrate smelter charges make this option economically superior. In addition, the existing processing plant will be simplified by eliminating both the course gold circuit and one of the mills. WOL leach was chosen as the base case processing scenario for the Study.

1.9 Economic Analysis

Information contained and certain statements made herein are considered forward-looking within the meaning of applicable Canadian securities laws. These statements address future events and conditions and so involve inherent risks and uncertainties. Actual results could differ from those currently projected.

The Project is planned to be an underground mining operation with milling and Whole-Ore Cyanidation Leaching of the ore, with an estimated production of 884,000 tons from its reserves, grading 0.198 opt gold. The mine will be owner operated with a capital lease strategy for mining equipment. The process operations are planned to run at a rate of 840 tons per day, five days per week with a 96% availability during the operating days, with all mineralized material being crushed, milled and processed by WOL. Gold recovery is expected to average 95% for gold. There is a potential by-product credit for copper which is not included in this report, and which is understudy by the Company.

Economic analysis of the base case scenario for the Project uses a price of US$1,250/oz for gold, which is the 60-month trailing average price and $74/oz less than the closing spot price at the end of March 2018. The economic model shows an After-Tax Net Present Value @ 10% ("NPV-10") of $17.91 million using a 0.111 opt Au mining cut-off grade, as well as an After-Tax Internal Rate of Return ("IRR") of 40.1%. Table 1-4 summarizes the projected Net Present Value, NPV-10; Internal Rate of Return, IRR; years of positive cash flows to repay the negative cash flow ("payback period"); multiple of positive cash flows compared to the maximum negative cash flow ("payback multiple") for the Project on both After-Tax and Before-Tax bases.

Table 1-4 Summary of Copperstone Economic Results

Project Valuation Overview	After Tax	Before Tax
Net Cashflow (millions)	$36.28	$38.24
NPV @ 5.0%; (millions)	$25.59	$27.12
NPV @ 7.5%; (millions)	$21.44	$22.80
NPV @ 10.0%; (millions)	$17.91	$19.12
Internal Rate of Return	40.1%	41.7%
Payback Period, Years	2.27	2.26
Payback Multiple	2.75	2.84
Total Initial Capital (millions)	-$22.74	-$22.74
Max Neg. Cashflow (millions)	-$20.74	-$20.74

Table 1-5 summarizes the projected gold production schedule and cash flows. The economic evaluation and schedule is based on Proven and Probable reserves. Additional mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of additional estimated mineral resources will be converted into mineral reserves.

Table 1-5 Cashflow Summary

		Study Totals	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Gold Ounces in Doré	oz	166,172		7,349	38,790	39,939	38,722	39,619	1,753
Gross Revenue	**$US**	**207,714,250**		**9,186,375**	**48,487,000**	**49,923,625**	**48,402,250**	**49,523,375**	**2,191,625**
Cash Operating Costs	**$US**	**(113,665,069)**		**(4,615,312)**	**(28,769,608)**	**(27,427,293)**	**(26,210,707)**	**(24,553,976)**	**(2,088,173)**
Royalties	$US	(4,154,287)		(183,728)	(969,740)	(998,473)	(968,045)	(990,468)	(43,833)
Production Taxes	$US	(816,507)		(57,138)	(164,391)	(169,687)	(187,617)	(237,674)	-
Total Operating Costs	**$US**	**(118,635,863)**		**(4,856,178)**	**(29,903,739)**	**(28,595,453)**	**(27,366,369)**	**(25,782,118)**	**(2,132,006)**
Operating Margin (EBITDA)	$US	89,078,387		4,330,197	18,583,261	21,328,172	21,035,881	23,741,257	59,619
Sustaining Capital/Closure	$US	**(26,235,313)**	**(500,000)**	**(1,380,499)**	**(13,314,127)**	**(8,890,011)**	**(4,261,740)**	**(269,937)**	**2,381,000**
Site All-In Sustaining Cost*	$US	**(144,871,176)**	**(500,000)**	**(6,236,677)**	**(43,217,866)**	**(37,485,464)**	**(31,628,109)**	**(26,052,055)**	**248,994**
Investment Capital	$US	(22,737,126)	(603,670)	(22,133,457)					
Site All-In-Cost*	**$US**	**(167,608,303)**	**(1,103,670)**	**(28,370,134)**	**(43,217,866)**	**(37,485,464)**	**(31,628,109)**	**(26,052,055)**	**248,994**
Cash Flow, pre-Tax	**$US**	**40,105,947**	**(1,103,670)**	**(19,183,759)**	**5,269,134**	**12,438,161**	**16,774,141**	**23,471,320**	**2,440,619**
Interest Expense	$US	(1,865,121)		(450,161)	(853,257)	(474,699)	(87,003)		
State & Federal Income Tax	$US	(1,961,421)					(623,798)	(2,662,724)	1,325,101
Free Cash Flow	$US	**36,279,406**	**(1,103,670)**	**(19,633,920)**	**4,415,877**	**11,963,463**	**16,063,340**	**20,808,596**	**3,765,720**
Cumulative Free Cash Flow	$US		(1,103,670)	(20,737,589)	(16,321,713)	(4,358,250)	11,705,090	32,513,686	36,279,406
Study Life of Mine	Yrs	4.4							
* no corp cost									

The projected total lifespan of the Project is 5.4 years: one year of pre-production and construction, and 4.4 years of full operations. Approximately 175,100 oz of gold is projected to be mined, with 166,200 oz recovered and produced for sale. An initial capital investment of $22.7 million, including contingency/working capital/reclamation is projected in addition to $11.5 million from the mine equipment capital lease. Following the All-In-Sustaining-Cost ("AISC") guidelines, life-of-mine average base case Cash Operating Cost is projected to be $684/oz of gold sold. The AISC life-of-mine average base case Total Operating Cost (including royalties and production taxes), is expected to be $714/oz. The All-In-Sustaining-Cost is projected to be $875/oz as presented in Table 1-6.

Table 1-6 Copperstone Project Total Operating Cost/ounce Gold & per ton Ore

Operating Costs	$/oz Au	$/t ore
Total Mining	-$407.04	-$76.50
Total Processing	-$192.99	-$36.27
Total Site G & A	-$74.61	-$14.02
Transportation and Refining	-$9.39	-$1.76
Cash Operating Costs	**-$684.03**	**-$128.55**
Royalties	-$25.00	-$4.70
Production Taxes	-$4.91	-$0.92
Total Operating Costs	**-$713.94**	**-$134.17**
Corporate General/Admin	$0.00	$0.00
Reclamation cost - prorated	-$3.01	-$0.57
Capital costs - sustaining	-$157.88	-$31.80
All-In-Sustaining-Costs	**-$874.83**	**-$166.54**
Notes: Corporate costs not included		

1.10 Conclusions

Results of the PFS indicate that the Project is economically viable, benefitting from significant in-place infrastructure, underground development and permitting. There are numerous targets to increase the resources and reserves, and economic grade ore appears to be readily available for mining and processing. The base case scenario produces approximately 166,200 salable ounces of gold over a 4.5-year period. The Project is most sensitive to the gold price and to operating costs, but sensitive to a lesser extent to capital costs. The base case economic analysis of the Project at a gold price of US$1,250/oz shows an After-Tax NPV-10 of $17.91 million using an 840 ton/day crushing/grinding/WOL plant.

1.11 Recommendations

HRC recommends the following tasks be completed to advance and prepare the Project for development and operation.

1.11.1 Drillhole Database

The geologic information within the drillhole database is not in a standard or consistent format. HRC recommends the following in order to standardize the geologic information contained in the database:

- Remove structural fabrics (such as breccia, faults, etc..), and alterations from the lithologic database. The lithologic database should represent the proto-lithology observed in the geologic logs. The litholigic database should then be simplified to only the most significant geologic types. Finally, the lithologic database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct lithology.
- Structural fabrics identified in core, or RC cuttings, should be separated into its own table and entered into the database in a consistent format. The structural database should be simplified to only the most significant structural types. The structural database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct structure.
- Alteration and mineralization should be separated into its own table and entered into the database in a consistent format. The alteration database should be simplified to only the most significant alteration and mineralization types. The alteration database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct alteration.

In 2017, Kerr commenced bringing lithology, alteration, mineralization, and structural information into a simplified and standardized format. Kerr is currently addressing, or has addressed the other recommendations above, and HRC encourages Kerr to continue these efforts. By standardizing the geologic database, it is possible estimation domains could be developed independent of gold grades, ultimately improving the confidence of the geologic interpretation and model.

1.11.2 Maximum Mined Out Pit Extent

HRC recommends a seismic survey to determine the actual maximum extent of the pit. The contrast between backfill and quartz latite porphyry should be sufficient to resolve the contact. As an additional benefit, the seismic survey might be able to resolve some structural features on the property. A limited seismic survey was conducted at Copperstone by Cooksley Geophysics, Inc in 1989. HRC's review of the interpretations show structures similar to those modeled by HRC.

1.11.3 Structural Understanding

HRC recommends that Kerr initiate a limited oriented core drilling program, testing up-dip and down-dip in known areas of mineralization, and penetrating the Copperstone and footwall zones. HRC recommends four holes in the AB zone, eight in the C zone, and four in the D zone. If seismic survey is not conducted or fails to identify structures, structural mapping should be conducted inside the pit and underground to identify significant structures, such as the northeast trending offset faults, the Copperstone fault, and other structures determined to have significant impact on mineralization.

Geologic structural mapping at Copperstone is currently in progress. Additionally, Kerr plans to incorporate the use of down-hole Televiewer imagery. The imagery produces accurate in-situ structural measurements which can be linked to the geological and assay logs for modeling purposes. If successful, this technology can be used in lieu of oriented core.

1.11.4 Additional Drilling

- Infill Drilling

HRC recommends continued infill drilling in the current Footwall zone and South zone to improve the understanding of geometry and orientation of mineralized structures. Figure 26-2 shows the block model for domains classified as Measured, Indicated, and Inferred resources. Areas colored dark blue and white space are areas for infill drilling in A/B, C, and D zones.

- Step Out Drilling

HRC recommends testing the down dip continuity of Copperstone mineralization in the A/B, C and D zones. There are several drillhole intercepts to suggest these zones are still open down dip.

Anomalous gold grades have been intersected by drilling northeast of the C zone. Drillhole C96-15 has two intercepts greater 0.1 opt gold (810'-815' 0.185 opt Au, 855'-860' 0.112 opt Au). Additionally, hole C96-16 encountered two intervals of greater than 0.1 opt Au (1135'-1140' 0.182 opt Au; 1205'-1210' 0.192 opt Au). C96-16 is 283 ft northwest from C96-15. Drillhole C96-14 is 287 ft southeast of C96-15 but returned no significant gold values. No drilling has been completed to the northeast or southwest of C96-15. The intercepts could represent either the down dip extension of the C zone, or the expression of a new mineralization zone. HRC recommends 2 drillholes to test between C96-15 & C96-14, and C96-15 & C96-16; 2 drillholes testing up dip between C96-16 & H4-63 on approximately 200' centers; and a step out drillhole 100' northeast of C96-15 to test down dip.

Drillhole H5-108 encountered significant grade grades intercepts at depth (1084'-1088' 0.3 opt Au; 1121'-1124' 0.64 opt Au; 1124'-1129' 0.35 opt Au). The hole ended in low grade gold. These intercepts could be the expression of the Footwall zone beneath the A/B zone. HRC recommends follow up drilling surrounding this intercept to test the extent and continuity of mineralization, as well as its relation to South zone.

- Exploration Drilling

HRC recommends the following targets for exploration drilling:

- Test Footwall zone continuity down dip and along strike below the C zone on 200 ft centers;
- Test for the expression of Footwall zone mineralization at depth below D zone;
- Testing around CS-266 which had a 5 ft intercept of 0.1 opt Au from 780' to 790'. The intercept is approximately 1,000 ft southwest from the Copperstone pit, and is not currently incorporated into any known zone of mineralization; and
- Expansion of the Southwest target, located approximately 2,500 ft southwest of the Copperstone mine, to determine mineralization extent.

1.11.5 Metallurgy

HRC and RDi recommend the following based on the preliminary results of the on-going metallurgical program:

- Optimize the WOL process to reduce operating cost.
- Characterize the deposit with respect to copper minerals.
- Evaluate the sulfidization, acidification, recycling and thickening process (SART) process to potentially recover copper as a by-product and recycle cyanide to reduce operating costs.
- Complete a detailed design of the required plant modifications.

1.11.6 Mining

Based on the favorable results of this PFS, HRC recommends that the mine design and mine plan be advanced to a feasibility or detailed design level prior to a production decision. The following areas are recommended for further study during the next phase of work:

- Optimize the mine design, including number of access points, internal raises to improve ventilation, stope height and width;
- Review the use of a lower cutoff grade in the operational mining plan to take advantage of the high gold price to increase to amount of gold recovered from the resource;
- Review to see if marginal grade material can be added to the stopes if the stope access cost is excluded due to the stope already being developed;
- Further investigate contract mining versus owner mining;
- Further investigate possible mining methods including the Mining utilizing the Shallow Angle Mining System ("SAMS™");

- Hire key underground technical and management staff on a priority basis to facilitate the detailed design phase;
- Optimize the ventilation, water management, and electrical power systems; and
- Carry out detailed geotechnical studies and backfill binder quantity requirement studies.

Estimated costs for the recommendations are shown below in Table 1-7:

Table 1-7 Recommended Scope of Work Cost for the Copperstone Project

Recommendation	Estimate
Drillhole Database	$12,000
Mined out Pit Extent	$30,000
Structural Understanding	$30,000
Additional Drilling (up to 15,000 meters)	$4,000,000
Metallurgy	
Optimize the WOL process	$25,000
Characterize the deposit re Cu minerals	$45,000
Evaluate the SART process for Cu recovery	$65,000
Total Metallurgical	**$135,000**
Mining	
Optimize the mine design	$25,000
Review use of lower cutoff grades	$5,000
Marginal grade analysis	$5,000
Contract Mining vs Owner Mining analysis	$8,000
Alternative Mining Method analysis	$25,000
Key underground mining staff	$100,000
Optimize Ventilation, Water, and Power systems	$25,000
Geotechnical and CHF/CRF studies	$50,000
Total Mining	**$243,000**
Total Budget	**$4,450,000**

2. INTRODUCTION

2.1 Issuer and Terms of Reference

Kerr Mines Inc. ("Kerr") is a North American gold exploration company headquartered in Toronto, Canada. Kerr acquired the Copperstone Project (the "Project"), a historically productive high-grade gold mine located in La Paz County, Arizona in 2014. The mine is fully permitted with significant mining infrastructure, mineral resources and processing infrastructure in place. The Copperstone Project was previously mined by Cyprus Minerals Corporation, producing in excess of 500,000 ounces of gold from 5.6 million tons of ore grading 0.089 opt Au from open pit mining operations between 1987 and 1993. In 2011 American Bonanza constructed a 450 tpd flotation mill on site and in 2012 started underground mining from a decline which was developed in the bottom of the open pit. American Bonanza's mining focused on the D zone which is to the north of the Cyprus open pit. From January 2012 to July 2013 American Bonanza produced approximately 16,900 oz of gold from 163,000 t of ore grading 0.104 oz/t of gold. The results of ongoing exploration at the Project indicate that gold and copper mineralization with mineable potential exist at the site. Kerr is currently carrying out a combined surface and underground drilling exploration program and plans to begin underground mining operations at Copperstone pending positive results of further detailed engineering and successful project financing.

Kerr has retained Hard Rock Consulting ("HRC") to complete a Preliminary Feasibility Study ("PFS") for the Copperstone Project. The PFS is a comprehensive study of a range of options for the technical and economic viability of the Project based on the proposed mining and processing methods. This study includes a financial analysis based on reasonable assumptions of modifying factors and evaluation of other factors sufficient to determine if all or part of the mineral resource may be converted to mineral reserves. This report presents the results of HRC's efforts and is intended to fulfill the Standards of Disclosure for Mineral Projects according to Canadian National Instrument 43-101 ("NI 43-101").

This report was prepared in accordance with the requirements and guidelines set forth in NI 43-101 Companion Policy 43-101CP and Form 43-101F1 (June 2011), and the mineral resources and reserves presented herein are classified according to Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards - For Mineral Resources and Mineral Reserves, prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on May 10, 2014. The mineral resource and mineral reserve estimates reported here are based on all available technical data and information as of April 1st, 2018.

2.2 Sources of Information

A portion of the information and technical data for this study was obtained from the following previously filed NI43-101 Technical Reports:

AMEC Americas Limited, 2006. *NI-43-101 Technical Report, Copperstone Property, La Paz, Arizona*; prepared for American Bonanza Gold Corp., March 27, 2006.

Continental Metallurgical Services, 2010. *NI 43-101 Technical Feasibility Report, Copperstone Project, La Paz County, Arizona*; prepared for American Bonanza Gold Corp., January 10, 2011.

Mine Development Associates, 2000. *Geological Report for the Copperstone Gold Property, La Paz County, Arizona U.S.A.*; prepared for American Bonanza Gold Corp., October 26, 2000.

Telesto Nevada, Inc., 2010. *NI 43-101 Technical Report for the Copperstone Project, La Paz County, Arizona*; prepared for American Bonanza Gold Corp., February 11, 2010

The information contained in current report Sections 4 through 8 was largely presented in, and in some cases is excerpted directly from, the technical reports listed above. HRC has reviewed this material in detail, and finds the information contained herein to be factual and appropriate with regard to guidance provided by NI 43-101 and associated Form NI 43-101F1.

Additional information was requested from and provided by Kerr. With respect to Sections 9 through 13 of this report, the authors have relied in part on historical information including exploration reports, technical papers, sample descriptions, assay results, computer data, maps and drill logs generated by previous operators and associated third party consultants. Historical documents and data sources used during the preparation of this report are cited in the text, as appropriate, and are summarized in report Section 27.

2.3 Qualified Persons and Personal Inspection

This report is endorsed by the following Qualified Persons, as defined by NI 43-101: Mr. Zachary Black, Ms. J.J. Brown, P.G., and Mr. Jeff Choquette, P.E., all of HRC, and Mr. Deepak Mulhotra, of Resource Development, Inc. ("RDi").

Mr. Black, SME-RM, has 12 years of experience working on structurally controlled gold and silver resource and reserve estimate projects. Mr. Black completed the mineral resource estimate for the Project and is specifically responsible for Sections 1.5, 11, 12, and 14 of this report.

Ms. Brown, P.G., SME-RM, has 20 years of professional experience as a consulting geologist and has contributed to numerous mineral resource projects, including more than twenty gold, silver, and polymetallic resources throughout the southwestern United States and South America over the past five years. Ms. Brown is specifically responsible for report Sections 1.1 through 1.4, 2 through 10 and 20.

Mr. Choquette, P.E., is a professional mining engineer with more than 20 years of domestic and international experience in mine operations, mine engineering, project evaluation and financial analysis. Mr. Choquette has been involved in industrial minerals, base metals and precious metal mining projects around the world and is responsible for the current report Sections 1.6, 1.7, 1.9 through 1.11, 15, 16, 18, 19 and 21 through 27.

Mr. Malhotra is President of Resource Development Inc. (RDi) and has worked as a mineral process economist and metallurgical engineer for over 45 years. Mr. Malhotra is responsible for Section 1.8, 13 and 17 of this Technical Report.

HRC representative and QP J.J. Brown, P.G., conducted an on-site inspection of the Copperstone Project on October 31 through November 2, 2017. Ms. Brown spent three full days at Project site accompanied by Kerr Mines Director of Exploration and Geology Brad Atkinson. While on site, Ms. Brown conducted general site and geologic field reconnaissance, including inspection of on-site facilities, examination of surface and underground bedrock exposures, and ground-truthing of reported drill collar locations. Ms. Brown also examined select core intervals from historic and recent drilling, obtained a variety of duplicate samples for independent check sampling, and reviewed with Kerr geology staff the conceptual geologic model, data entry and document management protocols, and drilling and sampling procedures and the associated quality assurance and quality control ("QA/QC") methods presently employed.

2.4 Units of Measure

Unless otherwise stated, all measurements reported here are Imperial, and currencies are expressed in constant 2018 U.S. dollars. Gold grades are presented in Troy ounces per short ton (oz/t), unless otherwise indicated.

3. RELIANCE ON OTHER EXPERTS

HRC has fully relied upon Kerr for information regarding property ownership, mineral tenure, and royalties or other agreements and encumbrances. Such information is presented in report Section 4, and was provided to HRC via the following source documents:

- *Ammended and Restated Copperstone Mining Lease Between and Among Angie Patch Survivor's Trust, Daniel L. Patch Credit Trust and Bonanza Explorations, Inc.*, dated January 4, 2017
- *Memorandum of Royalty Interest Between Bonanza Explorations, Inc. and Trans Oceanic Mineral Co.*, dated January 4, 2017
- *Kerr Mines, Inc., Annual Information Form,* dated October 6, 2017

HRC has not reviewed the permitting requirements nor independently verified the permitting status or environmental liabilities associated with the Project and disclaims responsibility for that information. Environmental information presented in report Sections 4 and 20 was provided to HRC via the following documents:

- *Draft Biological Evaluation for Proposed Exploratory Drilling Activities at Copperstone Mine*; Internal report prepared for Kerr Mines, Inc. by Logan Simpson, September 2017.
- *Mine Plan of Operations, Copperstone Mine, La Paz County, Arizona*; BLM submittal prepared for Kerr Mines, Inc., and Bonanza Explorations, Inc., by Karen Johnson, November 2017.
- *Environmental Permit Review, Copperstone Mine, La Paz County, Arizona*; Internal report prepared for Kerr Mines, Inc., by David Abranovic of Environmental Resources Management, June 2017.

4. PROPERTY DESCRIPTION AND LOCATION

4.1 Project Location

The Copperstone Project encompasses approximately 13.8 square miles of surface area and mineral rights in La Paz County, County, Arizona, roughly 19 miles north of the town of Quartzsite. The Project area covers all or portions of Sections 6 through 10 and 15 through 23, T6NR19W; Sections 1, 2, 10 through 14 and 22 through 27, T6NR20W; and Section 19, T7NR19W, Gila and Salt River Meridian. The approximate geographic center of the Project area lies at 33°52'6"N latitude, 114°17'42"W longitude. Map coverage of the Project area is provided by the 1:24,000-scale, Moon Mountain SE and Moon Mountain NE, U.S.G.S. 7.5-minute topographic quadrangles.

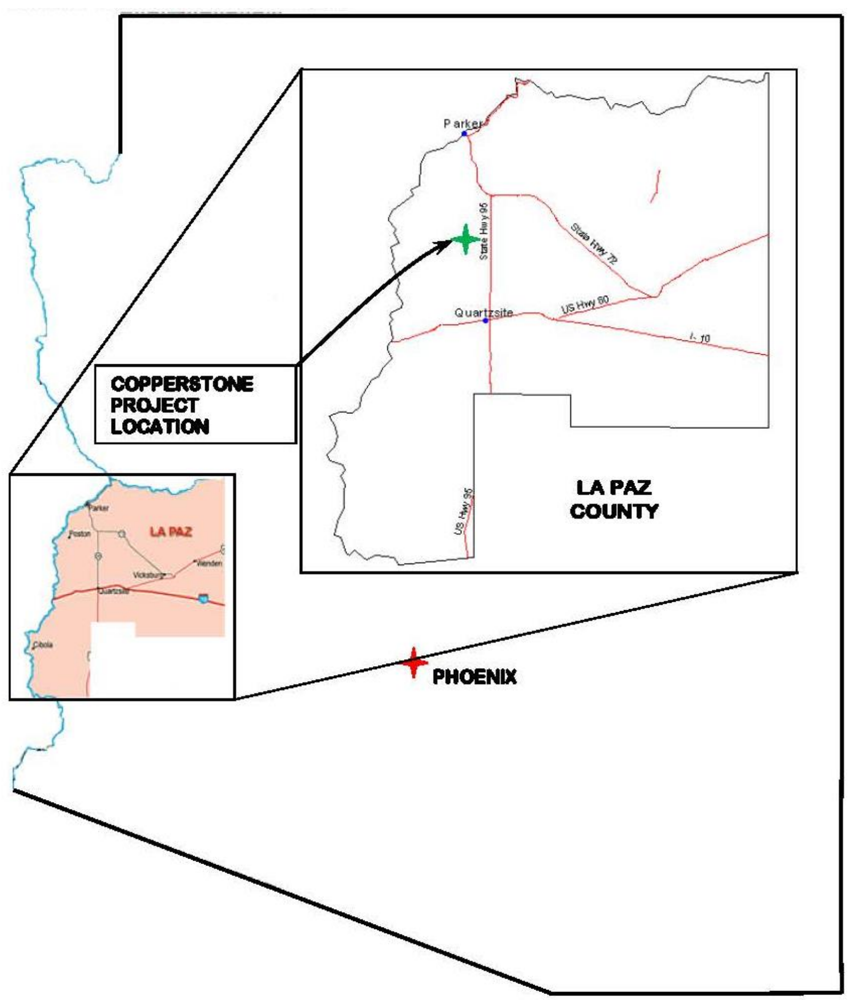


Figure 4-1 Copperstone Project Location

Kerr controls 546 federal unpatented mining claims and two Arizona state mineral leases which together comprise the Copperstone Project area. The federal claims cover approximately 10,920 acres (4,419 hectares) while the state mineral leases total approximately 1,338 acres (542 hectares). The claim blocks are presented in plan view in Figure 4-2, and a summary list of claim details is presented in Appendix A.

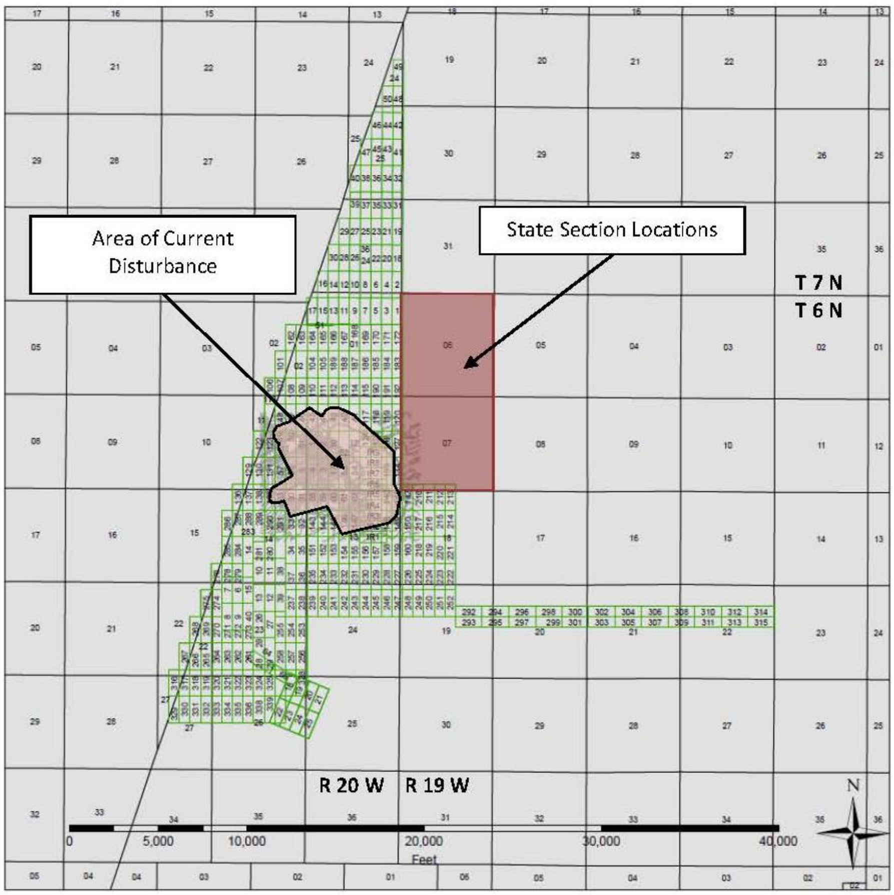


Figure 4-2 Copperstone Project Claim Area

4.2 Property Ownership, Mineral Tenure, Agreements and Encumbrances

The Copperstone Project is wholly owned by Kerr via Kerr's 100% ownership of American Bonanza. On June 27, 2014, Kerr announced the acquisition of all issued and outstanding common shares of American Bonanza by way of plan of arrangement under the *Business Corporations Act* (British Columbia). The arrangement was approved by Kerr shareholders by written consent, by American Bonanza shareholders at its annual general and special meeting of shareholder meeting held on June 20, 2014, and by the Supreme Court of British Columbia on June 25, 2014.

Kerr holds a 100 percent leasehold interest in the Copperstone Project. The landlord is the Trustee of the Angie Patch Survivor's Trust and the Trustee of Daniel L. Patch Credit Trust "The Patch Living Trust" and the lease was for a 10-year term starting June 12, 1995, was renewed on June 12, 2005 for a 10-year term and renewed on June 12, 2015 for a further 10-year term. The lease is renewable for one or more ten-year terms at the option of Kerr Mines under the same terms and conditions. Kerr is obligated to pay for all permitting and state lease bonding, insurance, taxes, and to pay the leasholder a 1.5 percent production gross royalty with a minimum advance royalty per year of USD 30,000. In addition, as of April 2 2018, Kerr is obligated to pay a 0.5 percent gross production royalty to Trans Oceanic Mineral Company. Production gross royalty obligations for the Copperstone Project total 2 percent.

4.3 Permits and Environmental Liabilities

In June 2017, ERM-West, Inc. assessed the environmental permits in place for the Copperstone mine. The assessment included a limited compliance review to evaluate the validity and currency of the existing environmental permits, as well as an evaluation of inadequate or missing permits necessary for future mine operations. The scope of this assessment included compilation of the following existing permit information:

- A summary of the allowances and limitations of each permit (i.e. expiration dates, process limitations, etc.);
- Agency responsible for issuance and management of each permit and with current contact information;
- Summary of the conditions and requirements necessary to keep each permit current; and
- Schedule of required compliance activities for each permit, including agency fees.

ERM-West concluded that Kerr has acquired all major environmental permit necessary to operate the mine according to the parameters stipulated in the 2008 Mine Plan of Operations. However, if future mining operations and/or milling processes deviate significantly from the parameters stipulated in the MPO, an update or amendment of certain permits may be necessary. Any change in operating parameters may also impact compliance with media specific permits and subsequently necessitate modification of existing or issuance of new permits. Table 4-1 provides a summary of the state and federal environmental permits currently in place at the Copperstone mine. The Project is not subject to any known environmental liabilities, and HRC knows of no other existing or potential future significant factors or risks (permitting, environmental, or otherwise) that might affect access, title, or the right or ability to perform work on the Project.

Table 4-1 Copperstone Mine Permit Summary

Permit	Expiration Date	Agency	Major Compliance Requirements
Mine Plan of Operations	Life of Mine	BLM-Yuma	• Idle Status requires processing of 100 ton ore per month • Processing rate of 450 ton ore per day • No new surface disturbances (126.9 acres on previously disturbed ground) • Zero water discharge facility (all waste water recycled or evaporated) • Compliance with the ADEQ APP BADCT requirements • Berms around the mill to minimize any storm water from encroaching on the site • Mix acid generating waste material with high neutralizing potential material to limit any acid production. • Adherence to Spill Prevention, Control, and Countermeasure (SPCC) Plan, Emergency Response and Contingency Plan, and SWPPP • Operate the facility as a Conditionally Exempt Small Quantity Generator of hazardous wastes • Lead acid batteries, used oil, and tires be recycling or shipped off site.
Hazardous Waste RCRA ID Number	Life of Mine	EPA	• Provide the EPA with a general description of activities at sites that handle regulated wastes.
Fuel Storage	Life of Mine	EPA	• Comply with EPA's SPCC regulation (40 CFR Part 112) by preventing oil spills and develop and implement an SPCC Plan • Notify the National Response Center (NRC) of spills greater than 100 gallons immediately
AZPDES 2010 Multi-Sector General Permit	January 2016, extended by rule until new permit is issued	ADEQ	• The MSGP requires annual Comprehensive Facility Inspection (CFI) documentation for a minimum rolling 3-year period that the permit is used is on file with the SWPPP, including: • A copy of the NOI submitted to ADEQ, including any correspondence related to coverage under this permit. • A copy of the authorization certificate from ADEQ. • Copies of any other environmental agreements (such as 404 permits, local grading permits, etc.) with any state, local, or federal agencies. • Descriptions and dates of any incidences of significant spills, leaks, or other releases. • Annual training of staff with documentation • SWPPP update every five years
Air Quality Permit	October 2021	ADEQ	• Document adherence to production limit of 210,000 ton ore per year on ton per day, ton per month and ton per year rolling average • Source opacity observations to verify less than 10% (i.e., Reference Method 9), throughput recordkeeping, and emergency generator operation, recordkeeping, and maintenance management standards • Fugitive dust control measures (e.g., watering of plant haul roads)
Aquifer Protection Permit #P106172	Life of Mine	ADEQ	• Demonstrate that groundwater quality will not be degraded at two point of compliance well by quarterly monitoring and annual reporting to ADEQ. • Waste rock monitoring each 25,000 tons placed or monthly with quarterly reporting to ADEQ • Or stockpile monitoring each 25,000 tons placed or monthly with quarterly reporting to ADEQ • Tailings solution annual monitoring and reporting to ADEQ • Recirculation pond monitoring quarterly for first year of operation • Sump fluid characterization during the first quarter of operation as feasible annually thereafter • Facility inspection and submittal of quarterly Self-Monitoring Report Forms • Facility maintenance inspections (e.g. tailings pond freeboard monitoring) • Wash rack sump fluids quarterly monitoring for TPA for one year and semiannual thereafter, with annual monitoring of metals and general inorganics, with respective reporting to ADEQ
Wastewater Treatment (Type IV APP - Septic)	Life of Mine	ADEQ	• General permit: septic tank with disposal by trench, bed, chamber technology, or seepage pit, less than 3000 gallons per day design flow • Operation and maintenance. per the applicable operation and maintenance requirements in R18-9-A313

5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access and Climate

General access to the vicinity of the Copperstone Project is provided by Interstate I-10 out of Phoenix, Arizona, approximately 125 miles west to the city of Quartzsite. The primary Project access road, Cyprus Mine Road, is located roughly 13 miles north of Quartzsite on U.S. Highway 95. Cyprus Mine Road is a well maintained, gravel road which terminates 5.5 miles west of the highway at the Project entrance. Access to the Project area is attainable year-round.

The local climate is typical of a hot desert, with mild to warm "winter" weather occurring from November to March, and hot to extreme summer temperatures for the remainder of the year. In the middle of summer, Quartzsite is one of the hottest places in the United States, with recorded temperatures as high as 122 °F (July 1995). Average annual temperatures at Quartzsite range from a low of 59.3°F to a high of 89.5°F. Precipitation averages just ~3.5 inches annually, most of which occurs as rainfall during late summer and early winter months.

5.2 Local Resources and Infrastructure

The community nearest to the Project area is the town of Quartzsite, which hosts a population of roughly 4,000. Parker, the county seat of La Paz County, is located 20 miles to the north. Both Parker and Quartzsite offer standard municipal amenities such as lodging and services, as well as modest supplies of foodstuffs and hardware. Major supply centers and ample skilled and unskilled labor are available in Phoenix, 125 miles to the east of Quartzsite, and in Yuma, roughly 80 miles south of Quartzsite on U.S. Highway 95. Access to the Sante Fe rail line is available in Parker, and international air service and railway access (Union Pacific and BNSF) are both available in Phoenix.

Existing infrastructure at the Copperstone Project includes office facilities, warehouse, equipment maintenance shop and assay laboratory buildings, a change house, 10 trailer house hook-ups, a septic system, and a variety of shipping containers which provide for secure core storage. Incoming commercial 69 kV overhead electrical power is delivered to an on-site power substation. Water is currently delivered from three water wells to a 375,000-gallon storage tank in the mineral processing area. The right to extract and use groundwater from the aquifer within the La Posa Plain is authorized by the Arizona Department of Water Resources pursuant to A.R.S. Section 45-514. Potable water is delivered by truck. Mine communications are supported by cellular and satellite phone and internet service. Existing surface rights and right of ways are sufficient for all proposed exploration, mining, and processing activities, including tailings and waste storage and disposal areas.

5.3 Physiography

The Copperstone Project lies at the southern edge of the Basin and Range geo-physiographic province, which is typified by north-northeast trending mountain ranges separated by broad, flat, alluvium filled valleys. The Project is situated on the flat, sandy desert terrain of the La Posa Plain, at the northeastern end of the Dome

Rock Mountains, and is surrounded by a natural desert scrub environment. Vegetation is sparse, and consists primarily of ground hugging shrubs, short woody trees, and cactus. The soils are hyperthermic arid soils of the Superstition-Rositas Association, which is characterized by deep, coarse-textured, nearly level and undulating soils on terraces (Hendricks 1985). Surficial soils in the Project vicinity are classified as "gravelly loamy fine sand" and include aeolian (i.e., wind-blown sand) deposits in hummocks surrounding the many small shrubs. Elevations within the Project area range from 650 to 825 feet above mean sea level.

6. HISTORY

6.1 Historical Ownership and Development

The first recorded commercial interest in the Copperstone property was as a copper prospect in 1968. Charles Ellis of the Southwest Silver Company ("Southwest Silver") controlled the Continental Silver claim group from 1968-1980. Newmont Gold Company ("Newmont") leased the property in 1975. A geophysical survey was conducted and one drillhole completed in an attempt to verify porphyry copper mineralization. The attempt was unsuccessful.

In 1980, Southwest Silver drilled six rotary holes with unknown results and then dropped the claims. In late 1980, Dan Patch staked 63 Copperstone claims and leased the property to Cyprus-Amoco. Cyprus then purchased the Iron Reef Claim group from W. Rhea. Additional claims were subsequently added, and the claim block expanded to 284 claims. Cyprus identified the Copperstone property as a gold target and undertook a drilling campaign from 1980 to 1986, which resulted in 73 diamond drillholes and over 496 RC drillholes completed (Pawlowski, 2005). Cyprus began baseline, financial and metallurgical studies that led to mine design, initial construction and a partially completed decline in 1986.

In 1987, Cyprus commissioned construction of a 2,500 ton/day carbon-in-pulp mill and started open-pit mining. The mine was designed, constructed and operated as a zero-discharge facility (Miller et al., 1994). Mining continued until 1993 when the pit neared the groundwater table, which was the limit of the original mining permits. Cyprus terminated its lease at this time. Ackerman (1998) reported production by Cyprus at Copperstone of 514,000 oz of gold from 5,600,000 Mt of ore grading 0.089 oz/t of gold.

Santa Fe Pacific Gold Corporation ("Santa Fe") leased the property in 1993, while reclamation activities were underway. Santa Fe completed 12,500 ft (3,810 m) of RC drilling on seven exploration targets. Gold mineralization was encountered in one hole in the footwall of the Copperstone Fault.

Royal Oak Mines ("Royal Oak") leased the property from the Patch Living Trust in 1995. Royal Oak drilled a total of 25,875' (7,887 m) in 35 holes between 1995 and 1997. Several high-grade gold intercepts to the north and east of the open-pit showed potential for underground mining.

Asia Minerals entered into a joint venture with Arctic Precious Metals Inc., a subsidiary of Royal Oak in August 1998. Asia Minerals drilled 15 holes (A98-1 to 15) in November 1998 for a total of about 10,050' (3,063 m). Each hole was drilled with RC methods from the surface to a predetermined depth and then core drilled through the target interval. The drilling program was designed to explore the C and D zones (MRDI, 1999). Golder Associates and MRDI Canada completed a scoping level study after the 1998 drilling program was completed.

Asia Minerals drilled 11 more holes in early 2000. Total footage was 7,470' (2,277 m). Holes were designed to test the strike length of the D zone, with the best intercept in hole A00-10 which assayed 0.943 opt Au over 10.5' (3.2 m). On July 7, 2000, the BLM approved an application from Asia Minerals to construct a 2,000-foot (610 m) decline (Mine Development Associates, 2000). The purpose of the decline was to explore high-grade gold mineralization which had been discovered during surface drilling (AMEC, 2006). On July 26, 2000, the Arizona Department of Environmental Quality approved the proposed underground activity and granted Asia Minerals an exemption from an Aquifer Protection Permit (Mine Development Associates, 2000).

Asia Minerals began a joint venture with Centennial Development Corp. of Salt Lake City in September 2000 (AMEC, 2006). The permitted decline was started from the north end of the pit in a northward direction. It provided a platform for further exploration drilling and allowed for the removal of bulk sample material for metallurgical and milling tests. To that end, a 64-lb high grade sample was sent to McClelland Labs in Sparks, Nevada. It was during this time that Asia Minerals changed its name to American Bonanza Gold Mining Corp. to better reflect the geographic, metal and grade focus of the company.

On March 4, 2002, American Bonanza announced that it had gained control of a 100% equity interest in Copperstone subject only to the royalty schedule payable to the Patch Living Trust. They also announced an agreement with Trilon Securities whereby Trilon would arrange a US$1.1 million secured credit facility for the company. In November 2002, American Bonanza selected Merritt Construction of Kingman, Arizona to expand the underground development. American Bonanza announced on May 5, 2003 that significant high-grade gold mineralization was sampled in the decline in the D zone. In June 2003, an underground drill station was completed. Drilling began in July, and by May 17, 2004, American Bonanza had drilled 33 underground core holes in the D zone for a total of 9,234' (2,815 m).

American Bonanza continued drilling in 2004, including underground drilling from a drill bay in the exploration decline. The company retained certain specialized firms to assist it with collecting environmental, geotechnical, hydrological and metallurgical baseline data in 2004, and in 2005, submitted a Mine Plan of Operations ("MPO") to the BLM. Additional drilling was completed in 2006 and 2007. A variety of studies and reports were commissioned by American Bonanza between 2007 and 2010, culminating in a feasibility study, including an updated mineral resource estimate, completed in 2010. American Bonanza maintained control of the Copperstone Project until Kerr's acquisition in June of 2014.

6.2 Historical Production

Ackerman (1998) reported production by Cyprus at Copperstone of 514,000 oz of gold from 6,200,000 t (5,600,000 Mt) of ore grading 0.089 oz/t of gold. This ore was produced via open pit surface mining methods, and the gold bearing ore was processed using heap leach and tank leach methods. In 2011 American Bonanza constructed a 450 tpd floatation mill on site and in 2012 started underground mining from two previously developed declines located in the bottom of the Cyprus open pit. American Bonanza's mining focused on the D zone which is to the north of the open pit. From January 2012 to July 2013 American Bonanza produced approximately 16,900 oz of gold from 163,000 t of ore grading 0.104 oz/t of gold. The authors are unaware of any other production information available for the Copperstone Project.

6.3 Historical Mineral Resource and Mineral Reserve Estimates

The mineral resource estimates described in the following paragraphs pre-date current NI 43-101 reporting requirements and associated CIM definition standards. The historic estimates are considered relevant as they were completed according to NI 43-101 Standards of Disclosure in place at the time they were reported;

however, the authors caution that a qualified person has not done sufficient work to validate the historical estimates, and Kerr is not treating the historical estimates as current mineral resources or reserves. All historical mineral resource estimates are superceded by the mineral resource and mineral reserve estimates presented in Sections 14 and 15 of this report.

Three significant historic mineral resource estimates have been reported for the Copperstone Project since mining ceased in 1993. These estimates were generated to reflect the remaining in-situ resource, based in part on drilling completed after the mine closure.

MRDI (1999) estimated an Indicated resource of 892,200 tons averaging 0.32 oz/t gold and an Inferred resource of 1,193,700 tons averaging 0.354 oz/t gold. The total resource was separated into smaller individual resources (A, B, C and D) based on "grade, style, geometry and host stratigraphy". The MRDI estimate only updated the C and D zones, whereas the A and B zones were not. The C zone is described as the NE down-dip extension of the Cyprus ore body in the NE lobe of the open-pit. Within the C zone, three sub-zones were identified: C1, C2A and C2B. The tabular C1 zone is described as having strike length of 1,150', width of about 360' and an average thickness of 15'. It dips NE at 20°–35°. Zone C1 is separated from the parallel and updip C2 zone by a steep NW-SE fault. The tabular C2 zone strikes a distance of 1,000', dips 20°–35° and is about 260' wide. The C2A zone is separated from C2 by a waste zone of 15 – 40' thickness. Zones C2 and C2A are well defined in the Cyprus blasthole assay plans for the lowest branches in the northeast lobe of the pit.

The D zone, which lies northwest of the Cyprus open-pit, was discovered by Royal Oak in 1995. Like the C zone, the D is also subdivided. The sub-zones are distinct blocks which are created by the intersections of the Copperstone fault and other NWSE and NE-SW normal faults. The sub-zones are labeled D1, D1A, D1B, D2, D2A, D3 and D4.

The D1 zone is a tabular wedge of mineralization that extends over 350' of strike length. It is known to have a down-plunge extent of 500'. The dip of this zone is 25° NE within the Copperstone fault and the average thickness is about 15'. The up-plunge extent of D1 terminates against a NW-SE fault and zone D2 continues south of this fault. Zones D1A and D1B are minor splay zones in the hanging wall and footwall of D1.

Zone D2 is within a narrow, graben-like feature located between two NW-SE faults. Zone D3 occurs within the same fault block as D2, but the zones are separated by a NE-SW cross fault. The D4 zone is a west-dipping conjugate zone that lies northwest of the D2 and D3 zones.

MRDI generated a three-dimensional block model in MEDSYSTEM™ mine modeling software using a 15' (4.6 m) by 35' (10.7 m) by 5' (1.5 m) block size. A tonnage factor of 10.7 ft3/ton and inverse distance weighting to the power of 3 ("IDW3") were used for resource estimation. Gold grade was capped at 2.5 opt in zone C and at 4.7 opt in zone D. No cutoff grade was applied to the global geological resource estimate.

Resources were reported by each sub-zone in the MRDI report, but a summary of the results of the estimation of zones C and D are presented in Table 6-1. Only indicated and inferred resources were classified in this estimate; no measured resources were estimated.

Table 6-1 Copperstone Mineral Resource Estimate, MRDI (1999)

Zone	Tons	Au Grade (oz/ton)	Au Ounces
Indicated			
C	478,400	0.194	92,700
C	413,800	0.466	193,000
Total	892,200	0.320	285,700
Inferred			
C	696,700	0.323	225,000
D	497,000	0.398	198,000
Total	1,193,700	0.354	423,000

In April 2005, American Bonanza commissioned AMEC to update the mineral resource estimate with current drill data, prepare conceptual mining and processing plans, and develop preliminary economic analyses. After the MRDI report was completed in February 1999, subsequent drilling from 2003 and 2005 added 78 underground and 262 surface drillholes to the Copperstone Project database.

After verifying the drillhole database supplied by American Bonanza, AMEC capped high-grade assays prior to compositing to, "...limit undue influence of high grade assays on the resource...". Assay histograms and probability plots were reviewed to determine the outlier population, which was determined to be 4.0 opt Au.

Silver and copper grades were not capped prior to compositing. Bench composites of 6 ft were generated for the purposes of grade interpolation. Average density was determined for 262 samples from five American Bonanza diamond drillholes. The 262 samples represented eleven different rock types. Nine other rock types plus alluvium were not tested, but the nine untested rock units represented only 2.25% of the material. The eleven rock types were grouped into similar lithologies and a weighted average was calculated to assign densities to the various lithology groups.

Modeling was done using MineSight® software. Cell dimensions were 18 ft (5.5 m) down-dip, 12 ft (3.7 m) along-strike, and 6 ft (1.8 m) high. Gold, silver and copper grades were estimated with ordinary kriging, but only gold grades were reported. Grade was only estimated in blocks which fell within a 0.03 opt Au shell which was generated from polygons on successive 70-ft (21.3 m) cross sections.

Resources were calculated at two different cutoff grades, 0.05 opt Au and 0.15 opt Au (Tables 6-2 and 6-3). Believing that expansion of the existing open pit as the most likely scenario for resumption of mining at Copperstone, AMEC emphasized the results at 0.05 opt cutoff because it, "...represents mineralization that may have reasonable prospects for economic extraction at higher gold prices, economies of scale and the potential for extraction of mineralization from expansion of the existing open pit." In the same report, AMEC also offered an estimate at a cutoff grade of 0.15 opt from a preliminary estimate of underground operating costs and a $425/ounce gold price.

Table 6-2 Copperstone Gold Resource at 0.05 opt Au Cutoff, Amec (2006)

Zone	Classification	Tons	Au Grade (opt)	Cont. Ounces
A, B, C and D	Measured	17,200	0.426	7,333
A, B, C and D	Indicated	2,654,900	0.162	429,563
A, B, C and D	Measured + Indicated	2,672,100	0.164	436,896
A, B, C and D	Inferred	587,300	0.152	89,445

Note: Composites were capped at 4.0 opt prior to grade modeling
Adapted from Table 1-1 AMEC, 2006.

Table 6-3 Copperstone Gold Resource at 0.15 opt Au Cutoff, Amec (2006)

Zone	Classification	Tons	Au Grade (opt)	Cont. Ounces
A, B, C and D	Measured	11,500	0.610	7,005
A, B, C and D	Indicated	1,058,000	0.310	327,924
A, B, C and D	Measured + Indicated	1,070,000	0.313	334,929
A, B, C and D	Inferred	209,000	0.317	66,266

Note: Composites were capped at 4.0 opt prior to grade modeling
Adapted from Table 17-8 AMEC, 2006.

Subsequent to the reporting of the two initial grade cutoffs (0.05 opt and 0.15 opt), a preliminary mineable resource was also reported at a 0.20 opt Au cutoff using the following preliminary estimates of mining costs applied to the resource:

Mining costs	$40.52/t
Processing costs	$29.56/t
General & administrative costs	$12.95/t
Recovery	90%
Basis metal price	$450/oz Au

Dilution and mining extraction parameters were also assumed and applied to the estimate. American Bonanza disclosed the mineral resource estimate, as shown in Table 6-4, in a press release dated February 8, 2006.

Table 6-4 Copperstone Gold Resource at 0.20 opt Au Cutoff, Amec (2006)

Zone	Classification	Tons	Au Grade (opt)	Cont. Ounces
A, B, C and D	Measured	10,300	0.394	4,028
A, B, C and D	Indicated	362,500	0.366	132,807
A, B, C and D	Measured + Indicated	372,800	0.367	136,835
A, B, C and D	Inferred	3,700	0.299	1,113

Note: Composites were capped at 4.0 opt prior to grade modeling
Adapted from Table 1-2 AMEC, 2006.

In February 2010, Telesto estimated a total base case mineral resource by tabulating all mineralization within the 0.03 oz Au/t grade shell and above a cutoff grade of 0.15 oz Au/t, representing mineralization with reasonable prospects for economic extraction at base case gold prices. The resource was modeled using mean density values assigned by rock type. Density values ranged from 1.72 tons/yd3 for alluvial overburden to 3.08 tons/yd3 for ironstone and ironstone breccia. Gold values were carried in troy ounces ("oz") per short ton.

The raw data used during Telesto's modeling effort was provided by American Bonanza, largely consisting of RC and core drilling data provided in the form of a digital database. All subsequent modeling was performed using MicroMODEL mining software. Telesto was also provided with TINs which outline the limits of the previously listed geologic units as interpreted by American Bonanza staff. The TINs were used to assign rock types to the drillhole composites that were used for the resource estimates and to restrict the block model. The number of drillholes used in the model totals 986 holes with 99,919 sampled intervals, and the average sampling interval is approximately 5 feet or 1.52 meters.

The geologic model was constructed using the three-dimensional TINs supplied by American Bonanza. Block centroids within the TINs were assigned a lithology code based on the TIN in which it resides. Likewise, the drillhole composites were assigned lithology codes based on their location within a particular TIN. The model used only the revised mineralized (Copperstone Fault) TIN, and all other rock codes were unassigned.

An extensive review was undertaken to determine a standard method of classifying measured and indicated resources. The first level of separation was a variogram range of approximately 115 feet (19.8 meters) by 115 feet (19.8 meters) by 30 feet (9.1 meters) vertical. This range was interpreted from variography and was used for determining Measured and Indicated resources. A secondary containment on the Measured resource is that the resource is located inside the mineralized Copperstone fault zone.

Secondarily, range of influence polygons were constructed using the constraint of the range of the Project's variograms. Those polygons measured 215 feet (35.1 meters) by 215 feet (35.1 meters) by 30 feet (9.1 meters) vertical. A secondary containment on the Indicated resource is that the resource is located inside the mineralized Copperstone fault zone.

Inferred resources are outside the mineralized (Copperstone fault) TIN. The same modeling parameters were applied to the areas of unassigned blocks but because there was no geologic definition, the resulting mineralization is assigned to the inferred category.

Telesto used gold cutoff grades established by AMEC (2006) of 0.200 opt (6.86 g/tonne) Au, 0.150 opt (5.14 g/tonne) Au, and 0.050 opt (1.71 g/tonne) Au to report resource quantities for the Copperstone Project. Table 6-5 presents the results of Telesto's mineral resource estimate at a cutoff grade of 0.0150 opt Au, which represents the base case scenario.

Table 6-5 Gold Resources at Copperstone at 0.150 opt Au Cutoff (Telesto, 2010)

IMPERIAL	Cutoff Grade (Au opt)	Tonnage (tons)	Au (oz)	Avg Grade (opt)
Measured	0.150	1,029,000	311,083	0..302
Indicated	0.150	9,000	2,101	0.230
Measured + Indicated	0.150	1,038,000	313,183	0.302
Inferred				
South Pit Extension	0.150	407,000	144,892	0.356
METRIC	**Cutoff Grade (Au g/tonne)**	**Tonnage (tonnes)**	**Au (g)**	**Avg Grade (g/tonne)**
Measured	5.14	933,000	9,675,755	10.37
Indicated	5.14	8,000	65,338	7.88
Measured + Indicated	5.14	941,000	9,741,093	10.35
Inferred				
South Pit Extension	5.14	369,000	4,506,648	12.21

Note: Rounding of tons as required by Form 43-101F1 reporting guidelines (Item 19 results in apparent differences between tons, grade and contained ounces of gold in the mineral resource.

7. GEOLOGICAL SETTING AND MINERALIZATION

Much of the following text is modified and/or directly excerpted from PhD dissertations prepared by Knapp (1989) and Salem (1993). The QP has reviewed this information and available supporting data and documentation in detail, and finds the discussions and interpretations presented here to be reasonable and suitable for use in this report.

7.1 Regional Geology

As well described by Knapp (1989), the region of west-central Arizona records a complex history of deformation, metamorphism, and magmatism along the southwestern edge of the North American craton. This area was the site of extensive basement-involved folding and thrusting in the Maria fold and thrust belt during Late Cretaceous time. Episodes of southeast and south-directed folding and thrusting were followed by phases of north-vergent deformation, and syntectonic metamorphism was characterized by greenschist to lower amphibolite facies. Lower crustal levels experienced partial melting due to this crustal thickening, and large volumes of granitic plutons were intruded at higher crustal levels. Subsequently, large portions of middle crustal rocks were exposed in middle Tertiary time as the result of major crustal extension in the regional Whipple-Buckskin-Rawhide detachment terrain. This deformation was typically accompanied by greenschist facies, retrograde metamorphism, basin formation, and both basaltic and granitic magmatism.

The Copperstone Project is situated at the northern tip of the Moon Mountains in west-central Arizona (Figure 7-1), regionally within the Basin and Range geo-physiographic province, and within the westernmost extent of the Whipple-Buckskin-Rawhide detachment system. The Whipple-Buckskin-Rawhide detachment system is centrally located within the Maria fold and thrust belt (Reynolds et al., 1986), which extends from southeastern California to central Arizona. Mid-Tertiary low-angle normal faults (detachment faults) are recognized as significant regional structures in this portion of the Basin and Range, where major detachment faults are associated with mylonitization of lower-plate rocks and brittle faulting and rotation of upper-plate rocks. In general, mylonitic foliations are low-dipping and contain well-developed northeast-plunging mineral lineations. Upper plate rocks as young as mid-Tertiary dip moderately to the southwest and are cut by northeast-dipping normal faults.

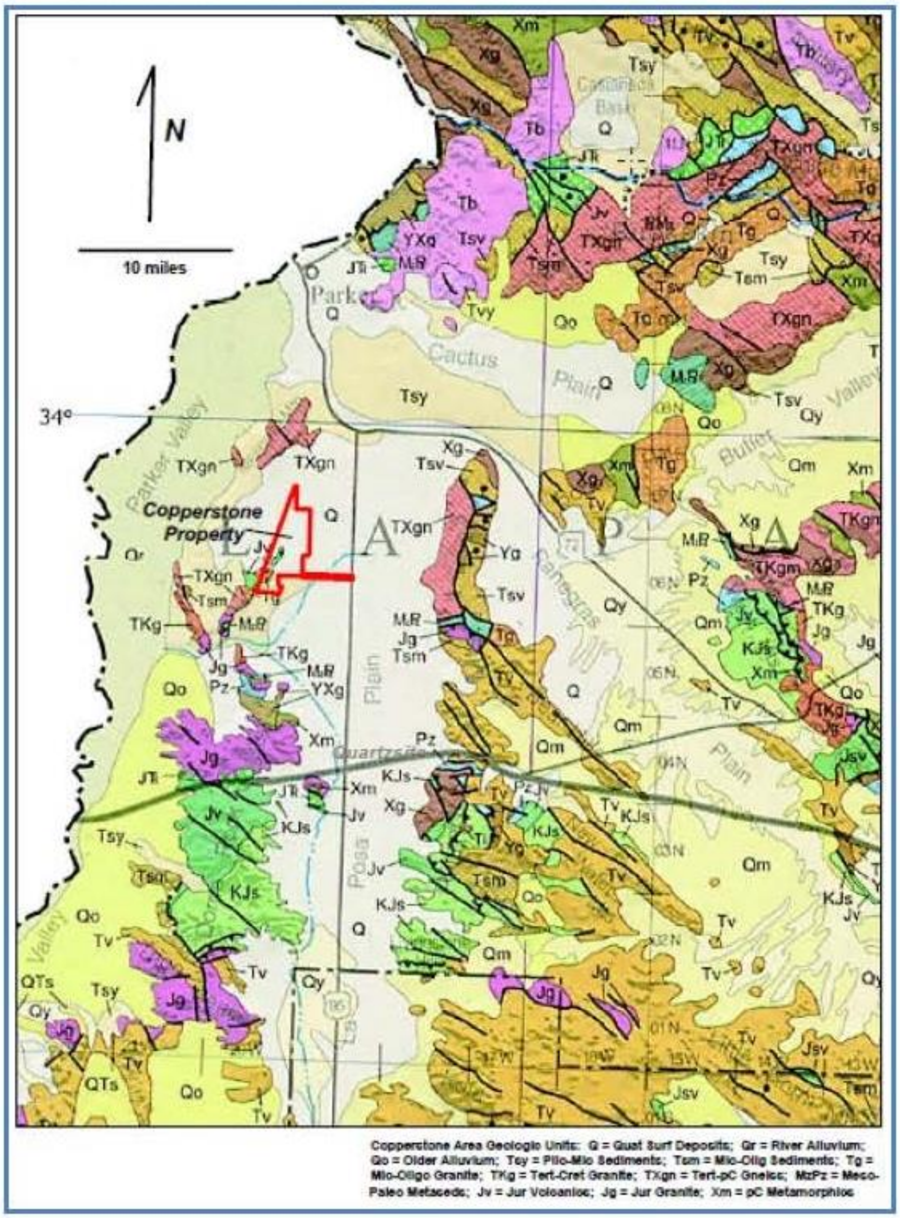


Figure 7-1 Regional Geologic Setting of the Copperstone Project (Pawlowski, 2005)

Both Mesozoic thrust faulting and Tertiary detachment faulting are documented in the Moon Mountains and demonstrate that thrust faulting and associated amphibolite facies metamorphism occurred in Late Cretaceous time, based on U-Pb zircon geochronology. The Moon Mountain detachment fault is exposed in the northern Moon Mountains roughly 1.5 miles south of the Copperstone Project area. The Moon Mountain and correlative Copper Peak detachment faults in the northern Moon Mountains constitute the western limit of the Whipple-Buckskin-Rawhide detachment system at this latitude. Ductile Tertiary fabrics below the Moon Mountain and Copper Peak detachment structures indicate that footwall rocks were exhumed from considerable depths. Granitic rocks from the footwall of the Copper Peak detachment constrain the termination of ductile fabric development to -21 Ma (Knapp, 1989).

The major structure in the southern Moon Mountains is the Mesozoic Valenzuela thrust system, which dips moderately southeast. Movement on the thrust was multi-staged, with apparent evidence of south and north directed phases of movement (Knapp, 1989). Late Cretaceous thrusting of the Valenzuela resulted in Jurassic quartz syenites and Precambrian gneisses/schists overlying deformed Paleozoic sediments metamorphosed to the lower amphibolite facies. Basement-involved thrusting, as evidenced by the Valenzuela system, and crustal thickening in the Maria fold and thrust belt was broadly coeval with arc magmatism associated with subduction of the Farallon Plate in Late Cretaceous time. Thrusting may have been active as early as 80-90 Ma (Reynolds et al., 1986), but appears to have ended by 70 Ma. Arc magmatism made an eastern sweep through the southwestern Cordillera of North America during Cretaceous time, and was probably at the longitude of present-day western Arizona during the Late Cretaceous (Coney and Reynolds, 1977). On a local scale, thrusting does not appear to have been controlled by thermal anomalies due to arc magmatism. Much of the magmatic activity in the Maria fold and thrust belt appears to be syn- to post-kinematic and may represent a response to crustal thickening.

Igneous rocks of the Moon Mountains are representative of Jurassic, Late Cretaceous, and mid-Tertiary magmatism, and help to constrain the timing and significance of events in the crustal evolution of the region. Significantly, the locus of deformation does not appear to be strongly controlled by the presence of magmatism in the Maria fold and thrust belt. Per Knapp (1989), magmatism is better interpreted as a post-tectonic response to crustal thickening. The presence of magmatic activity during the early stages of crustal extension implies that heat was being introduced to the crust during this time and may have been integrally related to the cause of extension.

7.2 Local and Property Geology

In the vicinity of the Copperstone Project, the Moon Mountain detachment fault carries sedimentary and volcanic rocks of Paleozoic, Mesozoic, and Tertiary age over a ductilely deformed footwall consisting primarily of granitic intrusive rocks. The top of the granitic lower plate rocks are marked by the brecciated Copper Peak granite, which is exposed over an area of roughly 2 km^2 surrounding and to the south of Copper Peak, in the northeastern part of the Moon Mountains. The northern margin of this unit is truncated by the Moon Mountain detachment fault. A weakly to strongly developed tectonic fabric is present over much of the exposed extent of the granite and is characterized by flattened and stretched quartz grains and deformed potassium feldspar (Knapp, 1989).

The age of the Copper Peak granite is inferred by Knapp to be younger than Jurassic, based on intrusive relations with the Jurassic quartz porphyry, and Tertiary, based on compositional and textural similarity to other biotite-bearing granites in the Moon Mountain area. A small stock of porphyritic biotite granite intrudes the Copper Peak granite and is differentiated from it by higher biotite content and consequent dark color. This granite carries a locally developed foliation consisting of flattened quartz grains, but the rock is generally not foliated, and is interpreted by Knapp to be late- to post- tectonic with respect to the development of mylonites in the footwall of the Moon Mountain detachment fault.

The hanging wall rocks are made up of metamorphosed Jurassic quartz latite porphyry (138 to 205 m.y., Spencer et al., 1988) as fault bounded slivers. The quartz latite porphyry is intruded by the Tertiary granitic lower plate rocks (Knapp, 1989). Limited outcrops of Jurassic quartz latite porphyry along the hanging wall of the Moon Mountain detachment fault were recorded by Knapp (1989), who infers that this unit overlies the metasediments. The sedimentary rocks and sediments that form the Moon Mountains range in age from Precambrian to Recent and are represented by carbonate, quartzite, conglomerate, sandstone, and unconsolidated gravel that occurs in the Copper Peak area as small outcrops in the hanging wall of the Moon Mountain detachment fault, where they are variably faulted, tilted, and brecciated (Knapp, 1989).

7.2.1 Lithology

The primary lithologic units within the Copperstone Project area are Precambrian to Tertiary amphibolite metasediments, volcanics, and granitic intrusive rocks, with lesser amounts of sedimentary and volcanic supracrustal lithologies. Brecciated granite along the plane of the low-angle detachment separates the lower plate mid-Tertiary granitic rocks from upper plate rocks, which consist (from bottom to top) of Triassic phyllites and metasediments, Jurassic quartz latite porphyry, and Miocene sediments and olivine basalt. The basal unit encountered is described as a chlorite phyllite to calcareous chlorite phyllite, with a maximum known thickness of up to 75 to 90 m (Salem, 1993). At the Copperstone mine, only upper plate rocks are exposed (Figure 7-2).

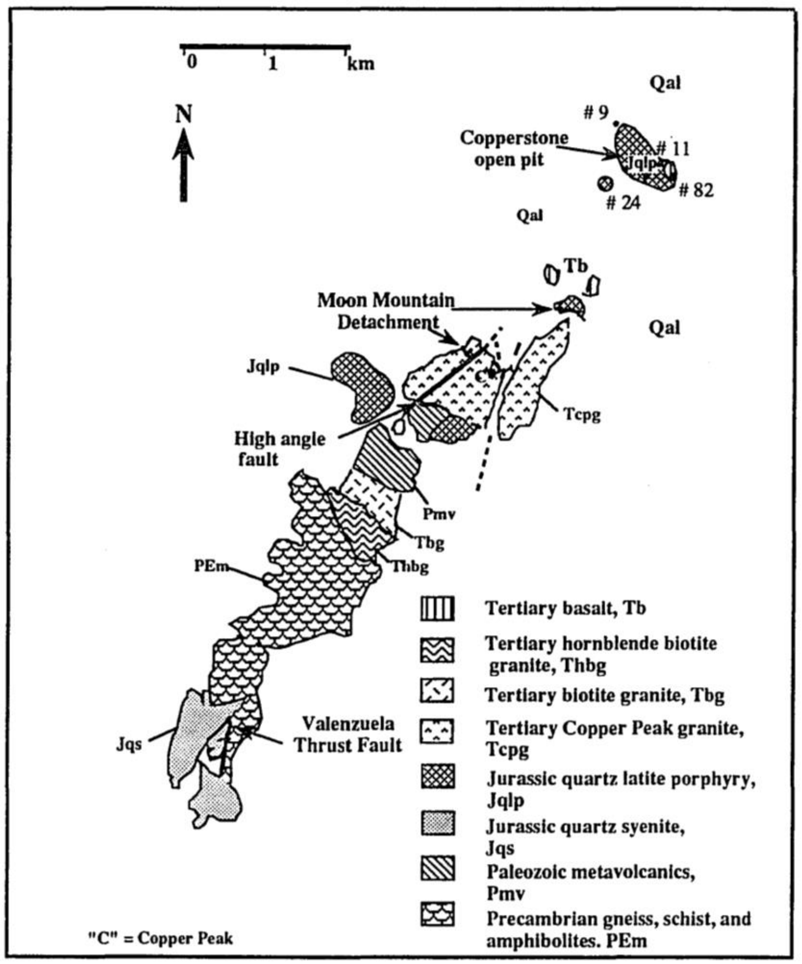


Figure 7-2 Geologic Map of the Copperstone Project (Salem, 1983)

The following detailed lithologic descriptions are modified from Salem (1993):

7.2.1.1 Triassic Phyllite

This rock is correlated with the lower unit of the Triassic Buckskin Formation of the Rawhide-Buckskin Mountains (Reynolds and Spencer, 1989). This unit is exposed only at the bottoms of drillholes on the northwest side of the pit underneath the Triassic chlorite schist, quartzite, and marble. Its thickness from drillhole data is 250 - 295 ft, but its lower contacts are unknown. The phyllite is fine-grained quartz and chlorite with elongate oriented crystals or narrow aggregated lenses. Feldspar also occurs as porphyroblasts, but mainly of plagioclase and less orthoclase, with variations in size from 0.008 to 0.047 in. Chlorite is well developed in this rock as parallel flakes and sometimes as pods that segregate to green (chlorite) and white (quartz and feldspar) bands. Two types of chlorite occur in this unit, clinochlore and pennine. The characteristic textural features in this unit are the ellipsoidal or lensoid shape of quartz and feldspar in a fine-grained matrix that is brecciated and sheared to an augen texture. Pseudomorphs of hematite after pyrite are well identified in this rock as disseminated fine cubic grains, ranging in size from 0.002 – 0.008 in. Phyllite rock is replaced in part by carbonates.

7.2.1.2 Triassic Metasediments

Triassic metasedimentary rocks are interlayered units of marble, quartzite, and chlorite schist that attain a maximum known thickness of up to 108 ft.

Marble consists predominantly of calcite with minor amounts of siderite-ankerite. Calcite ranges from 0.002 - 0.016 in and is arranged in an equigranular granoblastic mosaic. Grains have irregular margins and tend to form interlocking to complexly sutured aggregates. Calcite shows twin lamellae and rhombohedral cleavage in thin sections. The grain size varies from very fine-grained to coarse-grained with anhedral to subhedral form and high birefringence. Quartz occurs in the matrix as very fine to fine grains and as quartz veinlets. Along the contact between quartz veinlets and calcite is recrystallized coarse-grained calcite. Quartz-specularite veins are also well represented in this rock as replacements; specularite is crystalline to lath-like, mostly altered to earthy hematite. Brecciated carbonate rocks display open-space fillings by quartz-specularite, along with hematite and limonite.

Quartzite is predominantly composed of quartz with minor minerals such as biotite and chlorite. Quartz grains range in size from 0.23 to 0.024 in, are equigranular, granoblastic, and only slightly interlocking with equant grains. Some grains are coarser, anhedral, or as clusters that are scattered through a fine-grained matrix. Quartzose schists interbedded in the chlorite schist have a distinct foliation and parallelism marked by thin parallel films of sericite, crystalline muscovite, biotite, or chlorite. Chlorite forms individual flakes, and also appears in platy, radial aggregates. Undulatory extinction that indicates cataclastic effects is also found. This rock is locally replaced by quartz-specularite mineralization. The specularite is crystalline, with lath-like form, and ranges in size from 0.001 to 0.005. Reynolds and Spencer (1989) break out a Quartzite Member of the Buckskin Formation that appears to correlate well with this unit at Copperstone.

The chlorite schist is composed of chlorite as the principal micaceous mineral with quartz. Muscovite and biotite are also present up to a maximum of 2%. The rock is made up of segregated bands formed by chlorite, magnetite, and quartz. Chlorite is green, slightly pleochroic from yellowish green to green, as flakes, and with a greenish brown birefringence. The species clinochlore, a magnesium-rich chlorite, is identified by X-ray diffraction along with anomalous birefringence and positive sign of elongation. Quartz is anhedral, granular, ranges in size from 0.002 to 0.008 in, and has wavy extinction. Zircon and magnetite occur as accessory minerals. Zircon is characterized by its high relief, sub rounded form, and high birefringence: it ranges in size from .007 to to 0.05 in and is altered along grain borders to hematite. Biotite is partially to completely altered to chlorite. Small-scale folding of the original schistosity in which the micaceous minerals were aligned has produced a crenulation cleavage formed by chlorite-muscovite-biotite minerals. Carbonate-veinlets and quartz specularite occur as replacement and open-space fillings, and earthy hematite has replaced specularite. This chlorite schist is correlated with the lower member chlorite schist of the Triassic Buckskin Formation in the Planet-Swansea area (Reynolds and Spencer, 1989).

7.2.1.3 Jurassic Quartz Latite Porphyry

Quartz latite occurs as a series of weakly metamorphosed flows that vary structurally from massive to laminated. This unit represents the main host rock to the gold of the Copperstone deposit especially where it is brecciated along fault planes and shear zones. Microscopically, the quartz latites are holocrystalline rocks with porphyritic or seriate textures. Quartz, K-feldspar, plagioclase, biotite, and magnetite are the phenocryst phases, commonly in glomero-porphyritic texture. Quartz varies in size from 0.04 – 0.40 in, is granular, and shows wavy extinction. Embayed quartz is also found, which indicates a magmatic origin. Very fine-grained quartz, sericite, and hematite partly to completely replace the quartz. Orthoclase and microcline phenocrysts range in size from 0.02 – 0.31 in.

7.2.1.4 Miocene Sediments

Spencer et al. (1988) indicate the presence of monolithologic sedimentary breccias derived from the Jurassic quartz latite porphyry adjacent to Copper Peak: such breccias also occur at Copperstone. These terrigenous rocks were associated with subaerial basin deposition during the development of the regional detachment system of west-central Arizona and southeastern California. Tertiary age is inferred from lithology and clast composition and comparison with sediments of known Tertiary age (Spencer et al., 1988; Knapp, 1989). The breccias are composed of angular to subangular rock fragments varying in size from millimeter up to cobble sizes, set in a normally subordinate matrix made up of smaller rock pieces, mineral fragments, and powder. Strong hematitization that occurs as earthy hematite along fractures and as open-space fillings as well as hematite-carbonate mineralization is well displayed. The breccia represents one of the main host rocks to gold deposition at Copperstone as open space fillings along the hanging wall of the Copperstone listric fault.

7.2.1.5 Olivine Basalt

Tertiary basalt is dark reddish-brown to black in color. Its thickness reported from the drillholes is up to 150 m, and it is mainly restricted to the southeastern part of the mine, extending to the northeastern part of the Copper Peak area in the Moon Mountains. Knapp (1989) could not find a relationship between the basalt and the surrounding bedrock, but according to Cyprus' data from drilling, basalt is in contact with Jurassic quartz latite porphyry and its derived breccias. The proposed age by Knapp for the basalt is late Oligocene to mid Miocene. These lavas have a range in composition from 43.2 to 53.4% Sio_2 , and they consequently exhibit variable mineralogical characteristics although most specimens are texturally remarkably uniform. The highest percent of silica is in basalts with quartz cavity fillings. The rocks are hypo- to holocrystalline fine-grained rocks with intersertal or intergranular textures. The dominant phenocryst phases are plagioclase, olivine, clinopyroxene, hornblende, and magnetite. Euhedral to subhedral zoned plagioclase laths form an interlocking framework packed with granular olivine, augite, and magnetite. The plagioclase phenocrysts range in size from 0.012 – 0.024 in and show lamellar twinning. Augite commonly occurs as discrete subhedral short prisms or granules that range from 0.001 – 0.012 in. with slight pleochroism from colorless to greenish. The basalts in the mine occur with varying degrees of oxidation and alteration which give a reddish color to the rocks in hand specimen.

7.2.2 Mineralization

Gold mineralization at Copperstone occurs in the hanging wall of the Moon Mountain detachment fault, which has not been penetrated in drilling to date. Gold mineralization is largely restricted to the immediate vicinity of the Copperstone fault (also referred to as the Copperstone shear or the Copperstone structure), a moderately northeast-dipping, semi-planar zone of shear which is interpreted as a listric splay of the Moon Mountain detachment, and which has hosted the bulk of the gold historically produced from the Copperstone mine. The Copperstone fault strikes about N30° to 60°W and dips from 20° to 50° to the northeast. The associated brecciated fault zone ranges from 45 ft to 180 ft in width with characteristic fault gouge, multi-phase breccia textures, shear fabric, and intense fracture sets across this width (MDA, 2000).

The Copperstone fault appears to be a brittle deformation feature situated within the extremely deformed upper plate volcanic sequence. The fault presents strong evidence of shearing, with schistose textures and conjugate sets of planar and curved faults indicated by fault gouge. Brecciation is observable in the open pit, as are steeply northeast dipping, northwest-striking fractures and narrow shear zones. Mineralization is known to occur in association with both the primary Copperstone listric fault as well as high-angle, secondary fault structures. All mineralization appears to be cut off at the southeastern edge of the pit by a northeast-striking fault that dips to the southeast. Most of the fractures in the volcanic sequence are highly irregular and discontinuous, but the Copperstone structure has remained a dependable target for exploration and mining.

Kerr's current conceptual geologic model interprets the Copperstone structure as part of a detachment fault system related to regional mid-Miocene extension. More recently, Strickland et al. (2017) have recognized late Laramide detachment related to magmatism and the denudation of a Cretaceous subduction complex found across southern Arizona and California. Regardless of the age of the deformation, detachment faulting with an upper-plate-to-the-east sense of motion is presently considered the primary control/conduit for mineralization. The mineralized Copperstone fault is continuously present across the pit area from the A, B and C zones and may extend even farther south across the sparsely drilled South zone. It appears to break down or splay upon entering the D zone and there are indications of some up-dip flattening in the northern C zone. The distribution of mineralization within the Project area, as represented by the A, B, C, and D zones, is shown in plan view on Figure 7-3.

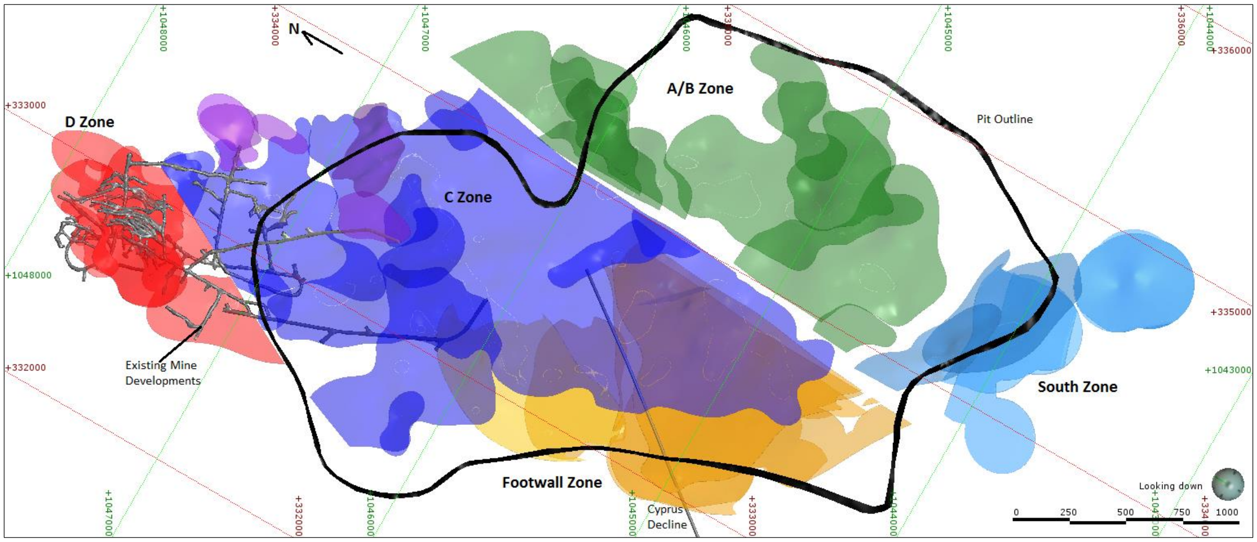


Figure 7-3 Mineralized Zones within the Copperstone Project Area

7.2.3 A, B, and C Zones

Mineralization in the A, B, and C zones occurs along the primary Copperstone fault as well secondary structures within the zone of shear. Underground mapping has shown a number of steeper northwest-trending faults and fractures that localize alteration and mineralization in and around quartz-Fe oxide+/-Cu oxide veins. Observations show that where such high-angle structures intersect the low-angle (Copperstone fault) structures, a favorable site is prepared. Where the Copperstone listric fault is disrupted, a dilatant zone may occur, resulting in higher grade and thickness of the gold mineralization.

Similarly, there are northeast-trending faults which appear to offset and localize mineralization, resulting in mineralized shoots at intersections with the Copperstone fault. These northeast-trending faults occur as thin to wide crushed zones that may capture a drill string resulting in exaggerated mineralization widths. This can especially be the case where the drill pattern is based on a southwest drillhole orientation.

Long intervals of elevated gold values in quartz latite, without continuity to nearby holes, suggest such high-angle controls. The proposed 2018 drilling program recognizes this and makes an attempt to intersect specific structures of northeast- and northwest-trending, high angle structures as well as the Copperstone fault.

7.2.3.1 D-Zone

The D zone contains large imbricate slices of interbedded limestone and sandstone, of which the limestones have been largely replaced by specularite, earthy hematite and silica. In many drillholes, silica-magnetite-specularite-chlorite replacement bodies occur in two limestone layers of variable thickness, but generally no more than 5-10 ft. In some locations iron oxides form a matrix in silicified limestone but nearby there may be evidence for direct replacement of limestone by iron oxides. It is possible that some of the silicified limestone is actually a pure white quartzite that has been brecciated. This would mean that silicification does not precede iron-oxide introduction.

Elevated gold grades are associated with the limestone replacement bodies over areas of significant size, likely due to the extreme distortion and reactivity of the limestone. The slices of this sedimentary package have dimensions of up to tens to hundreds of feet in strike length and tens of feet of thickness. The imbricate slices are conformable to the Copperstone shear, having been caught up in the shearing with local rotation, tension gashes and associated deformation. This sedimentary package is located between hanging wall volcanic rocks and footwall phyllite. These sedimentary rocks are absent to the southeast in the Copperstone C, B and A zones.

The upper and lower contacts of the limestone replacement bodies are almost always tectonic. The upper contact with the volcanic rocks is also mostly tectonic but, in some locations, there is no evidence of shearing. The age of the limestone is also in doubt. It has been assumed as Triassic previously, but some are now suggesting that it is Permian in age and related to the Kaibab Limestone on the Colorado Plateau to the north. The interbedded nature of limestone with quartzite supports this idea, but the relationship to the adjacent phyllites is problematic.

Immediately north of the D zone is a northeast-trending fault zone which apparently terminates the Copperstone fault and associated secondary structures. Whether the Copperstone fault is offset or actually terminated by this fault is presently unknown, but it appears that the sedimentary sequence thickens considerably and may not be penetrated by the Copperstone fault.

7.2.3.2 Chlorite Alteration

A 2004 petrographic report by Larson (2004) shows a strong association of gold with chlorite. In the D zone, there are significant streaks and blebs of dark green chlorite that blend in with the dark-colored iron oxide masses. It is reported that these chlorites are iron-rich. The current explanation is that the chlorite forms later in a cross-cutting phase that includes gold and its composition is influenced by the amount of iron in the pre-existing rock. Larson (2004) further reports that chlorite occurs in other settings at Copperstone, such as in the chlorite schist and phyllite, where it is not associated with gold. Other forms of chlorite have also been noted as low-grade alteration on fractures in the volcanics and as thin selvages along some quartz veins in the volcanics that are not associated with significant gold mineralization.

7.2.3.3 Magnetite Mineralization

Magnetite shows some correlation with gold grades in the D zone. As a visual guide to ore, the presence of magnetite has worked in logging, but there are significant deviations. Hole KER-17U-77 intersected a magnetite replacement body that had depleted gold and copper values, well below the average waste rocks at Copperstone. A more detailed review showed that two samples, while still silicified contained a significant degree of remnant calcium carbonate. It also contained more manganese oxides than normal and even had (relatively) anomalous values of some epithermal elements such as thallium. Preliminary conclusions are that, while magnetite may be favorable for the deposition of gold, it is not a sufficient condition. It is assumed to be early in the sequence of events but is not necessarily directly related to gold.

7.2.3.4 Copper Oxide Mineralization

Copper mineralization has been intersected within both the hangingwall and footwall zones of Copperstone. The majority of Copper mineralization intersected by drilling is of oxide state and is understood to be primary. Oxide copper occurrence in drilling intercepts ranges from moderately coarse vein fill within structural zones to residual staining along thin margins. Predominate copper mineral occurrence is identified as malachite and chrysocolla. Intercepts containing native copper do occur at Copperstone as infill within veins and within dilational shears. Sulfide copper mineralization such as bornite and chalcopyrite are found at Copperstone but in lower occurrence relative to both oxide and native speciation. Recent metallurgical testing of historic samples from B zone materials did identify a small area containing anomalous concentration of sulfidic copper. Copper assay data was not typically not collected during historic drilling and sampling programs. Kerr incorporated copper assays into the 2017 exploration program and plans to continue collecting copper assay data during future drilling and sampling.

A direct association of gold with copper is not established even though both occur in economic concentrations. Virtually every dataset shows no correlation between the two metals. While they may occur within the same vicinity of a drillhole, they seldom occur in significant grades in a single body. Hole KER-17U-53 is a rare example. The current theory is that they are of separate phases that were depositing when certain structures were open to hydrothermal fluids. Timing of various geological structures and mineralizing fluids appears to be very important in the distribution of metals.

The geochemistry of the Copperstone deposit may be amenable to a factor analysis treatment to discover elemental associations that are not visible to the casual eye. As more multi-element data is obtained, this should be carried out on a domainal basis by the recognized zones.

8. DEPOSIT TYPES

The Copperstone deposit is presently best described as a mid-Tertiary, detachment-fault-related gold deposit. Detachment faults are low-angle (up to 30°) normal faults of regional extent that have accommodated significant regional extension by upward movement of the foot-wall (lower-plate) producing horizontal displacements on the order of tens of kilometers. Common features of these faults are supracrustal rocks in the upper-plate on top of lower-plate rocks that were once at middle and lower crustal depths, mylonitization in lower-plate rocks that are cut by the brittle detachment fault, and listric and planar normal faults bounding half-graben basins in the upper plate (Davis and Lister, 1988).

The term 'detachment-fault-related' intentionally implies that mineralization is strongly controlled by detachment-fault structures, but also that it is apparently related to the formation of detachment faults themselves (Roddy et al., 1988). Early chloritic alteration and associated sulfide mineralization appears to result from retrograde metamorphism as hot lower-plate rocks are brought up to shallower depths. Potassium feldspar alteration and oxide mineralization appear to be related to the upward circulation of saline brines derived from syntectonic basins along the detachment fault into more steeply dipping upper-plate normal fault (Long, 1992). This fluid movement may have been driven by heat derived either from lower-plate rocks or from syntectonic microdiorite to rhyolite intrusives (Reynolds and Lister, 1987).

Features of detachment-fault-related mineralization that distinguish it from other deposit types, as first presented by Long (1992), are listed below. Further details are available in Spencer and Welty (1986), Roddy et al. (1988), and Spencer and Reynolds (1989).

- Deposits are controlled by structures formed during detachment faulting. These include the low-angle, detachment-fault system, high-angle faults in the lower-plate just below the detachment fault, and low- to high-angle normal faults in the upper-plate.
- Deposits are often brecciated or deformed by movement along or above the detachment fault.
- Chlorite-epidote-calcite alteration occurs along and below the detachment fault. These altered zones sometimes contain base-metal sulfides and barite.
- There is massive potassium feldspar replacement of upper-plate rocks. This alteration appears to generally precede ore formation and is not always spatially associated with mineralization.
- Weak sericite-silica alteration of wall rock is sometimes present around barite-fluorite veins.
- Most mineralization consists of iron and copper oxides, principally specular to earthy hematite and chrysocolla. Common gangue minerals are chalcedonic to amethystine quartz, ferrous to manganiferous calcite, barite, fluorite and manganese oxides. Distal barite-fluorite veins consist of variable proportions of barite, fluorite, and manganese oxides. Common gangue minerals are quartz and manganiferous calcite.
- Fluid inclusions have moderate homogenization temperatures (150 to 350 °C) and salinities (10 to 23 equivalent weight percent NaCl), compatible with precipitation from connate brines. Fluid inclusions from barite-fluorite veins have lower homogenization temperatures (90 to 200 °C) and are somewhat less saline (6 to 20 equivalent weight percent NaCl), compatible with precipitation from variably cooled and diluted connate brines.

- Host rocks are enriched in Cu. Pb, Zn, Au, Ag, and Ba and are depleted in Mn, Sr, Ni, and Rb. Elements characteristic of epithermal environments, such as As, Sb, Hg, and Tl, occur in very low, background-level concentrations.

Salem (1993) suggests that the Copperstone deposit might be further classified as a new sub-set of of volcanic-hosted epithermal precious-metal deposits, postulating that Copperstone was created during a late stage of detachment faulting, and that localization of gold deposition was controlled by boiling. Gold deposition was, according to Mahmoud's well-presented interpretation, related to the circulation of brine fluids driven by hot mid-Tertiary granitic lower plate rocks that may have also contributed water and or metals, causing ascending brines to move along the N- to NE- dipping Moon Mountain detachment fault at the Copper Peak area to the south. The fluids continued to ascend along the Copperstone listric fault and a series of high angle NE and NW faults that cross-cut the Copperstone listric fault. This structure acted as conduit that was kept open by ongoing faulting without deposition until the fluids reached the boiling stage, perhaps as a result of decompression. The boiling fluid mixed with another less saline fluid within the ore horizon, a mixing that led to the precipitation of gold mainly along the brecciated hanging wall and footwall of the Copperstone listric fault, as open space-fillings and replacement mineralization (Salem, 1993).

At Copperstone, alteration associated with gold mineralization is mainly chloritization, silicification, and potassic alteration (Salem, 1993). Hypogene mineralization can be divided into 3 paragenetic stages: early amethyst-quartz-chlorite-specularite-hematite-AuO; late fine-grained euhedral quartz adularia-chrysocolla ±malachite ±magnetite ±chalcopyrite-pink fluorite-barite-ankerite-calcite-AuO; and barren quartz-pale green fluorite-barite-hematite. Gold occurs as free particles or as encapsulations in amethyst and late fine-grained quartz. Electron microprobe microscopy has revealed the composition of chlorites associated with the gold deposits in quartz-chlorite-specularite-Au veins as iron rich chlorite with Fe:Mg ratios of 5:1, along with the presence of Cu incorporated in its structure. Fluid inclusion studies of amethyst, late fine-grained quartz, and fluorite indicate that gold was deposited at an average temperature of 290°C from boiling fluids of apparent salinities ranging from 11.7 to 19.9 wt% NaCI equivalent, ending with 190°C and 25.5 wt% NaCI equivalent (Salem, 1993).

9. EXPLORATION

At the close of the 2017 drilling program, Kerr initiated an intensive structural mapping and sampling program, which is still in progress at the time of this report. HRC is not aware of any other exploration activity, other than drilling, conducted by Kerr since 2015.

9.1 Historic Exploration

There were early, unsuccessful attempts to use geochemistry for exploration, including a soil gas survey. The post mineral cover, which has been transported to the Copperstone area, coupled with few mobile trace elements associated with the gold mineralization, quickly eliminated geochemical methods available in the 1980's and 1990's as viable exploration tools (Telesto, 2011). HRC has not received or vetted the results of the geochemical analysis, but accedes that Telesto's conclusions are reasonable.

Cyprus conducted the following geophysical surveys at Copperstone:

- Ground Magnetics;
- MAXMIN Electromagnetics;
- VLF Electromagneteics;
- Resistivity and Induced Polarization; and
- Gravity.

In September 1981, four ground magnetic test lines were run over gold bearing breccia units previously identified by drilling. These lines utilized 100-ft station spacings which were shortened when anomalous responses spatially correlated with likely subcrop of gold mineralization. Test results were encouraging, and the magnetic grid was expanded to cover the full extent of the claim block at the time, which covered an area of about 3 square miles. All data were taken from lines spaced 300 ft apart with a 100-ft station spacing, which again was shortened when anomalous readings were recognized. The lines, oriented N50E, were run perpendicular to two base lines oriented N40W. The gravity survey was completed and read by February 1982.

Results from this survey emphasized subsurface basalt plugs and indicated potential gold breccia targets. Based on poor correlation between lines and station spacing suspected of being too broad, the entire grid was re-read by pacing in stations at 10-ft station intervals. Additional lines were read in the central drilling area. The main grid was re-read by the end of September 1982, and the additional lines were read during March and February of 1983.

Results from the re-read ground magnetic survey identified gold breccias as magnetic lows, while quartz veining in the southeast gave strong high frequency responses. Basalt plugs and flows were detected near the reservation fence to the northwest and to the southwest. Additionally, several apparent offsets in magnetic trends were interpreted to be related to faulting.

In February-March 1982, Maxmin electromagnetics were used to identify the contrast between clay altered breccia material and surrounding rock types. Test lines were run across the central drilling area using the magnetics grid, and readings were taken from both 400- and 800-ft separations between transmitter and receiver. Observed responses did not correlate to known geology or gold mineralization. Erratic responses have been postulated to represent fault zones identified by the magnetic survey.

Very low frequency ("VLF") electromagnetics were run in the central drilling area to in the hopes of identifying faults postulated to be responsible for lateral offsets in the magnetics data. Results were not definitive enough to expand the survey.

Resistivity was used in conjunction with Induced Polarization ("IP") to look directly for mineralized breccia zone subcrops. The gradient electrode array was chosen for rapid coverage, and the transmitter electrode spacings were 6,000 ft with the receiver potential electrode separation at 100 ft. A test survey in the central drilling area was run in December 1982, with the rest of the survey area read during February and March 1983. Gold mineralization responded as IP and resistivity highs, though IP was more useful.

Targets were identified from the electromagnetic surveys by combining low magnetics, and high IP and resistivity responses. Follow up drilling did not identify any new gold mineralized areas.

Mining Geophysical Surveys Inc. conducted a gravity survey to determine the depth to bedrock in the main drilling area to exclude regions too deep for practical mining interests, and regionally identify shallow pediment areas for further exploration. Four east-west traverses were made from the reservation fence on the west to the outcropping range to the east. North-south traverses consisted of a long line along the reservation fence and several short lines near the Copperstone deposit. Field work was completed in December 1982.

The regional survey identified two deep basins, one between Mesquite Mountain and the Plomosa Mountains on the east with a thickness of about 7,000 ft, and another between Plomosa Mountains on the east and the Dome Mountains on the west with a thickness of about 5,400 ft. Overburden thickness between the drilling area and Mesquite Mountain to the north was determined to be between 1,300 and 2,600 ft.

Several results emerged within the central drilling area including a basement fault scarp positioned just east of the southeast basalt plug, overburden depths were found to increase north of the drilling, and thin cover was identified between the drilling area and the Dome Mountains to the southwest (Sandburg, 1984).

HRC is aware of a series of IP and resistivity interpretations dated March 1987, from Mining Geophysical Services Inc., but is not aware of any additional supporting documentation on which to base further discussion.

In 1989, at least one northwest oriented seismic line was run in the main drilling area by Cooksley Geophysics, Inc (Cooksley 1989). The preliminary report does not go into detail on station spacing or data collection, however, the proposal outlines the spacing of stations at 33 ft, using dynamite as the source with shots spaced at 66 ft. Telesto (2011) noted that results from seismic testing were inconclusive. HRC's review of preliminary interpretations suggests structures with orientations similar to those observed at Copperstone were picked up by the seismic survey.

In October 1990, Cyprus conducted another IP and resistivity survey using Mining Geophysical Services Inc. Ten lines were surveyed using a dipole-dipole electrode configuration with a dipole size of 200 ft. Eight lines were surveyed with a dipole size of 400 ft. The base line was oriented S60E from the Reservation fence. The geophysical lines were run parallel to the reservation boundary (N18E) at 400-ft intervals. The IP survey detected anomalous responses, "associated with high resistivity trends believed to reflect sulfide mineralization at depth in a bedrock assemblage" in the northwest half of the property. Resistivity identified apparent effects of a fault contact with granitoid rocks in the north and metasediments to the south. Additionally, the resistivity survey identified high resistivity dike trends south of the fault in the metasediments that may reflect varying degrees of alteration or faulting.

HRC is not aware of any exploration activity, other than drilling, conducted from 1991 to 2000. In July 2000, surface structural mapping was conducted by Asia personnel within the Copperstone pit. The purpose of the mapping was to ascertain the thickness and configuration of the Copperstone fault, determine RQD characteristics in the footwall, and identify potential weak zones in the open pit high wall. The mapping allowed evaluation of alternative sites for constructing the portal for the underground development work described below (MDA, 2000).

In July 2000, channel sampling in the lower level pit walls was initiated by Asia to determine the grade and thickness of the exposed portion of the C zone mineralization, and other structures thought to contain gold mineralization.

American Bonanza started driving an underground exploration decline into the C95-10 area and proximal to the high-grade intercepts of the D zone at the time of MDA technical report (MDA, 2000). Subsequent mapping and underground sampling were completed.

AMEC reviewed surface and underground mapping by American Bonanza and found them to be conducted in an industry standard manner (AMEC, 2006). HRC did not review the surface and underground sampling work conducted by American Bonanza, and no results were included in the resource model.

In 2004, CloudStreet acquired an ultralight-borne aeromagnetic survey, on behalf of Pearson, deRidder and Johnson, Inc ("PRJ"). The survey area, approximately 2 mi east-west by 3.5 mi north-south, is over and immediately surrounding the Copperstone Mine. East-west flight lines were at 50 ft spacings, north-south tie lines were at 100 ft spacings, and elevation did not exceed 150 ft above the surface resulting in approximately 1,254-line miles of coverage. PRJ provided Total Magnetic Intensity ("TMI") and Reduced to Pole TMI interpretations of the data (PRJ, 2004). A report discussing the results of the survey are not currently in HRCs possession.

In 2007, Zonge Geosciences, Inc. ("Zonge") performed a GPS-based ground magnetic survey. Ground magnetics data were acquired on 38 lines oriented north-south, and 9 tie lines oriented east-west for a total distance of 40-line miles of data acquisition (Zonge, 2007). The survey was at a higher resolution than the earlier Cyprus/Amoco survey, in the attempt to detect magnetite associated with gold mineralization. The survey failed to define known areas of magnetite, but did find some smaller magnetic anomalies missed in the earlier surveys (Telesto, 2011).

Zonge staff have interpreted that the horizontal gradient of magnetic potential survey shows a direct correlation of a slow change in magnetic field and known gold mineralization. These anomalies are apparent in the Copperstone pit, and the southwest target. Subsequent drilling of the southwest target confirmed the presence of gold mineralization. Similar anomalies are present on the northeast part of the property, including the State Claim areas. These targets have not been tested by drilling, and may represent exploration potential.

In 2007, Zonge re-interpreted the Cyprus/Amoco IP data. The strong IP anomaly in the mine area appears associated with the Copperstone fault. A few drillholes have been drilled, along strike, with mixed results suggesting that some exploration potential may exist along strike of the fault to the south.

10. DRILLING

10.1 Historic Drilling Exploration

Drilling exploration has been carried out at Copperstone in various campaigns, but fairly consistently on an annual basis since 1975. Drilling carried out by previous operators is summarized in Table 10-1. No documentation or other information is available for drilling completed by Newmont and Southwest Silver; the drillholes from these campaigns are not included in the Project database nor are they discussed further here.

Table 10-1 Drilling Carried out by Previous Operators

Company	Year(s)	No. of Holes Drilled	Drilled Footage	Drilling Method
Newmont	1975	1	unknown	unknown
Southwest Silver	1980	6	unknown	RC
Cyprus	1980-1986	589	225,435	mostly RC
Sante Fe	1993	17	12,500	mostly RC
Royal Oak	1995-1997	34	28,414	mostly RC
Asia Minerals	1998-2000	26	19,589	RC pilot/core tail
Bonanza	2003-2005	263	169,977	RC pilot/core tail
Bonanza	2006-2008	69	57,395	RC pilot/core tail

Historic drilling carried out by previous operators of the Copperstone Project accounts for 1,149 of the drillholes included in the Project database. The earliest drilling for which a reasonable amount of associated information is available was completed in 1984 by Cyprus, with various subsequent drilling campaigns completed prior to Kerr's acquisition of the Project. The historic drilling database contains 355 core holes totaling 218,626.4 feet, 614 RC holes totaling 300,864.8 feet, and 18 drillholes with RC pre-collars continued with core drilling ("RC/Core") totaling 15,944 feet. Most historic drilling was oriented either vertically or angled to the west in an effort to perpendicularly intercept the mineralization. Underground drilling by American Bonanza from 2003-2005 is oriented down dip of the mineralization. Limited details are presently available regarding drilling contractors and procedures specific to each campaign. Table 10-2 summarizes historic drilling at the Copperstone Project by operator and by year.

Table 10-2 Summary of Drilling Conducted by Previous Operators by Type and by Year.

Operator	Year	Type	Prefix	Count	Total (ft)
Cyprus	1984	Core	CSD-	13	3,406.0
	1985	Core	CSD-	55	16,819.4
		RC	CS-, CR-, CSR-	504	221,870.0
		RC/Core	CSD-11	1	495.0
	1986	Core	CSD-	2	1,189.0
	1988	Core	CSD-	3	1,900.3
Santa Fe Gold	1993	RC	DCU-	17	12,500.0
Royal Oak	1995	Core	C95-	2	1,244.5
		RC		11	8,757.0
	1996	Core	C96-	4	4,269.0
		RC		1	958.0
		RC/Core		1	1,227.0
	1997	Core	C97-	11	8,636.0
		RC		2	1,820.0
		RC/Core		2	1,502.0
Asia Minerals	1998	Core	A98-	15	10,979.2
	2000	Core	A00-	5	3,209.5
		RC		6	5,400.0
	2001	Core	CDH-	11	893.0
American Bonanza	2003	Core	CRD-03-, CUDH-03-	26	9,808.3
		RC	CRD-03-	2	1,195.0
	2004	Core	CUDH-04-, DU4-, F4-, H4-	113	80,622.1
		RC/Core	CRD-04-	13	11,841.0
	2005	Core	DU5-, H4-, H5-	36	18,109.6
		RC	H5-	71	48,364.8
		RC/Core	H5-124	1	929.0
	2006	Core	06CS-	27	25,410.0
	2007	Core	07CS-	17	17,983.0
	2008	Core	08CS-	15	14,147.5
	2012	-	DZ-, DZ12-	8	800.0
	2013	-	520-, 650W-, 654-, 654cc-, 690-,726-, 730-, 750-, 810-	154	13,447.0
Total Historic Drilling				1,149	549,732.2
Total Historic Core				355	218,626.4
Total Historic RC				614	300,864.8
Total Historic RC/Core				18	15,994.0
Total Historic -				162	14,247.0

10.1.1 Cyprus 1984 – 1988

Drilling by Cyprus accounts for 42.4% of total drilling on Copperstone, with 73 core holes totaling 23,315 feet, 504 RC drillholes totaling 221,870 feet, and 1 RC/core drillhole totaling 495 feet. The drillhole database indicates only one drillhole was surveyed down-the-hole. Of the Cyprus drillholes, 547 are angled vertically, 2 are angled to the northwest, 4 are angled to the southeast, 8 are angled to the southwest, 2 are angled west, and 15 do not have survey information in the database and are presumed to be vertical. Drilling by Cyprus defined mineralization in the A/B zone and C zone, and provided the first indications of D zone, Footwall zone, and Southwest zone mineralization. Exploration drilling to the southwest and northeast did not return significant results.

10.1.2 Santa Fe Gold 1993

Santa Fe Gold completed 17 RC drillholes totaling 12,500 feet in 1993. No drillholes were surveyed down-the-hole. Ten drillholes, all angled 65 degrees southwest, tested the area southwest of the central portion of the pit and did not intersect significant mineralization, although some intervals of low grade mineralization were encountered in DCU-2. One vertical drillhole (DCU-8) within the pit intersected Footwall zone mineralization with 10 ft of 0.920 opt gold. Two vertical drillholes near the pit to the northeast intersected low-grade mineralization. Four vertical exploration holes to the northeast did not intersect mineralization.

10.1.3 Royal Oak 1995 – 1997

Royal Oak completed 17 core drillholes totaling 14149.5 feet, 14 RC drillholes totaling 11,535 feet, and 3 RC/core drillholes totaling 2,729 feet. A total of 10 core, 7 RC, and all three RC/core drillholes were surveyed down-the-hole using a single shot camera. The remaining 14 drillholes were not surveyed down-the-hole. Drilling targeted the down-dip extension of the A/B zone, C zone, and D zone mineralization to the northeast, with all but 5 oriented vertically. Those 5 angled drillholes were oriented southwest. The programs were successful in demonstrating continued gold mineralization down dip to the northeast. One drillhole, angled southwest on the southwest margin of the pit (C95-02) did not intersect gold mineralization.

10.1.4 Asia Minerals 1998 – 2001

Asia Minerals drilled 20 core drillholes totaling 14,188.7 feet, and six RC drillholes totaling 5,400 feet from surface drillhole locations.

The Lang Division of Boart Longyear drilling contractors, based in Salt Lake City, Utah drilled the RC holes. The RVC holes were 6.5 in (16.5 cm) in diameter, and samples were collected at 5-ft (1.5 m) intervals. HQ size drill core (6.4 cm in diameter) was collected by standard diamond impregnated drill bits, metal alloy core barrel and wire-line methods.

Locations of drillholes were defined on the established Copperstone mine survey grid, using the original Cyprus benchmarks. Drillhole collar locations were surveyed by Bill Lemme, a professional engineer and Arizona registered surveyor. Mr. Lemme was formerly employed as a surveyor for the Cyprus mining operations and conducted surveys on the property for Royal Oak. Down-the-hole surveys using a standard single shot camera survey tool were completed at regular intervals for all but 8 vertically oriented surface drillholes.

Surface exploration intersected D zone mineralization with decreasing returns as drillholes testing the down dip extension of the D zone to the northeast. One drillhole (A00-10) intersected footwall zone mineralization in the same area as DCU-8.

Asia drilled 11 core holes in 2001 for a total of 893 feet. Given the relatively shallow depth (<120 ft), none of the underground drillholes were surveyed down-the-hole. The drilling was carried out from a single underground station in the D zone, near an interval of 25 ft at 2.199 opt gold in C95-10. Drilling was oriented northeast to fan out radially between 35 – 125 degrees azimuth and inclined between 5 and 20 degrees below horizontal. Drilling at these orientations is not conducive to intersecting D zone mineralization. The drillholes run the risk following mineralized structures down dip resulting in interval lengths not representative of true thickness or missing the mineralization altogether. Asia's underground drilling campaign only intersected a few sporadic intercepts of significant grade, indicating that the drillholes missed D zone mineralization.

10.1.5 American Bonanza 2003 – 2013

American Bonanza is responsible for 41.9% of the total drilling at Copperstone. The following details regarding American Bonanza's drilling efforts are summarized from AMEC (2006) and Telesto (2011).

Drill contractors for the 2003-2005 drilling included Ruen Drilling (diamond) of Clark Fork, Idaho, Layne-Christensen (diamond and reverse circulation (RC)) of Chandler, Arizona, and Diversified Drilling (RC) of Missoula, Montana. Diamond tools employed included HQ (63.5 mm) diameter tools for surface holes and NQ (47.6 mm) diameter tools for underground holes. American Bonanza drillhole collar locations were surveyed by American Bonanza geologists using a Trimble TSC-GPS system. Underground collar locations were surveyed by transit and chain from control points established by Lemme Engineering Inc., of Phoenix, Arizona.

During the 2003 to 2005 drill campaign, American Bonanza RC pre-collar drillholes were surveyed for dip with a single-shot camera within the drill steel at 100 ft intervals. This was done to ensure that drillholes did not droop or rise beyond acceptable limits. RC drillholes deviating more than 3° were terminated and redrilled. Upon completion of the core tail, the RC pipe was removed and the entire drillhole (pre-collar plus core tail) was surveyed by Wel Nav of Tustin, California, using a gyroscopic multi-shot tool, which returned azimuth and dip readings at nominal 50 ft intervals. Bonanza underground core holes during this campaign were surveyed using a single-shot camera at nominal 100 ft intervals.

A series of short, underground Bonanza holes (CDH-1 to 10, nominal 100 ft total depth), the 2003 Bonanza RC drillholes testing the Footwall zone (CRD-03-01 to 13, nominal 600 ft total depth), and the 2003 underground core holes testing the zone (CUDH-03-01 to 15, nominal 300 ft total depth) were not surveyed down-hole.

American Bonanza drill collar locations were surveyed by American Bonanza geologists using a Trimble TSC-GPS system. Cyprus established benchmarks provide survey control. Locations were surveyed in Arizona state plane coordinates, downloaded to computer at the site, and transferred in a spreadsheet to the American Bonanza office in Reno, Nevada for loading to the project database. Underground collar locations were surveyed by transit and chain from control points established by Lemme Engineering Inc., of Phoenix, Arizona.

During the 2003 to 2008 drill campaigns, American Bonanza RC pre-collar drillholes were surveyed for dip with a single-shot camera within the drill steel at 100 ft intervals. This was done to ensure that drillholes did not droop or rise beyond acceptable limits. RC drillholes deviating more than 3° were terminated and redrilled. Upon completion of the core tail, the RC pipe was removed and the entire drillhole (pre-collar plus core tail) was surveyed by Wellbore Navigation Inc. (WELNAV) of Tustin, California, using a gyroscopic multi-shot tool, which returned azimuth and dip readings at nominal 50 ft intervals. Bonanza underground core holes during this campaign were surveyed using a single-shot camera at nominal 100-ft intervals.

The following holes were not surveyed:

- Bonanza holes CDH-1 to 10, nominal 100 ft total depth
- Bonanza RC holes CRD-03-01 to 13, nominal 600 ft total depth
- Bonanza underground holes CUDH-03-01 to 15, nominal 300 ft total depth (Telesto, 2011).

Drilling results from American Bonanza's drilling campaigns are subdivided into the following discussions:

- Surface Footwall zone drilling,
- Surface down dip extensional drilling,
- Surface exploration,
- Underground D zone drilling 2003 – 2005, and
- Underground D zone drilling 2012 - 2013.

10.1.5.1 Surface Footwall Zone Drilling

American Bonanza drilled 37 core drillholes totaling 28,946 feet, and 6 RC drillholes totaling 2,505 feet. Fourteen of the of the 43 drillholes were surveyed down-the-hole. Twenty drillholes were oriented vertically, 15 drillholes were steeply inclined and oriented in various directions, 5 drillholes were oriented to the southwest, and 1 drillhole was oriented to the northwest. Drilling in the Footwall zone centered around previous results in drillholes DCU-8, and A00-10, with continued success. Additionally, gold intercepts in H5-141, H5-147, H5-148, H5-163, and 06CS-17 demonstrated the potential for footwall zone mineralization to continue up-dip to the southwest. Southwest zone mineralization was also intersected defined by American Bonanza.

10.1.5.2 Surface Down Dip Extensional Drilling

Eighty-three core drillholes totaling 77,034 feet, 56 RC drillholes totaling 36,543.8 feet, and 14 RC/Core drillholes totaling 12,770 feet tested D zone mineralization as well as the down dip extents of A/B zone, C zone, and D zone mineralization. One-hundred thirty-two drillholes were surveyed down-the-hole, 4 drillholes were surveyed at the top and bottom of the drillholes, and the remaining 17 drillholes were not surveyed down-the-hole. One hundred one drillholes have vertical orientations, 45 drillholes are angled to the southwest, 6 drillholes are steeply inclined to the south, and one drillhole is steeply inclined to the north. Results generally continued to demonstrate down dip continuity in the A/B, and C zones, however grades do tend to decrease down dip. Drilling in D zone mineralization did intersect favorable gold grades, but down dip extensional drilling in the D zone did not intersect significant gold mineralization.

10.1.5.3 Surface Exploration Drilling

Thirty-seven core drillholes totaling 37,588.5 feet and 11 RC drillholes totaling 10,511 feet constitute American Bonanzas exploration drilling. Fourteen drillholes were surveyed down-the-hole. All 48 drillholes were oriented vertically. In general, no significant mineralization was intersected by these drillholes. However, nine drillholes approximately 2,500 ft southwest of Copperstone mineralization did intersect significant mineralization.

10.1.5.4 Underground D Zone Drilling 2003 – 2005

American Bonanza completed 77 core drillholes totaling 22,512 feet between 2003 and 2005 from two underground drilling stations, in order to define D zone mineralization. Down-the-hole surveys were completed for 49 of the 77 drillholes. Drilling was oriented northeast to fan out radially between 0 – 190 degrees azimuth, an inclined between 0 and 27 degrees below horizontal. While results from this drilling show significant lengths of high grade gold, drilling at these orientations is not conducive to intersecting D zone mineralization. The drillholes run the risk following mineralized structures down dip resulting in interval lengths not representative of true thickness or missing the mineralization altogether.

10.1.5.5 Underground D Zone Drilling 2012 – 2013

American Bonanza drilled 162 drillholes totaling 14,247 feet. The drillhole types are not presently known, however, all but one drillhole were surveyed at the top and bottom of the drillhole. For the most part, drilling was oriented to intersect mineralization appropriately, resulting in a multitude of bearings and inclination. The limited knowledge about these drillholes precludes them from meaningful discussions about their results.

10.2 2015-2017 Kerr Drilling Exploration

Kerr drilled 87 holes totaling 29,786 feet between 2015 and 2017. Drilling consisted of both RC and core (Table 10-3).

Table 10-3 Drilling totals for Kerr Mines, Inc.

Year	Type	Prefix	Count	Total (ft)
2015	Core	KER-15-	4	3,045.5
2017	Core	KER-17S-, KER-17U-	72	19,380.5
	RC	KER-17S-	11	7,360.0
Kerr Drilling Totals			87	29,786.0
Total Core			76	22,426.0
Total RC			11	7,360.0

10.2.1 2015 Surface Drilling

The Copperstone drill program in 2015 was designed to target the Footwall zone, located approximately 300 to 500 feet west and parallel to the main Copperstone zone. The drilling campaign consisted of four diamond drillholes with a total core length of 3,040 feet. The program confirmed a parallel system west of the main Copperstone trend within the latite–phyllite contact. The contact was strongly altered/faulted with hematite and copper oxides present. Highlights from the drill program included 0.405 opt Au over 6 feet and 0.324 opt Au over 5 feet.

Kerr contracted West Core Drilling, and Holman Drilling to complete four core drillholes totaling 3,045.5 feet in 2015. Drillhole diameters included both HQ and NQ. These drillholes are located within the open pit, and target Footwall zone mineralization. KER-15-01 through KER-15-03 are oriented from a single station, starting vertical, then 65 degrees to the southwest, and finally 45 degrees to the southwest. These drillholes were surveyed down-the-hole on 50-foot intervals using a single shot camera. KER-15-04 is oriented vertically and is 370 northwest from KER-15-01. KER-15-04 was not surveyed down-the-hole. Results from drilling in 2015 are summarized in Table 10-4. In general, KER-15-01 confirmed the presence of mineralization at depth, and KER-15-02 and KER-15-03 indicate mineralization at depth could be continuous up-dip to the southwest.

Table 10-4 Significant Intercepts for 2015 Drilling by Kerr

Drillhole ID	From (ft)	To (ft)	Length (ft)	Gold (opt)
KER-15-01	567	570	3	0.130
KER-15-02	635	641	6	0.405
KER-15-03	350	355	5	0.324
also	597	602	5	0.114
also	886	900	14	0.076
KER-15-04	No significant intercepts			

10.2.2 2017 Surface and Underground Drilling

Kerr contracted Godbe Drilling, LLC ("Godbe") of Montrose CO, and American Drilling Corp. ("American") of Spokane Valley WA, to complete 83 drillholes totaling 26,740.5.5 feet of core and RC drilling. Godbe used a Maxi 10 track mounted drill rig for surface core drilling operations, and a small electric powered skid mounted Versa KMB.8 drill for underground core drilling. Diamond core drilling utilized HQ (2.5 in or 63.5 mm diameter) wireline gauge. Core barrels of different lengths were used depending on recovery and ground conditions. For surface RC drilling, Godbe subcontracted DeLong Construction and Drilling, Inc. ("DeLong") of Winnemucca, NV. DeLong for use of a track mounted RC drilling platform for use of a track mounted RC drilling platform. American deployed two skid mount electric powered Atlas Copco U8 drills underground for its underground operations.

Kerr contracted Registered Land Surveyor, 82Bravo LLC of Phoenix, Arizona, to survey all planned and as-built drillhole collars. Cyprus established benchmarks provide survey control and all surveying produced values in Arizona state-plane NAD27. Most drillholes were set up by front- and back- sight, by a registered surveyor, but a few short holes were added to the program and laid out by Brunton compass. At the end of the program the American Drill started using a Reflex TN14 Rig Alignment instrument, making the process less time-consuming and avoiding the issue of losing paint marks on the ribs.

Underground collar locations were surveyed by Aftermath Engineering, an independent contract engineer & surveyor utilizing the pre-existing underground control points. Kerr utilized a multi-shot camera at 50 feet spacing, supplied to Godbe Drilling by International Directional Services ("IDS"), a drilling service company out of Chandler, Arizona. RC drillholes were surveyed directly at 50 feet intervals with a gyro instrument by IDS. In October, Kerr began to utilize a Devico gyro instrument, supplied by Minex of Virginia, Minnesota, for most new drillholes. The camera instrument was retained as a back-up and was often used on holes drilled upward from mine workings. Camera survey data was collected at nominal 50 ft intervals as the drill tripped out of the hole after completion. The Devico instrument was utilized when high magnetite contents were detected in D Zone core. In this case, readings were collected every 10 feet from bottom to top of the hole.

While the overall core recovery for the 2017 drilling is over 95%, the recovery for zones with >4 ppm Au was 80%. Review of the RC drilling indicated good overall sample recovery.

Drilling from the surface had the primary objective of demonstrating Footwall zone mineralization along strike and down dip on approximately 200-foot fences. The drilling results in Table 10-5 confirm Footwall mineralization does occur along strike and down dip. The down dip extension of A/B sections of the Copperstone zone mineralization was also tested from surface. Two drillholes were successful in extending A/B zone mineralization down dip (Table 10-6). One drillhole, KER-17S-23, tested mineralization in the south extension of the footwall zone. This drillhole did not reach the intended target due to structure entrainment and poor sample return.

Table 10-5 Significant Intercepts for 2017 Footwall Zone Drilling from Surface

Drillhole ID	From (ft)	To (ft)	Length (ft)	Au (opt)
KER-17S-02	56.5	60.0	3.5	0.265
also	78.0	80.1	2.1	0.158
KER-17S-03	502.2	520.6	18.4	0.084
KER-17S-04	594.0	606.0	12.0	0.213
includes	603.3	606.0	2.7	0.939
KER-17S-06	415.0	425.0	10.0	0.034
KER-17S-07	494.0	497.0	3.0	0.121
KER-17S-08	drillhole abandoned before target depth reached			
KER-17S-08B	drillhole abandoned before target depth reached			
KER-17S-09	no significant intercepts			
KER-17S-10	776.5	801.0	24.5	0.108
includes	779.0	790.0	11.0	0.232
includes	782.0	790.0	8.0	0.318
includes	776.5	790.0	13.5	0.193
KER-17S-11	730.0	740.0	10.0	0.113
includes	735.0	740.0	5.0	0.148
KER-17S-12	no significant intercepts			
KER-17S-13	435.0	485.0	50.0	0.134
Includes	440.0	455.0	15.0	0.384
KER-17S-16	no significant intercepts			
KER-17S-17	567.0	597.5	30.5	0.105
includes	573.0	587.0	14.0	0.200
and	573.0	579.0	6.0	0.226
KER-17S-18	106.0	108.0	2.0	0.053
KER-17S-19	290.0	305.0	15.0	0.100
and	290.0	325.0	35.0	0.083
includes	320.0	330.0	10.0	0.134
KER-17S-20	no significant intercepts			
KER-17S-21	60.0	70.0	10.0	0.193
and	315.0	435.0	120.0	0.219
includes	320.0	330.0	10.0	0.146
and	400.0	425.0	25.0	0.911
includes	405.0	415.0	10.0	2.186

Table 10-6 Significant Intercepts for 2017 A/B Zone Drilling from Surface

Drillhole ID	From (ft)	To (ft)	Length (ft)	Au (opt)
KER-17S-01	381	398	17	0.140
includes	381	393	12	0.196
also	533	545.8	12.8	0.058
KER-17S-14	375	385	10	0.075
and	520	535	15	0.051
KER-17S-15	no significant intercepts			
KER-17S-22	no significant intercepts			

Kerr's underground drilling campaign had two goals:

- Confirm historic results, and
- Provide a pathway for increasing resources with future drilling programs.

These goals were achieved using the following approaches:

- Infill and confirmation drilling in D zone;
- D zone up dip continuity and extension; and
- D zone down dip continuity and extension.

Infill and confirmation drilling in the D zone was successful in confirming grades intersected by previous operators and drilling results are shown in Table 10-7. Drilling was conducted only from the available access in the existing underground workings. While the drillhole orientation does not intersect the D zone perpendicular to mineralization, the drillholes were oriented to drill through the footwall and hanging wall of the D zone. As a result, the interval lengths reported in KER-17U-10, KER-17U-11, KER-17U-12, KER-17U-13, and KER-17U-17 do not reflect the true thickness of D zone mineralization

Drillholes testing the up-dip extension and continuity of the D zone were designed based on previous interpretations. Only four of the 17 drillholes targeting up-dip extension and continuity in the D zone returned significant grade intercepts (Table 10-8). Based on the current interpretation of the D zone, it is apparent that up-dip mineralization remains open below the current drilling, and will be tested in future programs

Drillholes testing the down dip continuity of D zone mineralization were successful with 16 of 30 drillholes returning favorable results (Table 10-9).

Table 10-7 Significant Intercepts for 2017 D Zone Confirmation and Infill Drilling from Underground

Drillhole ID	From (ft)	To (ft)	Length (ft)	Au (opt)
KER-17U-03	no significant intercepts			
KER-17U-04	80.0	95.0	15.0	0.150
includes	84.5	95.0	10.5	0.166
KER-17U-05	112.0	122.0	10.0	0.232
includes	114.0	122.0	8.0	0.262
KER-17U-06	83.0	103.5	20.5	0.253
includes	83.0	95.5	12.5	0.378
and	147.5	168.5	21.0	0.091
includes	154.0	168.5	14.5	0.094
KER-17U-10	no significant intercepts			
KER-17U-11	48.0	61.0	13.0	0.181
includes	48.0	58.5	10.5	0.223
and	197.5	206.5	9.0	0.158
includes	200.0	206.5	6.5	0.209
KER-17U-12	153.0	224.0	71.0	0.673
includes	153.0	213.5	60.5	0.789
includes	163.0	210.8	47.8	0.988
includes	178.0	191.0	13.0	2.626
also includes	185.0	213.5	28.5	1.143
KER-17U-13	44.0	80.0	36.0	0.092
includes	46.5	57.0	10.5	0.258
also	73.0	75.5	2.5	0.179
and	121.5	127.0	5.5	0.097
includes	124.0	127.0	3.0	0.150
KER-17U-14	34.0	81.0	47.0	0.052
includes	75.0	81.0	6.0	0.220
also	155.0	243.0	88.0	0.406
includes	178.0	206.8	28.8	1.127
also	217.0	226.0	9.0	0.164
KER-17U-15	no significant intercepts			
KER-17U-16	48	153	105	0.116
includes	48	58	10	0.224
also	81.5	90	8.5	0.232
also	104.9	113	8.1	0.308
also	138.5	153	14.5	0.318
KER-17U-17	57.0	62.0	5.0	0.124

Table 10-8 Significant Intercepts for 2017 D Zone Up Dip Continuity and Extension from Underground

Drillhole ID	From (ft)	To (ft)	Length (ft)	Au (opt)
KER-17U-07	no significant intercepts			
KER-17U-08	19.0	26.1	7.1	0.141
includes	19.0	23.0	4.0	0.235
KER-17U-09	11.5	12.5	1.0	0.164
KER-17U-18	drillhole abandoned			
KER-17U-18B	no significant intercepts			
KER-17U-19	no significant intercepts			
KER-17U-20	no significant intercepts			
KER-17U-21B	42.0	53.5	11.5	0.594
includes	46.0	49.0	3.0	2.257
KER-17U-22	no significant intercepts			
KER-17U-23	not sampled			
KER-17U-24	no significant intercepts			
KER-17U-25	no significant intercepts			
KER-17U-26	38.1	42.0	3.9	0.102
includes	38.1	40.0	1.9	0.206
and	112.7	118.3	5.6	0.158
includes	112.7	115.4	2.7	0.310
KER-17U-27	no significant intercepts			
KER-17U-28	no significant intercepts			
KER-17U-29	no significant intercepts			
KER-17U-34	no significant intercepts			

Table 10-9 Significant Intercepts for 2017 D Zone Down Dip Continuity and Extension from Underground

Drillhole ID	From (ft)	To (ft)	Length (ft)	Au (opt)
KER-17U-01	53.0	57.4	4.4	0.131
KER-17U-02	56.0	64.5	8.5	0.095
KER-17U-50	69.0	93.0	24.0	2.998
includes	84.0	93.0	9.0	0.193
KER-17U-51	56.0	79.9	23.9	0.167
includes	56.0	72.5	16.5	0.237
KER-17U-52	54.0	70.0	16.0	0.152
includes	54.0	64.5	10.5	0.227
KER-17U-53	52.0	72.0	20.0	0.156
includes	61.0	72.0	11.0	0.277
also	67.8	69.8	2.0	1.082
KER-17U-54	no significant intercepts			
KER-17U-55	no significant intercepts			
KER-17U-56	no significant intercepts			
KER-17U-57	93.3	128.0	34.7	0.136
includes	101.9	111.0	9.1	0.223
KER-17U-58	no significant intercepts			
KER-17U-59	90.5	111.5	21.0	0.090
includes	90.5	101.7	11.2	0.164
KER-17U-60	45.0	60.3	15.3	0.083
includes	55.0	60.3	5.3	0.169
also	120.8	121.7	0.9	0.001
KER-17U-61	134.0	147.3	13.3	0.096
includes	134.0	139.7	5.7	0.163
KER-17U-62	no significant intercepts			
KER-17U-63	no significant intercepts			
KER-17U-64	no significant intercepts			
KER-17U-65	40.5	54.8	14.3	0.092
includes	43.0	54.8	11.8	0.111
KER-17U-66	59.0	74.0	15.0	0.113
includes	64.0	66.0	2.0	0.815
KER-17U-67	110.9	119.0	8.1	0.115
includes	110.9	113.0	2.1	0.267
KER-17U-68	70.5	82.0	11.5	0.180
KER-17U-69	not sampled			
KER-17U-70	no significant intercepts			
KER-17U-71	no significant intercepts			
KER-17U-72	87.5	97.0	9.5	0.032
includes	87.5	89.0	1.5	0.186
KER-17U-73	no significant intercepts			
KER-17U-74	54.0	57.0	3.0	0.175
and	112.0	122.0	10.0	0.161
includes	112.0	116.8	4.8	0.325
KER-17U-75	no significant intercepts			
KER-17U-76	no significant intercepts			
KER-17U-77	no significant intercepts			

Figures 10-1 through 10-3 show drillhole collar locations for all drilling campaigns except Newmont and Southwest Silver. Figure 10-1 shows surface drillhole collar locations for the entire property. Figure 10-2 shows surface drillhole collar locations for drilling in the area of the open pit. Figure 10-3 shows underground drillhole collar locations. A complete list of drillhole collar locations, orientations, type, year, and operator in available in Appendix B.

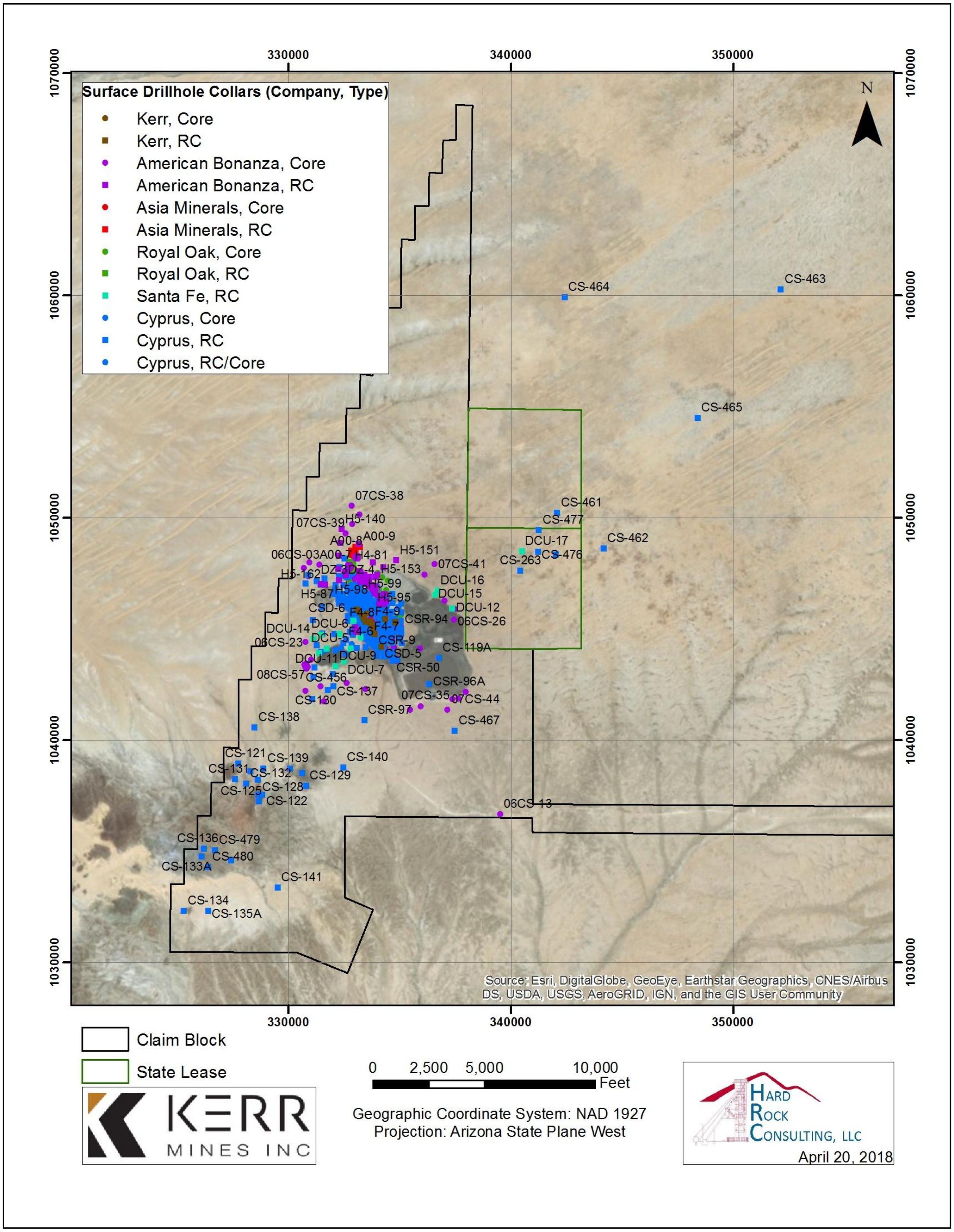


Figure 10-1 Plan View of Surface Drilling for the Property

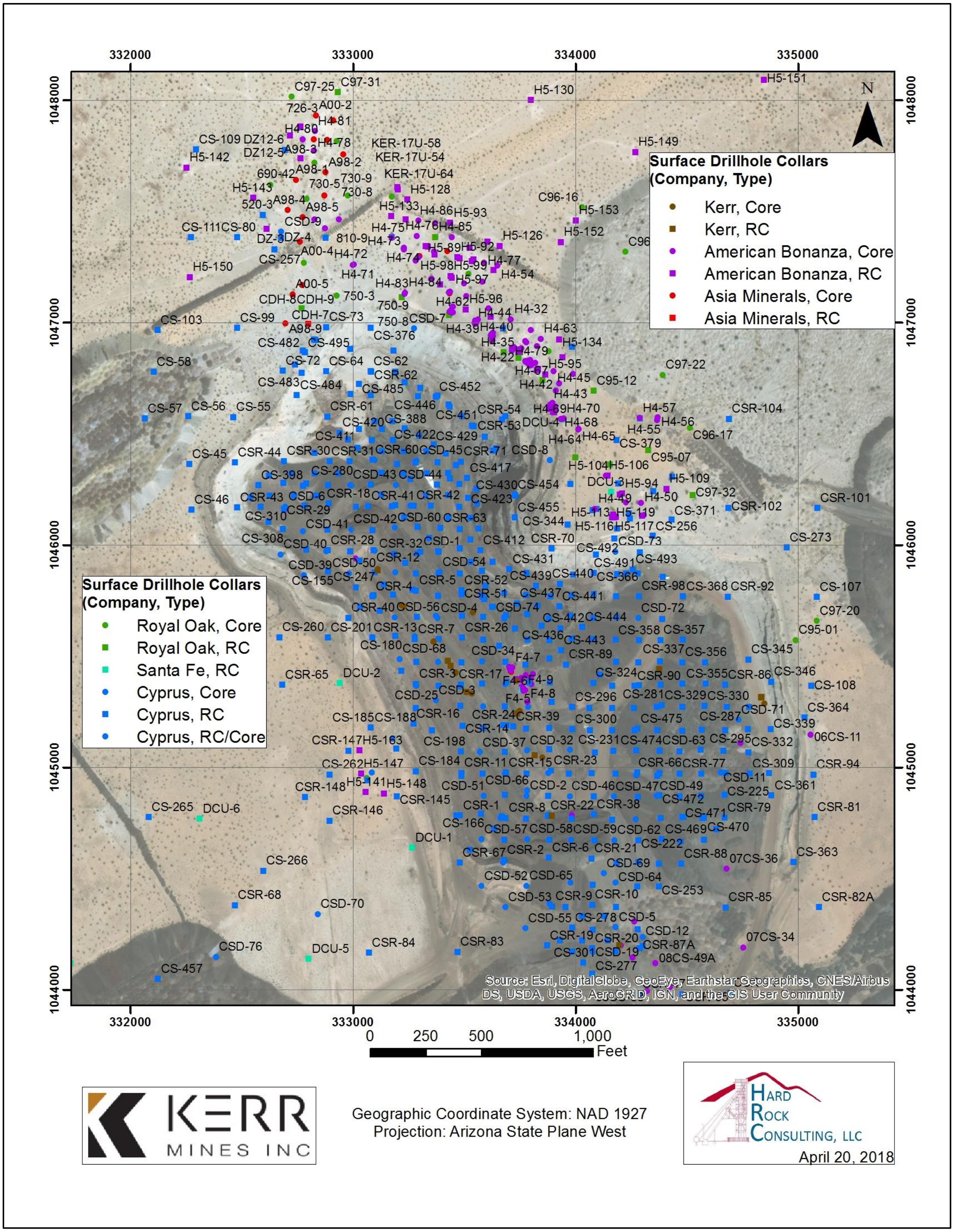


Figure 10-2 Surface Drillhole Locations in the Area of the Open Pit

Hard Rock Consulting, LLC

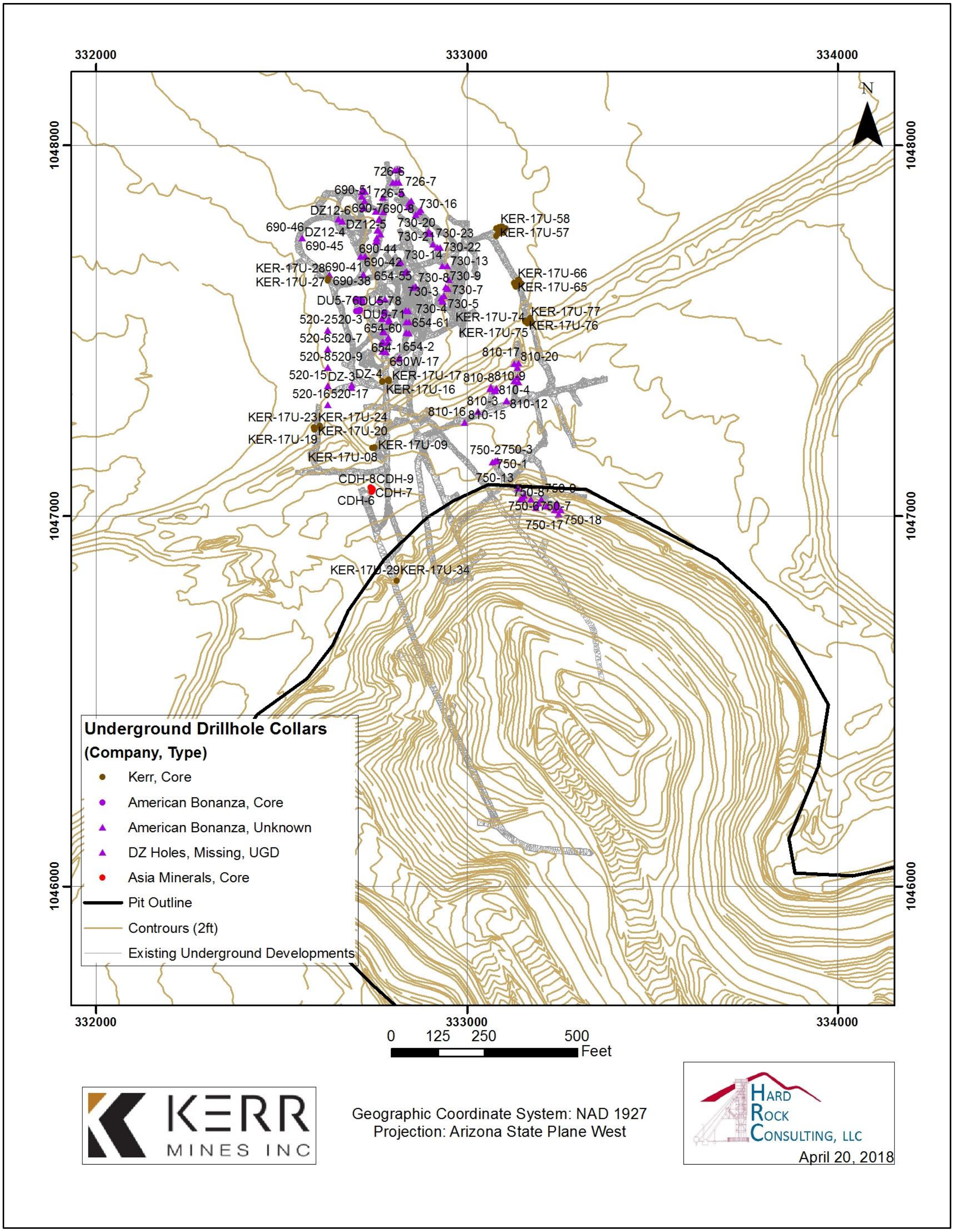


Figure 10-3 Underground Drillhole Locations

10.3 Continuing Exploration Program (Phase II)

Kerr's 2018 Phase II Exploration Program is designed to add mineral resources to the Project via drilling, primarily in C and D zones. Conclusions from the 2017 program confirm that the primary mineralization structural control are breccias related to is the northeast shallow dipping Copperstone shear with subsidiary cross-cutting mineralized high angle structures. Limestone replacement related to mineralized breccia in the Copperstone shear D zone hosts some of the gold mineralization. Drilling must be oriented to cross the Copperstone shear and subsidiary structures. In addition to gold mineralization domains, alteration domains associated with chlorite, silica and hematite are important. Gold and copper mineralization are both locally coincident and separate.

The 2018 program will focus on areas demonstrating continuity and are currently drill-accessible for near-term access. The C zone, which has proven continuity from previous mining by Cyprus, is considered a prime target for both conversion and addition of mineral resources along dip and strike. The D zone is also attractive due to the potential for higher grades and the current higher density of drilling in that area. Exploration efforts in the both zones will be carried out with intent to improve gold mineralization continuity and to further understand the interaction of all apparent controls on mineralization. Exploration drilling within the B and A zones require new development to be completed for access to achieve drilling target locations. Further drilling within these zones is anticipated for inclusion in future programs as access is developed for the purposes of mining.

The proposed 2018 drilling plan has four main goals and strategies:

1) Conversion of Inferred blocks based on current modeling;
    a. Target blocks in the Copperstone shear with a minimum 0.08 Au oz/t which are proximal to 0.1 oz/t or better blocks,
    b. Target blocks in the Footwall Zone that are proximal to the D/C zone of the Copperstone shear and minimum 0.08 Au oz/t which are proximal to 0.1 oz/t or better blocks,
    c. Target where mineralization calculated by different estimating methods shows variance,
    d. Drill orientation optimized to cross both main and subsidiary structures of mineralization,
    e. Target intersection of structures, and
    f. Planned resultant drillhole spacing of maximum 40 ft.
2) Accretion to Inferred blocks by exploration;
    a. Target beyond current extents in the Copperstone shear 0.1 oz/t grade shell by up to 150 ft up/down dip and along strike,
    b. Target beyond current extents of the Footwall Zone 0.1 oz/t grade shell by up to 150 ft down dip and along strike,
    c. As grade shells are extended by 2018 results, continue beyond first 150 ft boundary, and
    d. Target intersection of structures.
3) Infill drilling for detailed mine design; and
    a. 33 ft nominal centers utilizing percussion and RC drilling, and
    b. Year 1 production areas/stopes targeting 206,000 tons.

4) Structural and metallurgical testing.

   a. Support and test current structural mapping and model shapes created by gold grade distribution,

   b. Target recommendations of geotechnical interest, and

   c. Target recommendations of metallurgical interest.

10.3.1 Conversion Drilling

Conversion drilling is to be completed with predominantly core on nominal 40 ft spacings and is expected to total about 22,000 ft. This phase will occur mostly within the D and C zones of the Copperstone shear and partly in the Footwall zone. The drilling will include areas where the block model shows Inferred mineralization and un-modeled gaps down dip in the Copperstone shear. Drilling will target Inferred blocks with a minimum grade of 0.08 oz/t and test areas with significant grade variance between different grade estimation methodologies. The drilling will be done with emphasis on east-west and north-south orientations to cut likely mineralized northwest and northeast structural controls. Some of this drilling will be specific to measure the mineralization continuity as related to structural controls and their intersection. Future drilling in the B and A zones will follow access availability.

10.3.2 Accretion Drilling

Accretion drilling focuses on extending mineralized domains within the Copperstone shear and the Footwall zone along dip and strike. It is essentially step-out drilling, intended to add Inferred resources for resource growth. The drilling is planned to be done mostly with core on nominal 150 ft spacings. The Copperstone shear continues down dip and the un-modeled areas below the modelled mineralization are simply un-drilled, providing potential for additional Inferred resources. Some of the drilling will be into the Footwall zone to enhance continuity established along strike during the 2015 & 2017 programs. Limited drilling is planned to test the down-dip extension of the Footwall zone, below the Copperstone shear D zone mineralization

10.3.3 Infill and Stope Design

Infill drilling will be done in domains of zones C and D of the Copperstone shear, where stopes are designed. Drilling is planned to dominantly be reverse circulation and percussion to a nominal 33 ft spacing and total 28,000 ft. The drilling will provide additional samples for continued metallurgical testing. One of the important uses of infill drilling will be provide more information to refine the domain geometries, which are parallel to the northeasterly dipping Copperstone shear. Domain geometry may be locally modified by high angle structural controls. Post-mineral fault offsets of the domains will also be resolved.

10.3.4 Metallurgical and Structural Drilling

Drillholes will be used to provide metallurgical samples by twinning previous drillholes and testing new areas to confirm possible metallurgical variability. Metallurgical samples may also be selected from the exploration drill core. Samples will be logged as per normal procedure and securely shipped to a metallurgical testing facility such as RDi, who has been performing metallurgical testing.

Structural drillholes are intended to compliment current and prior structural mapping projects to aid in detection of new targets which intersect geological structures that potentially host or offset gold mineralization. In addition to the standard geotechnical rock quality designation information gained from core logging and point load testing of core, Kerr plans approximately 10 holes for down-hole Televiewer imagery. The imagery produces accurate in-situ structural measurements which can be linked to the geological and assay logs for modeling purposes. Ground control planning would also benefit from a Televiewer program, since the amount of whole core for characterization is limited by the fractured nature of the rock. Oriented core may be used in certain portions of the orebody. Approximately 6,500 ft of drilling is allocated for these purposes.

10.3.5 Ore Control Planning

Ore control procedures will be developed and tested when ore zones are drifted into. The use of samples from blasthole cuttings are the primary consideration. Historical face sampling seems to have provided erratic and non-representative results. The number of holes required to obtain an accurate ore round grade will be tested and compared to the grade of the ore from underground production as it enters the milling circuit. The underground production grade will be determined by crushing the muck from the entire round to about -1/2 inch for homogenization, then sampling the crushed ore as it is conveyed to the fine ore bin.

10.3.6 Implementation

The tasks to accomplish the aforementioned objectives are standard practice for most underground drilling programs. Kerr Mines will further implement new technology to gain procedural efficiency and ensure improved accuracy of drilling, logging, sampling, mapping and other activities.

10.3.7 Drillhole Set Up

Location and setup of drillholes will utilize electronic alignment devices at survey confirmed drill stations within underground workings. Application of this technology will reduce resurveys and collar repositioning. A gyroscopic survey instrument will be used where possible for precise measurements of the drillhole trajectory. In combination, these applications will result in more accurate drillhole locations for more accurate modeling.

10.3.8 Core Logging

Kerr utilizes industry standard core logging techniques. Kerr utilizes hand-written logs which capture hole interval, interval depth, lithology, eight types of associated alteration mineralogy, five types of alteration chemistry, structure type and corresponding assay sample number. A digital logging procedure using a tablet is being developed. Geotechnical logging will continue in the format supplied by Tierra Group International, Ltd., but converted to electronic format.

10.3.9 Structural Mapping

Geological structural mapping at Copperstone is in progress. Geological mapping will be continued underground, as access is developed via drift rehabilitation and new drifting is completed. The mapping includes sampling to help identify gold mineralized structural controls versus wallrock. Kerr will assess the efficacy of electronic mapping tools to accelerate and improve mapping, both underground and in the pit walls, where access is very limited.

10.3.10 Sampling/Analytical

Based on 2017 data, the 2018 core drilling project should obtain about 12,000 samples. All samples collected will be assayed for gold, silver and copper. Approximately 20% of samples will be analyzed for multi-element characterization to test for gold-associations, alteration geochemistry and waste rock characterization. Rock chip samples will be collected for assay analysis in concurrence with the geologic mapping program. These samples will also be routinely analyzed for gold, silver and copper and select samples will undergo multi-element analysis. Kerr Mines will contract sample analysis through ISO certified laboratories and continue the use of inserted QAQC reference and sterile standards.

10.3.11 Density

Density will be measured at a station in the logging area. This will allow frequent testing on specific categories of rock as they are encountered in the core. Core density will be measured at a station in the logging area. This will allow frequent testing on specific ore types as they are encountered in the core. The water displacement method to measure density will be employed, using paraffin sealed core samples.

10.3.12 Schedule

The 2018 Phase II drill program will span 9 to 12 months. Commencement is dependent on timing of project funding. Station access plans and rehabilitation of existing development where necessary, are scheduled. It is expected that multiple underground drills will be in operation with potential periodic use of a surface drill as required.

11. SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 Kerr Sample Handling

The discussion for Kerr Sampling procedures, analysis, and security in 2017 relies heavily on the internal report *"2017 QA/QC Procedures and Results, Copperstone Mine"*, dated March 13, 2018, and prepared under the direction of Kerr's drilling program supervisor, Mr. R. Michael Smith, SME-RM. HRC has independently verified the results discussed herein. Units in this report section are metric in order to maintain consistency with historical reporting.

11.1.1 Sample Preparation

Drill core was placed directly into standard waxed cardboard core box by the drill helper at the drill site. Core run interval were marked on wood blocks and placed at the end of each core run. Drill core was then received daily by the project geologist and logged at the core shed where it is photographed and logged by site geologists, or technicians under the supervision of geologists. Geotechnical information, as well as lithology, mineral and alteration assemblages, and structural characteristics are captured in the logging process.

Core is then marked for sampling by the geologist on nominal two-foot intervals in visibly mineralized material and on nominal five-foot intervals in visibly un-mineralized material, usually at breaks in mineralization/alteration intensity or lithology. Marked intervals are sawn in half by a technician near the core shed, under supervision of the geologists. A geologist or technician then bags one-half of the core for assay and the other one-half is retained for further use, or future reference and third-party review. The samples are then stacked on a pallet and moved to a loading area where they are loaded into bins, or directly into a pickup truck. All of these activities take place in a fenced-in area at the mine under 24-hour security.

Reverse Circulation ("RC") samples are collected in five-foot intervals by drill helpers at the drill site, under the direct supervision of an experienced geologist. The geologist made changes as needed regarding utilization of the rotary splitter to assure quality and sample size. A representative sample of the RC chips was taken on every five-foot interval. In holes with thick alluvial overburden, no analytical samples were collected, though a chip-tray record was retained.

RC chip samples were collected in a micro-pore bag. The bag was placed in a five-gallon bucket under the secondary port of the cyclone & rotary splitter in order to direct proper sample delivery. Especially when drilling above the groundwater table, the splitter was adjusted so little overflow occurred on the sample bucket by placing lids or covers over the sample side of the rotary splitter. When large volumes of water were encountered lids were added to the splitter, reducing the size of the collected sample. Even with the occasional reduction in sample size, the weights were still in the multiple kilogram range. The sampler adjusted the number of lids covering the sample side in order to maintain optimal sample size, but never in the middle of a 5-foot run. This number was then recorded on the sample bag sheet.

Drilling was paused at sampling intervals to ensure all sample from the interval is collected before continuing drilling into the next sample interval. Cyclone and sample splitters were cleared of buildup by spraying with high pressure water between samples. The drillhole was blown clean after each drill rod addition by lifting the rotating drill string off bottom and blowing until there is no return of cuttings.

At first, duplicate samples were taken using a “Y”-splitter from the sample port. This method was soon changed into a “Straight Split” by placing the first sample under the sample port and the duplicate under the reject port. This is more appropriate as it tests the efficiency of the cyclone splitting samples.

Figure 11-1 shows the relationship between the two types of duplicates compared to the regular sample. In general, there is good correlation. However, the presence of two outliers suggests possible problem in collecting rig duplicates. Unfortunately, there are no samples of higher grade material than 1.6 ppm in this sample set, so it is difficult to extrapolate into ore-grade material.

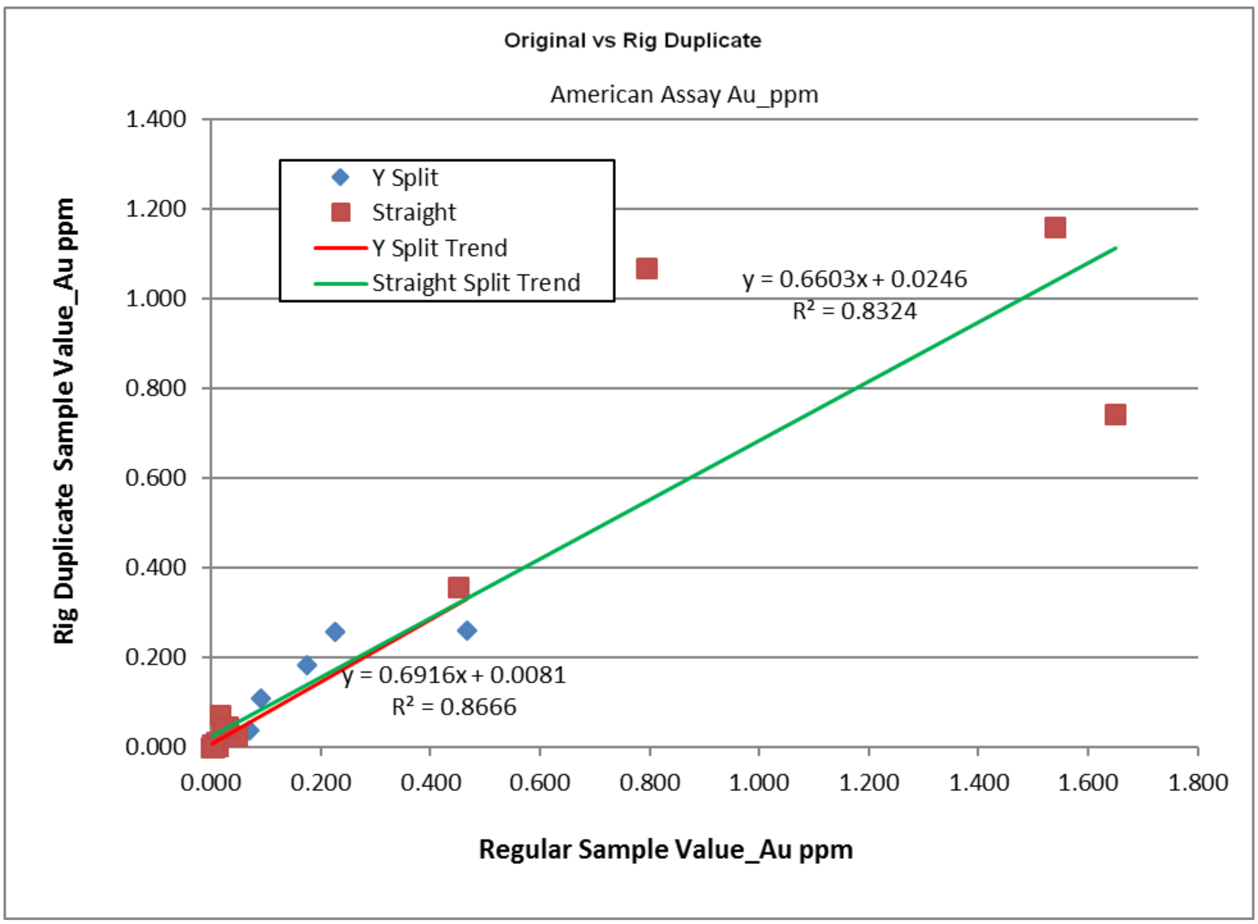


Figure 11-1 Comparison of Y-Split and Straight Split Rig Duplicate Methods

11.1.2 Sample Analysis

Core and RC samples are submitted to American Assay Laboratory (AAL) in Reno, Nevada, which is ISO Certified. Standard Reference Material mineralized (SRM), purchased from commercial providers, or blank standards are inserted every 20th sample as part of the normal sample number sequence. The geologists supervise the SRM and blank sample insertions to assure uniformity.

At AAL samples were prepared as follows:

- Samples are organized in sequence to check for duplicates and missing samples, a label is generated and applied to each sample, and after crushing and pulverizing rejects receive the sample label designation. Sample preparation is essentially the same for core and reverse circulation (RC) samples.
- Samples are oven dried, as necessary, for 8 to 48 hours.
- Entire samples are passed through a jaw crusher, achieving 70% passing 6 mesh, with weights recorded. River rock, considered a blank, is run through the jaw crusher prior to each job; the "waste" control sample is collected and run through assay procedure with the submitted samples, to check for contamination. The jaw crusher is air blast cleaned before each sample is crushed.
- Samples are then passed through a roll crusher, which reduces the sample 90% passing 10 mesh.
- Samples are then split through a Jones (riffle) Splitter, resulting in about 200 g of sample for pulverization. The splitter and collection pans are cleaned between each sample with air blast.
- Samples are then pulverized using a Ring Mill to obtain 90% passing 150 mesh. Ten percent of the pulverized samples are checked and recorded by screening to confirm results by the lab.
- Metallic Screen sample preparation is as above, but 1000 g. or all of the sample if less than 1kg. are pulverized. Of that 850 g are split out for screening to +/- 150 mesh separate Fire Assay. Weights are recorded to calculate weighted average grades for the sample and analyze Au distribution. A rotary splitter may be used to select the bulk 1000 g sample for this procedure, with air blast cleaning between samples.

At American Assay Laboratories (AAL), samples are fire assayed as follows:

- Fire assaying is the quantitative determination in which precious metals are separated from impurities by fusion. A sample of unknown concentration is combined with flux containing litharge (PbO) and various other compounds. The dense molten lead dissolves the precious metals and separates them from everything else that becomes dissolved, absorbed, or encapsulated into the less dense molten slag that floats on the lead. After the molten material has been poured and cooled, the lead (containing precious metals) can be separated out. Then when re-heated in a cupel, molten lead is absorbed by the cupel leaving behind a prill containing the desired precious metals for analysis.
- Samples are fired using typical procedures, in batches of 72. Each batch therefore has at least 3 QAQC control samples (1 in 20) inserted into the batch.
- The initial pass is to do a 1 assay ton (about 30 g) fire assay with acid digestion of the prill with ICP analysis for Au. If the resulting value is above 10 ppm Au, a second 2 assay ton fire assay (about 60 g) is done on remaining pulps, with a gravimetric finish. The results of 1 and 2 assay ton Au analysis were graphed, as below in Figure 11-2.

This information would be useful in any discussion regarding the necessity of routine 2AT assays for samples under 100 ppm Au.

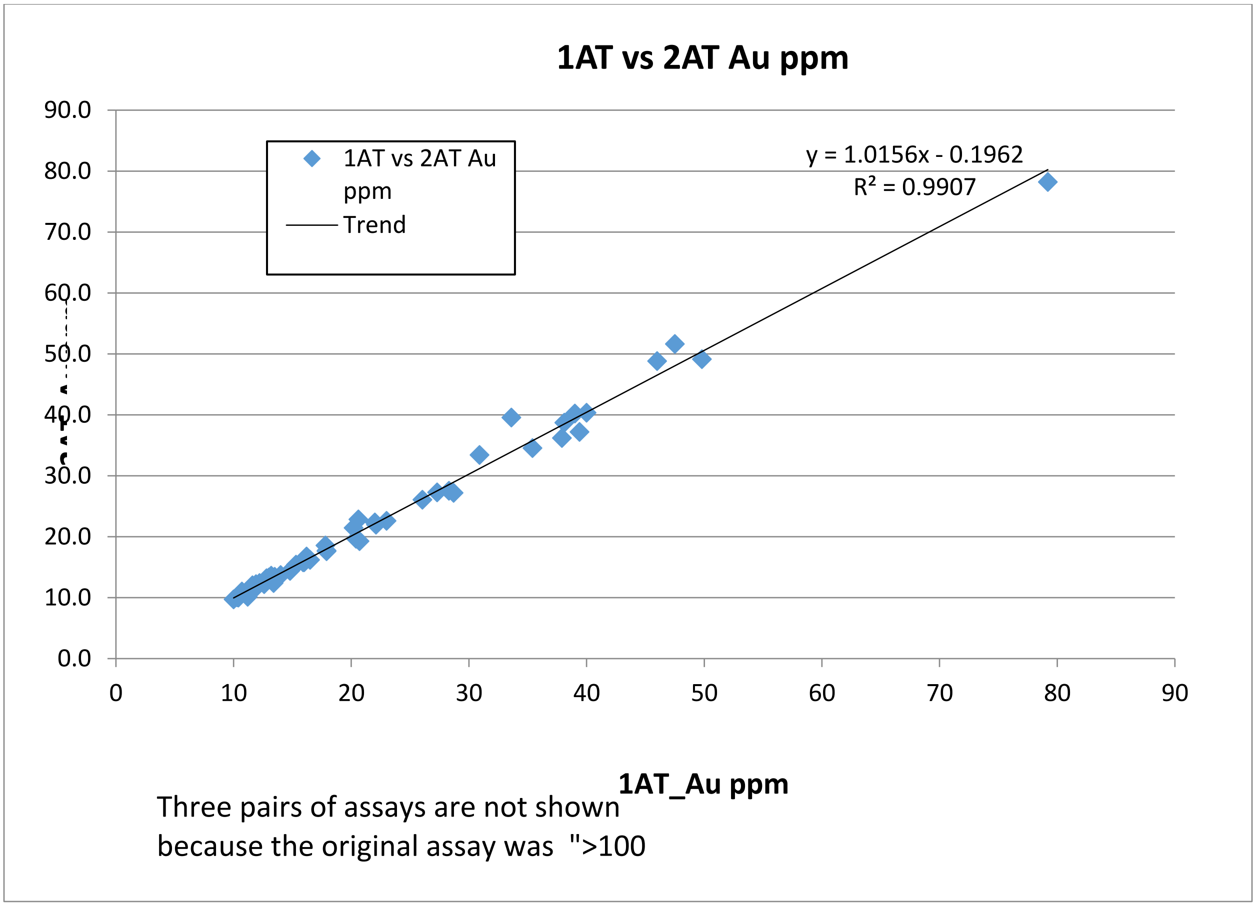


Figure 11-2 Comparison of 1AT with 2AT Charges
Three pairs of assays are not presented due to original assays being reported as ">100 ppm"

Copper and silver were analyzed by AAL using a 0.5 g sample of the pulp, digested in nitric and hydrochloric acid, and heated to complete digestion. The concentration is measured with ICP finish. If the result was over 10,000 ppm Cu or 100 ppm Ag, a 2 g sample was assayed by the same process.

11.1.3 Homogeneity and QAQC Analysis

One hundred two American Assay pulps were selected and compared to a second certified assay laboratory, Skyline Laboratories (ISO certified). The samples were mostly random, but it was specified that ore-grade samples are somewhat over-represented. Skyline conducted a 1AT/AA assay for gold, followed by a 2AT/GR finish for samples over 10 ppm Au. With the exception of one sample the assays compare favorably. The data show that AAL is in reasonably good agreement with the third-party lab on the initial 1AT assays (Figure 11-3).

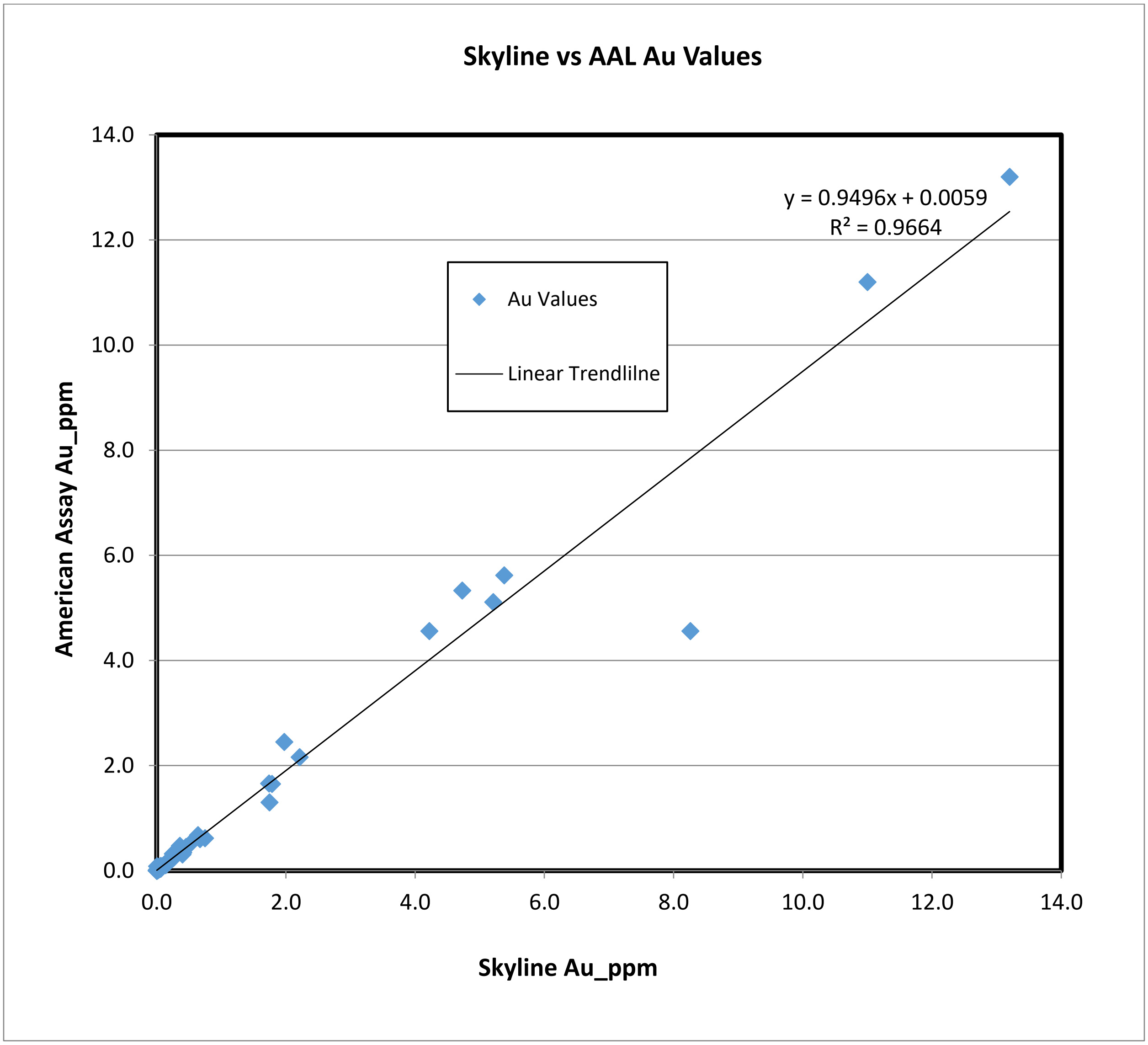


Figure 11-3 Comparison of Skyline with American 1AT Assays, for 2017 Program Pulps
Three pairs of assays are not presented due to original assays being reported as ">100 ppm"

Thirty-eight samples of coarse rejects prepared by American Assay were selected for duplicate analysis at Skyline Laboratories. The entire coarse reject was utilized. An approximates 250 g sample was split utilizing a Jones riffle splitter. The resulting sample was pulped to 85% passing 200 mesh. A 1AT Au fire assay was done as a first pass, with AA finish. Skyline produced both AA and Gravimetric finishes for their work. Results appear to be reasonably comparable (Figure 11-4).

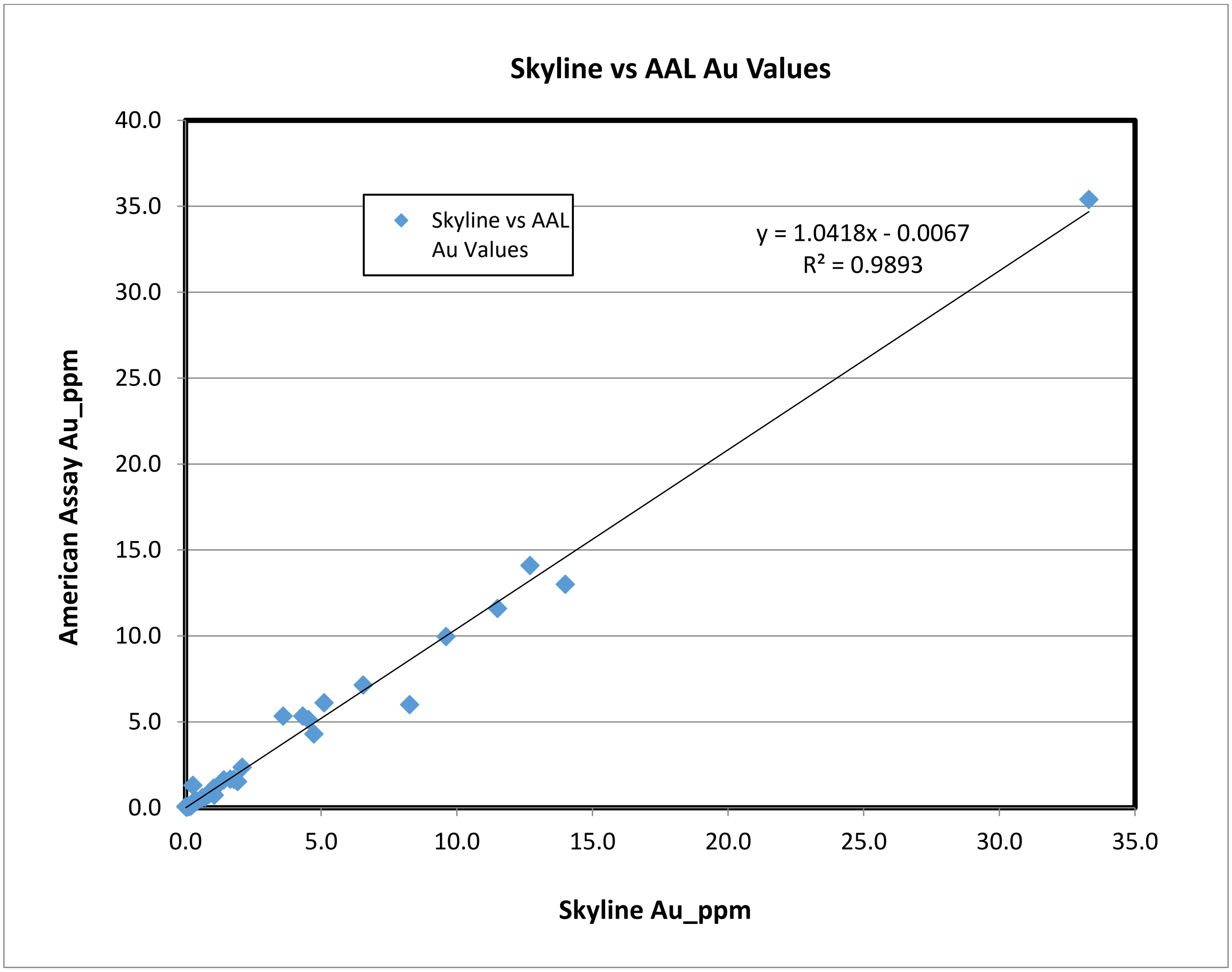


Figure 11-4 Comparison of Original Pulp Analysis by AAL and Skyline on AAL Coarse Rejects

An initial 50 samples were selected for metallic screen assaying, done by AAL. Samples were selected with Au grade ranges from nil to high grade. The weighted average metallic screen assay is plotted against the accepted (average of repeat assays, where applicable) results, to analyze heterogeneity. Results depicted below (Figure 11-5) show that except for two samples, there is excellent correlation.

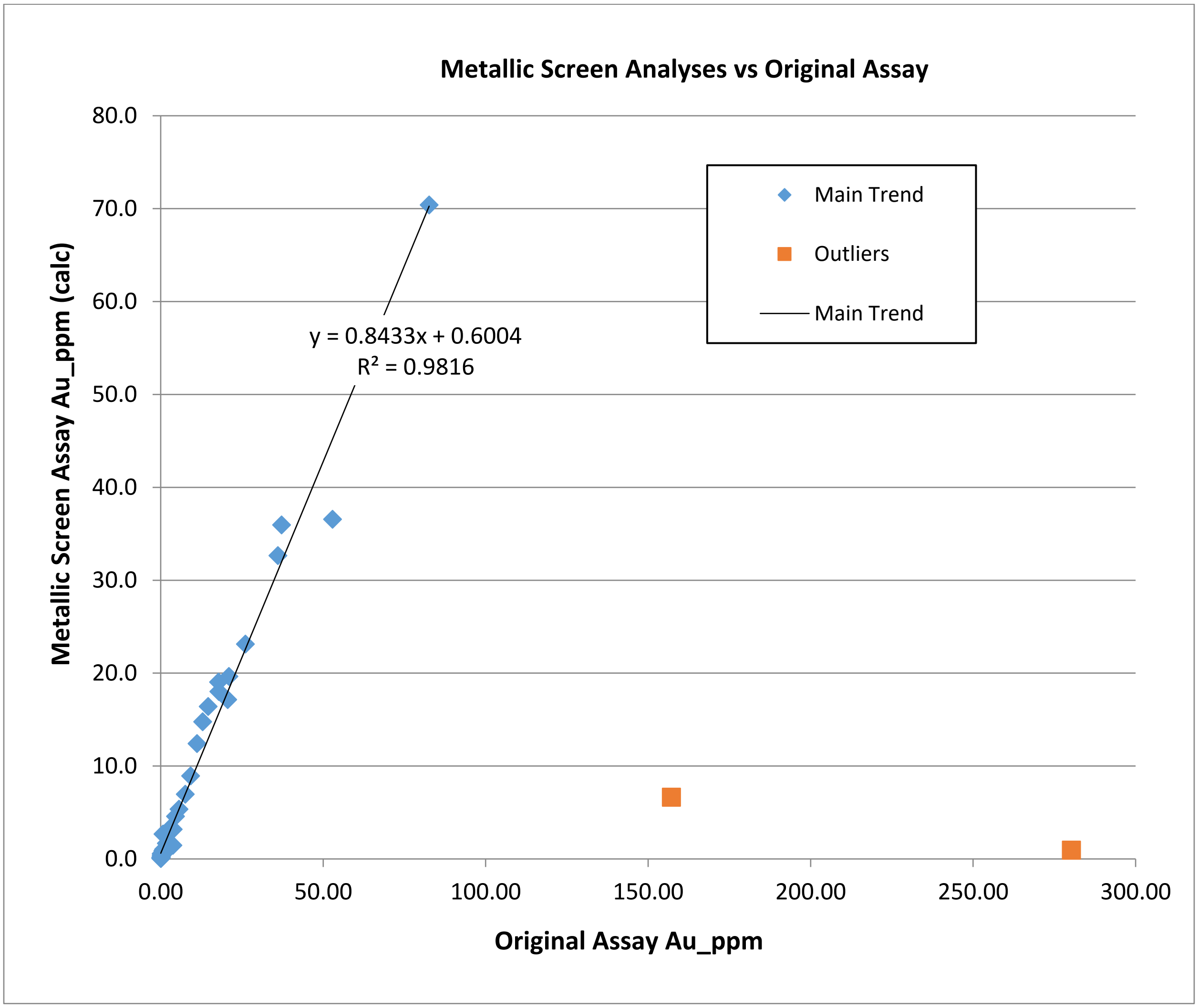


Figure 11-5 Comparison of Original Assay with Metallic Screen Analysis of Coarse Reject, both by AAL

Thirty-two rejects were sent to AAL to produce a bulk pulp (500 g) which was assayed for consistency with the original 250 g pulp. The selected grades covered the entire span of Au grades from 1 ppm Au to 100 ppm Au. The results are summarized in Figure 11-6.

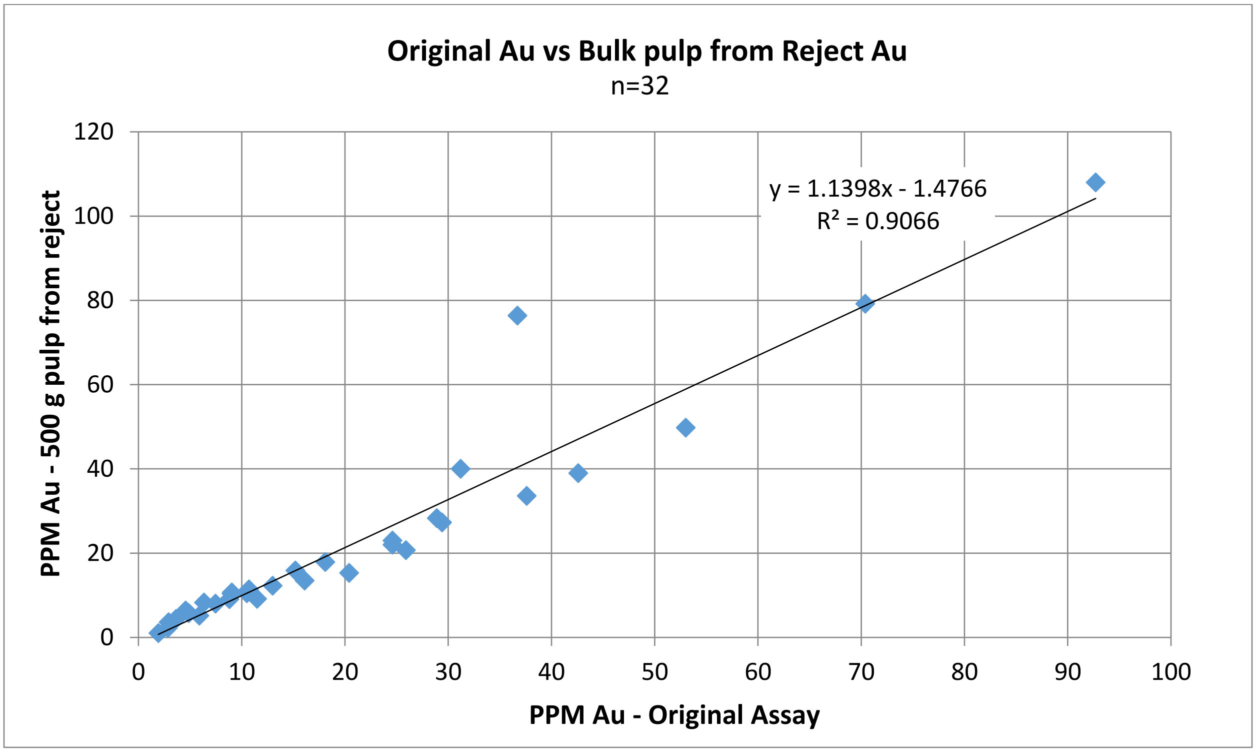


Figure 11-6 Comparison of Original Assay with Assay of 500 g Pulp from Coarse Reject

Graphical analysis of QAQC Reference Standard results were done on every sample assay batch supplied, as seen below. If a result was outside of two standard deviations, based on values provided by the vendor of the standard, the surrounding 10 samples were re-assayed. The results were reviewed for consistency and potential assay problems.

Reference samples were inserted into the sample stream as every 20th sample. The basic pattern started with a 'waste' sample followed by a randomly selected material (Table 11-1). On occasion, the order was altered, and sometimes an extra sample was inserted, especially on small batches of samples so as to have at least two controls. This pattern results in a minimum 5% of all samples being control samples. Analysis of final reports shows that the actual percentage of controls was 6.1% for the 2017 drilling program. Codes names, as shown in Table 11-1 were used for ease in designation, but no identifiers were allowed to show on the bags for the control samples except a sample number. In reverse circulation drilling, control samples were inserted at the same frequency, but on a random basis, and more of the W samples were utilized. Results for each of the materials are presented in Figures 11-7 through 11-13.

Table 11-1 Listing of Reference Samples for the 2017 Copperstone Drilling Campaign

Code	Type	Reference ID	Source Company	Expected Au (ppm)	Std Dev	Au Certified
MSL	Pulp	S107009x	MEG	4.7340	0.1940	Yes
MSM	Pulp	S107010x	MEG	6.4050	0.3020	Yes
MS	Pulp	S107011x	MEG	9.2840	0.4340	Yes
MSH	Pulp	S107012x	MEG	16.5030	0.6260	Yes
MH	Pulp	OxP50	Rocklabs	14.8900	0.4930	Yes
L	Pulp	17.02	MEG	0.5110	0.0300	Yes
Blank	Pulp	11.04	MEG	0.0015	-	Yes
W	Rock	Waste	Kerr	0.0050	-	No

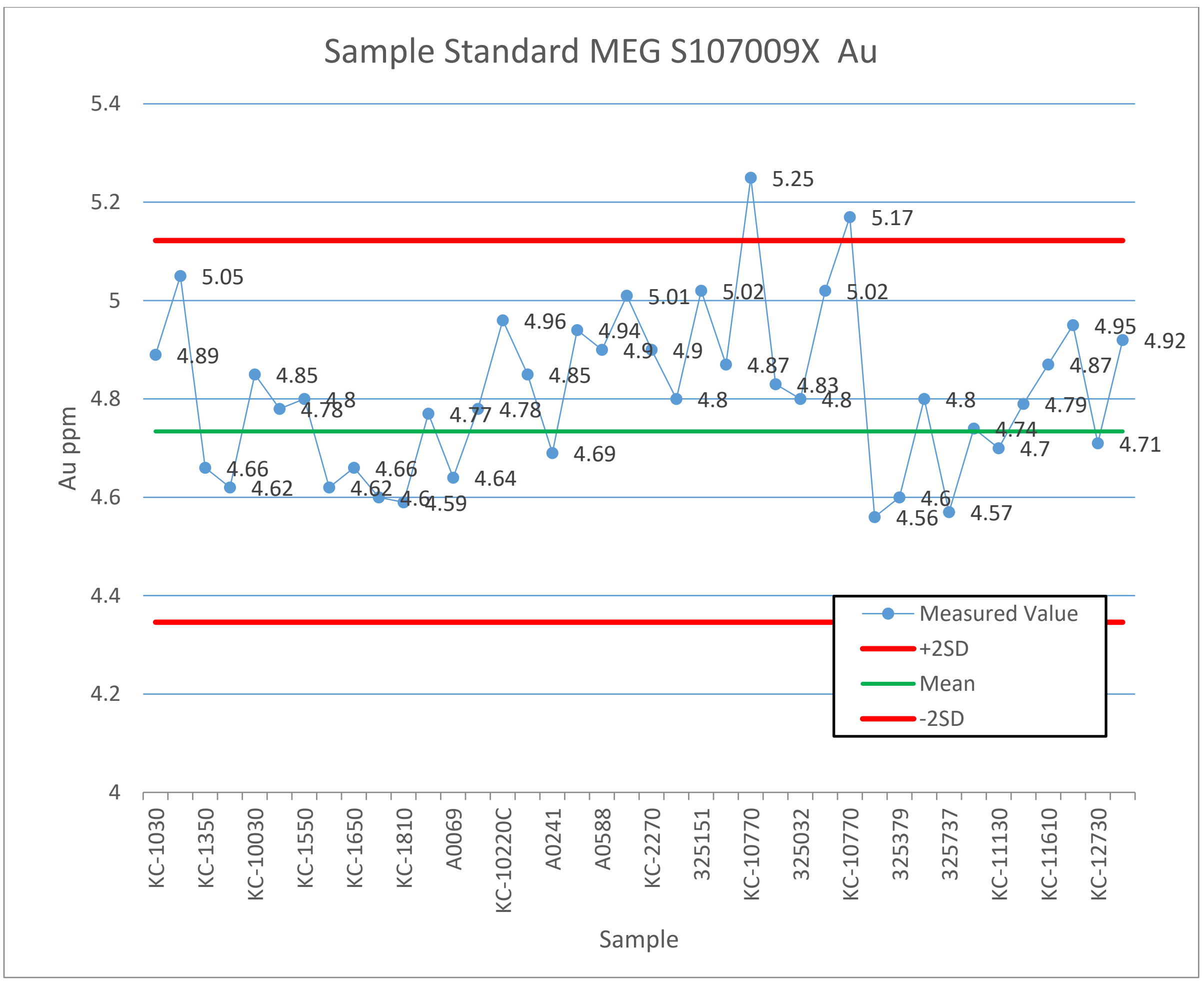


Figure 11-7 Analytical Results for Control Sample MSL, All 2017 Drilling

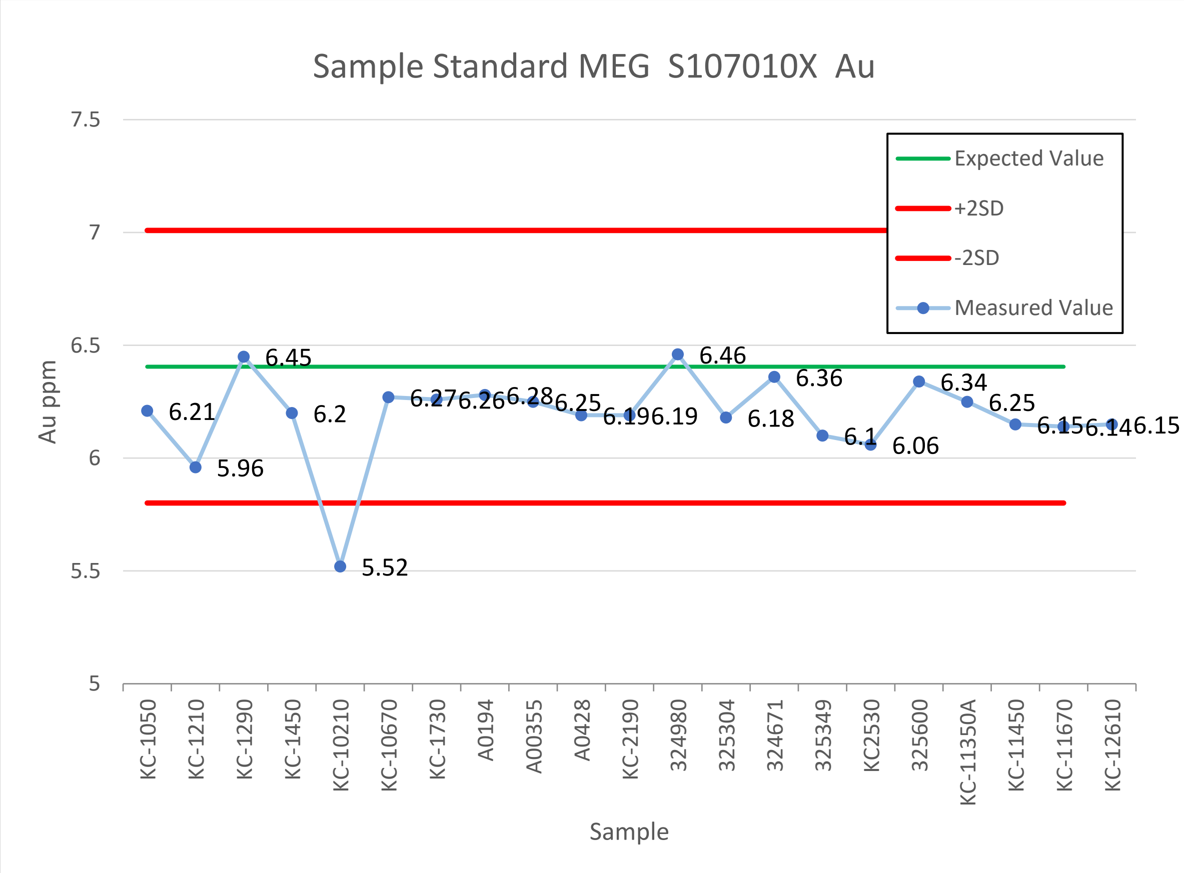


Figure 11-8 Analytical Results for Control Sample MSM, All 2017 Drilling

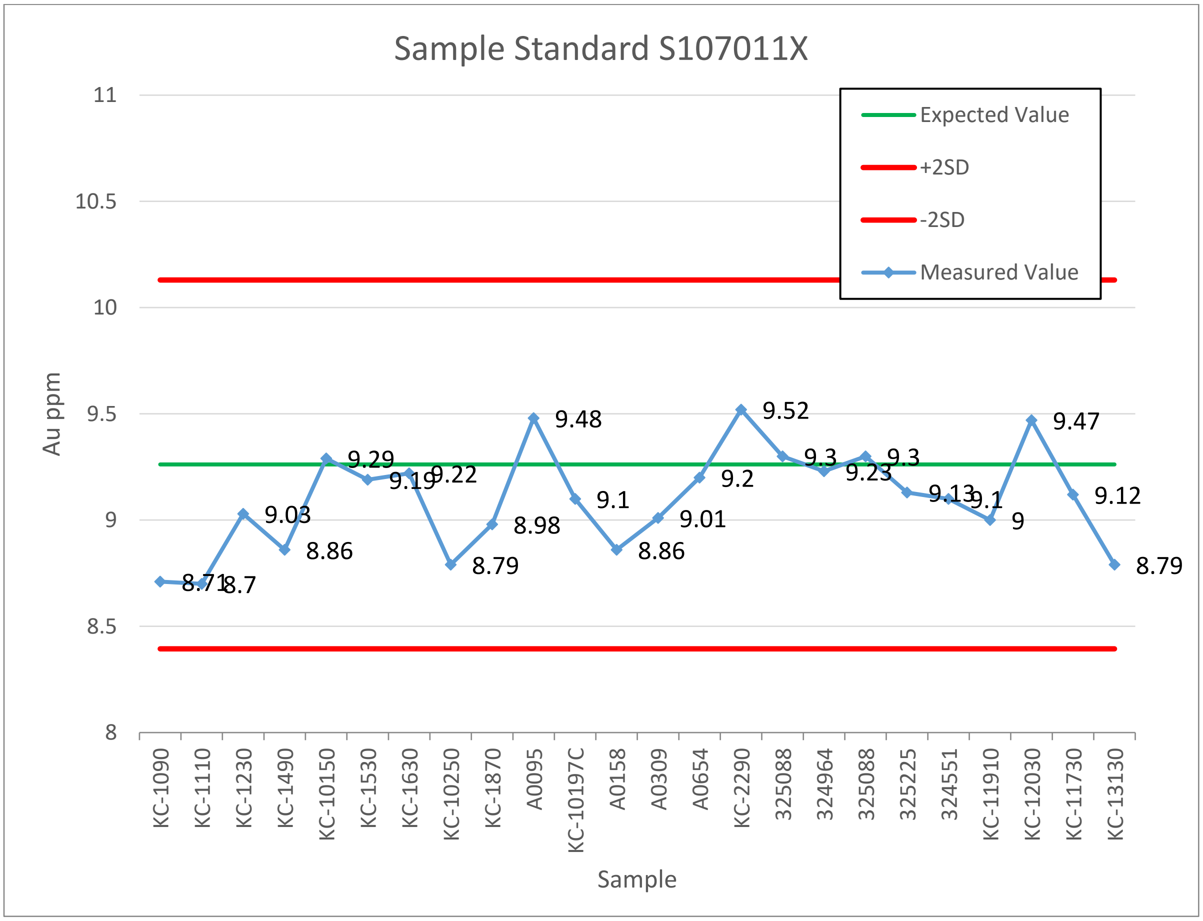


Figure 11-9 Analytical Results for Control Sample MS, All 2017 Drilling

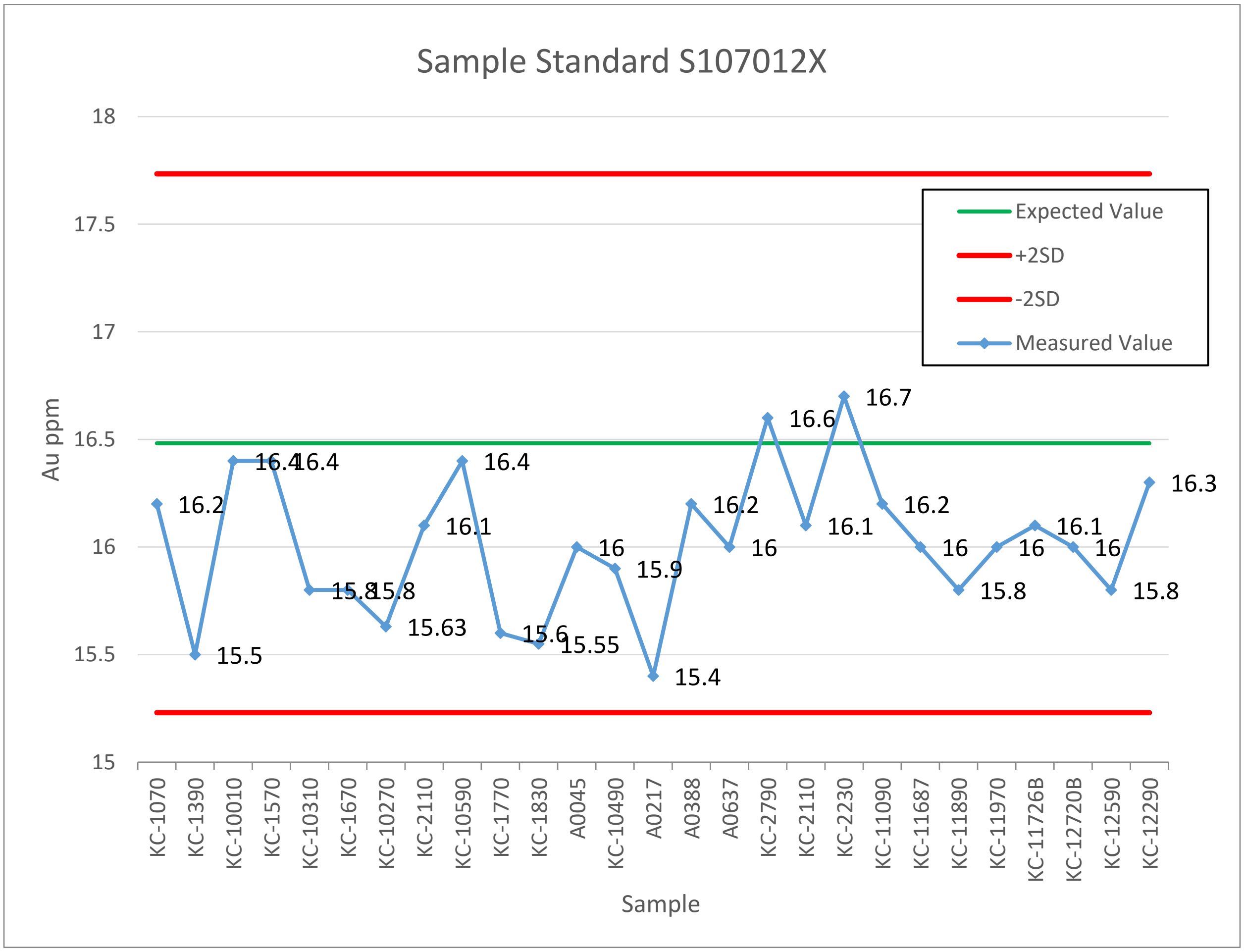


Figure 11-10 Analytical Results for Control Sample MSH, All 2017 Drilling

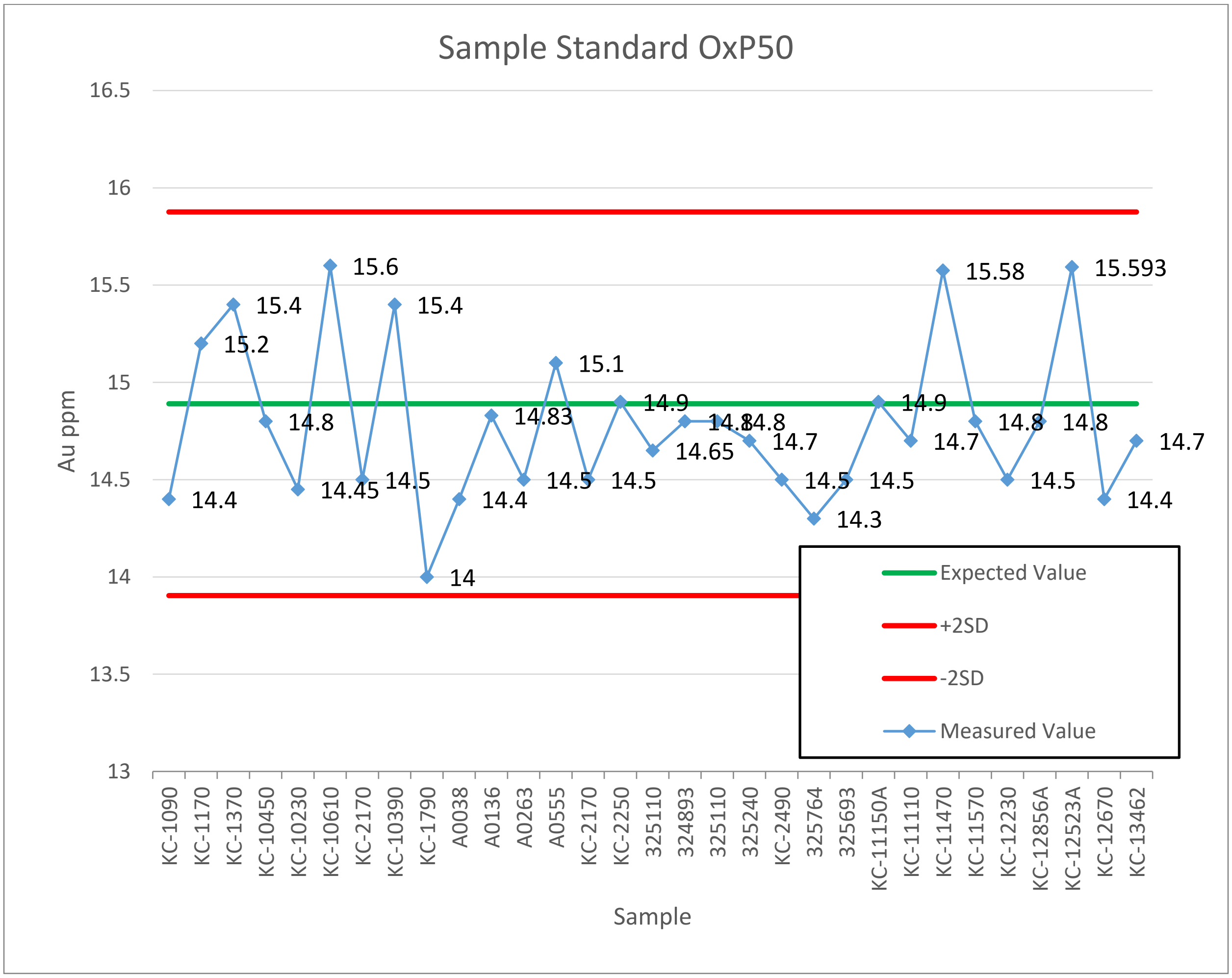


Figure 11-11 Analytical Results for Control Sample MH, All 2017 Drilling

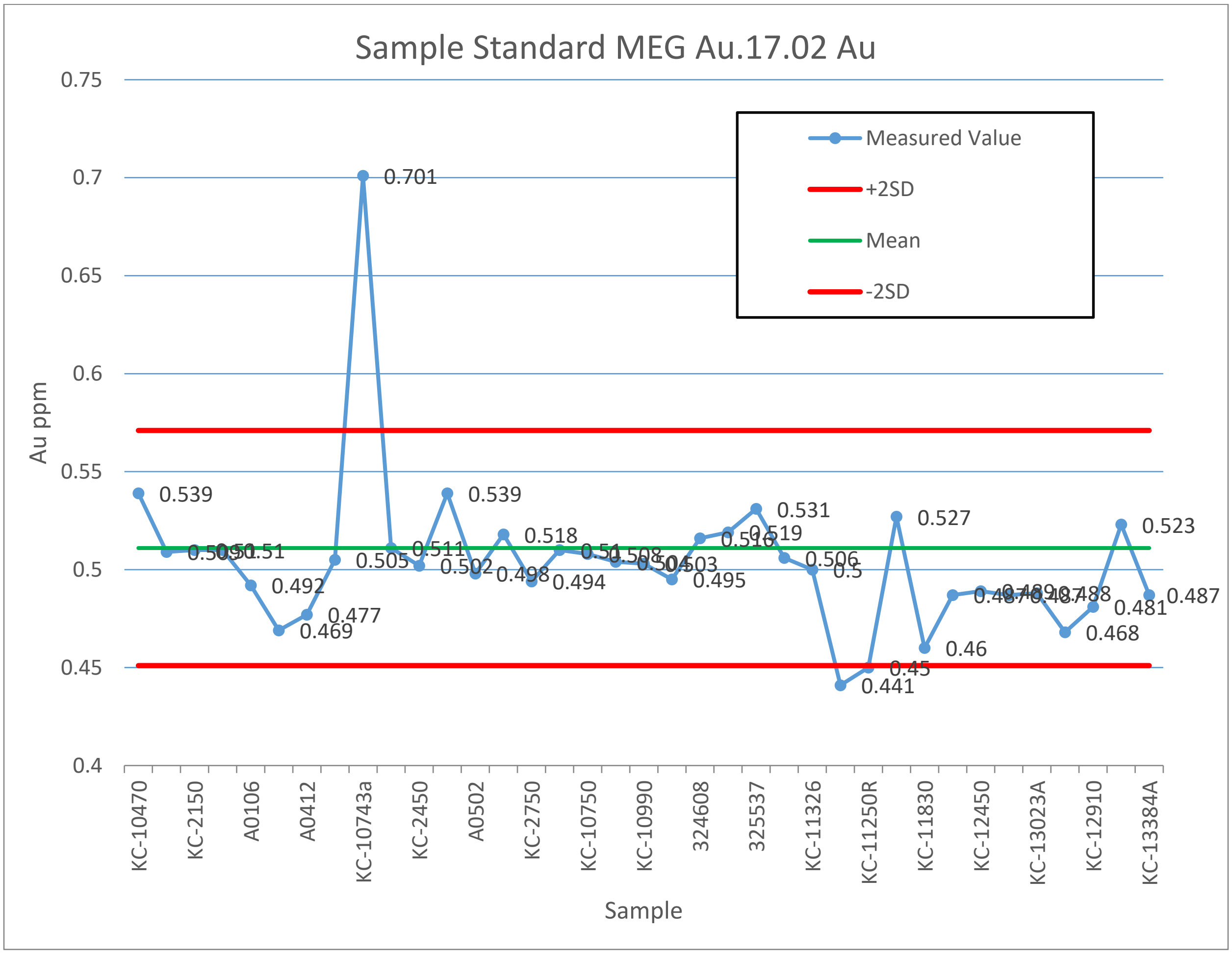


Figure 11-12 Analytical Results for Control Sample L, All 2017 Drilling

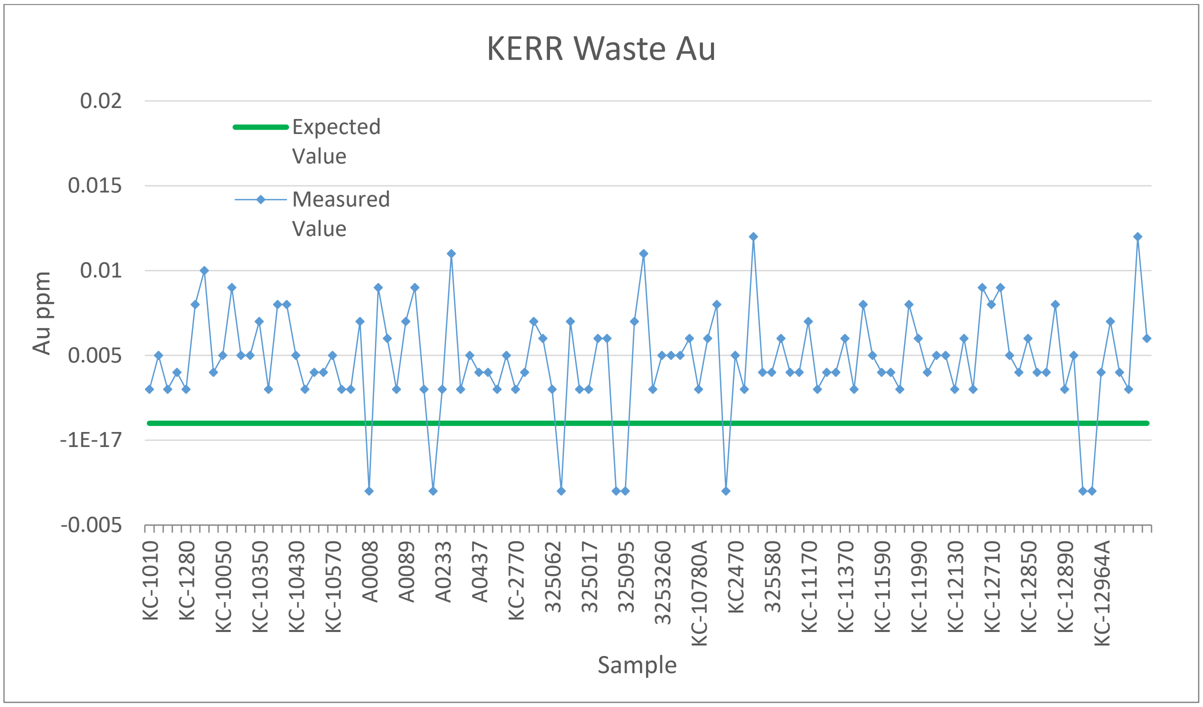


Figure 11-13 Analytical Results for Control Sample W, All 2017 Drilling

All but one assay of MSL, by AAL, have been within +/-2STDEV of accepted value at 0.525 ppm Au. That sample and 10 surrounding samples were rerun. The core samples returned repeatable values and the control repeated outside of the range again (0.517 ppm Au). This was deemed a bad control and the other results were accepted.

All but one assay of MSM, by AAL, have been within +/-2STDEV of accepted value and no actions have been taken related to concern about assay results. That sample and included interval were rerun with additional controls added because the original was insufficient for another analysis. All samples were within limits.

There were two incidents of the L standard being out of range. In one case (0.701 ppm Au), a reassay of the sample (0.539 ppm Au) and surrounding core samples came back in within range and included samples also acceptable. In the second case a low value was nearly repeated very near the lower end of the acceptable range. Because adjacent samples checked with the first run, the results were accepted.

The "waste" control sample consists of broken pieces of abrasive reddish concrete bricks; broken pieces give better monitoring of the coarse crushing stage at the laboratory sample prep area, as opposed to utilizing silica sand or pulverized blank standards.

Analytical results for the waste samples from AAL are plotted on Figure 11-13. All assays have been ≤ 0.012 ppm Au with the lowest values at below detection (BDL) and the average at 0.005 ppm Au. There were no samples that required a review during the 2017 drilling. The data show that contamination during sample preparation is minimal and probably in the range of a few parts per billion.

11.1.4 Sample Security

All drillhole samples are stored at the logging area, under the supervision of the geologists. The area is fenced off from general public entry. Only authorized employees, the supervising geologists and trained technicians, are allowed access.

Samples are delivered directly to AAL by Kerr employees. Chain-of-custody documentation is employed, with the geologist, site manager, delivery employee and AAL recipient signing for custody and receipt. The samples are placed onto pallets and wrapped for shipment; the pallets are inspected for integrity throughout shipment to AAL.

Paper copies of drill logs, geotechnical logs, survey data, shift reports and sample transmittal forms are stored at the geology office and in digital form in the Drop Box files for Copperstone. Images of the core are stored in the Drop Box files. All original data is stored on an external drive for security purposes and backed up on the main geology computer.

11.2 Cyprus

11.2.1 Sample Preparation

The primary drill core and chip samples generated by Cyprus were shipped to a Cyprus prep facility in Montana where pulps were made. Pulps were distributed to the various analytical labs from that site (McCartney, 1998).

11.2.2 Analysis

Cyprus used several laboratories as their primary assay laboratory for exploration drillholes. Before constructing the Copperstone mine laboratory, drill samples were sent to Cone Laboratories in Reno, Nevada, GeoMonitor in Hesperia, California, or CYMET (location not documented) for assay. Cone, GeoMonitor and CYMET all assayed gold and silver by the same methods. Gold and silver were assayed by digesting (amount not documented) sample in aqua regia and reading the gold concentration on an atomic absorption spectrometer. Select mineralized intervals were assayed for gold by standard fire assay on a one assay ton pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid. Copper was assayed for select drill intervals by aqua regia digestion and read on an atomic absorption spectrometer.

Drill samples assayed at the Copperstone mine lab were assayed by cyanide leach and mineralized intervals (generally Au cyanide greater than 0.1 oz/ton) were assayed by standard fire assay on a one assay ton (29.157 grams) pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid.

11.2.3 QAQC

HRC is unaware of any information indicating Cyprus applied any QAQC measures during their drilling operations. However, steps have been taken by other operators to verify their assay results.

Upon AMEC's recommendation, American Bonanza submitted 232 Cyprus pulps (approximately 7.5% of all Cyprus gold assays) to AAL for check assay to determine the accuracy of the gold assays from the Cyprus drill campaign. The Cyprus drill intervals were selected randomly by AMEC from the assays entered from Cyprus drillholes.

AMEC plotted the results of the check assay program and found the Cyprus assays to be accurate with no significant bias relative to the AAL check assays. Three of the 12 SRMs submitted with the program were outside acceptable limits. AAL re-assayed project samples around the three failed SRMs and found no significant change in gold concentration. AMEC concluded that the accuracy of the Cyprus assays was acceptable based on the results of the check assay program.

11.2.4 Security

HRC is not aware of any documentation pertaining to the security of samples during Cyprus's drilling operations.

11.3 Santa Fe

HRC is not aware of any documentation regarding Santa Fe's sampling procedures during their drilling operations. However, only one 10 ft zone of significant mineralization was encountered. HRC reviewed the results of nearby drilling and notes significant intercepts of similar grade within 50 ft of Santa Fe's interval. HRC did not find sufficient reason to disqualify Santa Fe's drilling.

11.4 Royal Oak

11.4.1 Sample Preparation

HRC is not aware of any documentation pertaining to the preparation of samples during Royal Oak's drilling operations.

11.4.2 Analysis

Royal Oak, like American Bonanza, employed AAL as their primary assay laboratory. AAL assayed gold by standard fire assay on a 30-gram pulp sample with gold concentrations read on an atomic absorption spectrometer following dissolution in acid (AMEC, 2006).

11.4.3 QAQC

HRC is unaware of any information indicating Royal Oak applied any QAQC measures during their drilling operations. However, steps have been taken by other operators to verify their assay results. These efforts have been reviewed by independent parties in 2006 and 2011. The conclusions from both reviews are detailed below. It is HRC opinion that sufficient work has been done to verify the results for Royal Oaks drilling.

Upon AMEC's recommendation, American Bonanza submitted 30 Royal Oak quarter core samples to AAL for check assay to determine the accuracy of the gold assays from the Royal Oak drill campaign. AAL assayed according to American Bonanza's normal protocol (2AT fire assay with gravimetric finish). The Royal Oak drill intervals were selected by AMEC from available core intervals located at the Copperstone core shed. The highest-grade intercepts were not available for sampling as they had apparently been consumed for check assay and metallurgical purposes. Information on Royal Oak's original QA/QC programs was not provided to AMEC.

AMEC plotted the results of the check assay program and found the AAL gold assays to be significantly different than the Royal Oak assays. There is, in fact, an extremely poor correlation between the paired gold assays. SRM results for the program were found to be acceptable. Given that no original QA/QC data exist to support the Royal Oak gold assays and that this recent quarter-core check assay program does not support the accuracy of the Royal Oak gold assays, AMEC has a low confidence in the original Royal Oak gold assays. In total, there are 28 Royal Oak gold assays in the assay database that are greater than 0.1 oz/t. AMEC recommends that American Bonanza resample these zones where possible, re-assay them, and replace the original Royal Oak assays with these assays. Where this is not possible, AMEC recommends that American Bonanza re-drill these zones where no supporting assays from Cyprus or American Bonanza core samples are available.

In 2006 AMEC recommended checking the assays from the Royal Oak core holes. Thirty quartered core samples were submitted by AMEC to resample the core with only one sample from within the current resource area. The assay results from AMEC were never provided to American Bonanza and not put in the 2006 Preliminary Assessment Report (Telesto, 2011).

Based on AMEC's 2006 Preliminary Assessment Report, the correlation coefficient performed by AMEC had an R value of 0.71. Although the AMEC R-value was low, the samples collected by AMEC were outside the resource area and have no influence in American Bonanza's resource. Also, every sample collected by AMEC was significantly below the cutoff grade which also has no effect on the resource.

To ensure there was no issue with the Royal Oak drillhole data, American Bonanza reviewed the Royal Oak's certified assay sheets from AAL and discovered a total of 18 samples were sampled twice within the resource area. Of these 18 samples 11 of the samples were above current expected cutoff grade of 0.14 opt Au.

American Bonanza performed two correlation coefficient charts for the 18 samples in the resource area that were sampled twice and for the 11 samples that were above the 0.14 ounce/ton Au cutoff. A trend-line was drawn through both correlation coefficient charts. The R-value for all 18 samples that had been assayed twice was 0.9884 and the R-value for the 11 samples above the 0.14 opt Au cutoff was 0.9857. These R-values show very good correlation and give high confidence that the values are correct and that the Royal Oak Mines RC and core sample assays are accurate.

11.4.4 Security

HRC is not aware of any documentation pertaining to the security of samples during Royal Oak's drilling operations.

11.5 Asia Minerals

The discussion for Asia Minerals sampling procedures, analysis, and security during their operations relies heavily on the technical report completed by MDA in 2000. The report was written at the time of Asia

Minerals operation. HRC reviewed supporting documentation from Asia Minerals, and found no discrepancies.

11.5.1 Sample Preparation (MDA, 2000)

Two geologists conducted the sampling program. The first 2/3 of the 2000 program was under the supervision of Graham Kelsey. The last 1/3 of the 2000 program (including surface sampling), and all of the 1998 program, was under the supervision of Ian McCartney. Mr. Kelsey is a geological consultant to Asia and was the former Chief Geologist at the Copperstone Mine for Cyprus. He has over 20 years' experience in gold and base metal exploration, much of that in Arizona. Mr. McCartney, presently a geological consultant to Asia, is a P.Eng. in Canada with over 20 years international experience in gold and base metal exploration.

The contractor's RC drill rigs were well equipped with high volume/pressure compressors and air-cyclone sample collection equipment standard to the industry. The drill column was regularly air-purged by the drill operator during the sampling routine. Standard care was taken to minimize sample contamination from the drill column, collection and field-splitting equipment. The cyclone-splitter unit was periodically washed with a pressurized water hose to remove residual material. Samples were airdried on site prior to shipping to the lab.

The RC samples were collected at 1.5-meter intervals and split at the drill site using a cyclone/rotating cone splitter unit. A member of the contractor's drill crew was trained and assigned the sampling function. When drill chip returns were sufficient, the splitting equipment was adjusted to deliver a minimum of 7.26 kilograms per 1.5 meters to the sample port.

The sample was initially collected in a cleaned 22-liter plastic bucket, then transferred into pre-numbered porous cloth bags with hole ID and from-to footage permanently marked on both the exterior of the bag and a sample card affixed to the bag. The RC sample splits had an average weight of approximately 13 kilograms.

Drill cores were placed into standard waxed cardboard core boxes (3 meters/box) at the drill, and wood footage indicator blocks were placed at the end of each core barrel pull interval. Each core box was permanently labeled with appropriate "Hole ID" and "from/to" interval lengths. A lid was affixed upon filling each box.

Prior to core logging and splitting, geotechnical data was collected for all core holes (logs were completed for all core holes), including RQD data, interval recovery percentage, and other parameters. These measurements were systematically recorded on a standardized geotechnical log form. The core surface was brushed/washed with water to remove drilling mud and photographed prior to logging. Drill core was logged for lithology, mineralization, alteration, and structural features according to a standardized logging template and recorded by Asia personnel on a standardized geology log form.

Geology codes and observations were marked on the core using permanent yellow or blue wax china markers. Key mineral observations to be preserved for the reference archive portion of the core were circled or X-marked with red china marker.

Core sample intervals were determined by the on-site Asia geologists on the basis of lithologic, alteration, or mineral abundance contacts where observed. The objective in determining sample boundaries was to characterize the geological association of gold. The maximum core sample interval was 1.8 meters, the minimum interval was 0.6 meter. Sample interval boundaries and interval depth designations were permanently marked on each sample segment with a red china marker prior to sawing.

Core samples and inserted coarse reference samples were assigned sequential series of numbers that are independent of hole number or footage, using standard triplicate lab tag booklets. Duplicate assay tags were inserted in the core boxes at the downhole end of each sample interval. Only the pre-numbered sequential sample ID sequence was indicated on the assay tags. Coarse reference standards were slotted into the sample sequence after suspected highly-mineralized intervals using the sequential number system.

The triplicate assay tag retained in the sample booklet was filled out with relevant Hole ID, sample interval and geology code(s). The sample ID, and sample interval was also entered on the corresponding geologic log form.

Drill core was sawed in half utilizing a conventional rock saw and water-cooled diamond impregnated blade. The saw blade and core-carriage were pressure sprayed and cleaned of rock fragments between each sample interval. After sawing a sample interval, one assay ticket was taken from the core box and inserted with one-half of the core in a sample bag. The half core retained for the reference archive was systematically returned to the core box with the duplicate tag positioned at the end of each sample interval. Attempts were made to either retain or re-label prior core markings for the archive cores.

Visible gold, where observed in only one-half of the core pair, was retained with the archive/reference core portion. The outside of each laboratory sample bag was labeled with permanent magic marker to indicate only the sample number. Sample bags were immediately and permanently sealed with lock ties.

11.5.2 Sample Analysis (MDA, 2000)

In 1998, Asia utilized Intertek Testing Services (Bondar Clegg) as the principal analytical laboratory for all Copperstone project drill sample analyses. In 2000, Bondar Clegg was also used, but the lab was no longer affiliated with Intertek. Initial sample prep was conducted at the Bondar Clegg sample preparation facility in Reno, NV. Sample pulps were then forwarded directly by the prep facility to the Bondar Clegg analytical lab in Vancouver for analyses. Trace element ICP geochemical analyses were conducted at the Skyline-Actlabs facility in Tucson, Arizona. Both Bondar Clegg and Skyline-Actlabs are reputable and industry-respected commercial analytical service organizations that operate on an international scale. Lab procedures, including any variations to the lab's routine procedures, are summarized below:

- Samples were dried in stainless steel trays (sample tags remained with sample in drying equipment);
- The total sample was crushed to 95% -10 mesh (about 2 mm). Bondar Clegg's normal process was crushing to 75% -10 mesh.
- Crushed material was reduced with a riffle splitter to separate a nominal 1 kilogram for large pulp prep procedure;

- Rejects from step 2 were stored at the lab for future work;
- The 500-gram subset was pulverized to 90% passing -150 mesh using a shatter box type pulverizer);
- A nominal 250-gram subset of pulp was sent for analysis;
- Remaining pulps were stored for future work.
- Re-homogenization of the nominal 250-gram pulp received from the preparation section;
- A two-assay ton (~58.3 gram) charge was weighed from the 250-gram pulp and subjected to standard fire assay with an atomic absorption finish;
- All values over the range of AA reliability (+10 ppm Au) were re-assayed using two-assay ton fire assay with a gravimetric finish.

Metallic screen or "screen fire" analyses are considered one of the most accurate methods of assaying samples containing significant amounts of particulate or coarse gold. Asia utilized metallic screen analyses for all sample intervals considered significant by the site geologists. Selection of significant intervals for metallic screen analyses was generally determined by the presence of high-grade mineralization in the routine assays. At the geologist's discretion, sample intervals were submitted for screen fire analyses if warranted to assist in interpretation or confirm results from earlier drilling programs. When submitting sample intervals for screen fire analyses, the entire sample sequence was submitted, including internal zones of both high and low-grade material. All metallic screen analyses of Asia samples were conducted at the Bondar Clegg facilities. In summary, the screen fire procedures employed by Bondar Clegg were as follows:

- A large, nominal 1000-gram, pulp was prepared per normal sample prep protocols;
- A 500-gram pulp was weighed and wet-sieved through a 150-mesh screen with the plus and minus 150 mesh material segregated and dried;
- After homogenization, a two-assay ton split of the minus150 mesh fraction was fire assayed;
- The entire plus150 mesh fraction was weighed and fire assayed;
- The two fractional assays were combined by weight-averaging to determine the reported assay.

Thirty (30) element ICP scans were performed on a subset of the mineralized samples, including all samples within significant intervals. This scan included, among others, the following elements which were considered of greatest interest to Asia geologists: Cu, Ag, Fe, Mn, As, and Sb.

11.5.3 Homogeneity and QAQC Analysis

As a quality assurance measure, BZA reports that Asia geologists routinely inserted coarse, barren reference material into the drill sample series following drill samples with observed visible gold or following intervals of suspected high-grade mineralization. The barren standards allowed monitoring for possible contamination, and grade smearing from the laboratory's sample prep equipment during processing of high-grade drill samples.

Barren core reference material was prepared on-site by selecting intervals of an existing drill core exhibiting a minimum of 6 meters of continuous assays below the lab's Au detection limit of 5 ppb. Reference material was visually inspected by Asia geologists and prepared from barren, non-fractured, unaltered, sulfide-free, and uncontaminated half-cores from drill intercepts in unmineralized hanging wall geological units. Selected coarse standard material was broken into small pieces and homogenized on a cleaned concrete slab. The coarse, barren material was then placed in clean unmarked sample bags of the same type used to submit drill core samples to the analytical lab.

The coarse, barren standard material was documented and inserted into sample series by Asia personnel. The coarse standards were inserted at irregular intervals and submitted with the assay lab shipments per the previously described protocol.

Asia monitored the commercial lab's sample preparation and analytical performance by inserting "blind" coarse blanks, reject duplicates, core shed reference samples and CANMET Standard Reference Material in to the sample stream. The QA/QC protocols applied generally conformed to those recommended to Asia by MRDI (1999). Control samples inserted by Asia comprised approximately 5% of the sample stream through each of the major components in the primary lab's sample preparation and analyses flow sheet. Appropriate material (coarse pre-crush blanks, duplicate rejects, certified standard pulps, etc.) was utilized for quality assurance throughout the prep and assay procedures. The reference materials were inserted with no unique identifiers that would differentiate them from other materials in the sample prep/analytical stream.

A 120-gram split of every 20th process pulp was prepared and submitted to the qualified umpire laboratory. The primary preparation facility was also responsible for inserting blind pulp blanks and Asia's SRM's into sample batches submitted for umpire assay. The analytical protocols of the umpire lab were the same as those used at the primary lab.

Asia's primary lab was the Bondar-Clegg facility in Vancouver, B. C. American Assay Laboratories, located in Reno, Nevada was used as the umpire lab. American Assay is a reputable facility and participates in a full ISO certification program. Asia instituted the corroboration program recommended by MRDI (1999). The primary lab's preparation facility was responsible for preparing coarse reject duplicates (1 in 20), coarse (pre-crush) blanks (1 in 20) and for inserting client supplied standard reference material (1 in 25) into the process sample stream. The standard reference material used was CCRMP gold ore MA-1b with a certified value of 0.497 +/- 0.008 oz/t gold. Following insertion of the quality control samples, a new sequential number sequence was applied to ensure no unique identifiers for QA-QC materials would appear in the submitted sample ID sequence as received by the analytical facility.

The primary analytical facility was requested to report the results of its own internal (non-client) QA/QC sample checks for all batches. These included standard pulp and blank duplicate analyses.

A 120-gram split of every 20th process pulp was submitted to the umpire laboratory. In addition, all samples within significant drill sample intervals were submitted to the umpire lab, including any internal low-grade samples within the interval. All quality assurance samples were prepared and delivered to the umpire lab by the primary lab's Reno preparation facility. The primary preparation facility was also responsible for inserting pulp blanks (1 in 20) and client SRM (1 in 20) into the batches for the umpire lab. The samples were renumbered in a similar fashion to the renumbering employed for the primary analytical facility. The assay procedures used at the umpire lab were the same as those of the primary lab.

Due to budgetary constraints, no check assays were submitted to the umpire lab during the 2000 drill program.

The ability to consistently produce acceptable results in the analytical end of the primary and umpire lab's flow sheet was monitored with certified standards and blanks (SRM). The mean of the SRM assay values during Asia's program was 0.508 opt Au versus the certified value of 0.497 +/- 0.008 opt Au. The relative difference was +2% during the 1998 drilling program. The SRM analysis reported an acceptable relative difference consistently below 5%. Only one of the standard blank pulps submitted, reported a value in excess of twice the lab's lower detection limit of 5 ppb (MRDI, 1999).

Results of the lab's internal monitoring via periodic repeat analyses of pulp duplicates and (non-client) standard blanks were also well within acceptable tolerances.

Coarse reference material and duplicate reject analyses were used to confirm the integrity of the sample preparation protocols and monitor performance of the primary lab. Concern regarding potential contamination of sample prep equipment from processing high-grade Copperstone samples was mitigated by intentionally inserting coarse blanks into the sample stream following suspected high-grade sample intervals. When discrepancies in the analyses of the coarse sample blanks were indicated, they were investigated and resolved to Asia's satisfaction by the primary laboratory. Given the inherent variance of Asia's coarse reference material, comparative analyses of coarse blanks and duplicates conducted by the primary lab reported relative variance within acceptable limits.

Sample pulps, standards and blanks submitted for analyses at the umpire facility reported very high correlation (correlation coefficient of 0.99) of primary and umpire lab results. Relative variance for the sample population (92 samples of varied grades) submitted for umpire analyses was well within industry standards.

11.5.4 Sample Security (MDA, 2000)

All samples remained in the custody of Asia geologists until shipped to the analytical laboratory. All access to drill core logging, sample preparation and storage facilities by other than Asia personnel was recorded; including the holes and intervals possibly accessed and examined in each instance. The on-site geologist maintained a standard log form for this purpose. All drill core was stored in a sealed and locked shipping container on site. During logging, drill core was returned to the container for overnight storage.

Shipping from the project site to the lab was by USF Bestway, a lab-designated commercial carrier. The samples were picked up from the project site on 1.3 x 1.3x1 meter crib pallets, supplied by the analytical lab, and delivered directly to the sample preparation facility. Chain of custody control was documented through standard bills of lading, as well as MRDI-recommended chain of custody forms.

11.6 American Bonanza

The discussion for American Bonanza's sampling procedures, analysis, and security during their operations relies heavily on the technical report completed by AMEC in 2006. The report was written at the time of American Bonanza's operation. Telesto's 2011 technical report re-affirms the procedures outlined in AMEC 2006 report. HRC confirms sampling procedures conducted by American Bonanza from 2003 to 2008 to be appropriate. The majority of drilling from 2012 to 2013 was excluded from the model.

11.6.1 Sample Preparation

The following discussion on sample preparation employed by American Bonanza is from AMEC (2006):

Drill core is placed into standard waxed cardboard core boxes by the drill helper at the drill site. Core run intervals are marked on wood blocks and placed at the end of each core run. Core boxes are marked with the drillhole name and drill interval.

Drill core is retrieved from the drill rigs two to three times daily by the project geologists and brought to the core shed. There, core is photographed and logged for lithology and geotechnical information. Lithology log fields for each drillhole include rock type, rock qualifier (grain size, fragment types, iron type, etc.), alteration mineralogy and intensity, structure, and reaction to hydrochloric acid.

Core is then marked for sampling by the geologist on nominal two-foot intervals in visibly mineralized material and on nominal five-foot intervals in visibly unmineralized material. American Bonanza drillholes are sampled in their entirety. Marked intervals are sawn in half by a technician at the core shed. A geologist or technician then bags one-half of the core for assay and the other one-half is retained for further study and third-party review.

Samples for a drillhole are submitted to American Assay & Environmental Laboratories (AAL) in Reno, Nevada as a single batch with four standard reference materials (SRMs) inserted in the project sample stream. Select mineralized intervals are marked for the measurement of specific gravity, which is also determined by AAL in Reno.

RC holes are drilled with water injection to stabilize the holes. RC samples are collected in five foot intervals by drill helpers at the drill site. Approximately five pounds of material is collected from a rotary splitter (3 of 12 sections open for ¼ split) installed below the cyclone on the drill rig. Samples are bagged in micro-pore bags, prenumbered according to sequentially numbered sample tickets. Sample bags are then loaded into large plastic mesh bags, sealed with tamper-proof ties, and transported to the core shed.

A small portion of the cuttings are washed and placed in plastic chip trays. Chip trays are labeled with the hole name and the sample interval. RC cuttings are logged for lithology information. Lithology log fields for each drillhole include rock type, rock qualifier, alteration mineralogy and intensity, structure, and reaction to hydrochloric acid.

RC samples from a drillhole are submitted to AAL as a single batch with four SRMs inserted in the project sample stream.

At AAL, samples are prepared as follows:

- samples are first dried at 100°C until sufficiently dry for further preparation
- samples are then crushed to 75% passing a 10-mesh screen
- the sample is then split until a 300 to 500-gram subsample is generated
- the subsample is then pulverized to 75% passing a 150-mesh screen.

AAL conducts grind tests on 15% of the prepared samples. If a sample fails to meet grind specifications, samples around the failed sample are tested and all samples failing grind specifications are repulverized to meet specifications.

11.6.2 Analysis

American Bonanza employed AAL as their primary assay laboratory. AAL assayed gold and silver by standard fire assay on a 2-assay ton pulp sample with gold concentrations read on an electronic balance (gravimetric finish). Between one and three (mostly two) fire assays were performed for gold and silver for each sample. Copper was assayed by digesting 0.5 grams of sample in aqua regia and determining the assay value by atomic absorption spectrometry.

11.6.3 QAQC

American Bonanza regularly included four SRM samples with each drillhole laboratory submission to monitor and control assay quality. American Bonanza also submitted select drill intervals to an umpire laboratory for check assay. The four SRM's included two Nevada Bureau of Mines (NBM) certified SRMs and two SRMs generated in-house by American Bonanza from material at Copperstone. SRM assays represent approximately 4% of the American Bonanza assays in the database. AMEC was not provided with American Bonanza's protocol for evaluating the SRM results.

The two in-house American Bonanza SRM's, 'C-Ore' and 'C-Waste', represent ore-grade and waste-grade material, respectively. C-Ore was generated from material collected from the underground muck bay in the decline at the north end of the Copperstone pit. C-Waste was generated from barren RC cuttings from American Bonanza pre-collar drillholes. The SRM material was stored in five-gallon buckets in the core shed and submitted as nominal five-pound samples in the same bags as the Project samples. The SRM material was submitted to the assay laboratory unprocessed (meaning the material was not crushed, homogenized, or otherwise prepared). The C-Ore material was run-of-mine and resembled a coarse rock-chip sample. The C-Waste material was RC cuttings. No certification program was conducted on these materials to establish their homogeneity or recommended values for gold, silver, and copper.

AMEC plotted control charts for SRMs used in American Bonanza's quality control program. The gold control charts for the two NBM SRMs show that, overall, the AAL gold, silver, and copper assays are accurate and show no significant bias (AAL gold assays for SRM NBM-2b are shown to be biased slightly low). The gold and silver grades of the two SRMs are within the range of expected grades from mineralized project samples (though it could be argued that NBM-3b is too high grade), but the copper grades are significantly lower than the expected grades from copper mineralized material.

AMEC reports that as expected, the control charts for C-Ore and C-Waste show that these materials should not be used to control assay quality. The precision of the gold and copper assays is very poor and there is obvious variation with grade over time where the C-Ore and C-Waste material was likely replenished from different sources. These variations are not related to laboratory accuracy and cannot be predicted. The control charts show the AAL assays to have poor precision. The control charts show an unacceptable number of assays outside the designated limits for individual drillholes. This indicates that, though AAL assays are accurate on average; they are not precise. Put another way, AAL is able to accurately estimate the true value of a material when all the assay values are averaged, but each individual assay may be far from the true value.

At AMEC's request, AAL re-assayed 10 samples (including and around the failed SRM) from each failed batch in 2005 (based on NBM-2b assays). AMEC reviewed the results of this program and recommends that the new assays replace the old assays in the assay database. The reassay gold values for NBM-2b for all but one batch were within acceptable limits. AMEC recommends that American Bonanza monitor the quality of AAL gold assays more closely and instruct AAL to reassay batches which fail to meet quality control standards set for the program.

American Bonanza conducted a program of submitting select drill intervals to Inspectorate in Reno, Nevada to check the accuracy of AAL's gold assays. AMEC was unable to evaluate this check assay program because American Bonanza had reused sample number sequences and was unable to provide AMEC with a key to the original samples to compare the check assay values.

AMEC plotted the absolute relative difference (ARD) for pulp duplicate pairs against the cumulative frequency of the distributions for gold and silver for American Bonanza drill samples. AMEC considers assay precision to be adequate when greater than 90% of the pulp duplicate pairs yield absolute relative differences of less than 10%. These limits are represented by the red dashed lines on the figures.

When plotting all duplicate pairs, the AAL precision for gold and silver assays is adequate. Approximately 89% of the gold duplicate pairs and 96% of the silver duplicate pairs yield absolute relative differences of less than 10%. However, when the duplicate pairs, whose average assay is at or below the lower detection limit, are removed from the plots the precision for gold and silver degrades significantly. Approximately 62% of the gold duplicate pairs and only 7% of the silver duplicate pairs yield absolute relative differences of less than 10%. Typically, the assay precision of a group of samples is improved when pairs near the detection limit are removed because assays at the detection limit are, by definition, ± 100%. In this case, however, the detection limits for gold (0.003 oz/ton) and silver (0.2 oz/ton) are relatively high and so unmineralized samples (of which there are many) consistently return values below the detection limit, thereby producing a high percentage of zero ARD results.

AMEC concluded that the precision of AAL's gold and silver assays was marginal due to coarse gold and silver and the less-than-optimal sample preparation employed. AMEC recommended that American Bonanza improve the quality of their sample preparation protocol.

11.6.4 Security

Drill samples were transported from the drill site to the core shed by American Bonanza geologists and were stored in the secure core shed before being shipped directly from the mine site to AAL via DATS Trucking, Inc at regular intervals. Drill sample bags were closed with tamper-proof ties, and AAL was instructed to report any missing or damaged sample bags upon receipt.

12. DATA VERIFICATION

Data verification efforts carried out by HRC include:

- Discussions with Kerr personnel;
- Personal investigation of the Project and field office;
- Manual and mechanical auditing of the drillhole database received from Kerr;
- A limited audit of exploration work conducted;
- Review and evaluation of additional information obtained from historical reports and internal company reports.

12.1 Site Investigation

HRC representative and QP J.J. Brown, P.G., conducted an on-site inspection of the Copperstone Project on October 31 through November 2, 2017. Ms. Brown spent three full days at Project site accompanied by Kerr Mines Director of Exploration and Geology Brad Atkinson. While on site, Ms. Brown conducted general site and geologic field reconnaissance, including inspection of on-site facilities, examination of surface and underground bedrock exposures, and ground-truthing of reported drill collar locations. Ms. Brown also examined select core intervals from historic and recent drilling and reviewed with Kerr geology staff the conceptual geologic model, data entry and document management protocols, and drilling and sampling procedures and the associated quality assurance and quality control ("QA/QC") methods presently employed.

Field observations during the site visit generally confirm previous reports on the geology of the Project area. Bedrock lithologies, alteration types, and significant structural features are all consistent with descriptions provided in existing Project reports, and the author did not see any evidence in the field that might significantly alter or refute the current interpretations regarding local geology and mineralization (as described in Section 7 of this report).

Specific core intervals from a variety of drill holes (both historic and modern) were selected for visual inspection based on a preliminary review of the drill hole logs and associated assay values. The core intervals were selected prior to the site visit based on a preliminary review of the drillhole logs. Not all core intervals requested were available, and efforts are currently underway by Kerr staff to locate the apparently misplaced core boxes. In all cases, the core samples that were available for inspection accurately reflect the lithologies recorded on the logs, and the degree of visible alteration and evidence of mineralization observed is consistent with the grade range indicated by reported assay values.

12.2 Database Audit

The following tasks were completed as part of HRC's database audit:

- Mechanical audit of the database;
- Validation of the geologic information as compared to the paper logs; and
- Validation of the assay values contained in the exploration database as compared to assay certificates from records found on file in Kerr's Copperstone Project field office.

The database provided to HRC contained the rock-type, alteration, geotechnical, specific gravity, assay, drillhole collar, and survey data.

12.2.1 Mechanical Audit

A mechanical audit of the drillhole database for drilling conducted prior to 2017 was completed using Leapfrog Geo software version 4.2.3. The database was checked for missing values, duplicate records, interval overlap errors, from-to data exceeding maximum collar depth, and special (i.e. non-numeric or less than zero) values. All mechanical audit errors were reviewed with Kerr staff and resolved prior to modeling and calculation of the mineral resource estimate.

The mechanical audit identified eight drillholes (Table 12-1) with duplicate collar coordinates and surveys which could not be resolved and were not included in the mineral resource estimate. Two of those drillholes, CS238A and CS-291, are outside the model extents and did not impact the modeling or mineral resource estimate. The remaining six "DZ" drillholes are located in the D zone, but only one 2 ft interval had significant gold grade. Tables 12-2 through 12-7 summarize the count and error types identified by the mechanical audit for the survey, assay, lithology, alteration, geotechnical, and specific gravity tables respectively. Details of the mechanical audit of the drillhole database prior to 2017 can be found in Appendix C.

Table 12-1 Drillholes Excluded from the Model by the Mechanical Audit

CS-238A	DZ12-3
CS-291	DZ12-4
DZ12-1	DZ12-5
DZ12-2	DZ12-6

Table 12-2 Issues within the Survey Table Identified by the Mechanical Audit.

Survey Table		
Issue	**Type**	**Count**
Duplicate collar and surveys	Warning	17
No surveys for collar	Warning	28
Wedge found (possible duplicate collar)	Warning	2

Table 12-3 Issues within the Assay Table Identified by the Mechanical Audit.

Assay Table		
Issue	**Type**	**Count**
To value exceeds max depth in collar table	Error	6
Interval overlaps an interval in a wedge hole	Warning	8
No samples for collar	Warning	83
Re-drilled hole has conflicting data in 'au opt'	Warning	79

Table 12-4 Issues within the Lithology Table Identified by the Mechanical Audit.

Lithology Table		
Issue	**Type**	**Count**
From depth >= to depth	Error	10
Interval overlaps another interval	Error	23
To value exceeds max depth in collar table	Error	1
No samples for collar	Warning	324
Interval overlaps an interval in a wedge hole	Warning	3

Table 12-5 Issues within the Alteration Table Identified by the Mechanical Audit.

Alteration Table		
Issue	**Type**	**Count**
From depth >= to depth	Error	20
Interval overlaps another interval	Error	27
To value exceeds max depth in collar table	Error	1
No samples for collar	Warning	609

Table 12-6 Issues within the Geotechnical Table Identified by the Mechanical Audit.

Geotechnical Table		
Issue	**Type**	**Count**
From depth >= to depth	Error	20
Interval overlaps another interval	Error	27
To value exceeds max depth in collar table	Error	1
No samples for collar	Warning	605

Table 12-7 Issues within the Specific Gravity Table Identified by the Mechanical Audit.

Specific Gravity Table		
Issue	**Type**	**Count**
No samples for collar	Warning	1148

HRC mechanically audited interval information from drilling conducted in 2017 with Kerr staff. Issues identified by the mechanical audit were resolved prior to the calculation of the mineral resource estimate.

Review of downhole surveys from the 2017 drilling campaign identified 25 readings as inaccurate. The inaccurate downhole surveys caused unrealistic drillhole deflections. The inaccurate downhole survey readings were ignored from the database. Based on survey readings above and below the ignored surveys in the drillhole, the impact of these readings on the geologic model and mineral resource estimate is negligible.

Gold assay samples below detection limit and un-sampled intervals were assigned values of 0.0001 opt. Zero values are assumed to be un-mineralized and are set to 0.0001 opt for the purpose of mineral resource estimation.

12.2.2 Manual Audit

HRC completed a manual audit of the digital Project database by comparing a selection of original assay certificates to the assay information contained in the Copperstone Project database. HRC requested original assay certificates for a randomly generated list of 695 assay samples contained in the Project database. Of the 695 assay certificates requested, Kerr was only able to locate and provide a total of 210. HRC necessarily relied on currently available original assay certificates, largely those from Kerr, Cyprus and American Bonanza drilling campaigns, in order to attain a sufficient number of original certificates to check against the database and ultimately establish an acceptable level of confidence in the integrity of the data. The semi-random manual check focused specifically on gold and returned an error rate of less than 1% for those records checked.

12.3 Adequacy of Data

Based on the results of HRC's site investigation and data validation efforts, HRC considers Kerr's drilling and sampling data, as contained in the current Project database, to be reasonably accurate and suitable for use in estimating mineral resources. Results of the manual audit indicate a minor and acceptable error rate; however, the Kerr's inability to produce a significant number of requested, random certificates is a limitation to the validation effort. HRC recommends that Kerr make a concerted effort to locate and catalogue original assay certificates for all historic drillholes. For historic data contained in the Project database, HRC recommends that Kerr conduct a manual audit of at least 50% of the datasets associated with each individual historic drilling campaign. The manual audit should be completed in conjunction with Kerr's ongoing efforts to streamline and standardize data entry procedures with regard to lithology and structural information, as well as zero values and lower detection limit entries.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

Kerr and HRC contracted with Resource Development Incorporated ("RDi") in 2017 to review the historical testwork and undertake metallurgical study to evaluate the best processing option for the gold-bearing ore from the Copperstone deposit.

13.1 Historical Metallurgical Test Work

Historically, extensive test work was completed on a piece meal basis, with no follow through to evaluate all processing options. The plant was built and operated for a short period to produce a saleable flotation concentrate. Documented test work since 1986 includes the following:

- Hazen Research – 1986 – Whole Ore Leach (WOL)
- Hazen Research – 1986 – Mineralogy
- Cypress Metallurgy – 1986 - Phase I to III
- Resource Development Inc. – 1999 – Whole Ore leach
- McClelland Laboratories – 2000 – Whole Ore leach, Flotation, Gravity
- Echo Bay Minerals – 2001 – Flotation
- McClelland Laboratories – 2005 – Flotation, Gravity, Grinding, Rheology
- CAMP – 2009 – Gravity, Flotation

A summary of historical metallurgical test results prior to 2017 is provided in Table 13-1.

Table 13-1 Historical Metallurgical Test Work

Zone	Sample ID	Date	Test	Wt Kg	Grade		Ag	Cu %	Parameter		Extraction/Recovery			CN	
					Au oz/t	Au (Calc)	Oz/t	Total	Grind	Time	Au	Ag	Cu	g/l	Kg/t
Hanging Wall	CS-MET	1999	WOL	2.6	0.33	7.42	0.04	0.05	150M	24	83	27	5	1.0	0.004
D-Zone	CS-MET	1999	WOL	9.4	0.56	26.4	0.06	0.24	150M	24	91	49	16	1.0	1.085
Ore Composite		2000	Gravity/WOL	63.7	1.03	0.82		0.60	270M	72		99		0.5	2.877
			Gravity/WOL		1.03	0.85			270M	72		99		1.5	3.286
			Gravity/WOL		1.03	1.18			100M	72		93		1.5	3.173
			WOL		1.03	1.00			200M	72		92		1.5	3.173
			Float		**1.03**	**1.18**			**200M**			**94**			
Ore Composite	None	2001	Float (McCoy/Cove)	2.0	1.51	0.75		0.56	140M		88		9		
D-Zone	D-Zone	2005	Gravity/WOL	122.5	0.51	0.53	0.06	0.57	150M	48/72	96/98	>47			3.195
			Gravity/WOL						200M	48/72	94/96	>47			3.354
			Gravity/WOL+NH4OH						200M	48/72	90/95	>47			3.559
			Gravity/Float						**150M**		**89**				
									200M		**89**				
Hanging Wall	HW	2005	Gravity/WOL	103.0	0.33	0.33	0.03	0.90	150M	72/96	91/97	>32			7.422
			Gravity/WOL						200M	72/96	90/98	>29			7.100
			Gravity/WOL+NH4OH						200M	72/96	96/98	>48			7.918
			Gravity/Float						**150M**		**88**				
			Gravity/Float						**200M**		**91**				
D-Zone+HW		2005	Conc Cyanidation			11.23			200M	48/72	89/99				0.477
D-Zone	CAMP	2009	**Gravity/Float**		**0.332**	**0.643**	**2.34**	**0.68**	**200M**		**28/88**	**47**			
C-Zone	CAMP	2009	**Gravity/Float**		**0.341**	**0.408**	**2.74**	**1.03**	**200M**		**37/86**	**27**			

13.2 Current Metallurgical Study

The primary objective of the current test work was to confirm that the flotation processing option was technically viable in the various ore zones. The test program was expanded to also evaluate the technical/economic aspects of the alternative processing options, namely leaching of flotation concentrate and whole ore leaching to produce doré at site. These options also have the potential of producing copper as a by-product. Metallurgical test results are presented here as reported, including use of metric units.

The metallurgical test work undertaken on the samples from the four mineralized zones (A, B, C, and D) and a master composite, prepared with samples from zones C and D which constitutes the majority of the resources at the Project, included head analysis, mineralogy, gravity, flotation, grindability, and cyanide leaching of ore and flotation concentrate. The summary of the test results indicated the following:

- **Head Assays** – the head analysis of Composites A, B, C, D, and the master composite are shown in Table 13-2. The composites for the four zone samples assayed 2 g/t Au to 8 g/t Au, with the master composite (higher grade sample) averaging 20.6 g/t Au.

Head assays of the samples tested are shown in Table 13-2

Table 13-2 Head Assays of Zone Samples Tested

Head Analyses of Composite Samples					
Element	Composite				
	A	B	C	D	Master
Au, g/t					
Assay #1	2.051	6.056	8.022	4.303	20.782
Assay #2	2.030	5.947	8.128	-	20.610
Average	2.040	6.00	8.075	4.303	20.696
Ag, g/t					
Assay #1	0.3	3.4	25.4	1.6	1.6
Assay #2	0.3	3.02	26.0	-	1.6
Average	0.3	3.3	25.7	1.6	1.6
Cu, %					
$Cu_{AcidSol,}$ %	0.0193	0.271	1.196	0.55	0.262
$Cu_{CNSol,}$ %	0.0013	0.238	0.0175	0.0071	0.023
$Cu_{T,}$ %	0.058	0.602	1.384	0.7045	0.351
S_{Total}, %	0.05	0.23	0.05	0.02	0.05
$S_{Sulfide}$, %	<0.01	0.10	0.02	0.02	0.02
$S_{Sulfate}$, %	0.05	0.13	0.03	<0.01	0.04
C_{Total},%	0.12	<0.01	0.06	0.44	0.18
$C_{organic}$,%	0.02	<0.01	0.04	0.05	0.04
$C_{inorganic}$,%	0.10	<0.01	0.02	0.39	0.14

The copper values in these samples varied from 0.058% to 0.7%. The copper in Composite B was primarily secondary or primary copper whereas the copper in other composites was basically oxide copper.

- **Rougher Flotation** – Gold from the composites can be floated using simple reagent suite consisting of potassium amyl xanthate (PAX), Aeropromotor 404 and a frother. The flotation test results indicate that the finer the grind, the higher the gold recovery but lower the concentrate grade. The majority of the gold floats in the first three minutes of flotation. Sulfidization of the feed material made slight improvements in overall gold recovery. Assay by size data of the flotation tails indicates that the majority of the gold losses are in the coarser particle sizes while the majority of copper is in the fine fraction. Flotation test results for composites A through D varied from 87% to 91% Au. Flotation results for the master composite are shown in Table 13-3.

Table 13-3 Master Composite Flotation Test Results

Flotation Test Results for Master Composite								
Product	Cumulative Floatation Time, min	Cumulative Recovery %				Cumulative Grade		
		Wt.	Au	Ag	Cu	Au g/t	Ag g/t	% Cu
Grind, P_{80} = 200 Mesh (Test 25)								
Conc. 1	3	1.2	86.1	46.1	14.7	664.1	32.2	4.61
Conc. 2	6	2.2	88.7	50.3	18.2	370.0	19.0	3.09
Conc. 3	9	2.9	89.5	51.9	20.2	284.2	14.9	2.60
Conc. 4	12	3.8	90.0	53.7	22.7	215.1	11.6	2.21
Cal. Feed	-	100.0	100.0	100.0	100.0	9.19	0.8	0.37

- **Cleaner Flotation** – tests were completed with material from the master composite and Composite D. A combination of approaches was utilized to achieve maximum gold recovery while providing a concentrate grade of over 350 g/mt. The individual cleaner results achieved a range of recoveries from 86.3% to 87.6% Au. The maximum gold recovery with a grade of over 350 g/mt Au would result from the combined rougher concentrate and cleaned scavenger concentrate with regrind. An overall recovery of 87.6% was observed with a concentrate grade of 584 g/mt Au.

  The flotation tailings from tests 3 and 11 representing Composites A and D were subjected to sulfuric acid leach for extraction of oxide copper. The acid consumption was extremely high (20 to 36kg/t) and the pH was still higher than 2 which is required for copper leach. An XRF analysis indicated the presence of MgO and CaO, thereby indicating the presence of carbonates, which make the acid leach process for copper extraction uneconomical.

- **Whole Ore Leach Tests** – cyanidation of the ore recovered 88% to 97% gold for all composite samples except B. The extraction was only 9.2% for Composite B. The sample and composite for Zone B was considered an anomaly, and not representative of the Zone B area of the deposit.

  Cyanide leach tests of the master composite at various grind sizes indicate the gold extraction improves as the particle size becomes finer. A particle size of 200 mesh exhibited the highest extraction at 97.1%. Based on these results, an economic evaluation of the processing options indicated that the whole ore leach process was the best option for this deposit.

  Leach tests were completed at lower cyanide levels in an effort to decrease consumption. Initial tests were started at 0.5 g/L, 0.75 g/L, and 1.0 g/L NaCN and allowed to decay. The cyanide was consumed after the initial 6 hours of leach time and the tests were then maintained at 0.25 g/L NaCN. Gold extractions for all tests were significantly lower than previous results at a maintained concentration of 1.0 g/L NaCN. Additional tests were conducted at maintained levels of 0.5 g/L, 0.75 g/L, and 1.0 g/L NaCN. Tables 13-4 and 13-5 present the cyanidation leach test results.

Table 13-4 WOL Results - Composite Samples

Cyanidation Leach Test Results for Composite Samples												
Process Parameter	Composite											
	A			B			C			D		
	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu
Extraction %												
6 hrs.	90.7	12.7	4.5	1.5	0	12.4	11.7	9.6	4.4	30.2	5.2	8.8
24 hrs.	95.4	12.9	4.7	4.9	0.3	21.9	61.4	35.4	8.3	73.3	10.6	16.3
48 hrs.	97.0	14.4	5.1	9.2	0.3	33.0	97.4	58.5	14.2	88.0	12.6	24.5
Residue, g/t	0.07	1.0	592	3.68	4.6	4060	0.11	0.6	13165	0.22	2.8	5270
Cal. Feed, g/t	2.27	1.2	624	4.05	4.6	6056	4.08	1.4	11300	1.82	3.2	6977
Reagent Consumption, kg/t (48 hrs.)												
NaCN	0.242			4.128			3.033			3.627		
Lime	3.739			4.819			3.747			4.125		

Table 13-5 WOL Results – Master Composite

Cyanidation Leach Test Results for Master Composite Sample at Various Particle Sizes									
Process Parameter	Particle Size								
	P_{80} 100 mesh			P_{80} 150 mesh			P_{80} 200 mesh		
	Au	Ag	Cu	Au	Ag	Cu	Au	Ag	Cu
Extraction %									
6 hrs.	34.5	19.7	5.2	31.6	19.1	5.6	10.9	2.5	17.1
24 hrs.	64.9	41.1	8.5	69.4	38.8	9.4	38.2	18.5	24.8
48 hrs.	88.1	62.8	12.3	84.5	52.3	11.8	97.1	50.8	29.3
Residue, g/t	0.41	0.4	9860	0.58	0.6	9720	0.12	0.6	2780
Cal. Feed, g/t	3.47	1.1	11247	3.75	1.3	11019	3.99	1.2	3933
Reagent Consumption, kg/t (48 hrs.)									
NaCN	3.374			3.425			2.700		
Lime	3.997			3.655			1.560		

- **Mineralogy** – The purpose was to determine the bulk mineralogy of two samples, Composite B, and the Master Composite, with an emphasis on Au and Cu mineralogy. Each sample was prepared as a standard polished thin section for analysis by reflected/transmitted light microscopy.

  Although there are some differences in Cu mineralogy between the samples, the general bulk mineralogy and Au occurrence is essentially the same. The master composite contains the lowest concentration of Cu mineralogy. Chalcopyrite occurs as small grains locked in quartz with a grain size up to 15 microns, but is rare. One grain identified is attached to pyrite. Chrysocolla is present as blueish green liberated fragments up to 1 mm in size and as small pockets in secondary quartz. A fragment of earthy iron oxide with inclusions of a highly anisotropic phase with a yellow brown tint may represent delafossite/tenorite. The most notable Cu mineral in the master composite sample is two thin seams of native copper that measure approximately 1 mm in quartz with iron oxide.

The composite B sample contains the highest concentrate of Cu mineralogy represented primarily by sulfides. The most prominent bype is chalcocite. Chalcocite occurs as large liberated masses measuring over 1 mm and as small interstitial patches in quartz. The chalcocite is generally associated with red oxide. Much of the chalcocite carries small rod-shaped inclusions of covellite and rarely, minor rerlict chalcopyrite. Small drop shaped chalcopyrite grains up to 10 microns are also seen locked in quartz. Grains of liberated bornite with a grain size of 8 microns to approximately 300 microns occur as a trace. The bornite shows moderate to strong alteration/replacement by chalcopyrite and covellite/digenite.

In the Master composite sample, three grains of Au were identified. Two grains are locked in quartz with a grain size of 5 microns to 9 microns. One large 25 micron grain sits between blades of specular hematite. In the Composite B sample, two grains of Au were identified. One 5 micron grain is associated with Chalcocite. One large 24 micron grain sits in a granular matrix of quartz and iron oxide. Although difficult to determine, these Au grains may actually be liberated.

Table 13-6 outlines the major and minor mineralogy for each sample. Concentrations of individual phases are based on petrography.

Table 13-6 Mineralogy of Composite B and Master Composite

Client Sample no.:	Copperstone MC	Copperstone Comp B
Quartz	46	42
Hematite/Goethite	30	25
Plagioclase	9	10
K-Feldspar	5	8
Chlorite	4	10
Muscovite	3	5
Calcite	3	*
Chalcopyrite	*	*
Chrysocolla	*	-
Bornite	-	*
Covellite	-	*
Delafossite/Tenorite	*(?)	-
Chalcocite	-	*
Digenite	-	*
Rutile	*	*
Magnetite	*	*
Leucoxene	*	*
Native Cu	*	-
Au	*	*

- **Gravity** – Test work on gravity recovered a small portion of the gold present in the ore at a concentrate grade that is not direct smeltable. Hence, gravity process was not incorporated in the final recommended process scheme. The fine gold is directly cyanide leachable and hence there is no need to have a gravity circuit.
- **Grindability** – Bond's ball mill work indices were determined for the master composite sample. The average value of six historical values and the two present work indices was 14.0. The current ball mill will be able to process +/- 840 tpd of ore to produce a product of P_{80} of 200 mesh at this index.

Based on the current test work, a conceptual process flowsheet was developed and is given in Figure 13-1. The proposed process flowsheet consists of crushing and grinding the ore to P_{80} of 200 mesh and sending the slurry to a pre-leach thickener. The thickener underflow will be sent to a series of leach tanks where gold and cyanide soluble copper could be extracted. The on-going testwork indicates that SART process can recover copper and thereby reduce cyanide consumption. The flowsheet is adaptable to incorporate the SART process between the leach tanks and the CIP tank. Following the CIP process the leach residue will be thickened to recover process water containing cyanide which will be recycled back to the leach tanks thereby reducing the overall cyanide consumption. In addition, the potential incorporation of the SART process will recover copper thereby improving overall project economics. The thickener underflow (leach residue) will be subjected to cyanide destruction before pumping the slurry to the tailings pond.

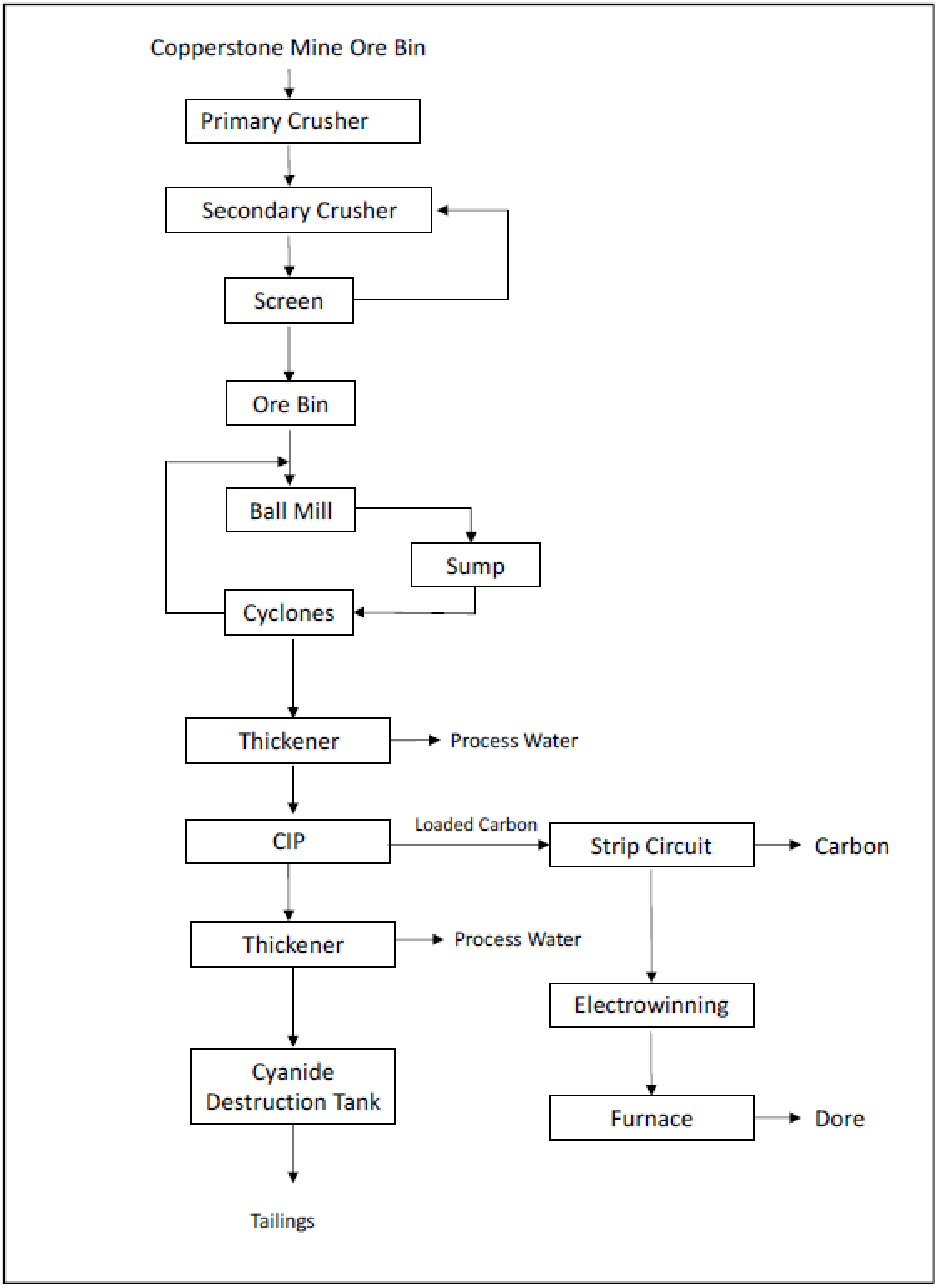


Figure 13-1 Whole Ore Leach Process Flow diagram

13.3 Conclusions

The following conclusions can be drawn from the historical and current test work:

1. The ore in the deposit is variable in gold grade and silica content. A careful blending program would be required for consistent processing operation.
2. Several processing options were technical and economically evaluated. WOL of Copperstone ore exhibits the highest operating costs but the increase in recoveries and elimination of concentrate smelter charges make this option economically superior. WOL leach was chosen as the base case processing scenario for the Study.
3. The current plant can be readily modified to produce doré at site with the whole ore leach process. This will simplify the existing processing plant by eliminating both the coarse gold circuit and the rod mill.
4. The WOL process can also be readily modified to incorporate SART process to produce copper as a by-product and reduce cyanide consumption in the leach process.

14. MINERAL RESOURCE ESTIMATE

HRC's Zachary J. Black, SME-RM, is responsible for the mineral resource estimate presented herein. Mr. Black is a Qualified Person as defined by NI 43-101 and is independent of Kerr. HRC estimated the mineral resource for the Project based on drillhole data constrained by geologic boundaries with an Ordinary Krige ("OK") algorithm. Gold is the metal of interest at the Project. All units are Imperial, and all costs are reported in US Dollars unless otherwise specified.

The geologic model, estimation domains, and resources estimate were all completed using Leapfrog Geo® software version 4.3.2 (Leapfrog). Mined out block determination and resource tabulation were completed using Datamine Studio® version 3.24.73.0 (Datamine). Composite cumulative frequency plots were created using ioGAS® version 6.0 (ioGAS) software.

The mineral resources estimate reported here was prepared in a manner consistent with the Committee of Mineral Reserves International Reporting Standards ("CRIRSCO"), of which both the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") and Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") are members. The mineral resources are classified as Measured, Indicated and Inferred in accordance with "CIM Definition Standards for Mineral Resources and Mineral Reserves", prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on May 10, 2014. Classification of the resources reflects the relative confidence of the grade estimates.

14.1 Drillhole Database

In total, 960 drillholes totaling 481,348 ft were incorporated into the geologic model and resource estimate. The mechanical audit identified eight drillholes (Table 14-1) with duplicate collar coordinates and surveys which were not included in the model. Two of those drillholes, CS238A and CS-291, are outside the model extents and did not impact the modeling or mineral resource estimate. The remaining six "DZ" drillholes are located in the D zone, but only one 2 ft interval had significant gold grade. Additionally, 154 underground drillholes (Table 14-2) drilled by American Bonanza in 2013 were excluded from the model because the drilling methods, and sampling procedures were not well documented. Finally, 114 drillholes (Table 14-3) were outside the geologic model extent. Appendix B summarizes operator, year, type and location of the drillholes.

Based on examination of drill logs and the spatial relationship of unsampled intervals, it was determined these areas were not sampled due to lack of mineralized indicators. As a result, 682 missing intervals, 11,047 zero values, and 1,388 "-1" values were replaced with a below detection limit value of 0.0001 opt.

Table 14-1 Drillholes Excluded from the Model by the Mechanical Audit

CS-238A	DZ12-3
CS-291	DZ12-4
DZ12-1	DZ12-5
DZ12-2	DZ12-6

Table 14-2 American Bonanza 2013 Underground Drilling Excluded from the Model

520-1	**650W-15**	**654-60**	**690-29**	**690-7**	**730-20**	**750-5**
520-10	650W-16	654-61	690-3	690-8	730-21	750-6
520-11	650W-17	654cc-1	690-31	726-1	730-22	750-7
520-12	650W-2	654cc-2	690-32	726-10	730-23	750-8
520-13	650W-3	654cc-3	690-33	726-11	730-3	750-9
520-14	650W-4	690-1	690-34	726-13	730-4	810-10
520-15	650W-5	690-10	690-35	726-14	730-5	810-12
520-16	650W-6	690-11	690-36	726-2	730-7	810-13
520-17	650W-8	690-12	690-38	726-3	730-8	810-14
520-2	650W-9	690-13	690-39	726-4	730-9	810-15
520-3	654-1	690-14	690-40	726-5	750-1	810-16
520-4	654-2	690-15	690-41	726-6	750-10	810-16a
520-5	654-50	690-19	690-42	726-7	750-11	810-17
520-6	654-51	690-2	690-43	730-11	750-12	810-18
520-7	654-52	690-20	690-44	730-13	750-13	810-19
520-8	654-53	690-21	690-45	730-14	750-14	810-2
520-9	654-54	690-22	690-46	730-15	750-17	810-20
650W-1	654-55	690-23	690-47	730-16	750-18	810-21
650W-10	654-56	690-24	690-48	730-17	750-2	810-3
650W-12	654-57	690-25	690-49	730-18	750-20	810-4
650W-13	654-58	690-26	690-50	730-19	750-3	810-8
650W-14	654-59	690-28	690-51	730-2	750-4	810-9

Table 14-3 Drillholes Outside the Geologic Model Extent

06CS-01	**06CS-26**	**08CS-56**	**CS-132**	**CS-462**	**CSR-97**
06CS-02	06CS-27	08CS-57	CS-133A	CS-463	DCU-1
06CS-03	07CS-28	CS-112	CS-134	CS-464	DCU-10
06CS-04	07CS-29	CS-113	CS-135A	CS-465	DCU-11
06CS-05	07CS-30	CS-116	CS-136	CS-466	DCU-12
06CS-06	07CS-31	CS-117	CS-137	CS-467	DCU-13
06CS-07	07CS-35	CS-119A	CS-137A	CS-476	DCU-14
06CS-08	07CS-37	CS-120	CS-138	CS-477	DCU-15
06CS-09	07CS-38	CS-121	CS-139	CS-478	DCU-16
06CS-10	07CS-39	CS-122	CS-140	CS-479	DCU-17
06CS-13	07CS-40	CS-123	CS-141	CS-480	DCU-6
06CS-14	07CS-41	CS-124	CS-263	CS-491	DCU-7
06CS-19	07CS-42	CS-125	CS-265	CSD-10	DCU-9
06CS-20	07CS-43	CS-126	CS-456	CSR-75A	H5-130
06CS-21	07CS-44	CS-127	CS-457	CSR-76	H5-139
06CS-22	08CS-45	CS-128	CS-458	CSR-91	H5-140
06CS-23	08CS-46	CS-129	CS-459	CSR-93	H5-151
06CS-24	08CS-47	CS-130	CS-460	CSR-95	H5-162
06CS-25	08CS-48	CS-131	CS-461	CSR-96A	H5-87

14.2 Construction of Original Topographic Surface

Detailed 2 ft contours of the current topography, including mined out pit, was provided to HRC by Kerr. In order to construct the original topographic surface before open pit mining activity, surface drillhole collars within the pit boundary were used to interpolate the original surface in conjunction with the detailed topographic contours in Leapfrog. The use of surface drillhole collars is acceptable practice due to the low topographic relief in the property area.

14.3 Geologic Model

The Copperstone deposit is presently best described as a mid-Tertiary, detachment fault related gold deposit. Detachment faults are low-angle (up to 30°) normal faults of regional extent that have accommodated significant regional extension by upward movement of the foot-wall (lower-plate) producing horizontal displacements on the order of tens of kilometers. Common features of these faults are supracrustal rocks in the upper-plate on top of lower-plate rocks that were once at middle and lower crustal depths, mylonitization in lower-plate rocks that are cut by the brittle detachment fault, and listric and planar normal faults bounding half-graben basins in the upper plate (Davis and Lister, 1988).

The strike length of the deposit is approximately 4,000 ft and mineralization has been encountered by drillholes to a depth of -330 ft (approximately 1,200 ft below surface). The geologic model was created using

Leapfrog, and is comprised of four structural domains, six stratigraphic units, and 42 estimation domains. The extents of the geologic model are 3,800 ft east by 5,900 ft north, by 2,200 ft depth. Table 14-4 summarizes the minimum and maximum extents of the geologic model. Furthermore, the extents of the geologic model are limited to within 200 ft of a drillhole.

Table 14-4 Geologic Model Extents

Axis	Minimum	Maximum	Extent
X	332,000	335,800	3,800
Y	1,043,300	1,049,200	5,900
Z	-900	1,300	2,200

14.3.1 Structure

The Copperstone property consists of several structural regimes, which have a significant influence on mineralization.

14.3.1.1 Northwest Trending Faults:

Represented by the Copperstone fault, these structures are the primary control of mineralization. The Copperstone fault strikes approximately 320 degrees northwest, and dips range between 45 and 25 degrees depending on the location in the property. Additional parallel structures to the Copperstone fault may exist at depth and mineralization encountered in the Footwall zone target, and Southwest zone target may be related to a parallel structure(s).

14.3.1.2 Northwest Trending Listric Faults:

These secondary structures can be mineralized and are likely controlled by the primary northwest trending structures. Following similar strike orientations to the primary northwest trending structures, the dips can vary from 30 to 75 degrees. The strike lengths are not as consistent as the strike length for the primary northwest trending structures. These listric faults do not show much, if any offsets in the mineralization, and may be more accurately thought of as fractures, or shear zones related to the offsets in the primary northwest trending structures.

14.3.1.3 Northeast Trending Strike Slip Faults:

These structures bound the Copperstone mineralization in the southeast and northwest, as well as offset the mineralization. These faults are steeply dipping and demonstrate normal dip slip, left lateral strike slip, and in the case of the D zone, a rotational component.

Three faults were modeled to create four structural domains (Figure 14-1). These structural domains follow the northeast trending strike slip faults structural regime and are further constrained to a maximum extent of 200 ft from a drillhole. Data used to model these faults include, an existing regional geology map developed by Amaco (Cyprus), a structural map developed by MRDI, as well as visual inspection of offsets in grades, and changes in stratigraphy. NE Fault 1, the most prominent northeast striking structure, shows normal dip slip as well as left lateral strike slip components offsetting the A/B zone from the C zone by as much as 200 ft. NE Fault 2 separates the C zone from the D zone. The offsets in NE Fault 2 are less dramatic as those observed in NE Fault 1, however, the D zone mineralization is approximately 10 degrees shallower than mineralization in the C zone. The 10-degree rotation in addition to the presence of sedimentary and metasedimentary lithologies in the D zone which are absent from the C zone indicate the presence of a significant northeast trending structure. The Terminating fault separates the D zone from the TERM zone and represents the northwestern extent of known mineralization at Copperstone.

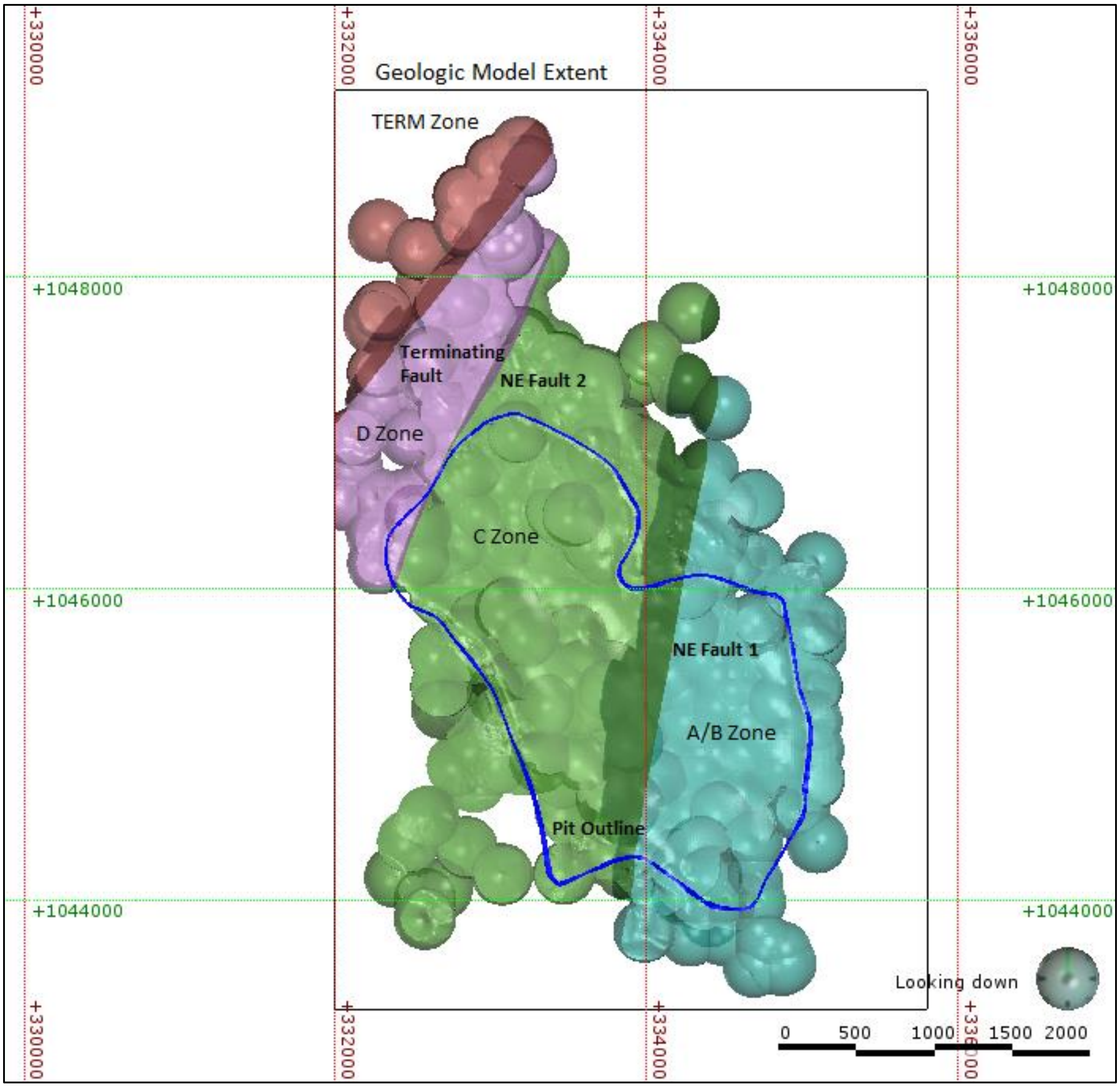


Figure 14-1 Plan View of Modeled Faults and Structural Domains

14.3.2 Stratigraphy

The host rock consists of six stratigraphic units:

- Quaternary Colorado River Sediments - Combined with overburden, the Colorado River sediments of the Bouse Formation are comprised of well developed, poorly consolidated, clay, sand, and silt beds in the Copperstone Project Area (Wood D., 2013);
- Miocene Basalt - “Basaltic to andesitic stocks are cut by mineralized amethyst-quartz-specularite veins to the southeast of the pit where economic mineralization developed.” (MDA, 2000);
- Ironstones - This rock unit may be more accurately described as an alteration package with extensive hemitizaton. Ironstones as a lithologic unit are restricted to the D zone.
- Jurassic Planet Volcanics - Consisting primarily of Quartz Latite Prophyry, both D. Wood and MDA characterize this unit as consisting of three-unit sub-types, however, these sub units were unable to be modeled due to inconsistent logging in the drillholes;
    - Monolithic Breccia
    - Quartz Latite Porphyry (including other felsic intrusive such as dacite)
    - Quartz Latite Tuff
- Triassic Buckskin Formation - A meta-sediment unit comprised of marble/limestone, schist/siltstone, and quartzite. The Buckskin Formation is the principal host-rocks for D zone mineralization. The unit is identified by both D. Wood and MDA;
- Phyllite - Lowest stratigraphic unit, encountered at the base of drillholes largely on the northwest side of the pit beneath Triassic chlorite schist, quartzite, and marble. The phyllite is fine-grained quartz and chlorite with elongate oriented crystals or narrow aggregated lenses.

These stratigraphic units were modeled from logged lithologies in drillholes. Lithologies were grouped based on lithology type. Intervals were then selected by HRC based on the lithologic groups. Drillhole logs and rock type characterizations often differ from person to person, a problem which can be compounded in a property with many operators, as is the case with Copperstone. In some cases, logged drillhole lithologies differed drastically from surrounding drillholes. In these cases, the interval in the selection was changed to the lithology in surrounding drillholes. Intervals logged as structure (faults breccia alteration and veins), and missing lithologies (Missing lithology, no recovery, and backfill) were not included in the stratigraphic model.

The logged length percent from original logs were compared to the modeled volume percent in the stratigraphic model (Table 14-5). Comparison results suggest appropriate model representation of lithology relative to original drillhole logs. Differences in the basalt and phyllite stratigraphies can be explained by the limited amount of drilling intersecting these units compared to the extent of the geologic model. The majority of historic drilling within the D zone is poorly oriented and inconsistently logged, only volumes with demonstrated continuity between multiple drillholes were included in the final model, and account for the relatively low percentage in the modeled volume compared to the logged volume. Figures 14-2 through 14-4 show cross sections of the stratigraphic model throughout the property, starting at the southeast and stepping northwest. All sections are oriented southwest to northeast, looking northwest.

Table 14-5 Comparison of Modeled Stratigraphy Volumes to Logged Interval Lengths

ROCK TYPE	Description	Length (ft)	Length (%)	Group	Group Length %	Modeled Volume (ft^3)	Modeled Volume %
CGL	Conglomerate	354.0	0.08%	Quaternary Alluvium	17.82%	1,491,000,000	13.38%
OB	Overburden	275.5	0.06%				
OVB	Overburden	41,980.7	9.90%				
QAL	Quaternary Alluvium	32,994.8	7.78%				
BST	Basalt	7,733.8	1.82%	Basalt	1.82%	357,320,000	3.21%
TFF	Volcanic Tuff	488.8	0.12%	Quartz Latite Porphyry	68.21%	6,770,100,000	60.77%
VNC	Volcanics	357.0	0.08%				
DAC	Dacite	2,266.5	0.53%				
GNT	Granite	2,014.0	0.47%				
INT	Intrusive	319.0	0.08%				
QLP	Quartz Latite Porphyry	283,505.5	66.83%				
QLT	Quartz Latite	400.7	0.09%				
CH	Chert	58.5	0.01%	Metasedimentary Unit	4.86%	413,190,000	3.71%
HF	Hornfels	425.5	0.10%				
JSP	Jasparoid	642.0	0.15%				
LMS	Limestone	7,403.7	1.75%				
LS	Limestone	1,973.0	0.47%				
MAR	Marble	1,481.0	0.35%				
MBL	Marble	408.1	0.10%				
MD	Mudstone	75.0	0.02%				
MF		5.0	0.00%				
MS	Mudstone	35.0	0.01%				
MSB	Mudstone	1,501.3	0.35%				
MSK	Magnetite Skarn	253.6	0.06%				
MTV		3.0	0.00%				
QZT	Quartz	5,233.8	1.23%				
REG	Regolith	4.2	0.00%				
SLT	Siltstone	636.9	0.15%				
SND	Sandstone	101.8	0.02%				
SS	Sandstone	366.5	0.09%				
FST	Ironstone	2,303.8	0.54%	Ironstone	0.90%	2,133,800	0.02%
FSTK	Ironstone Stockwork	1,527.9	0.36%				
PHY	Phyllite	17,171.7	4.05%	Phyllite	6.38%	2,106,900,000	18.91%
SCH	Schist	9,895.3	2.33%				
SH	Schist	13.2	0.00%				

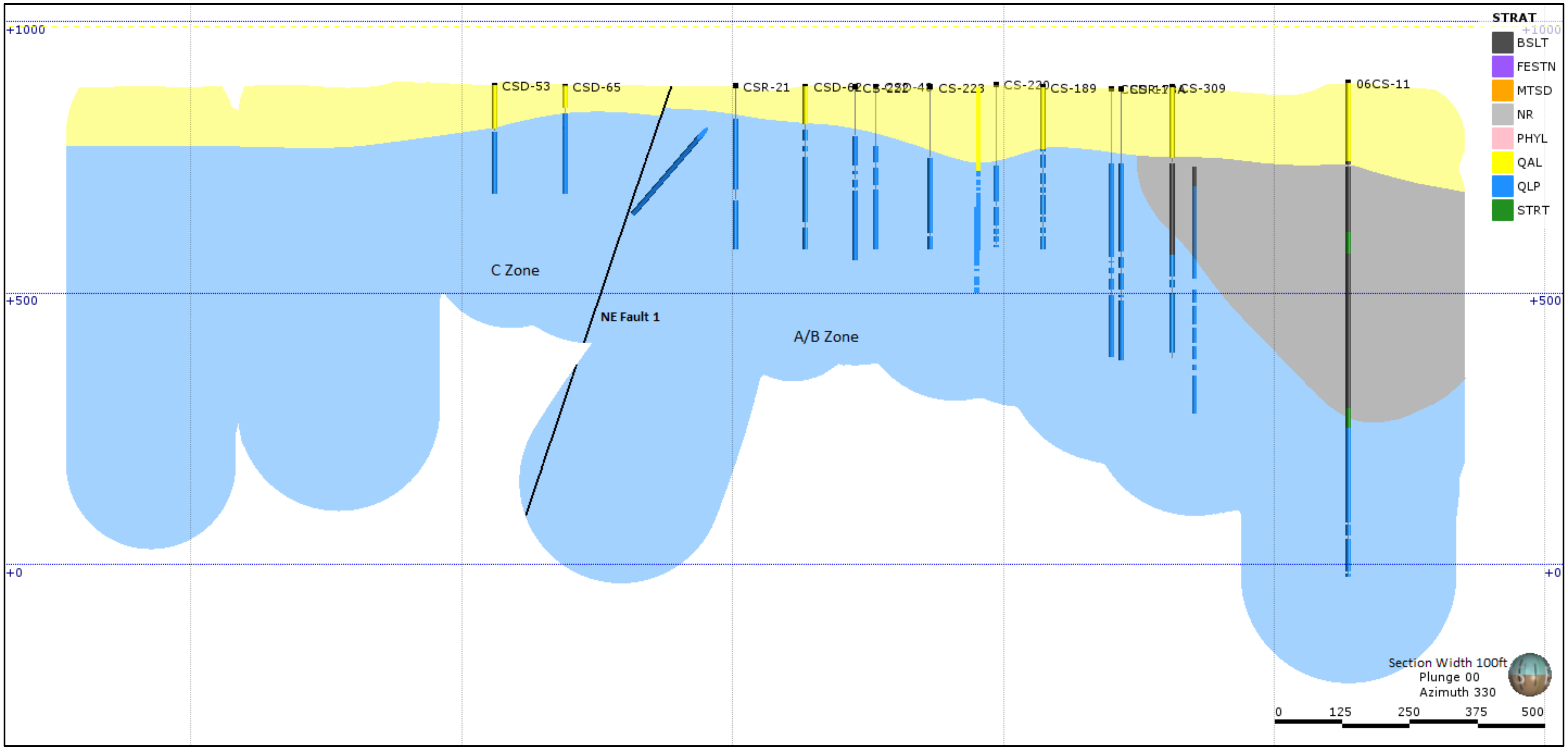


Figure 14-2 Cross Section of Modeled Stratigraphy through the A/B Zone from SW to NE Looking NW

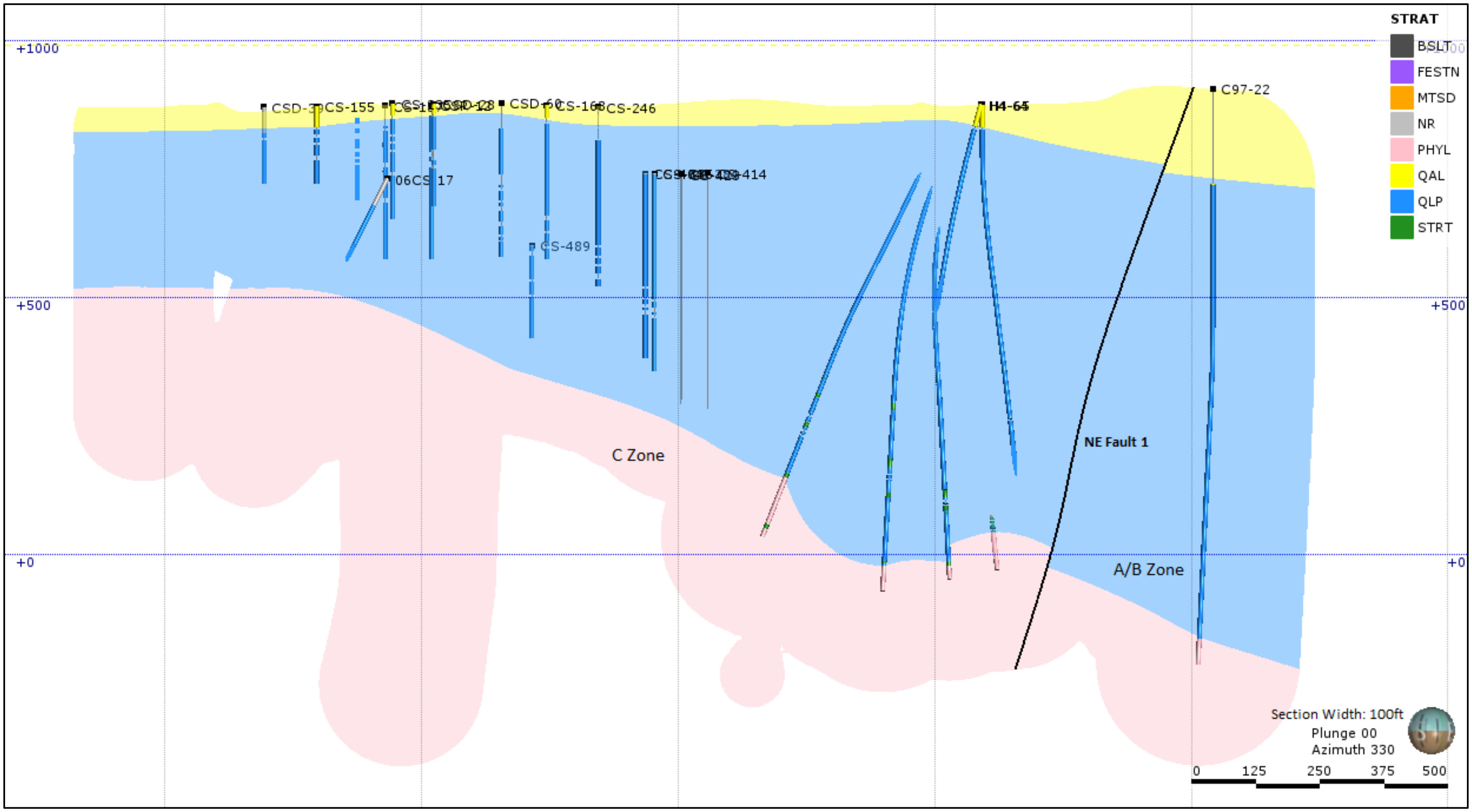


Figure 14-3 Cross Section of Modeled Stratigraphy through the C Zone from SW to NE Looking NW

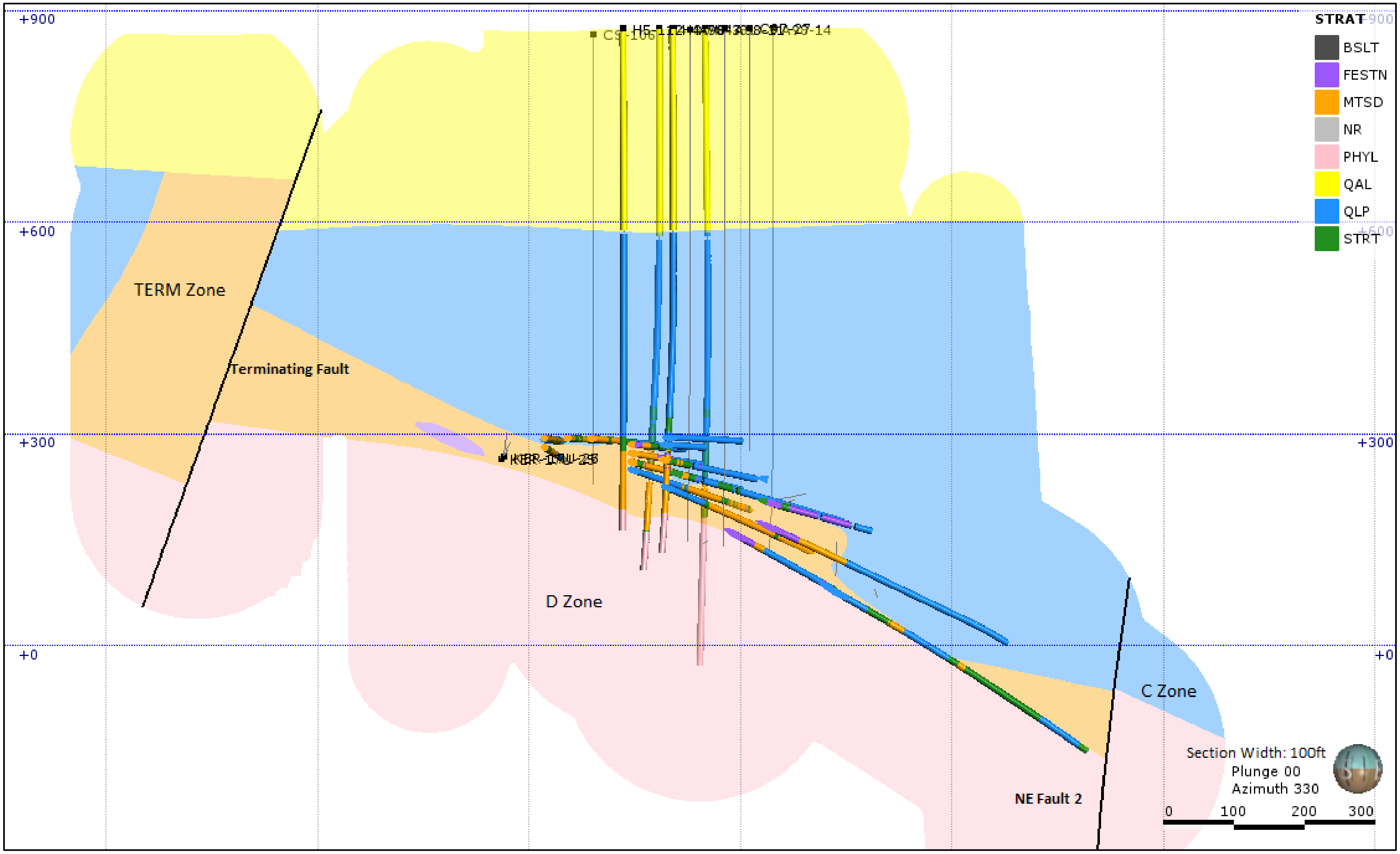


Figure 14-4 Cross Section of Modeled Stratigraphy through the D Zone from SW to NE Looking NW

14.4 Mineral Resource Estimation

14.4.1 Estimation Domains

Gold mineralization at Copperstone is controlled by shallow angle northwest striking structures related to listric/detachment faults, such as the Copperstone fault. Additional fractures/shear zones above and below the major structures can also be mineralized. These secondary fractures/shear zones follow the same overall strike, but can have dips ranging from 30 to 75 degrees.

General structural trends within the Copperstone property can be visualized by displaying gold assay grades using maximum intensity projections ("MIP"). MIP is a method of interpreting and modeling structural controls from assay data. The method is applied by projecting all assay data onto a 2-dimensional ("2D") plane (e.g. computer screen) and allowing assays with higher grades (more intensity) to be drawn in front of assays with lower grades. Figure 14-5 shows the MIP for gold grades oriented down dip. The black lines show the general trends of the major controlling structures observed at Copperstone.

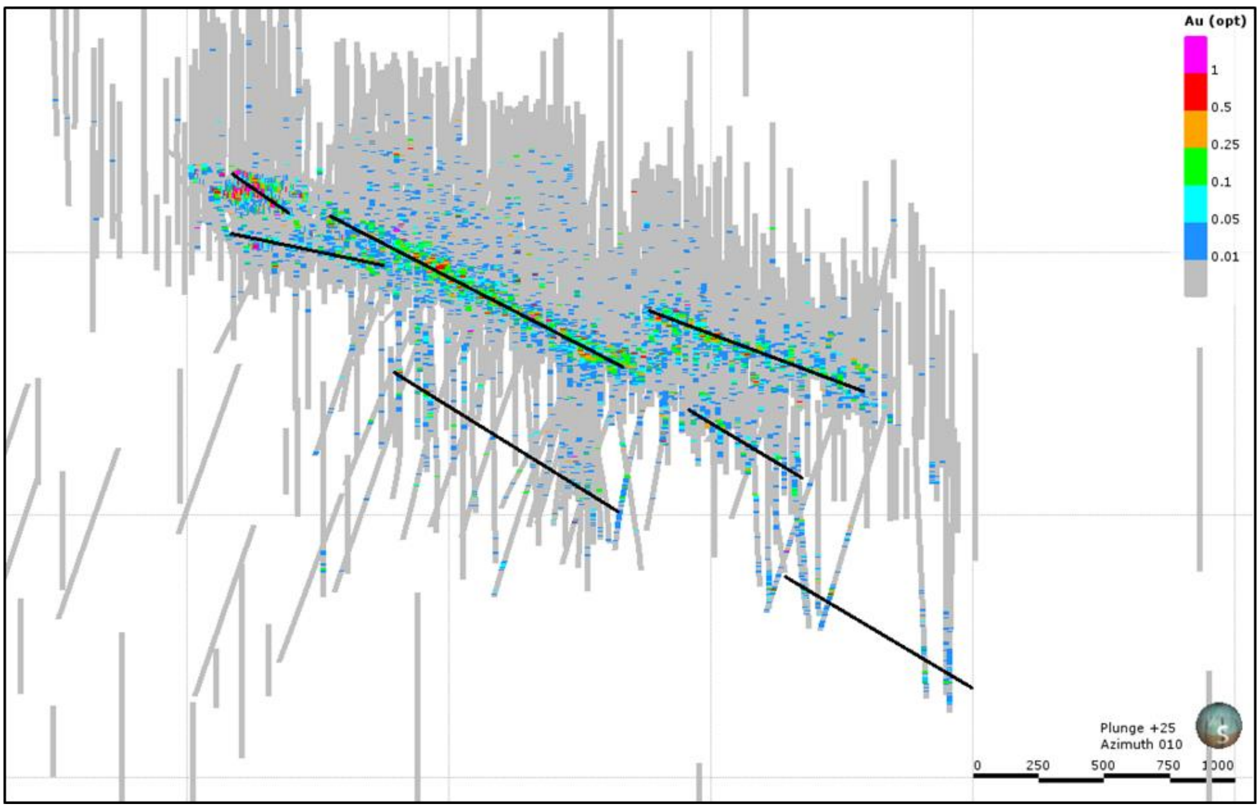


Figure 14-5 Maximum Intensity Projection of Gold Grades Showing Interpretations Major Structural Controls on Gold Mineralization

MIP from gold grades confirmed the overall northwest structural trends described in previous reports. HRC determined modeling estimation domains from gold grades was appropriate for the Copperstone property. Domains were initially identified by reviewing gold grades greater than, or equal to, 0.1 ounces per short ton ("opt") in cross section. The cutoff was selected based on initial assumptions that the mining cutoff would be near to 0.1 opt gold for the deposit. A minimum interval length of 5 ft was selected based on assumptions about minimum mining width. Intervals greater than the cutoff, with a minimum length of 5 ft, and demonstrating continuity down dip were selected and grouped into domains. If a sample was above cutoff, but smaller than the 5 ft requirement, additional samples were added until the 5 ft minimum was met or exceeded. Domain thickness was allowed to expand as necessary to include gold grades above cutoff.

Volumes were modeled using the vein modeling method in Leapfrog after initial interval selections. Vein modeling in Leapfrog takes the selected intervals and bisects each interval into footwall and hanging wall based on the midpoint of the selection. Radial Basis Function ("RBF") interpolants are applied to fit a footwall and hanging wall surface to the selections. The interior between the two surfaces is filled to create a vein volume.

Selective inclusion of below cutoff materials was utilized to preserve continuity along strike and dip as needed. The method was applied on a case by case basis using the same methodology as selecting intervals above cutoff. Figures 14-6 and 14-7 show the vein modeling methodology in Leapfrog.

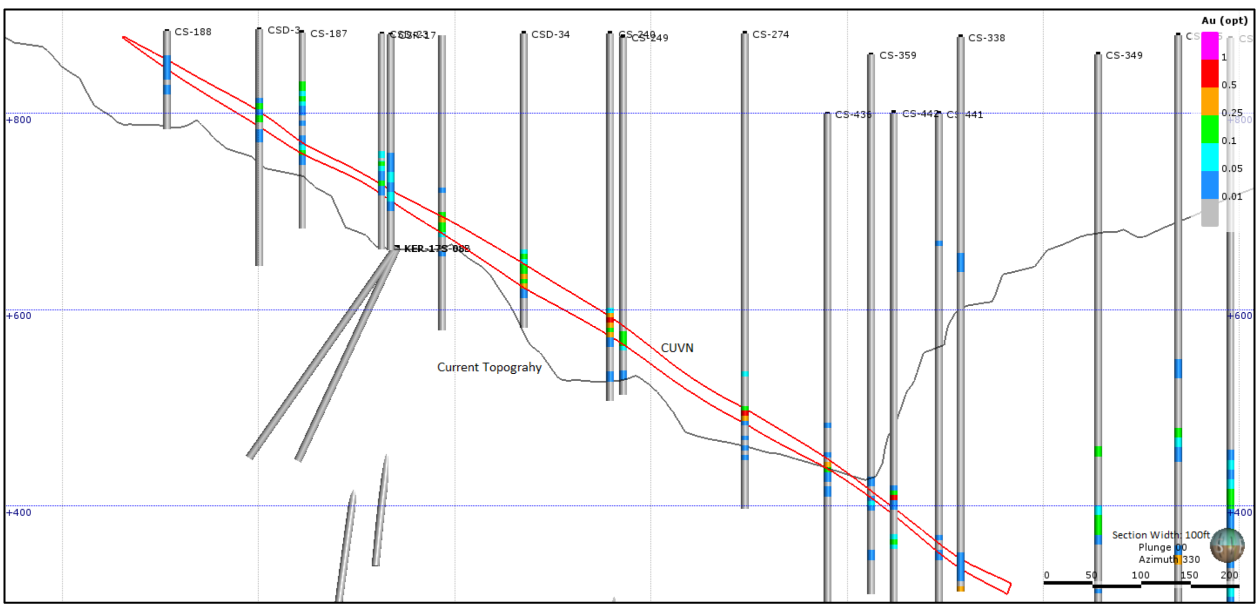


Figure 14-6 Cross Section Looking NW, Showing CUVN Domain and Gold Assay Intervals

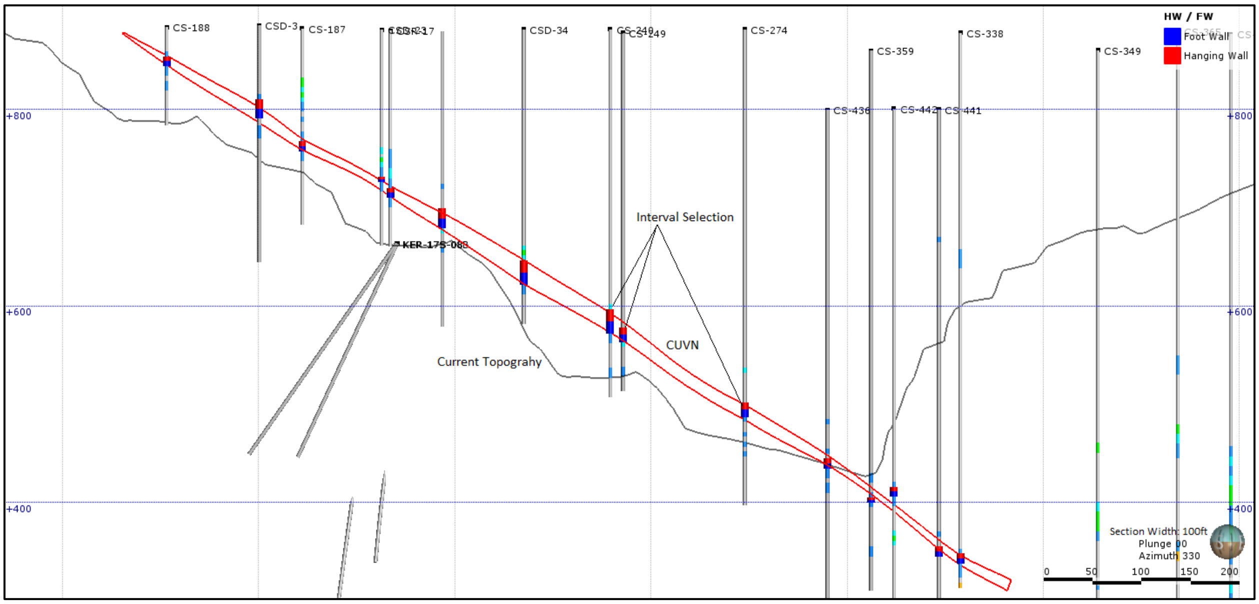


Figure 14-7 Cross Section Looking NW, Showing Interval Selections for CUVN Domain, & Footwall (Blue) and Hanging Wall (Red) Determination by the Software

A total of 42 mineralized domains were modeled using this method. The domains are grouped into six zones based on their spatial location. Table 14-6 summarizes the domain names and additional descriptions, and Figures 14-8 through 14-14 show the estimation domains viewed from multiple directions in 3D.

14.4.1.1 A/B Zone Domains

The A/B zone (Figure 14-8) includes ten domains in the southeast extent of the geologic model. The domains are controlled by the Copperstone shear and are bounded to the northwest by NE Fault 01. Past reports have separated the A/B zone into two parts, the A zone, and B zone. HRC did not see any geologic, or geostatistical distinction between the A zone and B zone. Orientation of these domains dip between 30 and 40 degrees northeast with a strike northwest between 300 and 320 degrees azimuth. There are two domains, AUP4 and ALW2, that exhibit shallower dips and strike more westerly.

14.4.1.2 C Zone

The C zone domains (Figures 14-9 and 14-10) located within the central portion of the geologic model are controlled by the Copperstone fault. The eleven C zone domains are bounded by NE fault 01 to the southeast, and NE fault 02 to the northwest. The orientation of these domains dip between 20 and 30 degrees to the northeast, and strike northwest between 325 and 345 degrees azimuth. The CUVN domain represents the largest, and most continuous domain, and is likely the mineralized expression the Copperstone shear zone. One domain, CLW7, exhibits a steeper dip. CLW2, CLW4, CLW5, CLW7, CUP6 exhibit more westerly strikes.

Table 14-6 Descriptive Information for Modeled Estimation Domains

Zone	Name	Dip	Dip Azimuth	Strike	Pitch	ft^3x1,000	Zone	Name	Dip	Dip Azimuth	Strike	Pitch	ft^3x1,000
A/B Zone Domains	CUVNA	37	56	326	68	6,467.4	D Zone Domains	CUVND	26	77	347	23	1,720.4
	ALW1	30	51	321	76	2,957.9		CUVND2	22	61	331	38	1,023.4
	CUVNB	28	54	324	51	2,117.9		CUVND3	25	66	336	34	714.0
	AUP1	35	45	315	61	1,209.6		CUVND4	19	58	328	40	619.6
	ALW3	33	29	299	74	1,042.0		CUVND5	18	76	346	23	124.1
	AUP3	41	49	319	54	832.7	Footwall Zone Domains	FW02	40	53	323	48	5,812.4
	AUP2	35	42	312	57	827.5		FW03	40	70	340	33	4,334.8
	ALW4	29	54	324	45	514.1		FW05	40	65	335	36	4,112.9
	AUP4	24	22	292	74	496.6		FW06	41	93	3	9	1,780.1
	ALW2	22	5	275	86	239.1		FW04	46	60	330	39	1,220.0
C Zone Domains	CUVN	37	60	330	39	23,253.0		FW01	75	45	315	67	35.3
	CLW2	32	36	306	60	3,478.1	South Zone Domains	SW03	15	70	340	23	2,651.7
	CLW1	27	59	329	37	2,896.9		SW02	51	39	309	58	1,846.3
	CLW7	43	60	330	39	324.8		SW05	25	126	36	144	1,350.6
	CUP6	21	12	282	79	297.3		SW01	49	36	306	56	1,013.4
	CLW3	35	79	349	16	206.1		SW04	37	57	327	33	908.7
	CLW4	21	18	288	74	190.3	Upper Fracture Zone Domains	CUP1	58	29	299	65	439.3
	CLW6	33	55	325	42	161.6		CUP4	52	72	342	22	297.6
	CLW5	23	2	272	90	154.2		CUP3	24	75	345	14	289.8
	CLW8	21	61	331	36	134.2		CUP5	53	50	320	45	151.1
	CLW9	21	77	347	20	83.7		CUP2	53	78	348	16	104.5

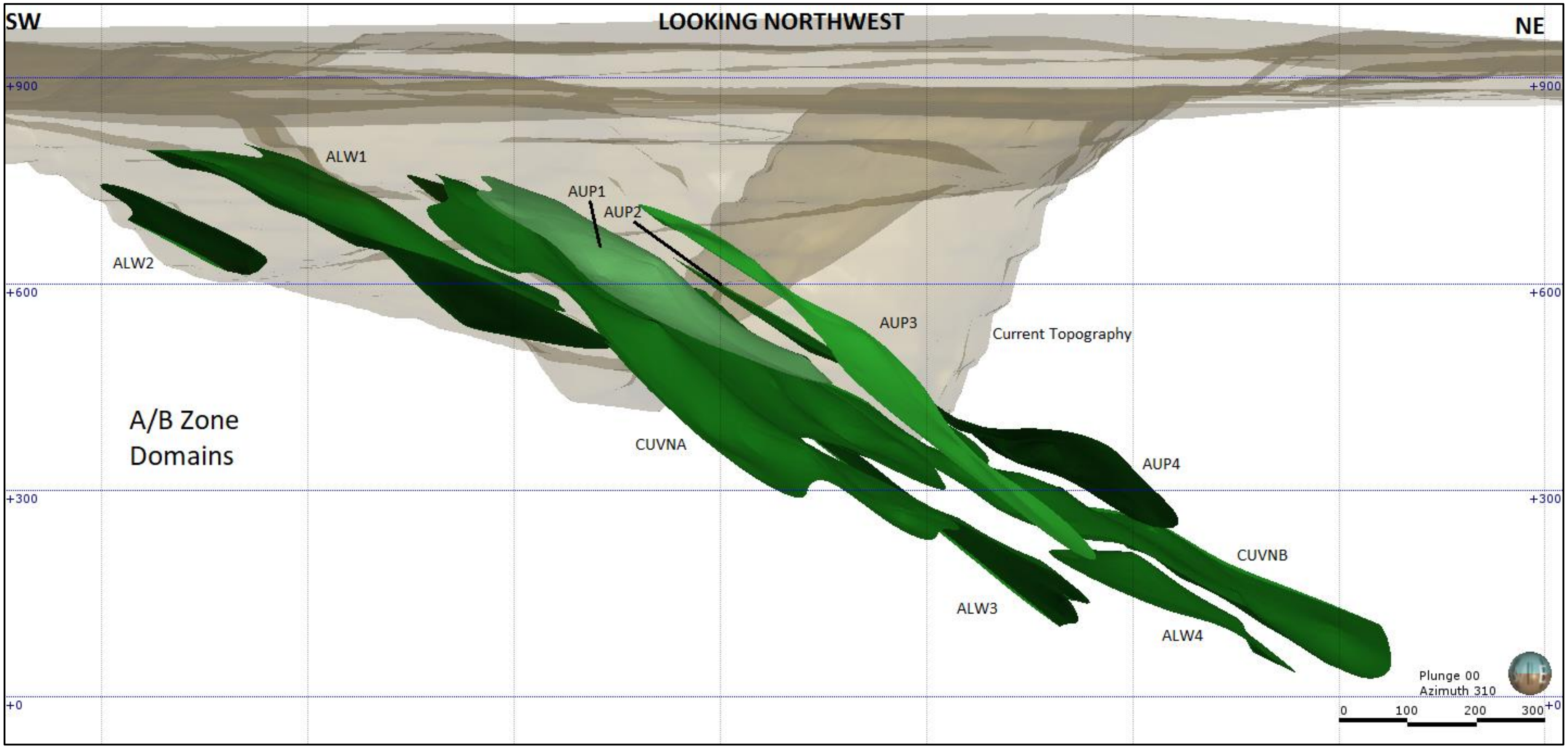


Figure 14-8 3D View of Modeled A/B Zone Estimation Domains

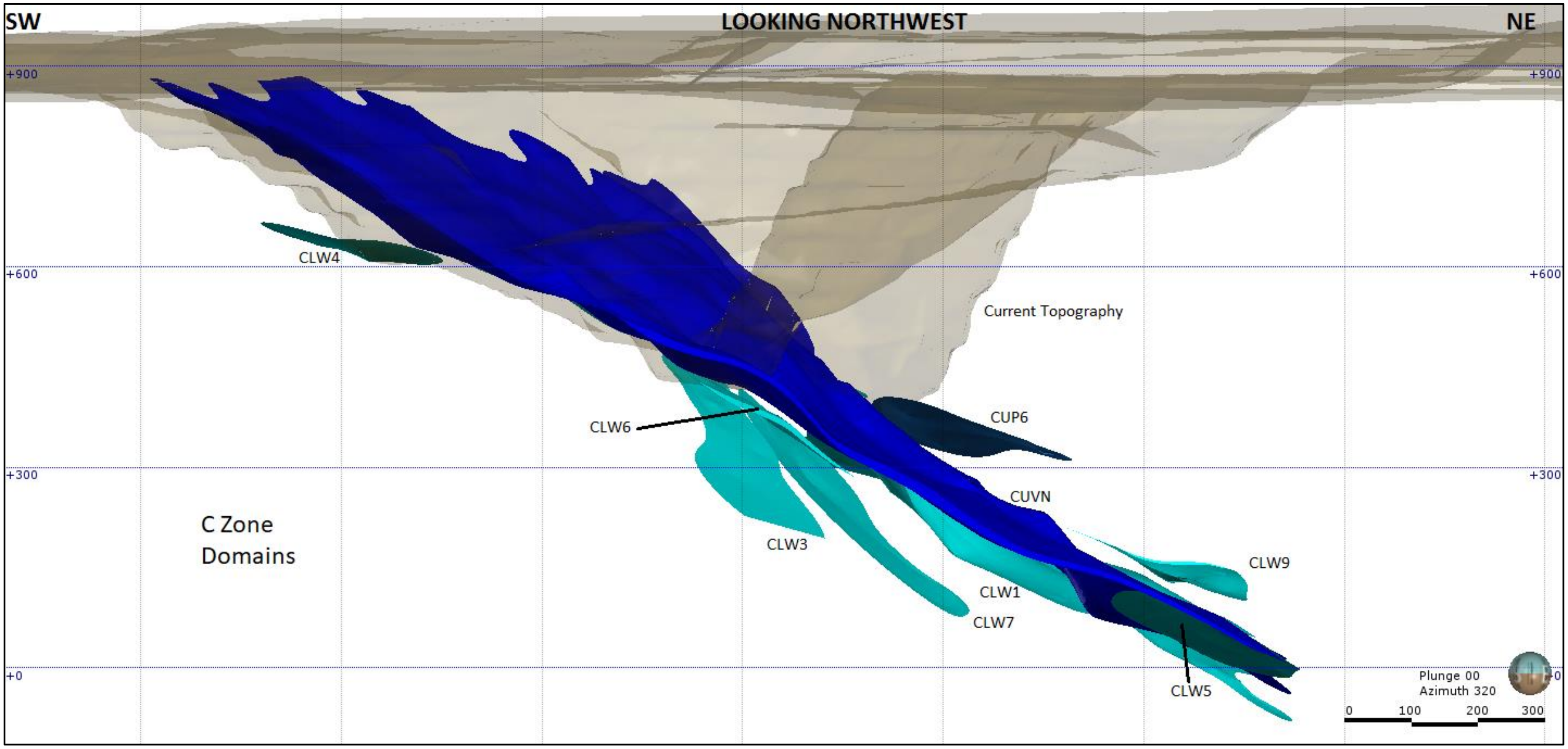


Figure 14-9 3D View of Modeled C Zone Estimation Domains

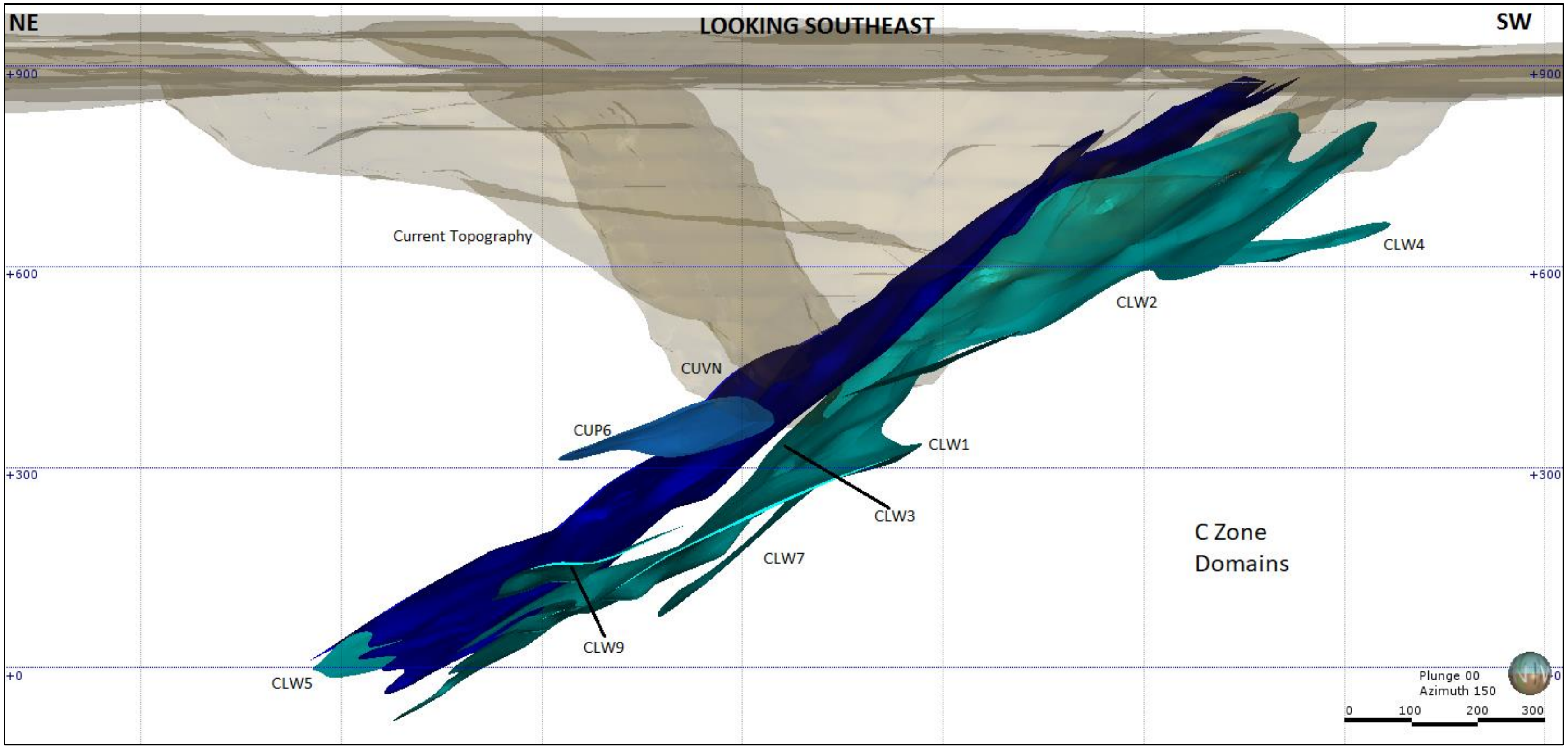


Figure 14-10 3D View of Modeled C Zone Estimation Domains

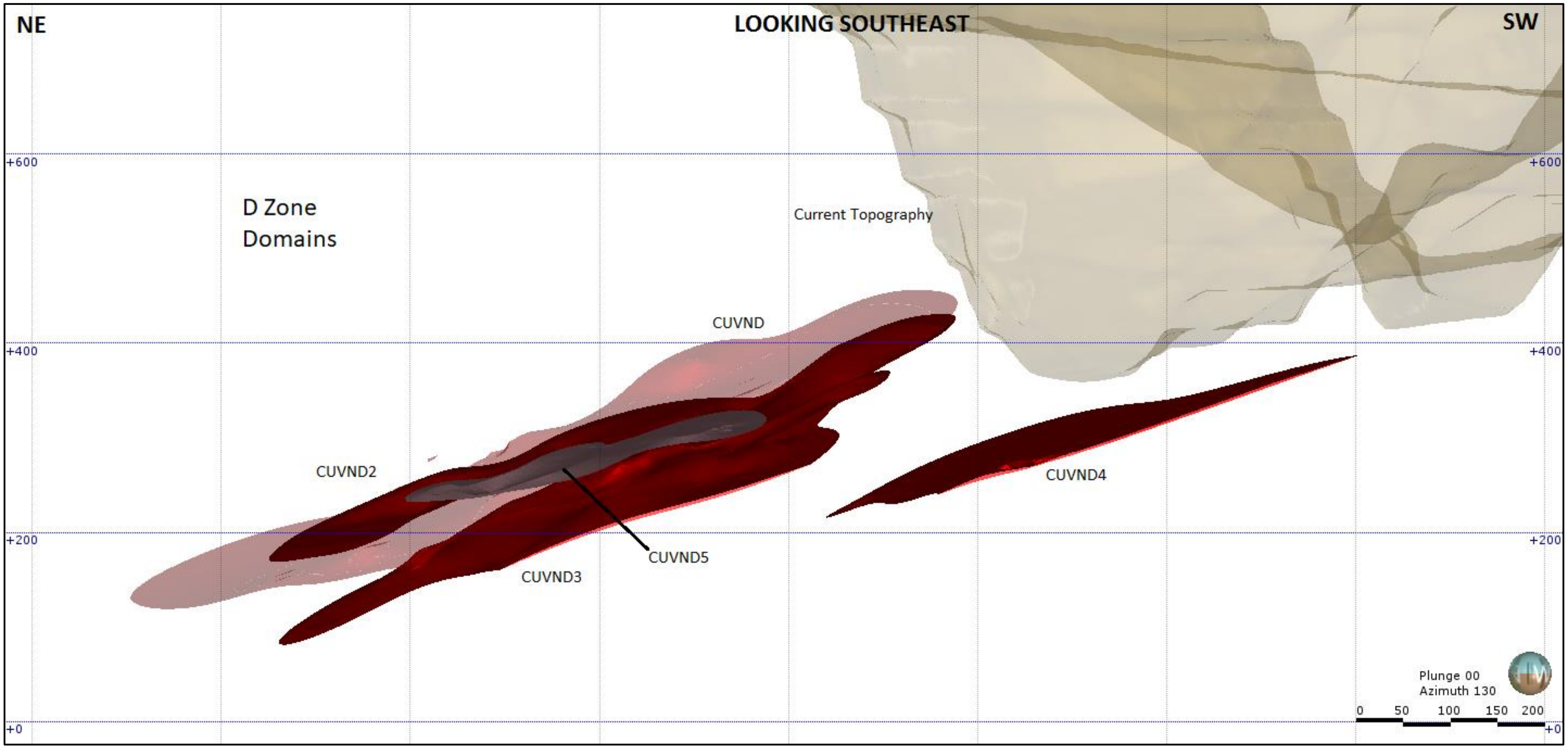


Figure 14-11 3D View of Modeled D Zone Estimation Domains

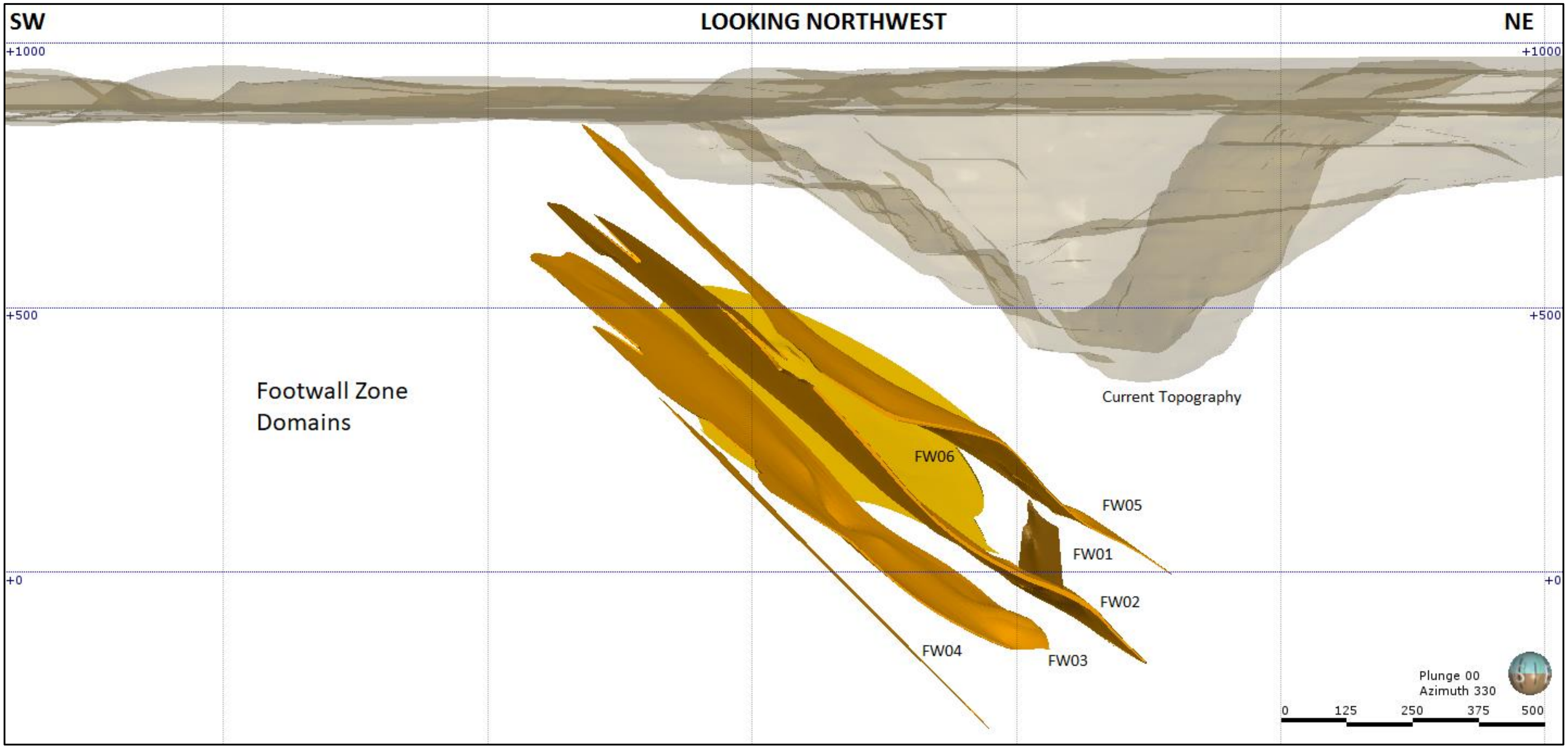


Figure 14-12 3D View of Modeled Footwall Zone Estimation Domains

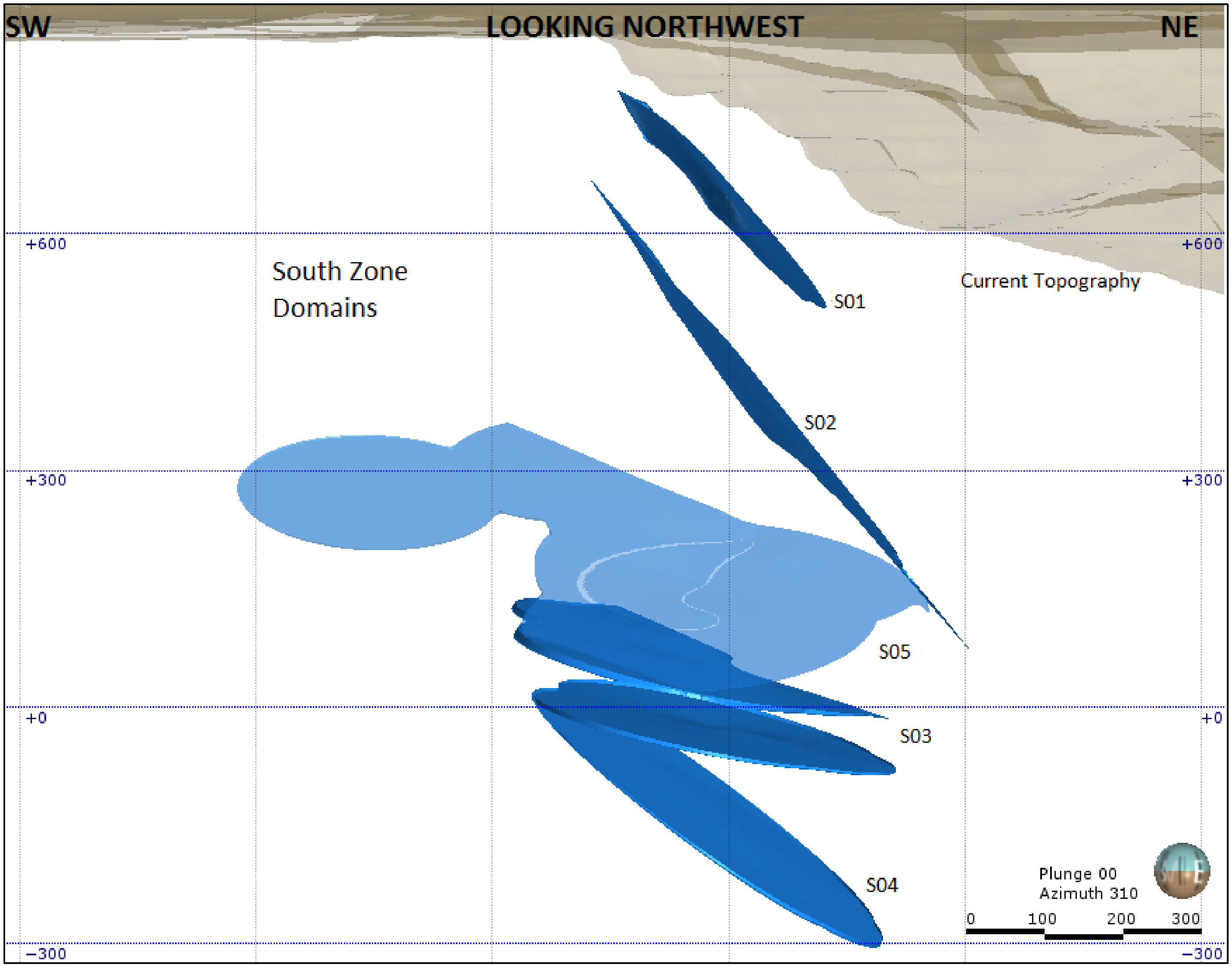


Figure 14-13 3D View of Modeled South Zone Estimation Domains

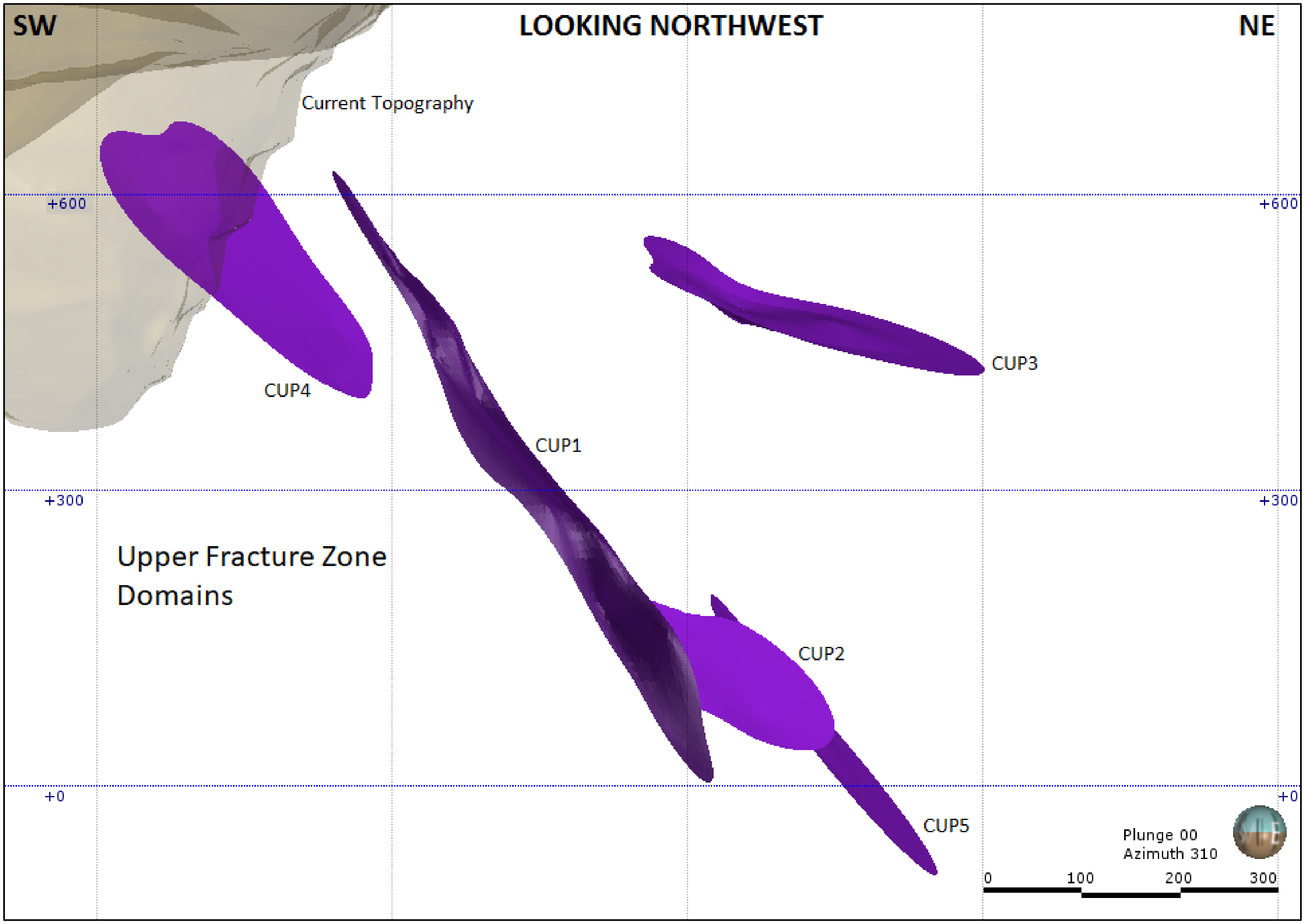


Figure 14-14 3D View of Modeled Upper Fracture Zone Estimation Domains

14.4.1.3 D Zone

Underground drilling in the D zone by American Bonanza was conducted from a single primary station, and two secondary stations. The drillholes were oriented to spread out radially from the stations and oriented down dip of the structure. Although the drilling did encounter significant gold grade intercepts over extensive interval lengths, the orientation was not conducive for the software to accurately identify the footwall and hanging wall from sample selections. In order to model the estimation domains in the D zone, drillholes from surface were initially used to model the domains using the same modeling method described above. Intervals from underground drilling were then selected based on the domain projection, gold grades, and until a minimum thickness of 5 ft was reached for the domain. As a result, the underground drillholes in the D zone often include more grades below cutoff and show longer lengths than those drillholes in other parts of the property.

Five domains modeled in the D zone (Figure 14-11) are bounded to the southeast by NE Fault 02 and restricted to the northwest by the Terminating Fault. These domains are still controlled by the Copperstone shear and dip at shallower angles relative to other Copperstone shear domains, The D zone domains dip between 20 and 25 degrees to the northeast, and strike northwest between 330 and 345 degrees azimuth.

14.4.1.4 Footwall Zone

The Footwall zone (Figure 14-12) is comprised of six estimation domains, residing to the southwest and beneath the C zone domains. These domains appear to be controlled by parallel structures stratigraphically below the Copperstone shear. These domains dip between 40 and 45 degrees to the northeast and strike northwest between 315 and 335 degrees azimuth. One domain, FW01, dips 75 degrees to the northeast and is bounded by FW02, and FW05. Vertical fractures related to listric faulting show potential mineralization and may be present in other parts of the property. These generally appear to exhibit shorter strike lengths relative to domains following the shear zone trends.

14.4.1.5 South Zone

Five estimation domains constitute the South zone (Figure 14-13). The South zone resides deeper and to the southwest relative to A/B zone domains. These domains are likely the Southeast continuation of the Footwall zone offset by NE Fault 1. The South zone domains exhibit the widest range of orientations, but still dip shallowly to the northeast and strike northwest.

14.4.1.6 Upper Fracture Zone

The Upper Fracture zone (Figure14-14) is represented by six domains above the C Zone. These domains can carry significant gold grades and are thought to be the result of fractures/shear zones related to the displacement of country rock by the Copperstone shear. Their strike lengths do not demonstrate significant continuity and are oriented northwest and dip between 50 and 60 degrees to the northeast.

14.4.2 Validation

Visual inspection of the domains show agreement with the primary structural orientations identified from MIP (Figure 14-5) and coincide with the overall structural interpretation of the Copperstone property.

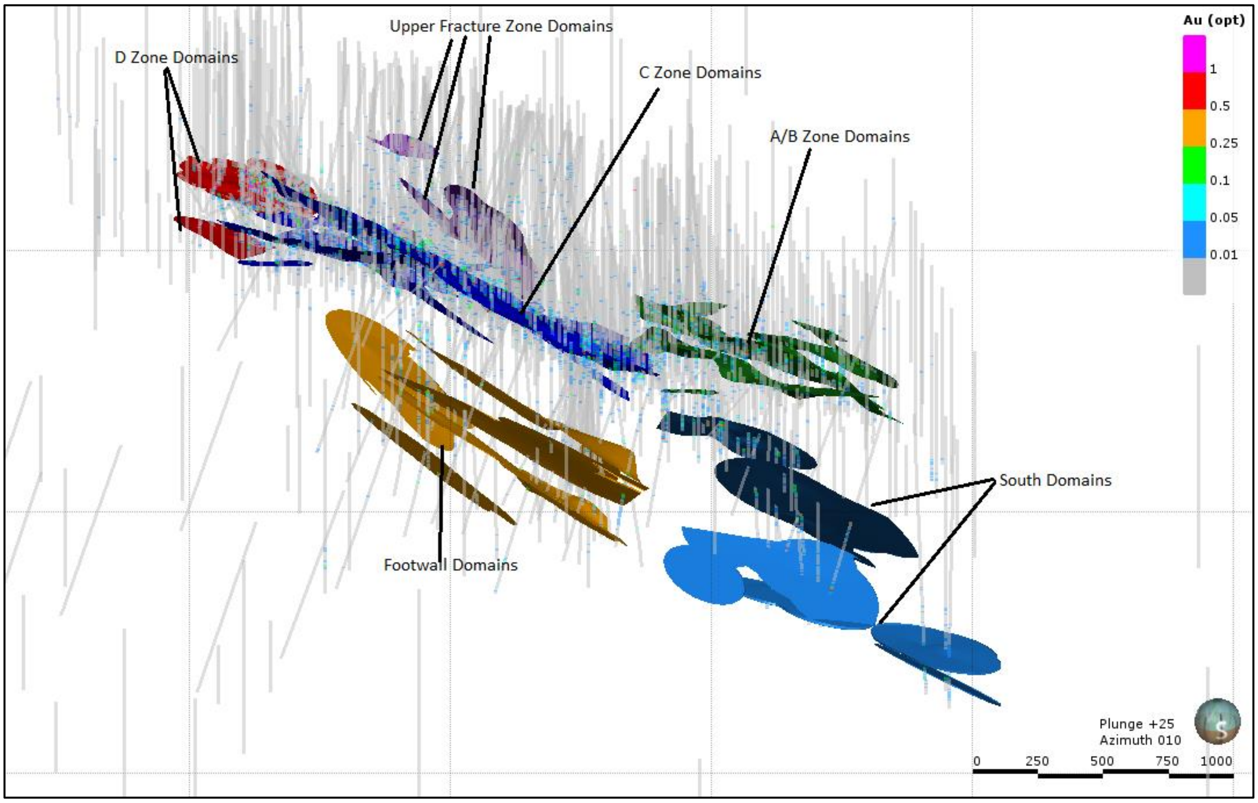


Figure 14-15 All Modeled Estimation Domains Shown in Same View Orientation as MIP Figure 14- 5

Contact plots showing the average gold grade across the estimation domain boundary show the modeled estimation domains accurately represent the gold mineralization at Copperstone. Average grades report significantly higher within the modeled domains compared to average grade outside the domains. Figures 14-16 through 14-19 show contact plots for four domains. Contact plots for all domains are presented in Appendix D.

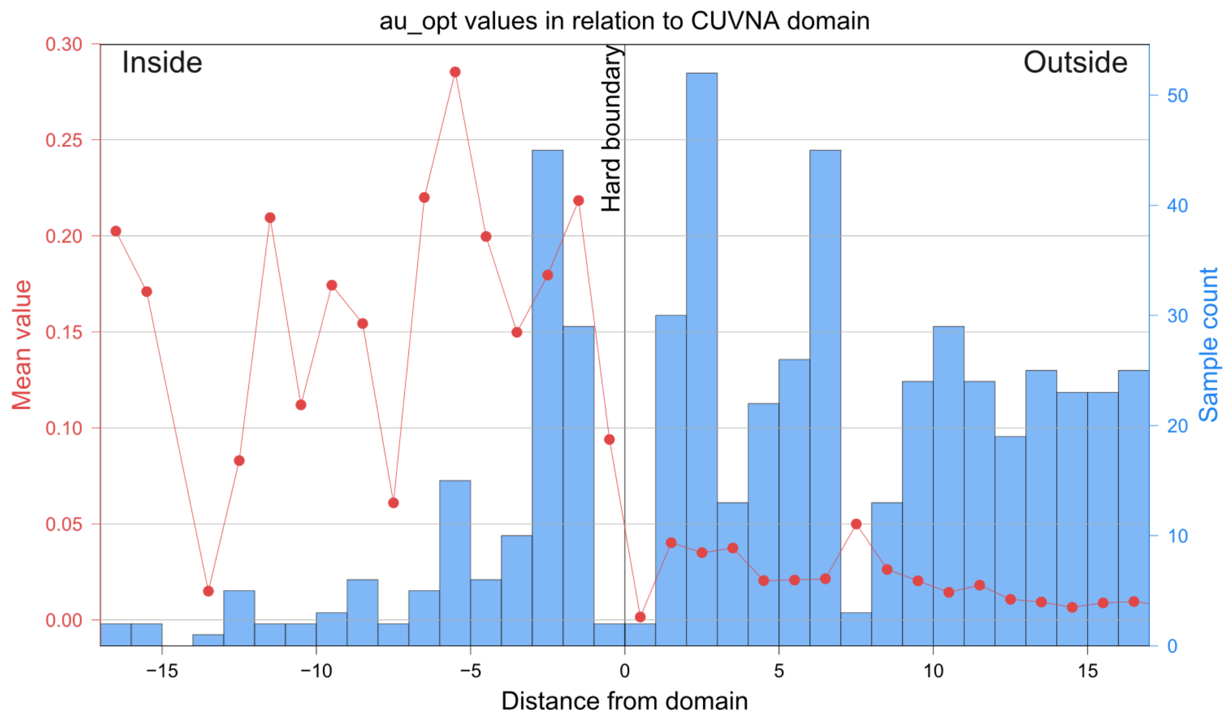


Figure 14-16 Contact Plot Showing Averaged Gold Grade Inside (Left) & Outside (Right) of CUVNA Domain

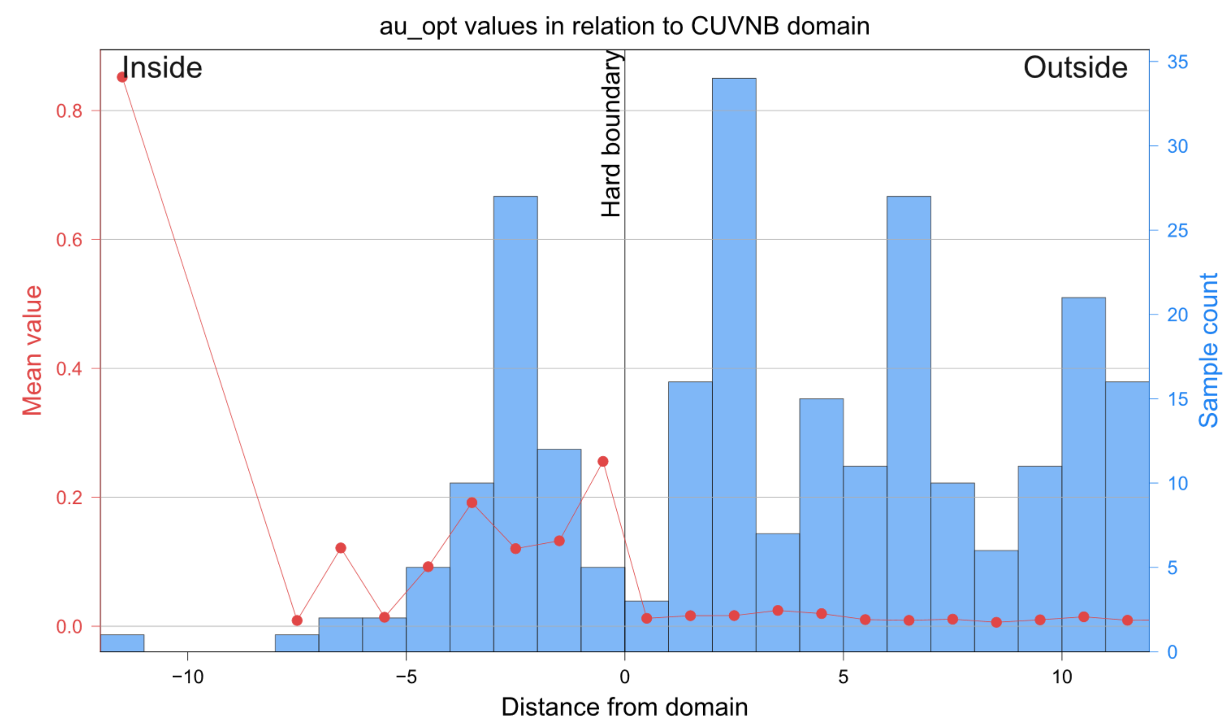


Figure 14-17 Contact Plot Showing Averaged Gold Grade Inside (Left) & Outside (Right) of CUVNB Domain

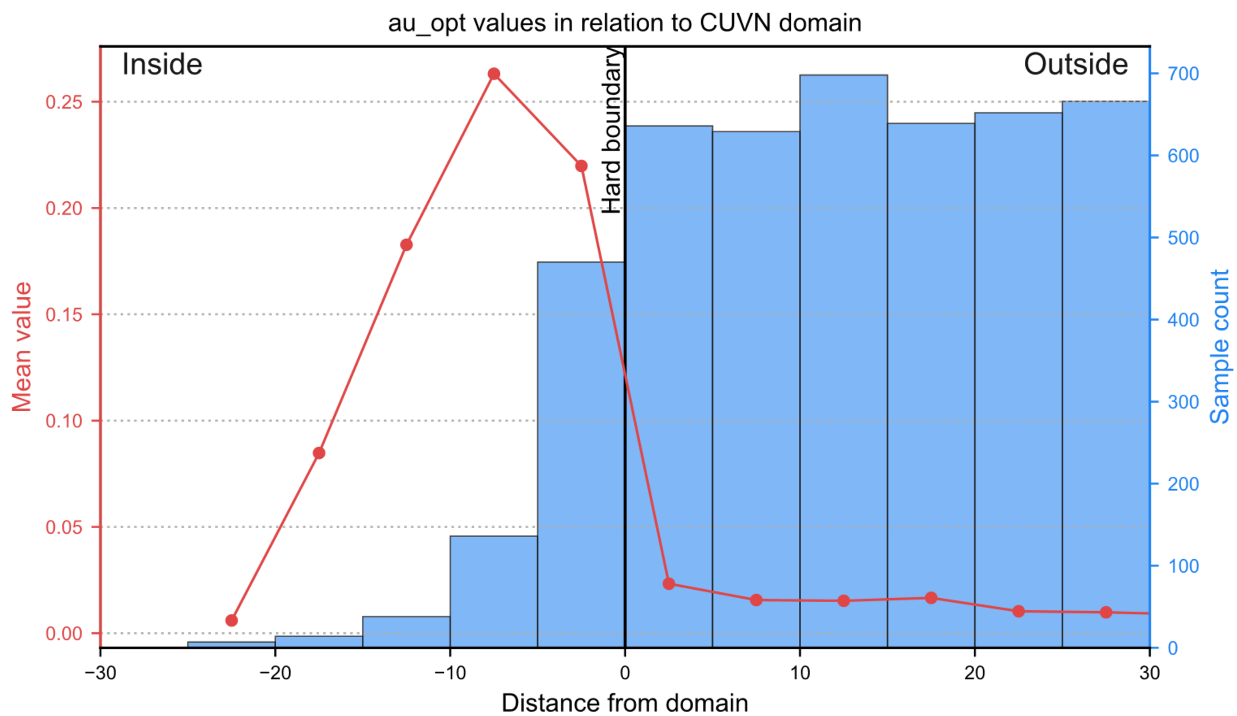


Figure 14-18 Contact Plot Showing Averaged Gold Grade Inside (Left) & Outside (Right) of CUVN Domain

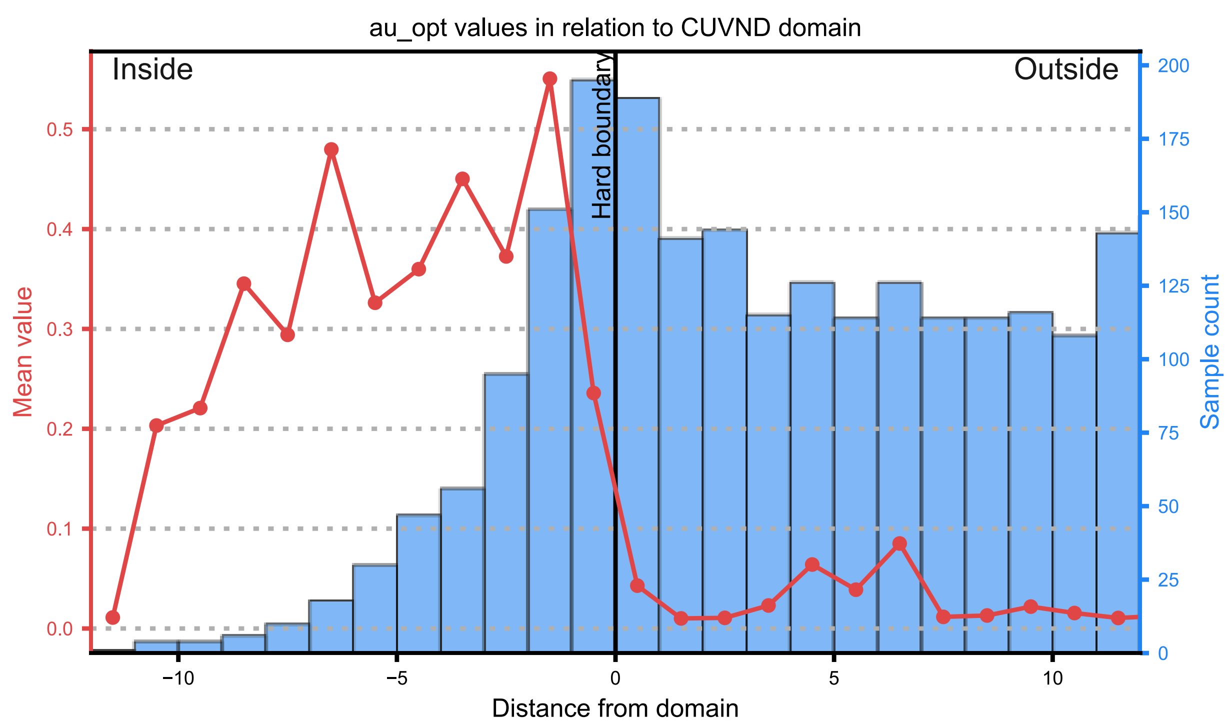


Figure 14-19 Contact Plot Showing Averaged Gold Grade Inside (Left) & Outside (Right) of CUVND Domain

14.4.3 Block Model Setup

Modeled stratigraphy and estimation domains were coded into a block model for the purpose of estimating gold mineral resources. The block model parameters defined in Table 14-7, encompass all modeled estimation domains. The block model is rotated along strike 60 degrees west from north along the Z axis, and 35 degrees down around the X axis. Sub-blocking was applied in the Y direction to a minimum block size of 5 ft, and to a minimum of 1 ft in the Z direction to accurately capture estimation domain volumes. Comparison of volumes between estimation domain blocks and wireframe solids is reported in Table 14-8. Differences are within 1% for most domains.

Table 14-7 Block Model Parameters

Axis	Origin (LLC)	Block Size	Sub-block Count	Minimum Block Size	Num Blocks	Boundary Size
X	331254.7063	20	1	20	257	5140
Y	1047151.025	20	4	5	126	2520
Z	530.4210562	5	5	1	288	1440
Dip Az	60					
Dip	35					

Table 14-8 Volume Comparison Between Block Model and Modeled Solids
(All Volumes are in ft_3 x 1,000

Zone	Name	Block Model Volume	Wireframe Volume	% Diff	Zone	Name	Block Model Volume	Wireframe Volume	% Diff
A/B Zone	CUVNA	6,464.1	6,467.4	0.05%	**D Zone**	CUVND	1,717.6	1,720.4	0.16%
	ALW1	2,956.1	2,957.9	0.06%		CUVND2	1,026.1	1,023.4	-0.26%
	CUVNB	2,118.2	2,117.9	-0.01%		CUVND3	712.9	714.0	0.15%
	AUP1	1,209.9	1,209.6	-0.02%		CUVND4	618.0	619.6	0.25%
	ALW3	1,042.7	1,042.0	-0.07%		CUVND5	124.5	124.1	-0.34%
	AUP3	833.4	832.7	-0.08%	**Footwall Zone**	FW02	5,810.7	5,812.4	0.03%
	AUP2	827.5	827.5	0.00%		FW03	4,334.4	4,334.8	0.01%
	ALW4	514.2	514.1	-0.02%		FW05	4,118.9	4,112.9	-0.15%
	AUP4	495.3	496.6	0.26%		FW06	1,774.9	1,780.1	0.29%
	ALW2	240.7	239.1	-0.68%		FW04	1,216.9	1,220.0	0.25%
C Zone	CUVN	23,240.8	23,253.0	0.05%		FW01	34.6	35.3	2.00%
	CLW2	3,479.6	3,478.1	-0.04%	**South Zone**	S01	1,013.3	1,013.4	0.01%
	CLW1	2,901.4	2,896.9	-0.16%		S02	1,845.9	1,846.3	0.02%
	CLW7	326.2	324.8	-0.42%		S03	2,641.1	2,651.7	0.40%
	CUP6	297.1	297.3	0.05%		S04	907.0	908.7	0.18%
	CLW3	205.9	206.1	0.11%		S05	1,349.2	1,350.6	0.10%
	CLW4	190.9	190.3	-0.31%	**Upper Fracture Zone**	CUP1	438.8	439.3	0.11%
	CLW6	161.8	161.6	-0.12%		CUP2	104.7	104.5	-0.21%
	CLW5	153.5	154.2	0.42%		CUP3	289.4	289.8	0.12%
	CLW8	133.2	134.2	0.75%		CUP4	297.0	297.6	0.22%
	CLW9	84.7	83.7	-1.18%		CUP5	151.9	151.1	-0.51%

14.4.4 Compositing

Five-foot downhole composites were broken out by domain contact. Sample lengths less than 2.5 ft were distributed equally throughout the drillhole inside the domain. Composite descriptive statistics were compared to sample statistics to ensure populations within domains were not overly affected by composite length. Descriptive statistics of gold grades for composites by domain are presented in Table 14-9.

14.4.5 Outlier Composite Handling

Estimation of highly skewed grade distributions, as is present within the Copperstone estimation domains (Figure 14-20), can be sensitive to the presence of even a few extreme values resulting in an overestimation of the mean. To better estimate the true mean of the deposit, a detailed capping study was performed on each domain.

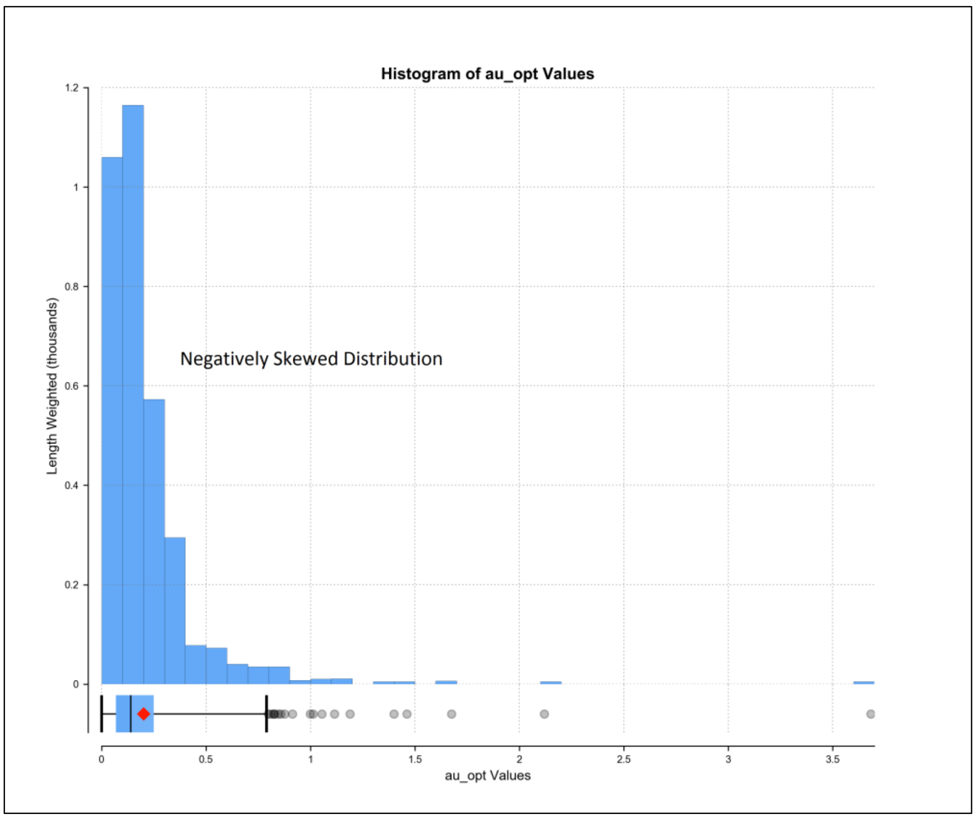


Figure 14-20 Histogram of Composites within CUVN Domain Showing Negatively Skewed Distribution of Gold Grades

Composite populations were examined by individual domain using four methods. Histograms (Figure 14-21) of the composite populations were examined for breaks in the histograms shape. A box plot below the histogram identified outlier composites greater than three times the interquartile range. Log probability plots (Figure 14-22) were examined for gaps in continuity within each domain. Total metal reduction was examined by assuming each composite is equivalent to one short ton of material. Therefore, the composite grade is equal to the total ounces of the composite. A percent of total metal could then be assigned to each composite, and the total metal reduction of a capping value on the domain population could then be examined. The examination of total metal reduction also allowed HRC to examine which drillhole the outlier composite came from, and whether the composite was surrounded by similar, or lower gold grades

To more accurately model the grade nearby an outlier composite, without smearing high grades over long distances, an outlier restrictive distance of 20 ft was implemented for most domains. A distance of 20 ft was selected because 20 ft is the size of a parent block in the X and Y directions. To apply outlier restive distances, Leapfrog generates a 20 ft buffer around each composite. If the composite is above the threshold value and a block centroid is within the 20 ft buffer, those blocks will be estimated with the uncapped composite grade. If the composite is above the threshold value, and a block centroid is outside the 20 ft buffer, those blocks will be estimated using the capped composite grade.

The capping study resulted in a global average cap of 1.5 opt. Although a global cap was not used to limit the influence of outlier samples, it was calculated for the purposes of allowing a comparison to prior historical estimating efforts which did employ a global capping strategy. The global average cap was calculated by taking the composite population weighted average of the threshold values. Eighty-five composites out of 2,748 were affected by the threshold limits. Outlier restrictive distances of 20 ft were applied to 39 domains, 3 domains with a total of 31 composites required the application of a fixed capping strategy due to the extreme grades of 5 outliers within those domains. Table 14-10 summarizes the maximum gold grade within each domain, the threshold grade applied, the number of composites affected by the threshold grade, the percent in total metal reduction, and the capping strategy applied. Histograms and log probability plots for each domain can be found in Appendix E.

Table 14-9 Descriptive Statistics of Gold Grades (opt) for Composites by Domain

Zone	Domain	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
A/B Zone	ALW1	62	0.139	0.20	1.45	0.0001	0.059	1.057
	ALW2	8	0.153	0.06	0.39	0.1050	0.132	0.261
	ALW3	35	0.130	0.18	1.37	0.0001	0.108	0.840
	ALW4	17	0.172	0.13	0.75	0.0030	0.155	0.597
	AUP1	36	0.107	0.11	1.05	0.0100	0.067	0.422
	AUP2	19	0.181	0.11	0.58	0.0460	0.145	0.518
	AUP3	26	0.147	0.14	0.95	0.0050	0.115	0.394
	AUP4	23	0.326	0.66	2.02	0.0030	0.104	2.694
	CUVNA	159	0.187	0.15	0.78	0.0020	0.138	0.872
	CUVNB	65	0.163	0.19	1.14	0.0001	0.105	0.852
C Zone	CLW1	75	0.194	0.38	1.98	0.0001	0.110	2.895
	CLW2	113	0.078	0.10	1.23	0.0001	0.043	0.470
	CLW3	9	0.087	0.07	0.80	0.0030	0.109	0.200
	CLW4	13	0.191	0.13	0.69	0.0001	0.168	0.469
	CLW5	7	0.098	0.13	1.33	0.0030	0.056	0.316
	CLW6	8	0.192	0.06	0.33	0.1030	0.185	0.264
	CLW7	8	0.348	0.38	1.09	0.0070	0.288	1.090
	CLW8	6	0.095	0.10	1.06	0.0013	0.069	0.230
	CLW9	13	0.096	0.15	1.54	0.0001	0.013	0.447
	CUP6	14	0.138	0.10	0.71	0.0030	0.120	0.311
	CUVN	688	0.202	0.25	1.25	0.0001	0.140	3.683
D Zone	CUVND	360	0.333	0.91	2.73	0.0001	0.101	13.535
	CUVND2	231	0.181	0.86	4.73	0.0001	0.014	12.010
	CUVND3	234	0.151	0.40	2.62	0.0001	0.017	3.535
	CUVND4	132	0.112	0.50	4.48	0.0001	0.006	3.743
	CUVND5	20	0.226	0.66	2.92	0.0002	0.007	2.940
Footwall Zone	FW01	13	0.288	0.54	1.87	0.0020	0.009	1.504
	FW02	73	0.142	0.53	3.71	0.0001	0.008	4.226
	FW03	37	0.067	0.10	1.52	0.0001	0.023	0.523
	FW04	7	0.185	0.12	0.67	0.0265	0.178	0.395
	FW05	57	0.034	0.07	2.09	0.0001	0.005	0.324
	FW06	8	0.187	0.22	1.19	0.0010	0.022	0.590
South Zone	S01	54	0.105	0.10	0.95	0.0001	0.077	0.365
	S02	25	0.090	0.11	1.26	0.0001	0.033	0.450
	S03	12	2.045	6.91	3.38	0.0070	0.080	24.806
	S04	5	0.184	0.05	0.26	0.1300	0.160	0.240
	S05	9	0.413	0.67	1.63	0.0100	0.206	2.092
Upper Fracture Zone	CUP1	26	0.072	0.13	1.83	0.0001	0.013	0.519
	CUP2	10	2.436	7.67	3.15	0.0030	0.100	24.996
	CUP3	13	0.188	0.27	1.46	0.0001	0.003	0.875
	CUP4	9	0.103	0.16	1.56	0.0010	0.037	0.463
	CUP5	9	5.006	9.56	1.91	0.0040	0.021	23.516

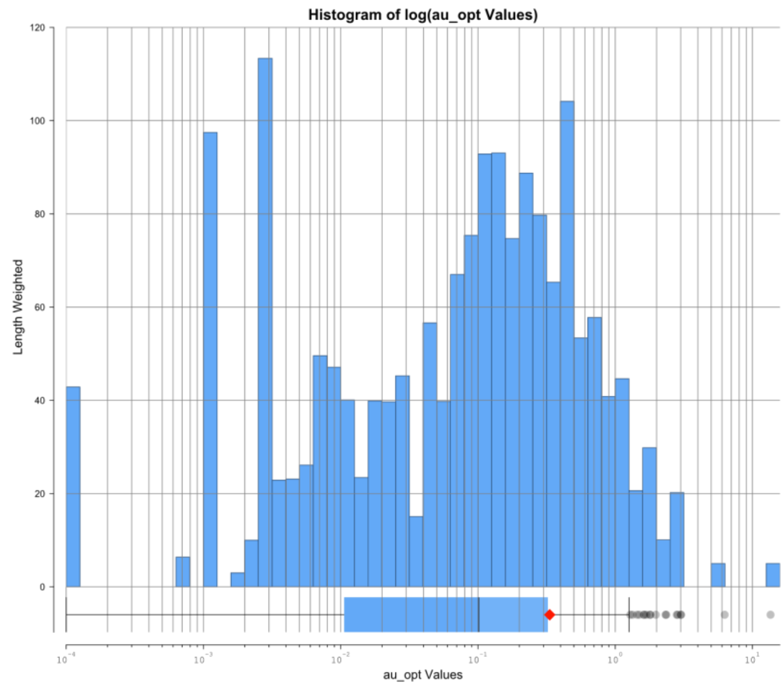


Figure 14-21 Histogram of Composites within the CUVND. A Box Plot Below the Histogram Identifies Outlier Composites Greater than 3x the Interquartile Range with Gray Dots

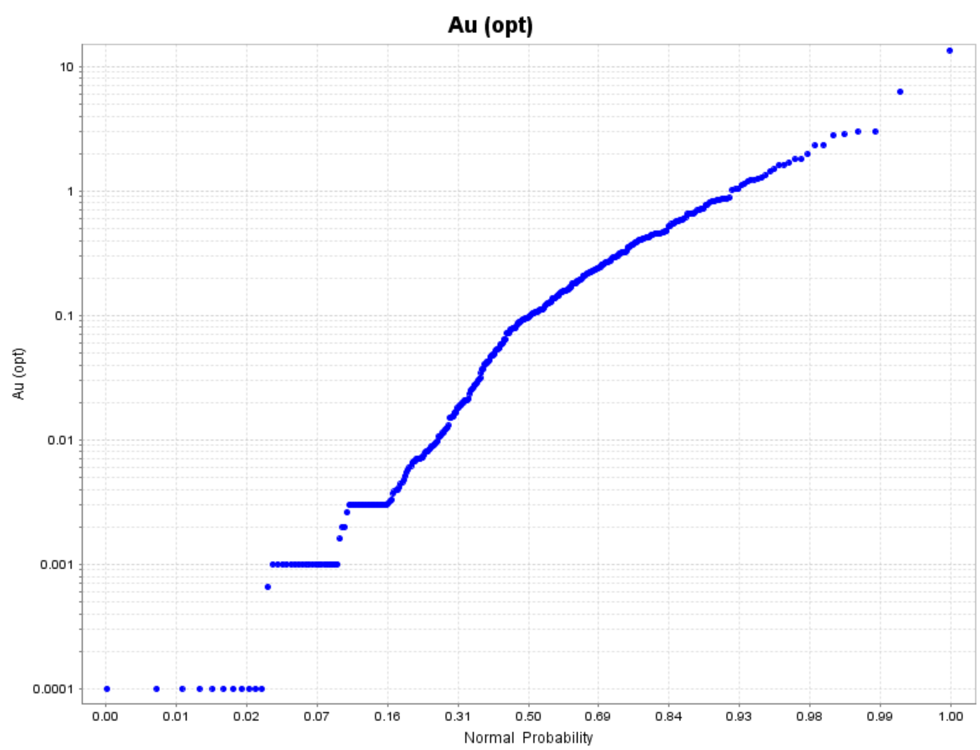


Figure 14-22 Log Probability Plots of Composite Gold Grades Within Domain CUVND

Table 14-10 Capping Values Applied by Domain

Zone	Domain	Max Composite Grade	Threshold	No. Composites	No. Capped	Total Metal Reduction (%)	Type
A/B Zone	ALW1	1.057	0.618	62	3	7.50	Outlier Restriction
	ALW2	0.261	0.227	8	1	2.79	Outlier Restriction
	ALW3	0.840	0.376	35	2	12.47	Outlier Restriction
	ALW4	0.597	0.238	17	1	12.30	Outlier Restriction
	AUP1	0.422	0.233	36	3	14.96	Outlier Restriction
	AUP2	0.518	0.276	19	1	7.02	Outlier Restriction
	AUP3	0.394	0.390	26	2	0.21	Outlier Restriction
	AUP4	2.694	0.304	23	3	53.39	Outlier Restriction
	CUVNA	0.872	0.730	159	1	0.48	Outlier Restriction
	CUVNB	0.852	0.629	65	2	4.52	Outlier Restriction
C Zone	CLW1	2.895	0.497	75	2	25.39	Outlier Restriction
	CLW2	0.470	0.446	113	1	0.27	Outlier Restriction
	CLW3	0.200	0.136	9	1	8.15	Outlier Restriction
	CLW4	0.469	0.193	13	3	25.96	Outlier Restriction
	CLW5	0.316	0.127	7	1	30.15	Outlier Restriction
	CLW6	0.264	0.186	8	3	14.59	Outlier Restriction
	CLW7	1.090	0.558	8	1	20.39	Outlier Restriction
	CLW8	0.230	0.069	6	2	52.05	Outlier Restriction
	CLW9	0.447	0.186	13	2	26.83	Outlier Restriction
	CUP6	0.311	0.265	14	1	2.38	Outlier Restriction
	CUVN	3.683	1.190	688	5	3.18	Outlier Restriction
D Zone	CUVND	13.535	6.271	360	1	6.14	Outlier Restriction
	CUVND2	12.010	1.036	231	4	1.04	Outlier Restriction
	CUVND3	3.535	1.940	234	1	4.58	Outlier Restriction
	CUVND4	3.743	0.680	133	5	59.05	Outlier Restriction
	CUVND5	2.940	0.338	20	2	62.23	Outlier Restriction
Footwall Zone	FW01	3.380	0.382	13	2	58.95	Outlier Restriction
	FW02	4.226	0.588	73	2	44.18	Outlier Restriction
	FW03	0.523	0.194	37	2	18.86	Outlier Restriction
	FW04	0.395	0.256	7	1	10.56	Outlier Restriction
	FW05	0.324	0.175	57	3	17.21	Outlier Restriction
	FW06	0.590	0.340	8	2	18.68	Outlier Restriction
South Zone	S01	0.365	0.277	54	4	4.93	Outlier Restriction
	S02	0.450	0.200	25	2	18.01	Outlier Restriction
	S03	24.806	0.250	12	2	94.54	Fixed Cap
	S04	0.240	0.220	5	1	2.22	Outlier Restriction
	S05	2.092	0.280	9	2	61.70	Outlier Restriction
Upper Fracture Zone	CUP1	0.519	0.214	26	2	25.27	Outlier Restriction
	CUP2	24.996	0.269	10	1	95.87	Fixed Cap
	CUP3	0.875	0.331	13	2	32.40	Outlier Restriction
	CUP4	0.463	0.271	9	1	20.73	Outlier Restriction
	CUP5	23.516	0.618	9	2	94.85	Fixed Cap

14.4.6 Variography

Variography analysis of composites within the estimated domains was conducted. Domains were grouped by zone to increase the number of composites for analysis. The variogram was rotated along strike and down dip of the modeled domains. Rose diagrams were used to determine the plunge. The total sill was set to the variance of the of the composite population, the nugget was set to approximately 20% of the total sill. 1 – 2 spherical models were used to assign the range in the maximum (down dip), and intermediate (along strike) directions. Variography in the minimum direction (thickness) was not considered due to the thinness of the modeled domains relative to lengths along strike and dip. Variograms were modeled for the A/B zone (Figure 14-23), C zone (Figure 14-24), D zone (Figure 14-25), and South zone (Figure 14-26). The modeled variograms show the continuity of gold grades similar, approximately 150 ft, along strike and dip. Composites within the Footwall and Upper Fracture zones are too low in occurrence and widely spaced to support variogram analysis. Variogram parameters are summarized in Table 14-11.

Table 14-11 Summary of Variogram Parameters

A/B Zone Gold Variogram			C Zone Gold Variogram		
Nugget (C0)	**C1**		**Nugget (C0)**	**C1**	**C2**
0.008	0.0329		0.00722	0.0323	0.0251
Axis	**Orientation**		**Axis**	**Orientation**	
Dip	32.95		**Dip**	38.4	
Dip azimuth	49.02		**Dip azimuth**	55.98	
Pitch	55.8		**Pitch**	68.4	
Axis	**Range1**		**Axis**	**Range1**	**Range2**
Maximum	160		**Maximum**	45.6	150
Intermediate	150		**Intermediate**	101	117
D Zone Gold Variogram			**South Zone Gold Variogram**		
Nugget (C0)	**C1**	**C2**	**Nugget (C0)**	**C1**	**C2**
0.197	0.1765	0.3413	0.00234	0.002926	0.00527
Axis	**Orientation**		**Axis**	**Orientation**	
Dip	25.66		**Dip**	46.05	
Dip azimuth	69.15		**Dip azimuth**	44.07	
Pitch	124.6		**Pitch**	152.2	
Axis	**Range1**	**Range2**	**Axis**	**Range1**	**Range2**
Maximum	21.4	177	**Maximum**	101	160
Intermediate	16.1	165	**Intermediate**	12.1	80

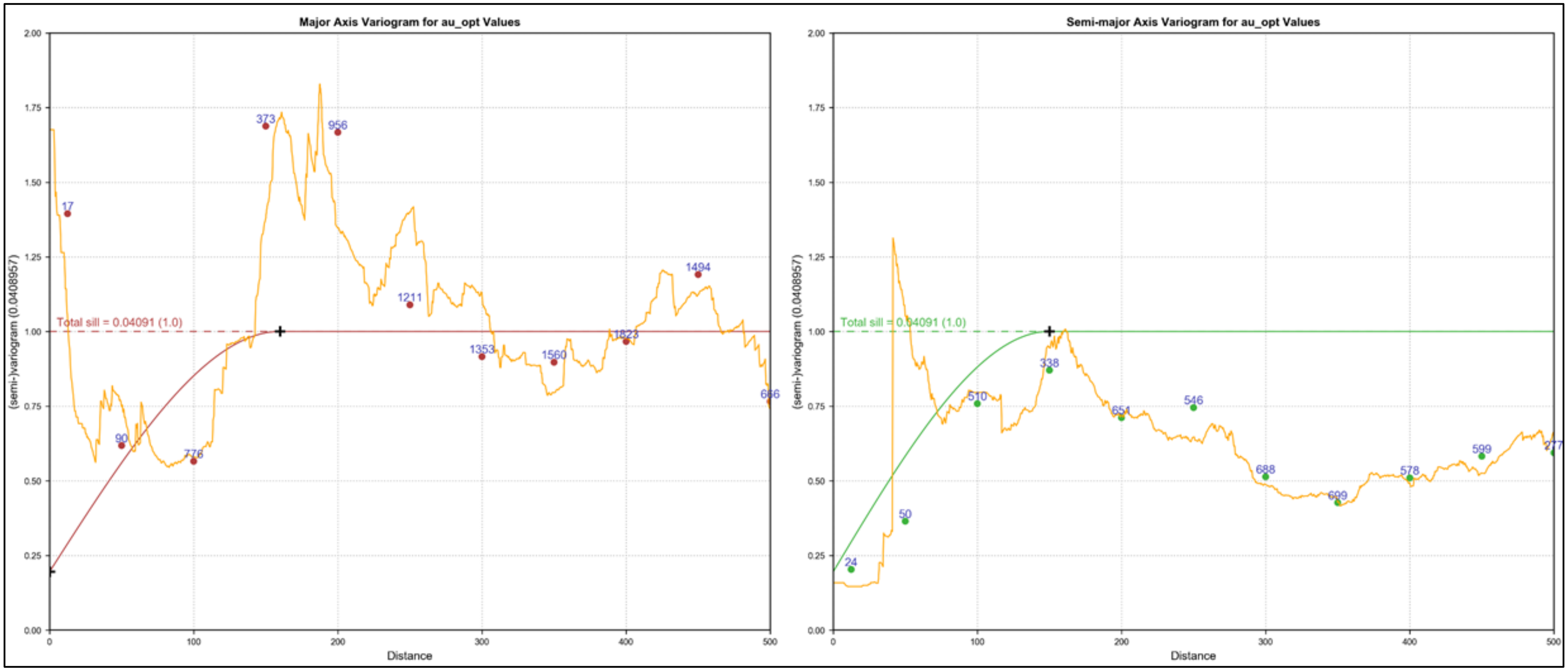


Figure 14-23 Major and Semi Major Axis Variograms for A/B Zone Domains
The moving average of the gamma (yellow) is shown. The Y axis has been normalized so the total sill is equal to 1.

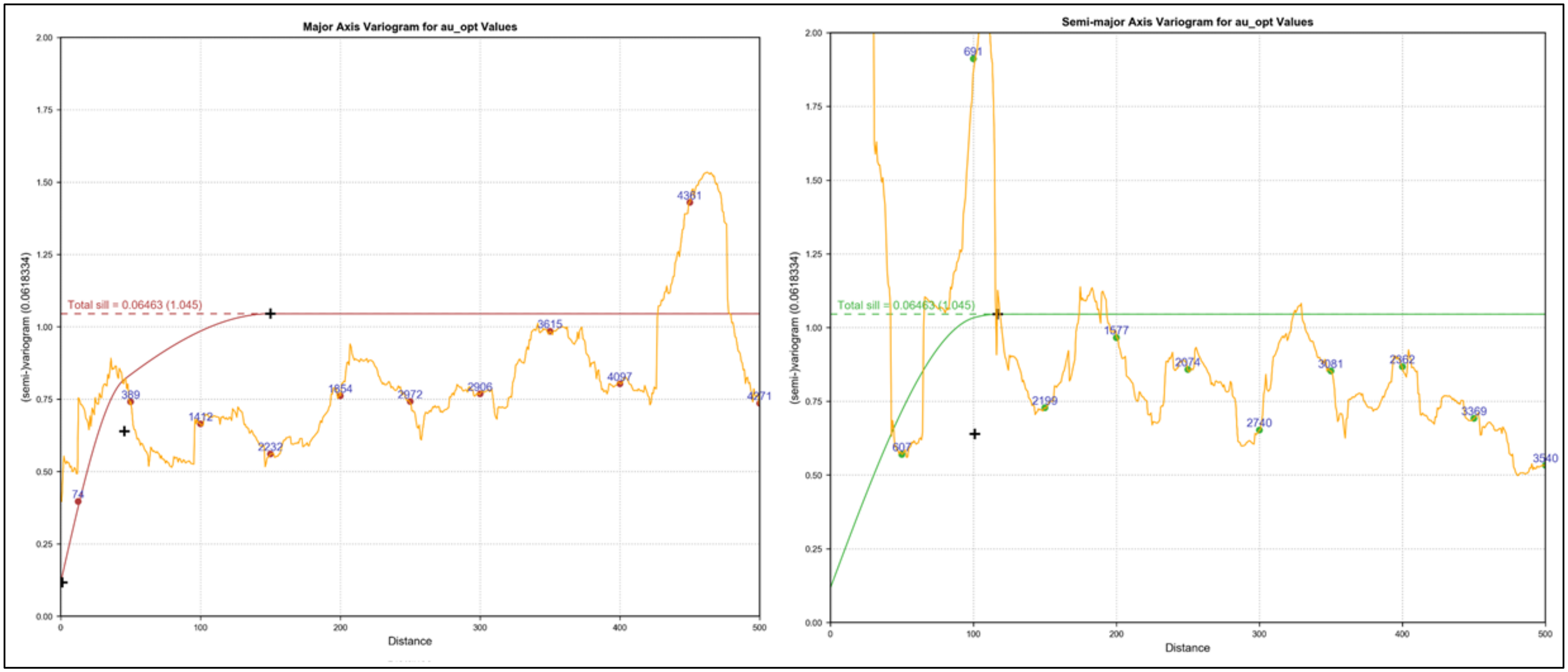


Figure 14-24 Major and Semi Major Axis Variograms for C Zone Domains.
The moving average of the gamma (yellow) is shown. The Y axis has been normalized so the total sill is equal to 1.

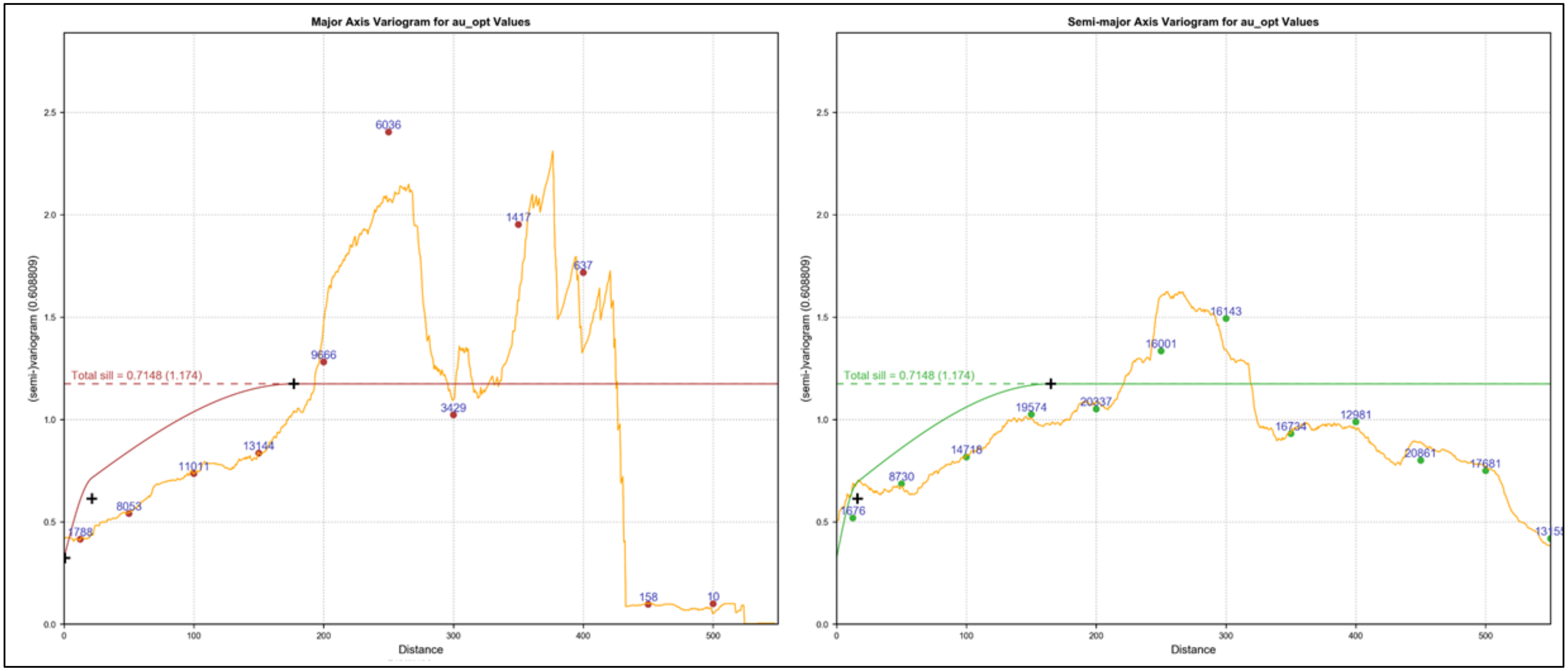


Figure 14-25 Major and Semi Major Axis Variograms for D Zone Domains.
The moving average of the gamma (yellow) is shown. The Y axis has been normalized so the total sill is equal to 1.

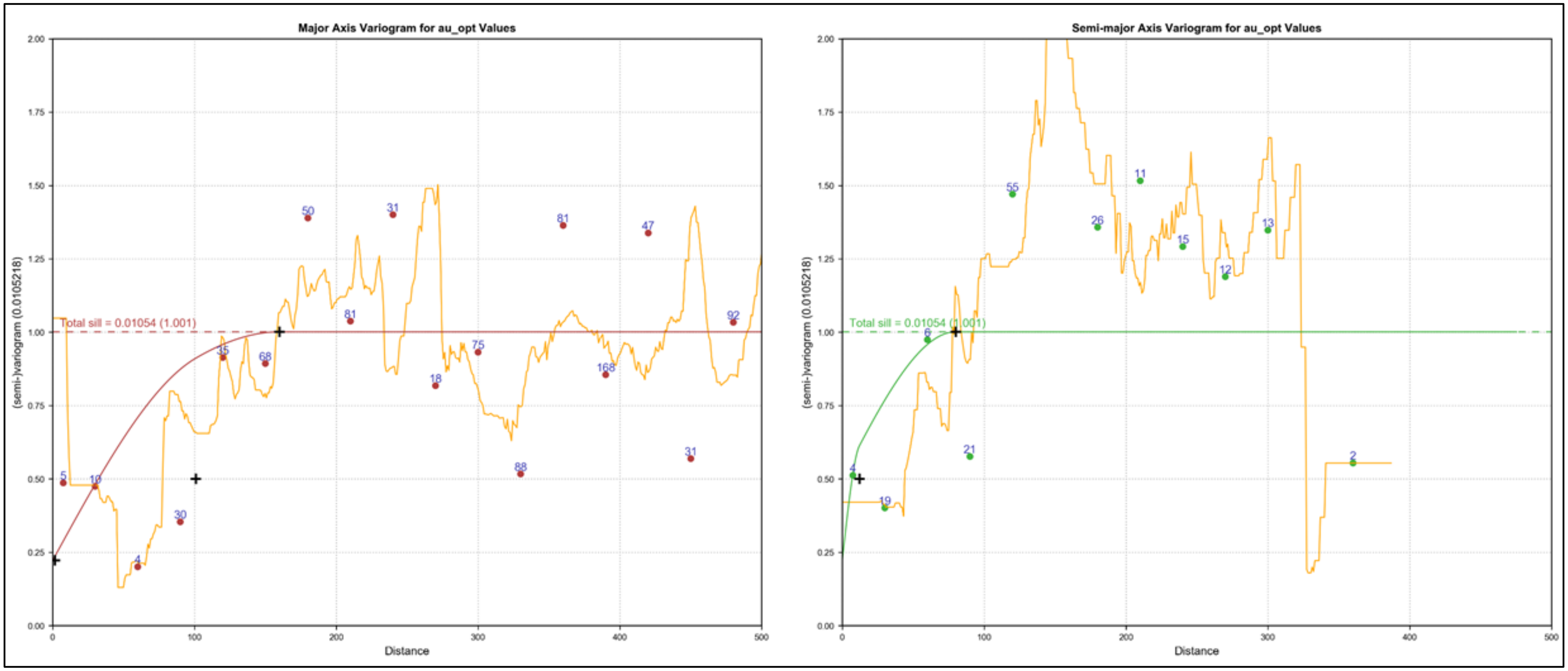


Figure 14-26 Major and Semi Major Axis Variograms for 3 of the South Zone Domains.
The moving average of the gamma (yellow) is shown. The Y axis has been normalized so the total sill is equal to 1.

14.4.7 Estimation Parameters

Table 14-12 summarizes the estimation parameters for all domains. Gold grades were estimated with an ordinary kriging algorithm for all domains using a single pass. Ordinary kriging was selected because declustering is built in to the algorithm. Additionally, the smoothing resulting from kriging estimates better predicts the actual grades encountered for any given mining block. The search ellipse applies the orientation and maximum ranges from the modeled variograms. Blocks informed by an estimation pass contained a minimum of 1 composite, up to maximum of 5 composites within anisotropic search distances, with a maximum of 2 composites contained in a single drillhole. These parameters were applied to all domains except for:

- In the D zone, clustered drillhole spacing required the application of an octant search where no more than 3 composites could come from a single sector, with at least one sector containing composites. To ensure the octant search had enough composites to estimate with, blocks could be estimated with a minimum of 1 composite, a maximum of 10 composites, with no more than 2 composites coming from a single drillhole;
- For domains without a modeled variogram, the search ellipse was rotated down dip and across strike for each estimation domain. A range of 150 ft x 150 ft x 30 ft was applied to all domains without a modeled variogram. These ranges represent the generalized distances observed from the variography study.

Table 14-12 Summary of Estimation Parameters used to Estimate Gold Grades at Copperstone

Zone/Domain	Search Ellipse						Composite Selection				
	Maximum	Intermediate	Minimum	Dip	Dip azimuth	Pitch	Min	Max	Samp/Sector	Max Sector	Max/DH
A/B Zone	160	150	30	30	50	55	1	5	N/A	N/A	2
C Zone	150	117	30	38.4	55.98	68.4	1	5	N/A	N/A	2
D Zone	177	165	30	25	70	125	1	10	3	7	2
South Zone*	160	80	30	46.05	44.07	152.2	1	5	N/A	N/A	2
FW01	150	150	30	80	45	110	1	5	N/A	N/A	2
FW02	150	150	30	40	55	23	1	5	N/A	N/A	2
FW03	150	150	30	40	70	110	1	5	N/A	N/A	2
FW04	150	150	30	45	60	75	1	5	N/A	N/A	2
FW05	150	150	30	45	70	23	1	5	N/A	N/A	2
FW06	150	150	30	40	90	45	1	5	N/A	N/A	2
S03	150	150	30	15	67	155	1	5	N/A	N/A	2
S05	150	150	30	25	127	107	1	5	N/A	N/A	2
CUP1	150	150	30	60	23	67	1	5	N/A	N/A	2
CUP2	150	150	30	50	80	160	1	5	N/A	N/A	2
CUP3	150	150	30	22	72	66	1	5	N/A	N/A	2
CUP4	150	150	30	50	70	155	1	5	N/A	N/A	2
CUP5	150	150	30	50	50	0	1	5	N/A	N/A	2
*** Modeled variogram parameters were applied to domains SW01, SW02, and SW04**											

14.4.8 Validation

Visual and statistical methods were employed to validate the estimate of gold grades within Copperstone.

14.4.8.1 Visual Inspection

Modeled gold grades were compared against composites in 3D and in cross section. The example sections displaying estimated gold grades are shown in Figures 14-28 through 14-31. The figures show agreement between modeled and composite grades. Modeled blocks display grade continuity along strike and down dip. Figure 14-27 shows an orthographic view of the Copperstone gold estimate.

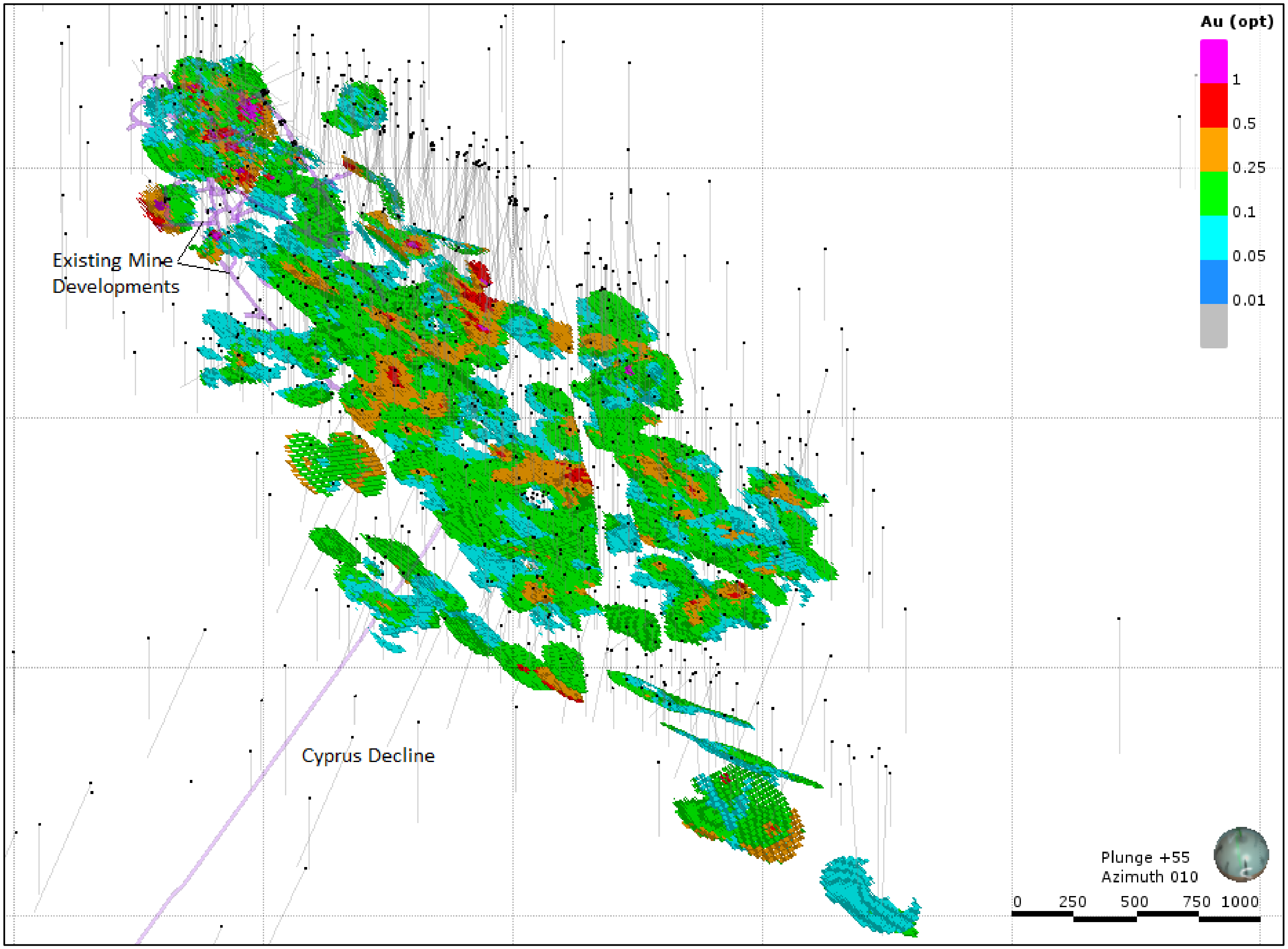


Figure 14-27 Orthographic 3D View of the OK Gold Estimate for the Copperstone Property Showing Gold Grades Above 0.05 opt

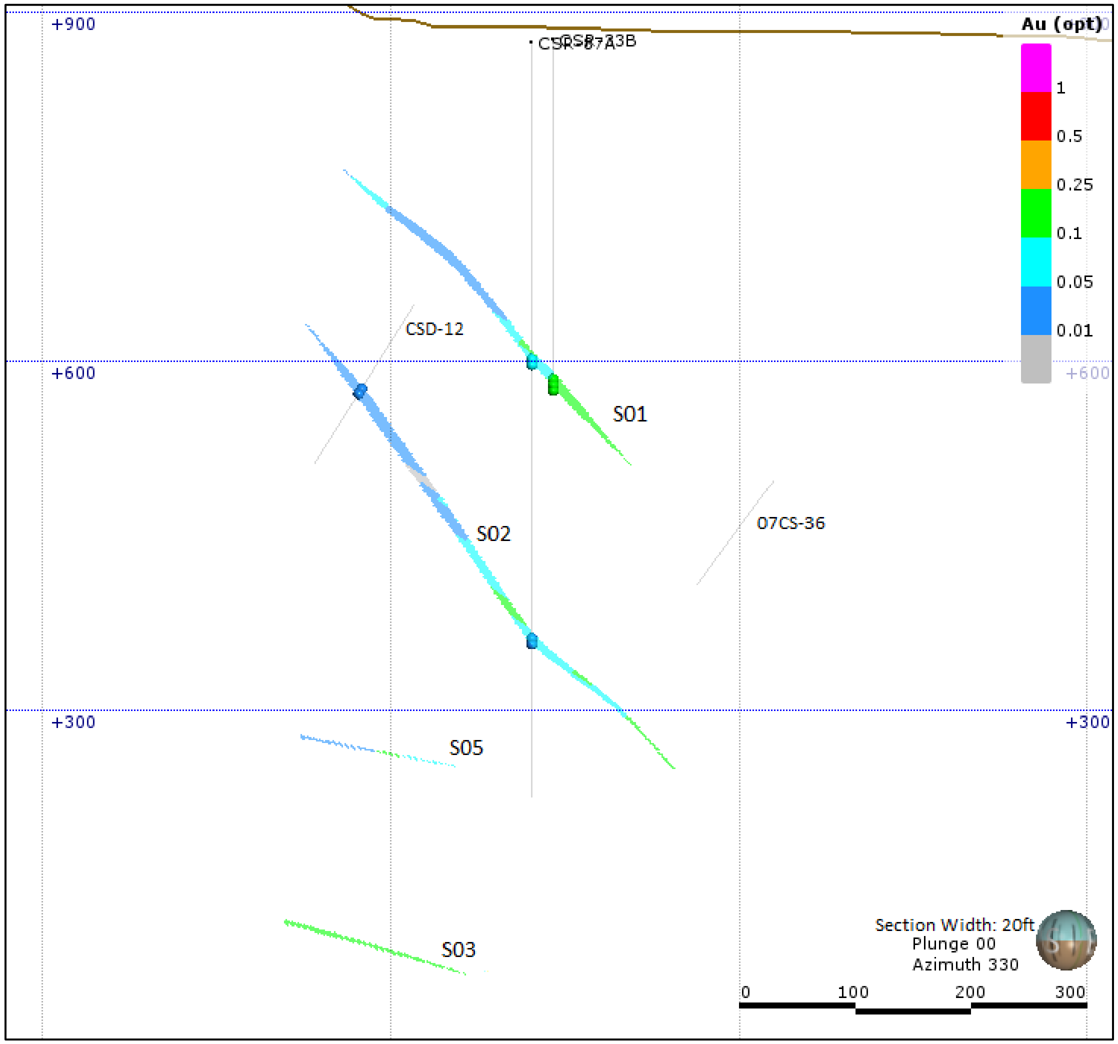


Figure 14-28 Cross Section from Southwest to Northeast, Looking Northwest, showing the OK Gold Estimate Grades vs. Composite Gold Grades

Hard Rock Consulting, LLC

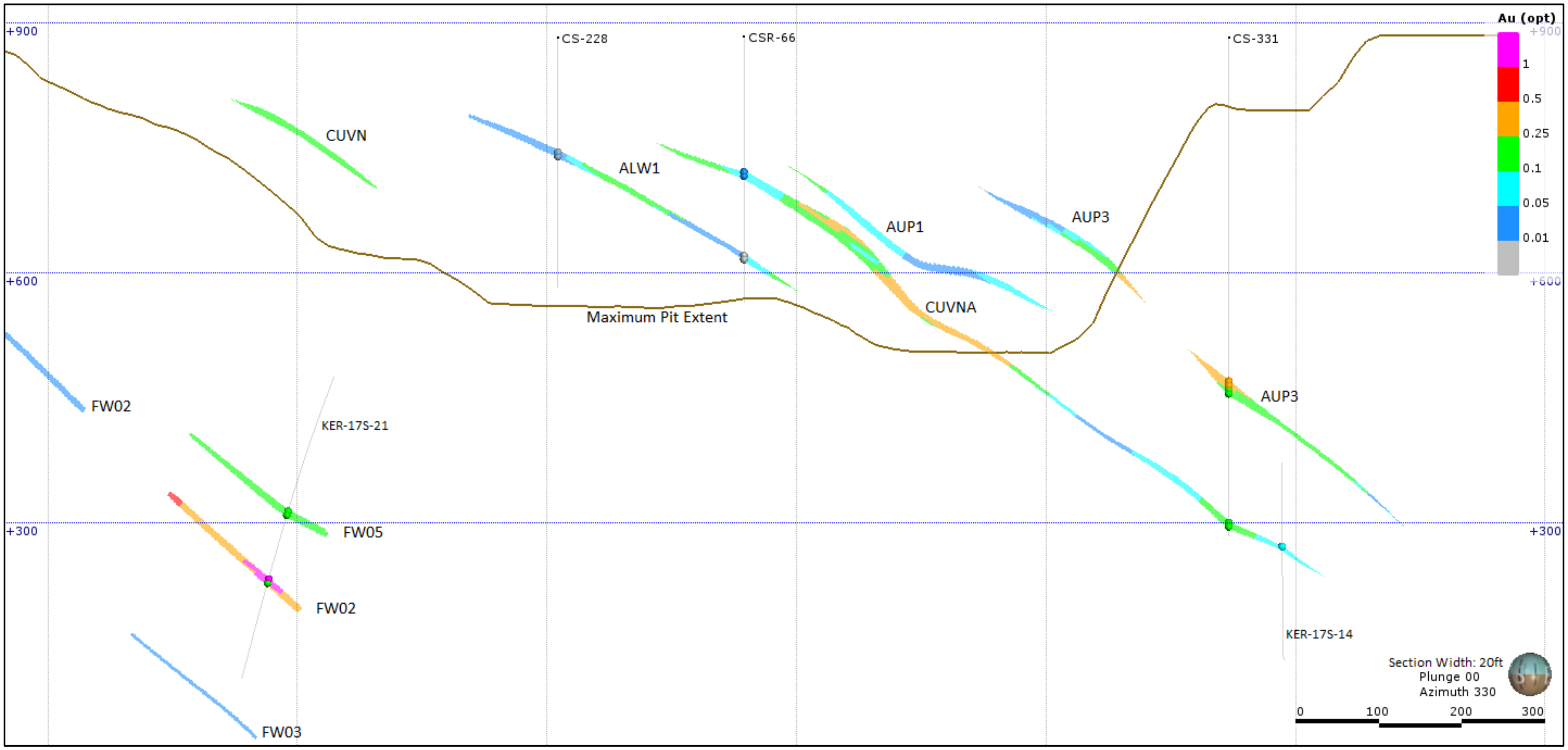


Figure 14-29 Cross Section from Southwest to Northeast, Looking Northwest, showing the OK Gold Estimate Grades vs. Composite Gold Grades in the Footwall and A/B Zones

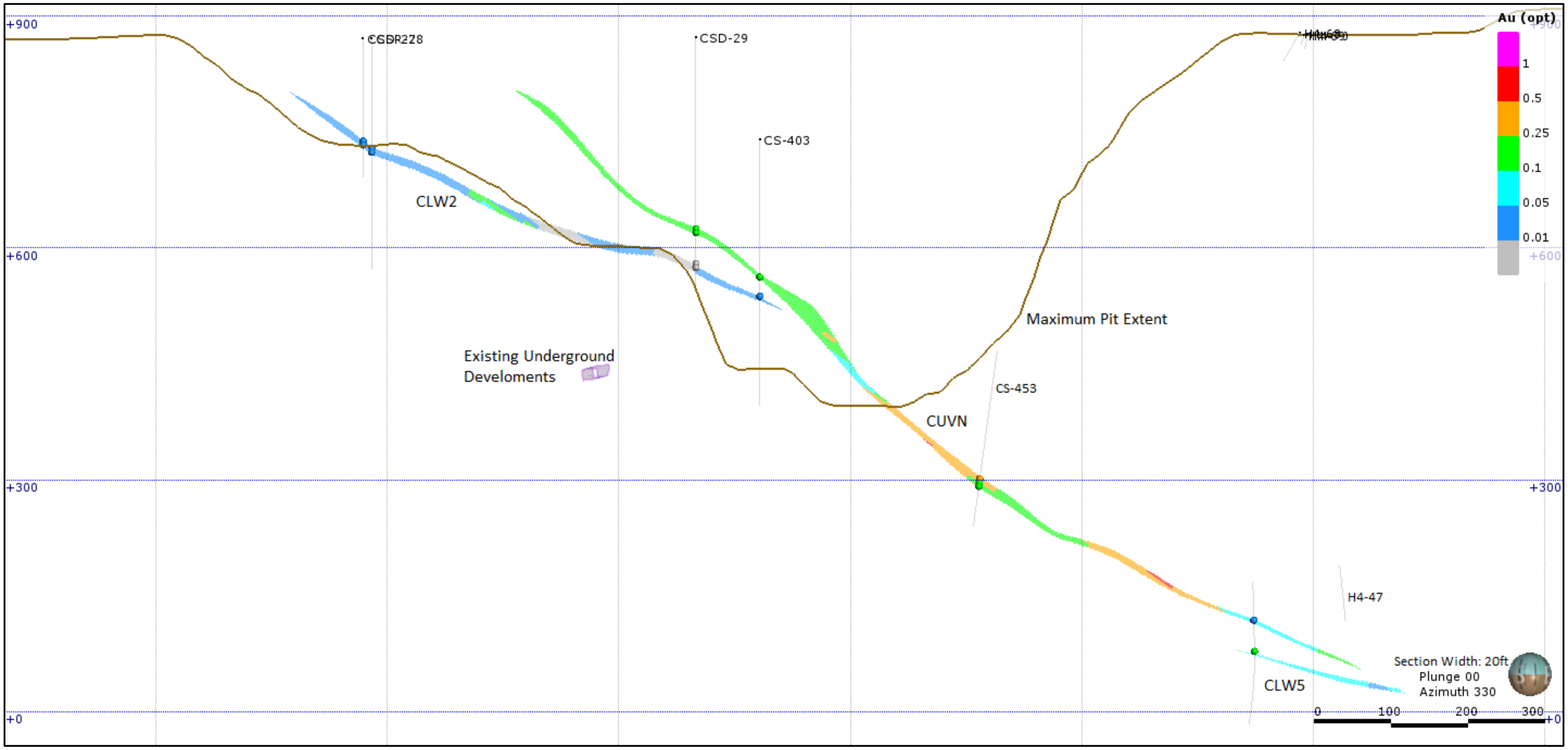


Figure 14-30 Cross Section from Southwest to Northeast, Looking Northwest, showing the OK Gold Estimate Grades vs. Composite Gold Grades in the C Zone

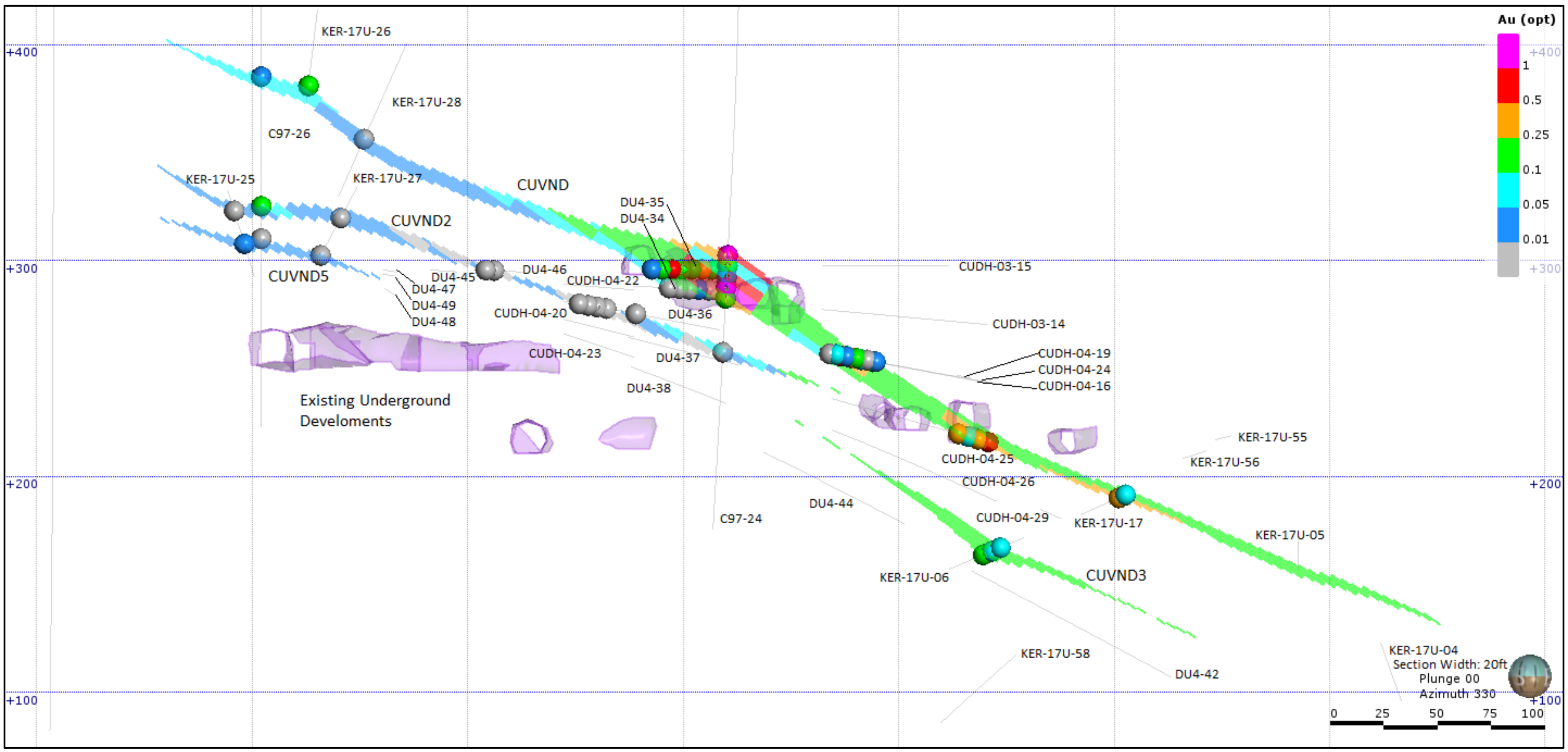


Figure 14-31 Cross Section from Southwest to Northeast, Looking Northwest, showing the OK Gold Estimate Grades vs. Composite Gold Grades in the D Zone

14.4.8.2 Statistical Validation

Inverse distance 2.5 (“ID”) and nearest neighbor (“NN”) models generated for comparison to the ordinary krige (“OK”) estimate results. Descriptive statistics for all estimation results and drillhole composites for all estimated domains are reported in Table 14-13. Descriptive statistics for all estimation results and drillhole composites by domain are reported in Tables 14-14 through 14-19. The overall reduction of the maximum and standard deviation within the OK and ID models represent an appropriate amount of smoothing to account for the point to block volume variance relationship while maintaining similar means. This is supported in Figure 14-32, which compares the log probability plots of each of the models for all estimated domains. Log probability plots for each domain are presented in Appendix F.

Table 14-13 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades for All Estimated Domains

Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
Composite	2748	0.2195	1.0177	4.6358	0.0001	0.0884	24.9960
Nearest Neighbor	555533	0.1616	0.3461	2.1420	0.0001	0.1020	13.5352
Inverse Distance 2.5	555455	0.1404	0.1647	1.1725	0.0001	0.1133	9.5344
Ordinary Krige	555368	0.1407	0.1353	0.9615	-0.0016	0.1205	4.2024

Table 14-14 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by A/B Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
CUVNA	Composite	159	0.1867	0.1462	0.7828	0.0020	0.1380	0.8720
	Nearest Neighbor	38937	0.1869	0.1513	0.8094	0.0020	0.1300	0.8720
	Inverse Distance 2.5	38855	0.1853	0.1042	0.5626	0.0032	0.1664	0.8147
	Ordinary Krige	38855	0.1884	0.0943	0.5007	0.0224	0.1725	0.6593
CUVNB	Composite	65	0.1629	0.1865	1.1446	0.0001	0.1050	0.8520
	Nearest Neighbor	15664	0.1819	0.1795	0.9871	0.0001	0.1470	0.8520
	Inverse Distance 2.5	15671	0.1698	0.1004	0.5916	0.0024	0.1553	0.7546
	Ordinary Krige	15671	0.1712	0.0919	0.5365	0.0079	0.1579	0.7378
ALW1	Composite	62	0.1389	0.2020	1.4539	0.0001	0.0590	1.0570
	Nearest Neighbor	24595	0.1402	0.1946	1.3876	0.0001	0.0730	1.0570
	Inverse Distance 2.5	24602	0.1289	0.1251	0.9703	0.0001	0.0937	0.8613
	Ordinary Krige	24602	0.1293	0.1100	0.8508	0.0001	0.1044	0.7231
ALW2	Composite	8	0.1525	0.0591	0.3874	0.1050	0.1320	0.2610
	Nearest Neighbor	2407	0.1436	0.0452	0.3150	0.1050	0.1320	0.2610
	Inverse Distance 2.5	2407	0.1425	0.0281	0.1973	0.1054	0.1355	0.2570
	Ordinary Krige	2407	0.1420	0.0216	0.1524	0.1127	0.1338	0.2270
ALW3	Composite	35	0.1296	0.1779	1.3728	0.0001	0.1080	0.8400
	Nearest Neighbor	7636	0.1100	0.1561	1.4193	0.0001	0.0380	0.8400
	Inverse Distance 2.5	7618	0.1069	0.1165	1.0897	0.0001	0.0803	0.8342
	Ordinary Krige	7618	0.1034	0.0990	0.9572	0.0003	0.0815	0.6231
ALW4	Composite	17	0.1717	0.1289	0.7510	0.0030	0.1550	0.5970
	Nearest Neighbor	4366	0.1598	0.1103	0.6904	0.0030	0.1520	0.5970
	Inverse Distance 2.5	4387	0.1496	0.0576	0.3850	0.0045	0.1537	0.5533
	Ordinary Krige	4387	0.1509	0.0482	0.3194	0.0270	0.1544	0.3743
AUP1	Composite	36	0.1073	0.1129	1.0521	0.0100	0.0670	0.4220
	Nearest Neighbor	10389	0.1059	0.1187	1.1207	0.0100	0.0620	0.4220
	Inverse Distance 2.5	10389	0.0938	0.0727	0.7756	0.0106	0.0676	0.4188
	Ordinary Krige	10389	0.0918	0.0637	0.6934	0.0107	0.0667	0.4023
AUP2	Composite	19	0.1814	0.1059	0.5837	0.0460	0.1450	0.5180
	Nearest Neighbor	5332	0.1677	0.0783	0.4667	0.0460	0.1450	0.5180
	Inverse Distance 2.5	5332	0.1627	0.0510	0.3133	0.0780	0.1473	0.4736
	Ordinary Krige	5332	0.1608	0.0424	0.2639	0.0958	0.1555	0.3354
AUP3	Composite	26	0.1465	0.1391	0.9492	0.0050	0.1150	0.3940
	Nearest Neighbor	7118	0.1463	0.1390	0.9505	0.0050	0.1150	0.3940
	Inverse Distance 2.5	7105	0.1448	0.1091	0.7531	0.0053	0.1174	0.3931
	Ordinary Krige	7105	0.1464	0.0989	0.6753	0.0075	0.1257	0.3900
AUP4	Composite	23	0.3256	0.6590	2.0239	0.0030	0.1040	2.6936
	Nearest Neighbor	4535	0.4149	0.8205	1.9779	0.0030	0.1020	2.6936
	Inverse Distance 2.5	4535	0.1933	0.3736	1.9328	0.0053	0.1164	2.6909
	Ordinary Krige	4535	0.1769	0.2792	1.5778	0.0248	0.1212	2.1958

Table 14-15 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by C Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
CUVN	Composite	688	0.2017	0.2522	1.2502	0.0001	0.1400	3.6832
	Nearest Neighbor	147625	0.1891	0.2230	1.1790	0.0001	0.1360	3.6832
	Inverse Distance 2.5	147625	0.1829	0.1399	0.7648	0.0001	0.1571	3.5054
	Ordinary Krige	147591	0.1837	0.1236	0.6731	0.0001	0.1625	2.2226
CLW1	Composite	75	0.1941	0.3839	1.9777	0.0001	0.1095	2.8950
	Nearest Neighbor	24045	0.1213	0.1462	1.2055	0.0001	0.0760	2.8950
	Inverse Distance 2.5	24045	0.1156	0.0847	0.7328	0.0001	0.0941	1.5182
	Ordinary Krige	23995	0.1194	0.0748	0.6265	0.0001	0.1133	1.1281
CLW2	Composite	113	0.0776	0.0955	1.2309	0.0001	0.0430	0.4700
	Nearest Neighbor	27569	0.0727	0.0868	1.1942	0.0001	0.0430	0.4700
	Inverse Distance 2.5	27569	0.0695	0.0637	0.9159	0.0001	0.0511	0.4291
	Ordinary Krige	27569	0.0722	0.0575	0.7965	0.0012	0.0578	0.4116
CLW3	Composite	9	0.0872	0.0697	0.7990	0.0030	0.1090	0.2000
	Nearest Neighbor	1971	0.0853	0.0631	0.7400	0.0030	0.1090	0.2000
	Inverse Distance 2.5	1971	0.0859	0.0495	0.5759	0.0030	0.1063	0.1943
	Ordinary Krige	1971	0.0863	0.0423	0.4906	0.0030	0.0905	0.1537
CLW4	Composite	13	0.1910	0.1322	0.6923	0.0001	0.1680	0.4694
	Nearest Neighbor	1813	0.1320	0.0992	0.7515	0.0001	0.1532	0.4694
	Inverse Distance 2.5	1813	0.1114	0.0752	0.6753	0.0006	0.0969	0.3826
	Ordinary Krige	1810	0.1191	0.0625	0.5251	0.0236	0.1006	0.3903
CLW5	Composite	7	0.0980	0.1308	1.3344	0.0030	0.0560	0.3156
	Nearest Neighbor	1535	0.1165	0.1191	1.0221	0.0030	0.0560	0.3156
	Inverse Distance 2.5	1535	0.0736	0.0534	0.7258	0.0030	0.0708	0.3138
	Ordinary Krige	1535	0.0715	0.0375	0.5238	0.0030	0.0708	0.2649
CLW6	Composite	8	0.1919	0.0636	0.3316	0.1030	0.1850	0.2640
	Nearest Neighbor	1561	0.1813	0.0651	0.3591	0.1030	0.1850	0.2640
	Inverse Distance 2.5	1561	0.1832	0.0440	0.2402	0.1186	0.1683	0.2637
	Ordinary Krige	1561	0.1633	0.0262	0.1606	0.1272	0.1550	0.2510
CLW7	Composite	8	0.3479	0.3804	1.0935	0.0070	0.2880	1.0900
	Nearest Neighbor	2999	0.2901	0.2696	0.9293	0.0070	0.2880	1.0900
	Inverse Distance 2.5	2999	0.2441	0.2083	0.8534	0.0076	0.2280	1.0839
	Ordinary Krige	2999	0.2409	0.1914	0.7945	0.0101	0.1908	0.9603
CLW8	Composite	6	0.0953	0.1009	1.0586	0.0013	0.0690	0.2300
	Nearest Neighbor	1332	0.0864	0.0875	1.0128	0.0013	0.0690	0.2300
	Inverse Distance 2.5	1332	0.0558	0.0505	0.9062	0.0014	0.0526	0.2286
	Ordinary Krige	1332	0.0525	0.0390	0.7432	0.0030	0.0452	0.2034
CLW9	Composite	13	0.0965	0.1481	1.5351	0.0001	0.0132	0.4468
	Nearest Neighbor	847	0.1094	0.1540	1.4069	0.0001	0.0132	0.4468
	Inverse Distance 2.5	847	0.1031	0.0841	0.8160	0.0006	0.0908	0.4323
	Ordinary Krige	847	0.0965	0.0623	0.6456	0.0029	0.0889	0.3361
CUP6	Composite	14	0.1383	0.0978	0.7074	0.0030	0.1200	0.3110
	Nearest Neighbor	2857	0.1463	0.0854	0.5838	0.0030	0.1550	0.3110
	Inverse Distance 2.5	2857	0.1349	0.0516	0.3822	0.0077	0.1366	0.3029
	Ordinary Krige	2857	0.1373	0.0410	0.2984	0.0274	0.1378	0.2694

Table 14-16 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by D Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
CUVND	Composite	360	0.3328	0.9070	2.7254	0.0001	0.1013	13.5352
	Nearest Neighbor	14347	0.2120	0.7839	3.6977	0.0001	0.0637	13.5352
	Inverse Distance 2.5	14347	0.1900	0.4135	2.1761	0.0001	0.0804	8.6926
	Ordinary Krige	14347	0.2113	0.3030	1.4341	0.0001	0.1366	4.2024
CUVND2	Composite	231	0.1813	0.8577	4.7303	0.0001	0.0136	12.0100
	Nearest Neighbor	9140	0.2466	1.0525	4.2677	0.0001	0.0920	12.0100
	Inverse Distance 2.5	9140	0.1533	0.4677	3.0511	0.0013	0.0936	9.5344
	Ordinary Krige	9140	0.1626	0.2937	1.8064	0.0020	0.1203	3.7941
CUVND3	Composite	234	0.1510	0.3958	2.6207	0.0001	0.0172	3.5350
	Nearest Neighbor	6977	0.2741	0.7074	2.5808	0.0001	0.0243	3.5350
	Inverse Distance 2.5	6977	0.2134	0.3261	1.5284	0.0004	0.1067	2.9437
	Ordinary Krige	6977	0.1993	0.1915	0.9607	0.0008	0.1337	1.7983
CUVND4	Composite	132	0.1120	0.5017	4.4797	0.0001	0.0060	3.7430
	Nearest Neighbor	5280	0.3484	0.8728	2.5051	0.0001	0.0040	3.7430
	Inverse Distance 2.5	5280	0.1652	0.3611	2.1859	0.0001	0.0280	2.9889
	Ordinary Krige	5280	0.1510	0.2538	1.6807	0.0001	0.0788	2.1263
CUVND5	Composite	20	0.2263	0.6619	2.9246	0.0002	0.0073	2.9396
	Nearest Neighbor	1245	0.5158	1.0130	1.9639	0.0002	0.0100	2.9396
	Inverse Distance 2.5	1245	0.3191	0.6020	1.8862	0.0051	0.0915	2.7896
	Ordinary Krige	1245	0.2218	0.3178	1.4326	0.0074	0.1135	1.3716

Table 14-17 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by Footwall Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
FW01	Composite	13	0.2883	0.5377	1.8652	0.0020	0.0090	1.5040
	Nearest Neighbor	345	0.1674	0.4089	2.4431	0.0020	0.0050	1.5040
	Inverse Distance 2.5	345	0.1552	0.2775	1.7879	0.0025	0.0488	1.2022
	Ordinary Krige	345	0.1490	0.2081	1.3965	0.0025	0.0801	0.8244
FW02	Composite	73	0.1421	0.5278	3.7134	0.0001	0.0084	4.2260
	Nearest Neighbor	42607	0.1860	0.7876	4.2353	0.0001	0.0090	4.2260
	Inverse Distance 2.5	42607	0.0610	0.1883	3.0850	0.0001	0.0148	4.0299
	Ordinary Krige	42607	0.0655	0.1761	2.6900	-0.0016	0.0150	2.9490
FW03	Composite	37	0.0674	0.1028	1.5249	0.0001	0.0230	0.5233
	Nearest Neighbor	27964	0.0977	0.1441	1.4750	0.0001	0.0460	0.5233
	Inverse Distance 2.5	27964	0.0684	0.0631	0.9227	0.0001	0.0559	0.5233
	Ordinary Krige	27964	0.0681	0.0617	0.9062	0.0001	0.0570	0.5233
FW04	Composite	7	0.1851	0.1243	0.6716	0.0265	0.1784	0.3954
	Nearest Neighbor	9219	0.1509	0.1147	0.7596	0.0265	0.1286	0.3954
	Inverse Distance 2.5	9219	0.1355	0.0757	0.5588	0.0265	0.1733	0.3731
	Ordinary Krige	9219	0.1366	0.0745	0.5453	0.0265	0.1739	0.3171
FW05	Composite	57	0.0339	0.0708	2.0891	0.0001	0.0050	0.3240
	Nearest Neighbor	29630	0.0472	0.0740	1.5664	0.0001	0.0100	0.3240
	Inverse Distance 2.5	29630	0.0432	0.0533	1.2349	0.0001	0.0136	0.3235
	Ordinary Krige	29630	0.0435	0.0509	1.1707	0.0001	0.0161	0.2602
FW06	Composite	8	0.1869	0.2220	1.1877	0.0010	0.0221	0.5898
	Nearest Neighbor	11868	0.1317	0.1758	1.3352	0.0010	0.0221	0.5898
	Inverse Distance 2.5	11868	0.1248	0.1237	0.9907	0.0010	0.0896	0.5392
	Ordinary Krige	11868	0.1286	0.1216	0.9459	0.0010	0.1263	0.4982

Table 14-18 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by South Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
S01	Composite	54	0.1048	0.0991	0.9465	0.0001	0.0770	0.3650
	Nearest Neighbor	8120	0.1091	0.0975	0.8941	0.0001	0.1020	0.3650
	Inverse Distance 2.5	8120	0.1035	0.0728	0.7036	0.0005	0.0911	0.3630
	Ordinary Krige	8120	0.1011	0.0610	0.6031	0.0020	0.0958	0.3001
S02	Composite	25	0.0902	0.1136	1.2584	0.0001	0.0330	0.4500
	Nearest Neighbor	14041	0.0939	0.1317	1.4023	0.0001	0.0320	0.4500
	Inverse Distance 2.5	14041	0.0671	0.0561	0.8355	0.0001	0.0577	0.3689
	Ordinary Krige	14041	0.0690	0.0475	0.6881	0.0001	0.0695	0.2577
S03	Composite	12	2.0447	6.9111	3.3800	0.0070	0.0800	24.8060
	Nearest Neighbor	15857	0.0837	0.0832	0.9940	0.0070	0.0716	0.2500
	Inverse Distance 2.5	15857	0.0797	0.0631	0.7914	0.0070	0.0716	0.2500
	Ordinary Krige	15857	0.0833	0.0607	0.7285	0.0070	0.0716	0.2500
S04	Composite	5	0.1841	0.0487	0.2643	0.1300	0.1600	0.2400
	Nearest Neighbor	3309	0.1798	0.0466	0.2594	0.1300	0.1600	0.2400
	Inverse Distance 2.5	3309	0.1690	0.0258	0.1524	0.1300	0.1844	0.2268
	Ordinary Krige	3309	0.1702	0.0247	0.1451	0.1300	0.1838	0.2200
S05	Composite	9	0.4128	0.6710	1.6255	0.0100	0.2060	2.0920
	Nearest Neighbor	7837	0.2597	0.4212	1.6215	0.0100	0.0700	2.0920
	Inverse Distance 2.5	7837	0.2443	0.2035	0.8329	0.0100	0.1899	1.8435
	Ordinary Krige	7837	0.1611	0.1236	0.7675	0.0100	0.1401	1.1775

Table 14-19 Descriptive Statistics Comparing Composite Gold Grades (opt) against Modeled NN, ID, and OK Estimated Gold Grades by Upper Fracture Zone Domains

Domain	Estimate	Count	Mean	Std. dev.	CV	Minimum	Median	Maximum
CUP1	Composite	26	0.0721	0.1316	1.8255	0.0001	0.0130	0.5190
	Nearest Neighbor	4388	0.0627	0.1085	1.7296	0.0001	0.0120	0.5190
	Inverse Distance 2.5	4388	0.0554	0.0752	1.3560	0.0015	0.0181	0.4564
	Ordinary Krige	4388	0.0535	0.0605	1.1322	0.0001	0.0281	0.3199
CUP2	Composite	10	2.4362	7.6728	3.1495	0.0030	0.1000	24.9960
	Nearest Neighbor	1047	0.0892	0.0960	1.0765	0.0030	0.0140	0.2690
	Inverse Distance 2.5	1047	0.1084	0.0511	0.4717	0.0048	0.1032	0.2506
	Ordinary Krige	1047	0.1013	0.0324	0.3197	0.0388	0.0995	0.1831
CUP3	Composite	13	0.1875	0.2743	1.4626	0.0001	0.0030	0.8750
	Nearest Neighbor	2720	0.2203	0.2666	1.2101	0.0001	0.0030	0.8750
	Inverse Distance 2.5	2720	0.1449	0.1243	0.8583	0.0042	0.1257	0.7767
	Ordinary Krige	2720	0.1361	0.0841	0.6178	0.0354	0.1116	0.5216
CUP4	Composite	9	0.1029	0.1603	1.5583	0.0010	0.0370	0.4630
	Nearest Neighbor	2970	0.1112	0.1524	1.3711	0.0010	0.0370	0.4630
	Inverse Distance 2.5	2970	0.0948	0.1067	1.1259	0.0013	0.0424	0.4627
	Ordinary Krige	2970	0.0901	0.0989	1.0984	0.0029	0.0453	0.4323
CUP5	Composite	9	5.0061	9.5569	1.9090	0.0040	0.0208	23.5160
	Nearest Neighbor	1489	0.2233	0.2804	1.2559	0.0040	0.0190	0.6180
	Inverse Distance 2.5	1489	0.2438	0.2070	0.8491	0.0130	0.1652	0.6176
	Ordinary Krige	1489	0.2282	0.1732	0.7593	0.0141	0.1904	0.5937

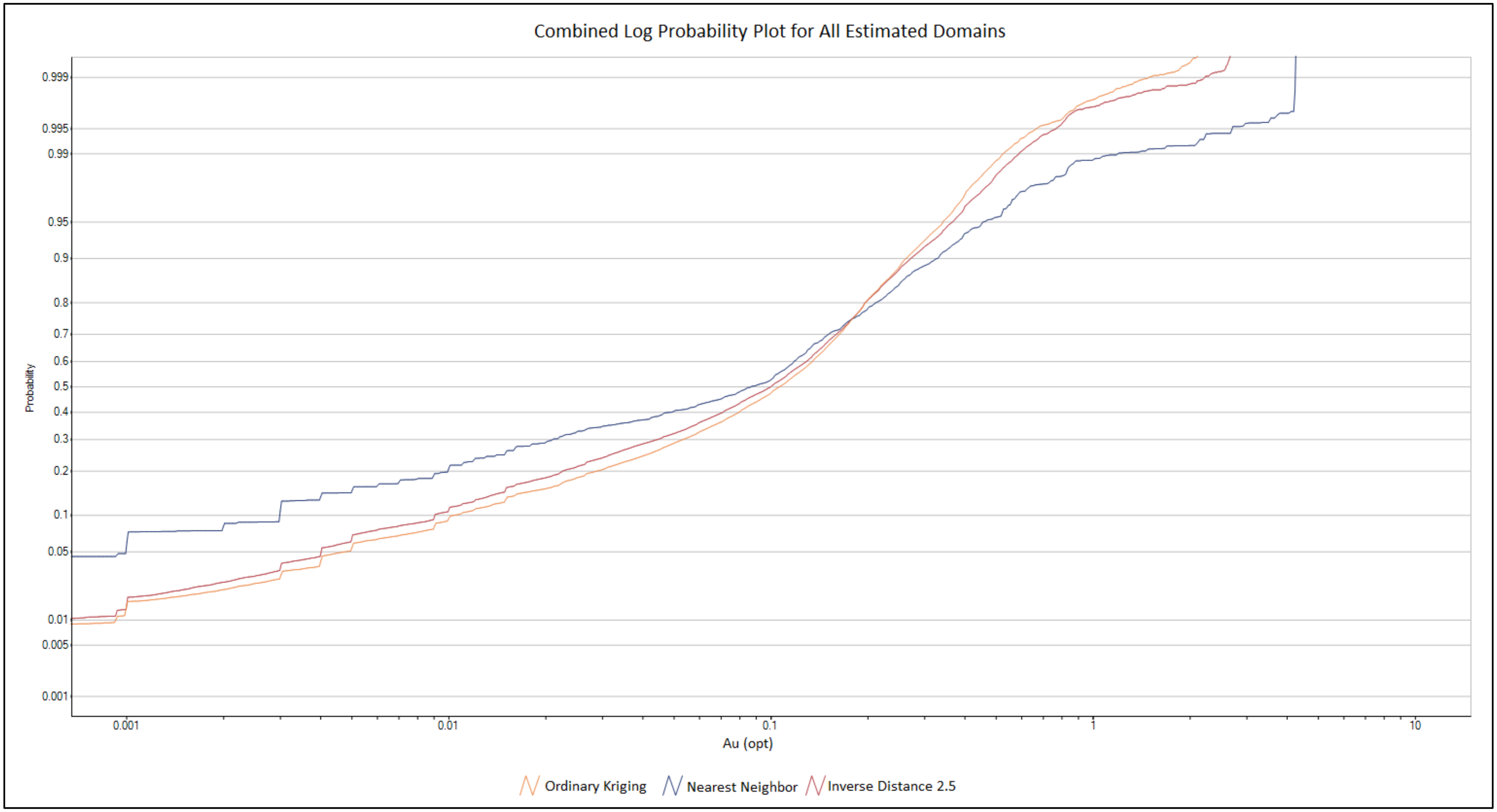


Figure 14-32 Log Probability Plot showing Modeled Grades for All Estimated Domains

Swath plots were generated to compare average estimated gold grade from the OK method to the two validation model methods (ID and NN). The results from the OK model, plus those for the validation ID model method are compared using the swath plot to the distribution derived from the NN model.

Three swath plots of gold grades were generated for each domain and are presented in Appendix G. Swath plots for gold are presented for all estimated domains in the following figures: Figure 14-33 shows average gold grade from northwest to southeast along strike; Figure 14-34 shows average gold grade from southwest to northeast down dip, and Figure 14-35 shows average gold grade from top to bottom down thickness.

On a local scale, the nearest neighbor model does not provide a reliable estimate of grade, due to NN estimates not using restrictive distances for outliers. As a result, average grades seen in the NN estimate are exaggerated compared the OK and ID estimates. On a much larger scale, it represents an unbiased estimation of the grade distribution based on the total data set. Therefore, if the OK model is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be similar to the distribution of grade from the nearest neighbor.

Correlation between the grade estimation methods appears reasonable. Variation between model estimates increases near model edges and is a result of lower drilling density.

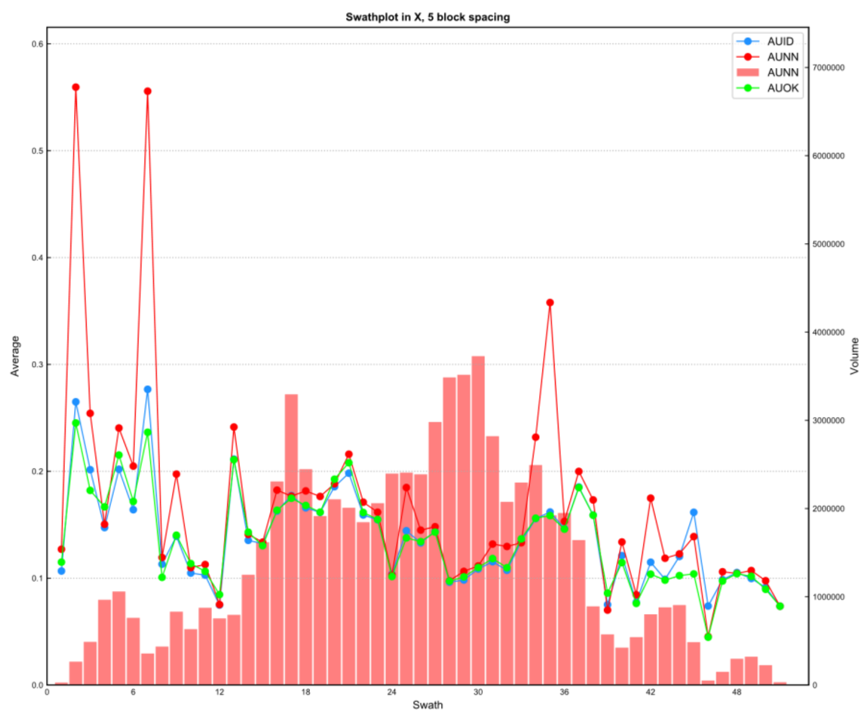


Figure 14-33 Swath Plot from Northwest to Southeast (Along Strike) showing Average Gold Grade (opt) for NN (Red) ID (Blue) and OK (Green) Estimates for All Estimated Domains

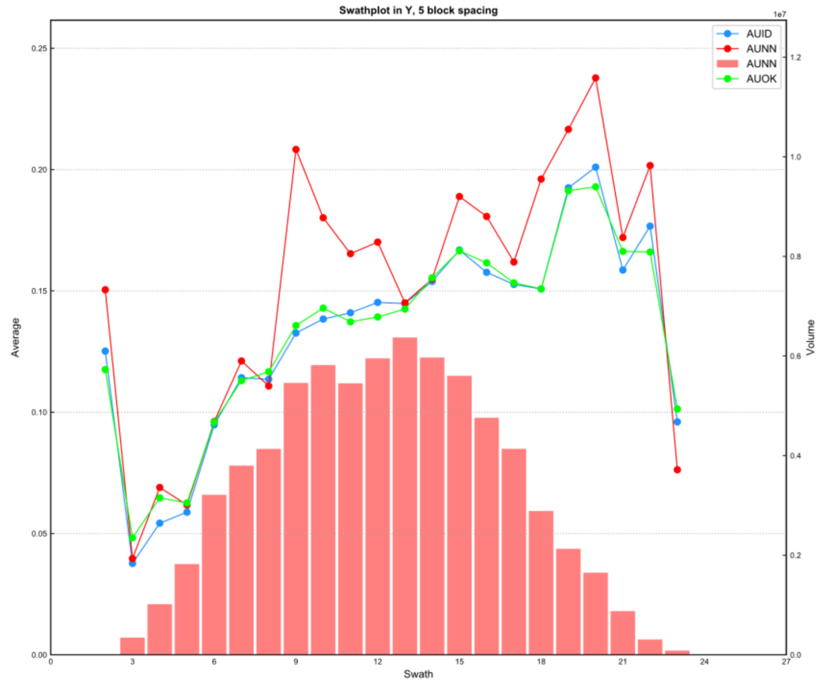


Figure 14-34 Swath Plot from Southwest to Northeast (Down Dip) showing Average Gold Grade (opt) for NN (Red) ID (Blue) and OK (Green) Estimates for All Estimated Domains

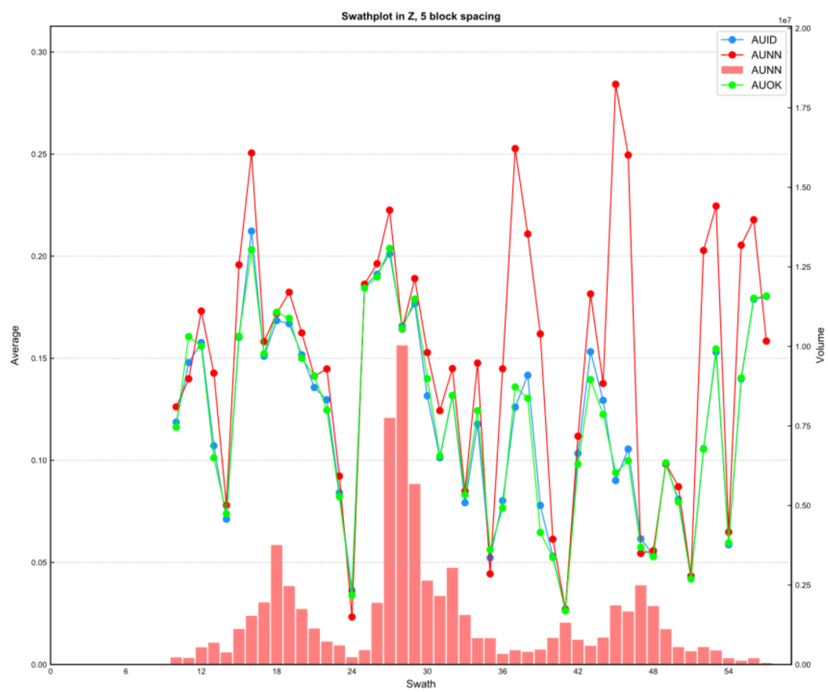


Figure 14-35 Swath Plot from Top to Bottom (Down Thickness) showing Average Gold Grade (opt) for NN (Red) ID (Blue) and OK (Green) Estimates for All Estimated Domains

14.4.9 Density

Two hundred forty-six density measurements from core drillholes along the strike length of the deposit were used to determine density for blocks inside, and outside estimation domains by stratigraphic unit. Length weighted means were used to assign densities to blocks inside and outside the ironstone, metasedimentary/phyllite, and quartz latite porphyry rock types. Quaternary alluvium was assigned a density based on average density of packed sand (AMEC, 2006). Basalt was assigned the same density as quartz latite porphyry. Table 14-20 summarizes the densities applied to the block model.

Table 14-20 Summary of Densities Applied to Blocks Within the Copperstone Model

Lithology	Determinations	ton (shrt)/ft^3
Quaternary Alluvium		0.054
Basalt		0.084
Ironstone (Inside Estimation Domains)	39	0.105
Ironstone	14	0.091
Quartz Latite Porphyry (Inside Estimation Domains)	32	0.084
Quartz Latite Porphyry	108	0.084
Metasediments/Schist (Inside Estimation Domains)	14	0.089
Metasediments/Schist	39	0.083

14.4.10 Mineral Resource Classification

Mineral resources reported here are classified as Measured, Indicated and Inferred according to CIM standards adopted by CIM Counsel on May 10, 2014. HRC classified the mineral resources as Measured, Indicated, and Inferred using the minimum distance from the nearest composite, the number of composites used to estimate a block, and the spatial location and confidence of the estimated domains.

All estimated gold grades within domains in the Footwall, South, Upper Fracture zones, as well as eight domains in the A/B and C zones (Table 14-21) were assigned a classification of Inferred because of limited drilling across the strike length and down dip for the domains, a larger spatial separation from other domains, and/or limited, but bourgeoning understanding of the structural controls on the domains.

Table 14-21 Domains Classified as only Inferred

Inferred Only		
ALW2	FW01	S03
CLW3	FW02	S04
CLW4	FW03	S05
CLW5	FW04	CUP1
CLW6	FW05	CUP2
CLW7	FW06	CUP3
CLW8	S01	CUP4
CLW9	S02	CUP5

Blocks within the remaining A/B and C zone domains (Table 14-22) were classified as Measured resources if the blocks were within 40 ft of a composite and estimated using at least 5 composites (three drillholes). Representing the distances at which continuity between drillholes is visually apparent while honoring the parent block size. Additionally, the utmost confidence is reached by including the maximum number of composites based on the estimation parameters. Indicated resources are those blocks within 100 ft, or roughly 2/3 the variogram range, of a composite and estimated using at least three composites (two drillholes) to ensure confidence in the estimate. Inferred resources are the remaining estimated blocks.

Table 14-22 Domains within the A/B & C zones with Mineral Resource Classifications of Measured, Indicated, and Inferred

A/B & C Zone Domains	
ALW1	CUVNA
ALW3	CUVNB
ALW4	CLW1
AUP1	CLW2
AUP2	CUP6
AUP3	CUVN
AUP4	

Mineral resource classification is more restrictive in the D zone due to the orientation of underground drilling reducing confidence in the location and orientation of the modeled domains. Blocks within the D zone domains (Table 14-23) were classified as Measured resources if the blocks were within 25 ft of a composite and estimated with at least 10 composites (5 drillholes). Indicated Resources are those blocks within 50 ft of a composite and estimated with at least 5 composites (3 drillholes). Inferred resources are the remaining estimated blocks.

Table 14-23 Domains within the D zone with Mineral Resource Classifications of Measured, Indicated, and Inferred

D Zone Domains	
CUVND	CUVND4
CUVND2	CUVND5
CUVND3	

14.4.11 Removal of Mined Out Blocks

3D solids of the existing underground developments and stopes, including a decline development from Cyprus Mining were used to classify blocks as mined out if the block centroid was inside, or within 1 ft of the development solid. These blocks could then be coded and removed from the mineral resource statement. The maximum extent of Cyprus Mines open pit operation is not completely known due to backfilling inside the pit. However, in 2006 AMEC constructed an estimate of the maximum mined out surface. Those blocks within that surface were coded as mined out and removed from the resource estimate.

14.4.12 Sensitivity

The block model tons and grade are shown in Figure 14-36 at variable economic cutoff grades as a sensitivity analysis.

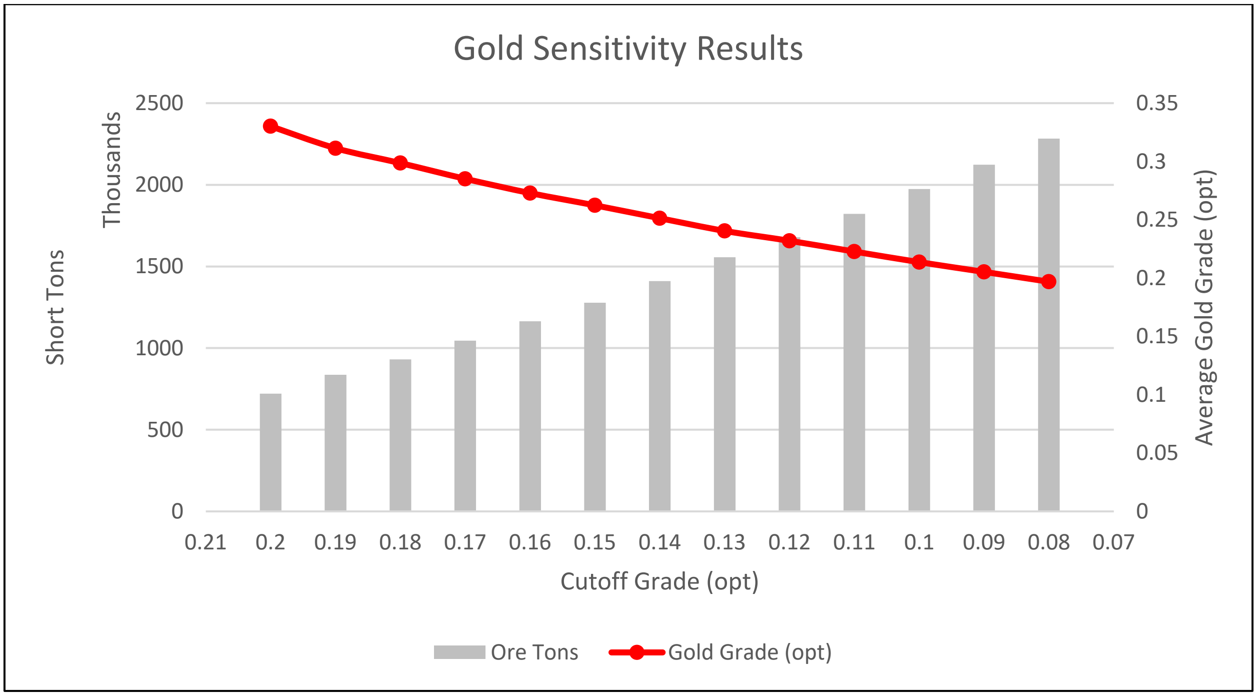


Figure 14-36 Gold Sensitivity Chart

14.4.13 Mineral Resources Statement

The undiluted Copperstone project mineral resource statement is presented in Tables 14-24 and 14-25 below. The results reported in the mineral resource have been rounded to reflect the approximation of grade and quantity which can be achieved at this level of resource estimation. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. Mineral resources are quoted inclusive of mineral reserves. Mineral resources that are not mineral reserves do not have demonstrated economic viability and may be materially affected by modifying factors including but not restricted to mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors. Due to the uncertainty that may be attached to Inferred mineral resources, it cannot be assumed that all or any part of an Inferred mineral resource will be upgraded to an Indicated or Measured mineral resource as a result of continued exploration.

The mineral resources are confined to material exceeding the cutoff grade of 0.100 opt within coherent wireframe models and meet the test of reasonable prospect for economic extraction. The cutoff is calculated based on the operating costs, royalties, recoveries and metal prices as presented in Table 14-24. A gold price of $1375/oz was chosen which is 10% above the $1,250/oz mineral reserve price, which is the 60-month trailing average price and $74/oz less than the closing spot price at the end of March 2018. The effective date of the mineral resource estimate is April 1, 2018.

Table 14-24 Mineral Resource Cutoff Parameters

600 tpd		
UG Cutoff @	per/oz	$ 1,375.00
Cost Center		
Mining	$/ore ton	$ 74.00
Processing	$/ore ton	$ 40.00
G&A	$/ore ton	$ 14.00
Recoveries	%	95.0%
Royalties	%	2%
Refining & Smelting Cost	per/oz	$ 4.65
Total Cost	$/ore ton	$ 128.00
Gold Selling Price	per/oz	$ 1,375.00
Cutoff Grade	oz/ton	0.100

Table 14-25 Mineral Resource Statement for the Copperstone Project, La Paz County, Arizona, U.S.A., Hard Rock Consulting, LLC, April 1, 2018

Mineral Resource Classification	Tons ('000's)	oz/ton	Contained Gold ('000 oz)
Measured	527.0	0.243	128.0
Indicated	712.9	0.208	148.0
Measured + Indicated	**1,239.8**	**0.223**	**276.1**
Inferred	734.1	0.198	145.7

1. The effective date of the Mineral Resource estimate is April 1st, 2018. The QP for the estimate is Mr. Zachary J. Black, SME-RM of Hard Rock Consulting, LLC. and is independent of Kerr Mines, Inc.
2. Mineral Resources are quoted inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration.
3. Mineral resource is reported at an underground mining cutoff of 0.100 oz/ton Au beneath the historic open pit and within coherent wireframe models. The cutoff is based on the following assumptions: a long-term gold price of $1,375/oz; assumed mining cost of $74/ton, process costs of $40/ton, general and administrative and property/severance tax costs of $14/ton, refining costs of $4.65/oz and metallurgical recovery for gold of 95%.
4. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. Grades are reported in troy ounces per short ton.

15. MINERAL RESERVE ESTIMATE

Mr. Jeff Choquette, P.E., MMSA QP, of HRC is responsible for the mineral reserve estimate presented herein. Mr. Choquette is Qualified Person as defined by NI 43-101 and is independent of Kerr. The Mineral Reserve estimate was prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines. Stope designs for reporting the reserves were created utilizing the mineral resources presented in Section 14 of this report. A mechanized cut and fill mining method is planned to extract the Copperstone deposit. Ore is planned to be processed in a whole ore leach process plant capable of processing 850 tpd.

15.1 Calculation Parameters

HRC utilized Datamine's Mineable Shape Optimizer ("MSO") program to generate the stopes for the reserve mine plan. The parameters used to create the stopes are listed below:

- Cutoff Grade: 0.111 oz/t
- Minimum Mining Width: 5 ft.
- Full Stope Size: 20 ft. Length x 12 ft. Height
- Minimum stope wall angle: 60 degrees
- External Stope Dilution: 10%
- Mine Ore Recovery Factor: 95%
- Gold Price: US $1,250/oz
- Gold Recovery: 95%

The stopes were created based solely on Measured and Indicated mineral resources, which have demonstrated to be economically viable, including internal stope dilution above the calculated cutoff; therefore, Measured and Indicated mineral resources within the stopes have been converted to Proven and Probable mineral reserves as defined by NI 43-101. Inferred mineral resources are not considered as part of the reserve statement.

15.1.1 Ore Loss and Dilution

Dilution is applied to Measured and Indicated resource blocks depending on the mining method chosen. For blocks to be exploited using the proposed cut and fill mining method, external dilution was applied in the amount of 10% at a grade of zero. Internal dilution is also applied based on any blocks that fall inside the stope shape but are below cutoff. A mining recovery is also applied to convert resources to reserves and is estimated at 95%. These factors resulted in an overall dilution factor of 25.3% for the reserves.

Dilution and mining recoveries are functions of many factors including workmanship, design, vein width, mining method, extraction, and transport. Currently there is no supporting documentation with which to validate these dilutions or mining recovery estimates. When production commences HRC recommends that individual dilution and recovery studies be performed to refine the global estimates used for dilution and mining recovery.

15.1.2 Cutoff Grade

The mining breakeven cut-off grade was used to generate the stope designs in DataMine's MSO for defining the reserves. The estimated operating costs and mill recoveries developed for the PFS are used to calculate the reserve breakeven cut-off grade. A gold price of $1,250/oz was chosen, which is the 60-month trailing average price and $74/oz less than the closing spot price at the end of March 2018. Mineral Reserves are reported within the mine stope designs at an underground mining cutoff of 0.111 oz/ton. The parameters used for the cutoff calculation are presented in Table 15-1.

Table 15-1 Mineral Reserve Breakeven Cutoff for Project

Reserve Cutoff		
Mining	$/ore ton	$74.00
Processing	$/ore ton	$40.00
G&A	$/ore ton	$14.00
Metallurgical Recoveries	%	95.0%
Royalties	%	2%
Refining cost	$/oz.	$4.65
Total ore cost	$/ore ton	$128.00
Gold Selling Price	$/oz.	$1,250.00
Cutoff Grade opt Au		**0.111**

15.2 Reserve Classification

Mineral reserves are derived from Measured and Indicated resources after applying the economic parameters as stated Section 15.1.2, utilizing Datamine's MSO program to generate stope designs for the reserve mine plan. Mineral reserves for the Project have been derived and classified according to the following criteria:

- Proven mineral reserves are the economically mineable part of the Measured mineral resource for which mining, and processing / metallurgy information and other relevant factors demonstrate that economic extraction is feasible and have a mine plan in place.
- Probable mineral reserves are the economically mineable part of the Indicated mineral resource for which mining, and processing / metallurgy information and other relevant factors demonstrate that economic extraction is feasible and have a mine plan in place.

15.3 Mineral Reserves

The Proven and Probable mineral reserves for the Project as of April 1st, 2018 are summarized in Table 15-2. The reserves are exclusive of the mineral resources reported in Section 14 of this report.

Table 15-2 Proven and Probable Mineral Reserves, Effective Date April 1st, 2018

Mineral Reserve Classification	Tons ('000's)	oz/ton	Contained Gold ('000 oz)	Dilution
Proven	382.2	0.213	81.4	23.5%
Probable	501.9	0.187	93.7	26.8%
Total Proven + Probable	**884.1**	**0.198**	**175.1**	**25.3%**

1. The effective date of the Mineral Reserve estimate is April 1st, 2018. The QP for the estimate is Mr. Jeffery Choquette P.E. of Hard Rock Consulting, LLC. and is independent of Kerr Mines, Inc.
2. The Mineral Reserve estimate was prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines.
3. Mineral Reserves are reported within the mine stope designs at an underground mining cutoff of 0.111 oz/ton. The cutoff is based on the following assumptions: a long-term gold price of $1,250/oz; assumed mining cost of $74/ton, process costs of $40/ton, general and administrative and tax costs of $14/ton, refining costs of $4.65/oz and metallurgical recovery for gold of 95%. Reserves are estimated based on delivery to the mill stockpile.
4. Mining recoveries of 95% were applied. Overall dilution factors averaged 25.3%, dilution factors are calculated based on internal stope dilution calculations and external dilution factors of 10% for cut and fill mining.
5. Rounding may result in apparent differences when summing tons, grade and contained metal content. Tonnage and grade measurements are in imperial units. The mineral reserves are exclusive of the mineral resources.

15.4 Factors that may affect the Mineral Reserve Estimate

The process of mineral reserve estimation relies on technical information which requires subsequent calculations or estimates to derive sub-totals, totals and weighted averages. Such calculations or estimations inherently involve a degree of rounding and consequently introduce a margin of error. The QP does not consider these errors to be material to the reserve estimate.

Areas of uncertainty that may materially impact the Mineral Reserves include the following:

- Variations in the forecast commodity price.
- Variations to the assumptions used in the constraining stope shapes, including mining loss/dilution, metallurgical recoveries, geotechnical assumptions and operating costs.
- Variations in assumptions as to permitting, environmental, and social license to operate. The project currently is permitted for production but does need to permit the use of cyanide in the proposed processing method.

Other than the above, HRC is unaware of any legal, political, environmental or other risks that could materially affect the potential development of the mineral reserves.

16. MINING METHODS

16.1 Summary

The Copperstone mine had historic open pit production from 1987 through 1993 by Cyprus of approximately 514,000 oz of gold from 6,173,000 t of ore grading 0.089 oz/t of gold. In 2012 American Bonanza Gold Corp started underground mining from two declines which were developed in the bottom of the open pit. American Bonanza's mining focused on the D zone which is to the north of the open pit. From January 2012 to July 2013 American Bonanza produced approximately 16,900 oz of gold from 163,000 t of ore grading 0.104 oz/t of gold.

Due to the historic underground mining that has taken place on the property in 2012 and 2013 and the exploration drift put in by Kerr in the summer of 2017 there is currently 12,800 ft of access development. This existing access includes two declines from the bottom of the pit and extends across 500 ft of strike. Therefore, a reduced amount of development is required to get the mine up to full production. The PFS mine plan for the Coppertone Project includes approximately 884,100 tons of mineral reserves to be extracted by underground mining in 4.4 years. The mine production schedule calls for the production of 600 tpd seven days per week and 840 tpd of ore processed per mill working 5 days per week. Mining recoveries of 95% were applied and overall dilution factors averaged 25.3%. Dilution factors are calculated based on internal stope dilution calculations and external dilution factors of 10%. The ore will be placed on a stockpile at the mill and a loader will be employed to feed the mill at three eight-hour shifts, five days per week.

The mine plan for the reserves is based on the following criteria.

- Cut and Fill mining method using Rock Fill (RF) and Cemented Rock Fill (CRF);
- Cut-off grade of 0.111 opt gold for underground mining;
- An ore production rate ramped up to 600 tpd over 350 operating days/year;
- The underground design allowed for 15.3% planned dilution, 10% unplanned, and a mining recovery of 95%;
- Development drifting and raising of approximately 43,619 ft. for the LoM;
- Four operating crews with an average of 16 workers/crew –crews work 10hr shifts, four days on and four days off.

The mining method proposed for the Copperstone Project is a mechanized cut and fill using CRF. Cut and fill was chosen for its flexibility in effectively mining low vein dip angles. The method also minimizes the amount of dilution during mining by careful geological and management control of the mining.

Underground mining methods were reviewed that will minimize dilution, capital, and operating costs, maximize recovery of the ore resources while maintaining the design production throughput at the mill were reviewed. The Copperstone orebody is relatively flat with an average dip of 38° degrees. Although there are some areas where the ore is steeper and will flow by gravity, above a 45-degree dip, the majority of the deposit is too flat to facilitate a long hole mining method. Mining costs comparisons were completed on mechanized overhand cut and fill versus conventional overhand cut and fill utilizing slushers and hydraulic backfill. Conventional cut and fill does reduce the required stope access development capital by about 14,000 feet and $8 million dollars but the required operating stoping costs are estimated to increase by approximately 74% or $11.5 million dollars. As a result of the total estimated operating costs being higher than the savings in development, mechanized cut and fill was chosen as the preferred option.

Mining utilizing the Shallow Angle Mining System – ("SAMS™") was also evaluated as an option. Although mining utilizing SAMS is currently being tested at a mining site in Canada, further geotechnical and hydraulic backfill evaluations for Copperstone must be completed and were beyond the scope of this Study. These factors resulted in not choosing SAMS for the Study, but it is recommended to be investigated further to determine if it is a valid mining method option.

16.2 Geotechnical

There have been numerus geotechnical reports completed on the property with the most recent completed by Golder in 2006, Call and Nicolas in 2010 and Langston and Associates in 2012. For this Study Dr. Dermot Ross-Brown from Tierra Group International, Ltd completed a review of the past geotechnical studies and visited the current underground workings in order to provide an estimate of the required ground support and maximum opening sizes for the mine plan. During the time frame of August 2017 to February 2018 Dr. Ross-Brown made three site visits to the mine to become familiar with the geology, the general conditions of the underground workings and to collect data on the quality of the rock mass in the region of potential stopes.

The main tools used in the assessment of rock quality were the RMR-system (Rock Mass Rating, as described in Bienawski, 1974, Bienawski, 1989, and Gonzalez de Vallejo and Ferrer, 2011), and the Q-system (as described in Barton, 2002 and Norwegian Geotechnical Institute (NGI), 2015). To date, little weight has been given to these factors in assessing the stability of the underground excavations. The RMR and Q classification system are increasingly becoming more standard in the design of stopes, especially during the last 20 years. These methods have been briefly discussed in previous reports submitted to Copperstone.

Dermot Ross-Brown spent 5 days at the mine mapping RMR and Q in selected boreholes, with an emphasis on the potential ore zones and the 15 to 30 feet (ft) into the Hanging Wall (HW) and Footwall (FW) zones. Additional data was obtained from mapping exposures in the underground and in the pit. The observations of the four zones of mineralization for potential mining are described below:

- Zone A – Mostly found in the pit, this zone is very broken up, and mostly in a shear zone.
- Zone B - Competent, blocky rock mass with a well-defined jointing system that can be seen when coming up out of the pit near the Maintenance Office.
- Zone C - This is recognizable in the pit. Three exposures were visited underground, and one intersection seen in a borehole core.
- Zone D - This zone is only exposed in the historic underground workings and in the borehole cores.

Mapping of core and exposures proceeded with the purpose of getting preliminary data on RMR and Q to help with the design of stopes in all four zones. On each borehole core, Copperstone's geologist marked off the mineralized ore zone, and Tierra Group's Engineer subdivided this zone, as well as the HW and FW sections, into geotechnical units (typically 3 or 4 units, with each unit having similar geological and geotechnical properties along its length). RMR and Q logging was undertaken on each unit. RMR data were then averaged over the applicable lengths to provide an estimate of RMR in all three sections (i.e. the Ore, HW, and FW) for that borehole. A summary of the RMR data is displayed in Table 16-1.

Table 16-1 Productivity Rates

Code	Borehole No	Ore Zone	Notes – Geology near Ore Zone	RMR_{76} HW	RMR_{76} Ore	RMR_{76} FW
20	KER-17U-30	B	phyllite/LS/QLP/fault	37	69	66
21	KER-17U-50	D	phyllite/LS/siltstone	40	40	NV
22	KER-17U-12	D	siltstone and sandstone/LS/phyllite	38	40	66
23	KER-17U-53	D	phyllite/faults/LS/phyllite	45	47	NV
24	KER-17U-69	D	QLP	73	NV	NV
25	KER-17U-06	D	D transitioning to Zone C; all QLP	33	57	38
26	CRD-04-07	C	All QLP	NV	50	NV
27	KER-17S-11	B	QLP/shear zone/phyllite	23	26	14
			Average (for the eight boreholes)	**41**	**47**	**46**
			Average Zone A	NV	NV	NV
			Average Zone B	30	47	40
			Average Zone C	NV	56	NV
			Average Zone D	46	46	52

Notes: NV = No Value available; LS = Limestone; QLP = Quartz Latite Porphyry

For the eight **exposures mapped underground and in the pit**, the average RMR76 is 52. It is a similar average to that obtained from the boreholes, but the values obtained are for the 'rock mass' in each location and are not related to HW, Ore, and FW as in the above table.

COPPERSTONE MINE -- **Estimates of RMR76 from the cores** of eight boreholes, averaged over the width of the ore zone and up to 10 m either side into the HW and the FW. The recorded values assume DRY working conditions (this, in turn, assumes that the mine has been dewatered in the vicinity of the stopes prior to stoping). The averages are given for the different zones (A, B, C, and D).

The average RMR values are in the range of 40 to 50, this is classified as 'Fair Rock' (Gonzalez de Vallejo and Ferrer, 2011). The averages reflect very little difference between the quality of the rock in the different zones. Both good and bad rock layers, intrusive weak and altered zones, and faults are seen in all four zones. Initial assumptions are that Zones B and C may have better rock conditions than Zones A and D, but the limited data available for Zones B and C does not prove this at this time.

The Critical Span Design Curve (Paknalis, 2002 and Paknalis, 2014) is a useful chart for estimating the safe spans of stopes and other excavations for man-entry. Figure 16-1 illustrates RMR_{76} plotted along the x-axis and the design span plotted along the y-axis. The Figure is based on numerous observations from excavations all over the world. The blue dots represent stable excavations while the red ones are unstable excavations. The blue-shaded zone is the transition zone between stable and unstable excavations.

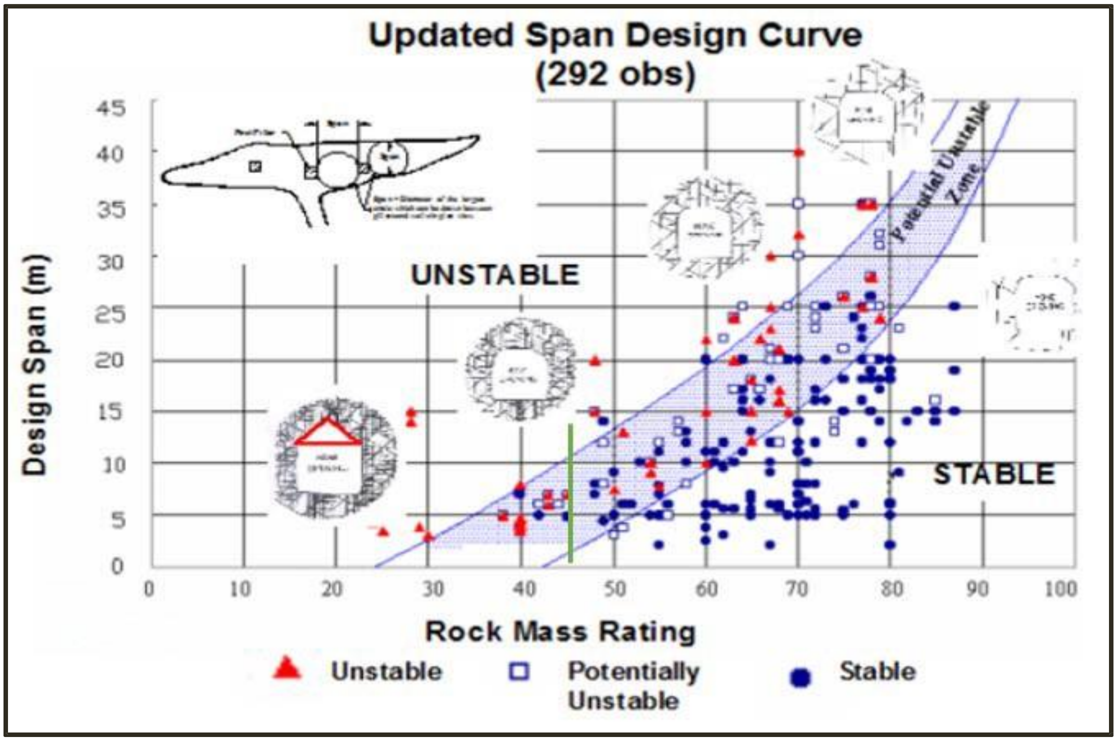


Figure 16-1 Critical Span Design Curve (Paknalis, 2002, updated 2014)

Note the definition of critical span (diameter of the largest circle drawn within boundaries of the excavation). The graph is based on short-term observations, 3 months to about 1 year and applies to no support or pattern bolting for local support (i.e. typical patterns of bolts 1.8 m long at 1.2 m x 1.2 m spacing). Note that sometimes it is necessary to make a correction for shallow joints; when jointing is near-parallel to the roof (<30°), in this case 10 should be subtracted from RMR76 when using 1.8-m bolts on a regular pattern.

With the limitations explained above, the estimated average Copperstone RMR value of 45 plots as a green vertical line on the graph; a span of 5 m (16 ft.) occurs in the middle of the transition zone. Meaning that spans of 5 m should be stable in the very short-term (i.e. one or two weeks), as observed in the existing drifts at Copperstone. However, the risk of collapse increases as the excavation size is increased, and as the time to add effective support is delayed. At Copperstone, this means that excavations with a width and height of up to 5 m should be stable with local support applied quickly. The length of the stope is not as critical as the width and the height. The implications for the design of stopes, is that all excavations require at least 'normal support' in the roof and sometimes part way down the walls. Normal support is defined as being the equivalent of 1.8-m long bolts on a pattern of 1.2 m x 1.2 m; split sets may be used if the excavation has a life of less than 6 months. In addition, mesh and sometimes straps probably will be needed; in very bad ground, 5 cm of steel fiber-reinforced (Sfr) shotcrete may be needed prior to bolting. The amount of support can be determined after each blast using the Q-system, which is described in detail in the NGI reference (NGI, 2015). For the PFS 10% of all development and stoping areas were assumed to require normal bolting (1.8 x 1.2 x 1.2 m), 70% of all areas were assumed to require bolting with mesh and occasional straps and 20% of all areas were assumed to require bolting with the prior addition of 5 cm Sfr shotcrete.

16.3 Hydrological

In February 2010, Schlumberger Water Services (SWS) completed a Dewatering Evaluation report on the Copperstone deposit. The report provides an evaluation of the potential dewatering requirements for underground development at Copperstone. The description of the site hydrogeology and anticipated dewatering requirements below are partially excerpted from the Schlumberger Water Services report.

16.3.1 Hydrology and Recharge

The Project is located in the Tyson Wash watershed. The Tyson Wash itself is located five miles to the southwest of the mine. There is no permanent or ephemeral local surface drainage. There are small local unnamed washes in the mine complex. The surface area of the existing mine pit catchment is approximately 654 acres. Catchment I is a surface water runoff area to the immediate north of the mine area, the area is in excess of 175 acres. Catchment II is a surface water runoff area to the immediate south of the mine area; this area is in excess of 2,854 acres.

The annual average precipitation is 4.7 inches of which an average of 0.84 inches falls in August. The nearest permanent surface waterbody is the Colorado River, nine miles to the west of the site. Based on studies elsewhere the net annual average recharge via infiltration of incident precipitation will be very low, likely 0.2 inches or less. The temperature ranges from 20°F to 121°F with an annual average of 71°F. The daily temperature from April to October is on average 89°F. The measured temperature of discharge water pumped from the decline was 95°F during a site visit in October 2009. The ambient air temperature was 71°F. This should be the temperature of the locally recharged ground water. The elevated ground water temperature would suggest that there is possibly a mixture of deeper, warmer water and locally sourced ground water being abstracted from the decline. The mine site area is a local topographic high. The mine site topography is flat to moderate, ranging from 860 ft to 902 ft. The surrounding topography, outside the mine property, is flat ranging from 900 ft to the east to 820 ft to the west and northwest.

16.3.1.1 Geological information

- **Sedimentary overburden:** There is between 0 and over 600 ft of unconsolidated to semi-consolidated sediments surrounding the existing pit. The original location of the pit itself was a series of outcropping low relief knolls. The sediments consist of: Sands, Clays and Conglomerates (of the Bouse Formation). The depth of unconsolidated sediments over the D Zone is between 164 ft at the southern end to 284 ft at the northern end. In the vicinity of the open pit, the sedimentary overburden is believed to be unsaturated.
- **Bedrock:** The bedrock stratigraphy of the immediate property consists of: Miocene sedimentary breccia and basalt, Jurassic quartz latite porphyry (Brecciated where cut by the Copperstone Fault), Triassic metasediments which are the principal host rocks for the D Zone and Triassic phyllites seen only in the footwall in the D and C Zones.

- **Structure:** The brecciated and intensely fractured Copperstone Fault detachment zone is between 45 ft and 185 ft wide, strikes to the northwest, and dips between 20° to 50° to the NE. The deposits themselves are brecciated. NW trending faults are high angle (>80°). Two such faults are found in the D Zone which cross cut the Copperstone Fault. A massive cataclastic breccia zone was observed at the northern end of the pit in the D zone. Faulting alone does not account for the deformation and the presence of a breccia pipe is hypothesised. The overall implications of this structural and mineralization regime are that it is potentially conducive to the development of a high secondary permeability rock mass. The presence of sandy gouge material in faults could result in potentially permeable fault planes along strike, particularly if the material is washed out. Cataclastic zones could have the potential to be highly permeable. Mapping of the existing decline indicated heavily folded and faulted rock. The rock type changes rapidly over ten's of feet. Inspection of core both on site and from pictures taken at the time of drilling shows frequent fracturing, changes in rock types and extensive areas of brecciated materials especially in the underground core samples drilled into the D zone. The majority of fractures appear to be full of clay gouge, while others appear to be clean and potentially conductive especially those found within the brecciated zones. Inspection of photos from almost any given hole drilled in the underground drill bay into the D zone will confirm this. Another indication of the ability for water to move through the bedrock is that the pumped water from the decline sump, when deposited in the pit, infiltrates almost instantly with no apparent ponding, at a pumping rate of approximately 300 gpm.

16.3.1.2 Hydrostrtigraphy

From a dewatering perspective, the bedrock is of primary interest. In the vicinity of mining, the sedimentary overburden is believed to be dry. There are no direct measurements of permeability for the bedrock units at the site. The bedrock geologic units bounding the underground mine and the shear zone are expected to have low hydraulic conductivity. The main control for groundwater inflow and dewatering flow rates will be the extent to which the shear zone and associated faulting contains fracturing that is open and contains minimal amounts of mineral or clay fill. Groundwater occurrence and movement will mostly occur in such zones. The available core data for the site indicates that most fractures will not be particularly conductive. However, some fractures appear clean, particularly those found within the brecciated zones. There are also extensive zones of fracturing within the porphyry that appear to have the potential for water movement.

Although there may be water transmission within the fault zone in close proximity to the mine, the system is in all probability bounded and limited in extent, which means that dewatering flow rates will tail off with time. There is evidence of this compartmentalization in piezometer data during periods when the decline and drill bay are pumped.

16.3.1.3 Local groundwater recharge estimates

The ground water and surface water catchments are assumed to be coincident.

Assuming a range of infiltration rates from 0.5 to 3% of mean annual precipitation, the total volume infiltrated on an annual basis within the pit footprint ranges from 417 thousand gallons to 2.5 million gallons. This works out to a continuous rate of 0.8 to 4.8 gallons per minute.

Assuming a range of infiltration rates from 0.5 to 3% of mean annual precipitation, the total volume infiltrated on an annual basis within the Catchment I ranges from 2.85 to 17.12 million gallons. This works out to a continuous rate of 5.4 to 32.6 gallons per minute.

Ponding of storm water runoff within the pit is not anticipated to be a problem due to the rapid infiltration of water that was pumped from the decline and deposited in the pit. However, this implies the rapid recharge into the bedrock system which amplifies the need for the mine site to be dewatered.

16.3.2 Mine Dewatering

The new development will extend from 520 ft amsl to -30 ft bmsl, which is approximately 100 ft deeper that the current underground workings. The maximum depth of the workings below the current water table will be 360 ft, which equates to a hydraulic pressure of approximately 156 psi. The Rock Quality Data (RQD) averages a classification of “Fair Rock” assuming a dry mine. If the rock mass is not dewatered, the values of RMR_{76} could be reduced by 8 (representing ‘wet’ conditions) or, in the worst case of flowing water, could be reduced by 15. Rock masses with RMR_{76} values below 40 (taking into account the water conditions) are difficult to mine, therefore, it will be beneficial to dewater the underground working to the fullest extent possible.

The main conclusions from SWS report are that the shear zone appears to be relatively broken and moderately permeable. The presence of warm groundwater implies deep circulating groundwater and discrete permeability within the system. The structural system appears to be bounded, therefore dewatering flow rates should stabilize or be reduced in the longer term and the annual recharge will be virtually insignificant. SWS dewatering flow rate requirement for the mine development was estimated to be on the order of 150 to 300 gpm, when accounting for recharge. However, a sensible contingency for pumping of sudden inflow during development needs to be factored, together with the possibility of ongoing recirculation due to operating practices. Therefore, the total inflow rate and pumping system capacity most likely needs to be on the order of 300 gpm.

The current mine dewatering system averages 278 gpm to maintain the water level in the mine. Currently the mine is using a Tsurumi 60hp pump in the 810 drift (160 elevation) to lift the water, thru a 6” pipe, to the 730 access finger cut sump (215 elevation). A 150 hp Tsurumi pump lifts the water, thru a 6” pipe, to a tank (590 elevation) on the surface and a 200 hp Cornell is used to pump through a 10” line to the tailings pond (894 elevation). A 30 hp Tsurumi pump is used to dewater individual finger cuts that do not drain to the main sump. Based on the current averages and the mine development only going 100 ft deeper than current working the prediction by SWS of a 300 gpm system appear to be accurate. Pumps will need to be repositioned as the mine develops but the overall pumping capacity is not anticipated to significantly increase from current levels.

16.4 Mine Design

16.4.1 Stope Design

The mining method proposed for the Copperstone Project is a mechanized cut and fill using CRF. Cut and fill was chosen for its flexibility in effectively mining low vein dip angles. The method also minimizes the amount of dilution during mining by careful geological and management control of the mining. Datamine's® Minable Stope Optimizer (MSO) was used to generate the stopes utilizing a metal price of $1,250/oz for gold and a 0.111 oz/ton gold cutoff.

Underground mining methods were reviewed that will minimize dilution, capital, and operating costs, maximize recovery of the ore resources while maintaining the design production throughput at the mill were reviewed. The Copperstone orebody is relatively flat with an average dip of 38º degrees. Although there are some areas where the ore will flow, above a 45-degree dip, the majority of the deposit is too flat to facilitate a long hole mining method. Mining costs comparisons were completed on mechanized overhand cut and fill versus conventional overhand cut and fill utilizing slushers and hydraulic backfill. Conventional cut and fill does reduce the required access development capital by about 14,000 feet and $8 million dollars but the required operating stoping costs are estimated to increase by approximately 74% or $11.5 million dollars. As a result of the total estimated operating costs being higher than the savings in development, mechanized cut and fill was chosen as the preferred option.

Cut and fill stoping involves accessing the ore from a main ramp. The initial stope access is driven down grade to the waste/ore contact and then extended through the mineralization to the hanging wall contact. Once the hanging wall has been located, longitudinal panels are mined perpendicular to the access drift, along strike, to the stope ends. The cut and fill design is based on 12 ft. high stopes. The 12 ft. height was chosen primarily to reduce dilution and to improve ground conditions but still allow for the proposed equipment to fit inside the stope. In narrow orebody areas that are inclined at 38°, a significant amount of waste will be generated at the hanging wall and footwall contacts in order to recover all the ore. This percentage of waste in narrow areas increases as a function of the stope height. As the ore width increases, the percentage dilution reduces significantly. A reduction in the amount of waste mined was achieved by implementing a shanty back of 60º on the stope hangingwall. Figure 16-2 shows multiple lift cut and fill mining with shanty backs and footwalls. Hangingwall instability can be a problem in shanty back stopes where bed separation can cause failures, this problem can be exacerbated with greater stope heights. Ground support will have to be installed quickly on the hangingwall in order minimize stability issues with the stope back.

Orebody width varies considerably over the property and total stope widths range between 8.9 ft and 95 ft wide, the average total stope width is 21 ft. Where stope widths exceed 16 ft. horizontally, it will be necessary to extract multiple side- by-side drifts (passes) on each cut in order to limit the mining span. After stopes are split into the required drift passes the average actual mining width is 11.7 ft. Table 16-2 shows the number and percentages of the stopes requiring multiple passes. Up to six passes will be required but the majority of the stopes, approximate 89%, will be one and two pass stopes. Stope lengths average approximately 100 ft, with a few extending beyond 400 ft.

Table 16-2 Passes per Stope

Passes	Number of Stopes	Percent of Stopes
1	731	36.7%
2	1,042	52.4%
3	149	7.5%
4	52	2.6%
5	13	0.7%
6	3	0.2%
Total	**1,990**	**100%**

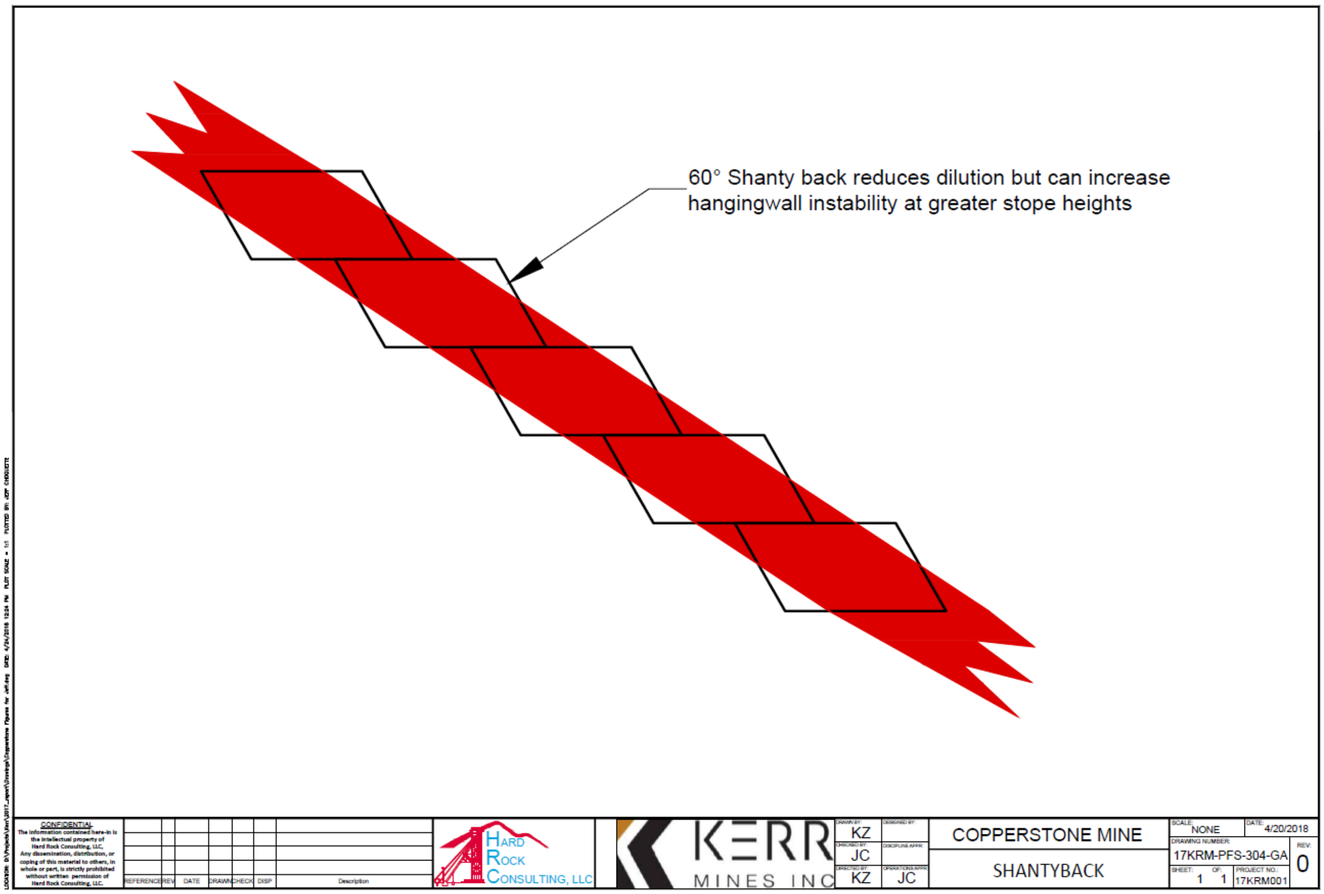


Figure 16-2 Stope Shanty Back

16.4.2 Cutoff

The mining breakeven cut-off grade was used to generate the stope designs in DataMine's MSO for defining the reserves. The estimated operating costs and mill recoveries developed for the PFS are used to calculate the reserve breakeven cut-off grade. The cutoff is based on the following assumptions: a gold price of $1,250/oz; assumed mining cost of $74/ton, process costs of $40/ton, general and administrative and property/severance tax costs of $14/ton, refining costs of $4.65/oz and metallurgical recovery for gold of 95% and royalties of 2%. The resultant cutoff equates to 0.111 oz/ton for defining the Mineral Reserves within the mine stope designs.

16.4.3 Dilution and Ore Loss

External dilution was applied in the amount of 10% at a grade of zero. Internal dilution is also applied based on any blocks that fall inside the stope shape but are below cutoff, the internal dilution is calculated at 15.3%. These factors resulted in an overall dilution factor of 25.3% for the Mineral Reserves. A mining recovery of 95% is also applied to the reported stope design tonnage and metal content.

16.4.4 Development Design

The primary ramp development is planned in the footwall of the orebody to access the cut and fill stopes. The main haulage drifts and ramps are planned to be developed at a 14 ft height x 14 ft width which is similar to the size of the existing development. The main ramp is designed to limit curves and turns to promote efficient truck haulage and reduce ventilation constraints. Muck bays 30 ft. deep are planned every 500' along the ramp to facilitate the development mucking process. As the development progresses these muck bays will be converted for use as sumps, transformer bays, storage areas and exploration drill bays.

The total length of the new main haulage ramps is 16,369 ft. Two new additional portals in the pit bottom are planned, the first portal will be started during the preproduction period and will provide access to the B zone. The second portal will be developed during the third quarter of year two. Both portals will tie into the same ramp system, so the entire mine will be connected. A vent raise from the C zone to the pit bottom is also planned in the first quarter of year one to provide an escapeway on the C Zone and provide flow through ventilation for this area. Figure 16-3 shows the layout of the portals and other infrastructure in relation to the open pit and proposed underground workings.

The main haulage ramps are developed approximately 160 ft. beyond the ore zone in the footwall. The stope access ramps are planned at 12 ft height x 10 ft width to allow sufficient access height for highly-productive mining equipment. A nominal level spacing of 60 ft was selected, providing access to five 12 ft high drift and fill cuts from a single access point. The first access ramp is driven at -15% to access the first of five lifts of the stope. The remaining four lifts are developed by backslashing and ramping up at +15% to access subsequent lifts. Figure 16-4 presents a typical stope access development layout. Each stope access point also includes a 30 ft. muck bay. The total length of stope access ramps is planned at 13,813 ft. and the total length of stope access backslash ramps is planned at 13,437 ft. The main haulage and stope access planned distance by year are presented below in Table 16-3.

Table 16-3 Development Distances

	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	LOM Total
Main haulage ramp ft.	2,940	7,759	5,670	0	0	0	16,369
Stope access ramp ft.	675	4,983	3,375	2,419	2,361	0	13,813
Stope access backslash ft.	776	3,103	3,616	3,322	2,481	139	13,437

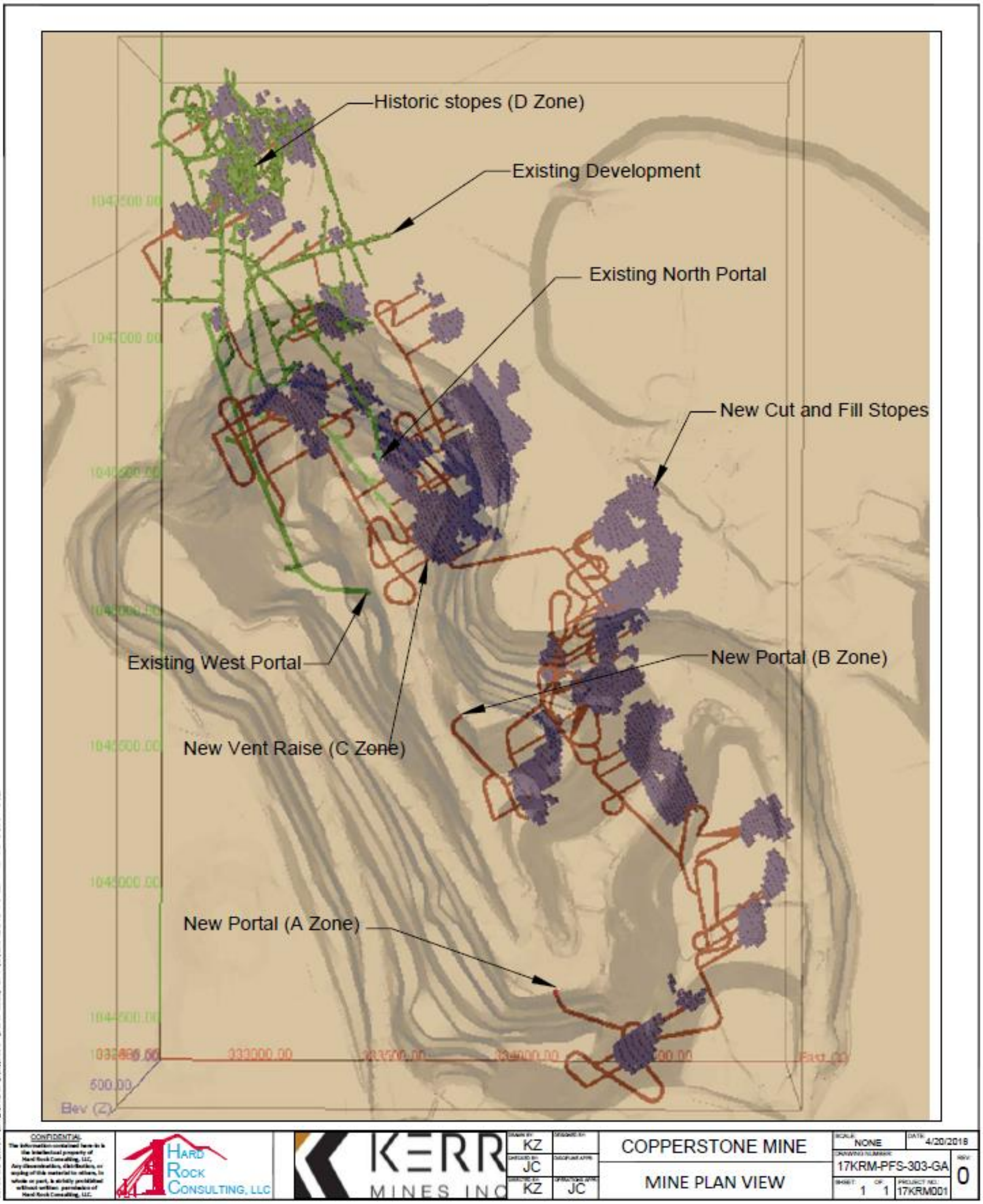


Figure 16-3 Mine Layout

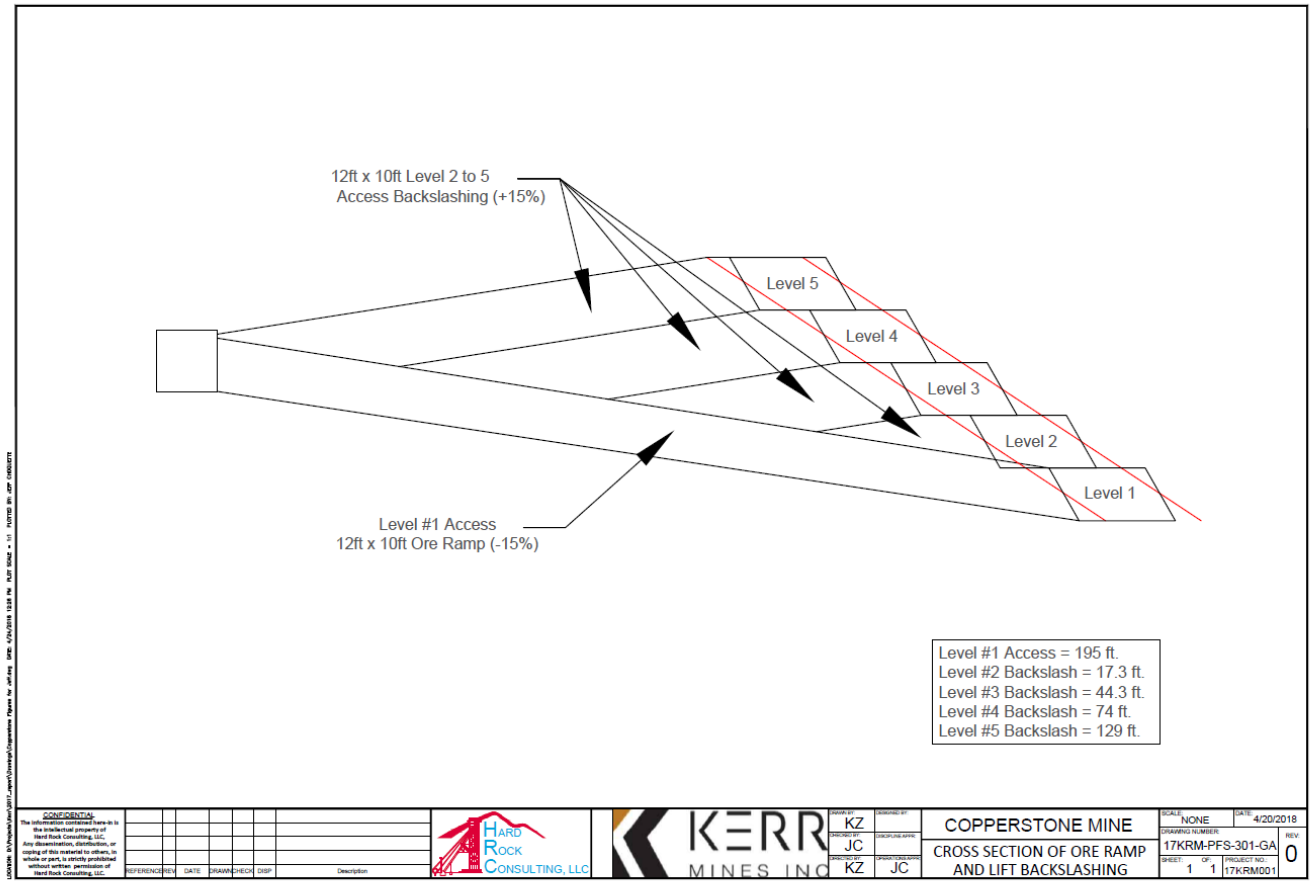


Figure 16-4 Stope Access Development

16.5 Production Schedule

16.5.1 Development Productivity

The development schedule is based on the development rate assumptions shown in Table 16-4.

Table 16-4 Productivity Rates

Activity Type	Dimensions feet (m)	Rate feet (m)
Main haulage ramp	14'x14' (4.3x4.3)	12.0 ft/d (3.7 m/d)
Stope access ramp	12'x10' (3.7x3.0)	13.0 ft/d (4.0 m/d)
Stope access backslash	12'x10' (3.7x3.0)	17.3 ft/d (5.3 m/d)
Vent raise	6.6'x6.6' (2.0x2.0)	9.7 ft/d (3.0 m/d)

The rate 12 ft/day for the larger headings is based on two 10hr shifts/day, cycling a round/shift. The smaller stope access drifts are planned at a rate of 13 ft/day. Stope lift access backslashing will advance at a rate of 17.3 ft/day with these backslash areas mined by uppers out of the preceding stope access ramp, rather than as advancing faces. This process will increase productivity due to the fact that drilling, loading and ground support can now be continuous activities throughout the shift instead of cycling between each activity during a shift. For the backslash rounds 30 ft. of advance will be blasted at once instead the typical 12 ft per round. The vent raise to the pit bottom is planned to be a conventional raise and driven at 9.7 ft/day. For the PFS 10% of all development areas were assumed to require normal bolting (1.8 x 1.2 x 1.2 m), 70% of all areas were assumed to require bolting with mesh and occasional straps and 20% of all areas were assumed to require bolting with the prior addition of 5 cm Sfr shotcrete.

16.5.2 Stoping Productivity

During ore mining, each stope is calculated to produce at a rate of 168 tpd. In order to meet the required total mine ore production of 600 tpd 3.5 stopes will have to be in production at all times. Based on the required backfill time, development and unanticipated delays a total of 6 active faces were scheduled at a time. The 168 t/d rate is based on two 10-hour shifts cycling a round/day.

The underground ore production requirement of 600 tpd on average is used to develop the production schedule. The nominal stope heading size will be 12 ft. high x 10 ft. wide. This heading size will allow the engineering design team and the ore control geology group the flexibility to maximize the gold grade from the underground mine. The mining cycle involves drilling, blasting, mucking and ground control cycle described below. The added backfill cycle using CRF is also described below in Section 16.5.4.

16.5.2.1 Drilling

The critical time path to complete a mining cycle in heading is the jumbo drilling time. To decrease the cycle time requirements of the nominal 12 ft. high x 10 ft. wide production headings a double boom jumbo is planned drill drilling 38 holes that are 45 mm diameter and 7 ft. deep. Each hydraulic drill has a penetration rate of 2.7 ft./min and will require 169 theoretical minutes to complete the required drilling allowing for the two booms. An allowance has been included to account for spotting the drill in the heading and maneuvering the drill booms between holes. The drill cycle time also includes allowances for mechanical problems, re-drills and ore control sampling so the actual calculated drilling time per round is 214 minutes.

16.5.2.2 Blasting

Once the jumbo drill has completed the drilling cycle the ANFO explosive is loaded into the holes with the respective nonel blasting cap and booster. The timing of the round with the nonel caps is extremely important and is critical to pulling the maximum amount of distance per round and minimizing over break. An estimated 187kg of ANFO is required for each round and using 140 mt ore/round the powder factor will be 1.33kg/mt. The actual advance/round is 6.75 ft. allowing for the difference between the drill depth and the actual pull depth.

16.5.2.3 Mucking and Hauling

A 3.9yd^3 diesel LHD is used to muck out the heading after blasting and clearing, the back and ribs are then scaled by hand. The LHD trams the ore to the associated muckbay for each respective area located in the area of the access ramp. Once the heading is mucked out the bolting process can begin. While the bolting and drilling cycle has started on the next production cycle in the heading the ore material previously placed in the muckbay is transferred by the 17.5 t haul trucks to the surface ore stockpile in the pit bottom. The mucking cycle including mechanical delays from the heading to the muckbay will be 297 minutes.

The productivity of the haul trucks is calculated based on the average distances and tons of development waste, stope ore and backfill required throughout the mine schedule. An average of 3.6 and maximum if 5 trucks are required throughout the mine life in order to meet the production schedule for ore mining, backfill placement and development activities.

16.5.2.4 Ground Control

Ground control for the production area is slightly different from the development heading since it will be temporary in nature. The miners will bolt from a scissor lift using Swellex bolts that are 1.8 m in length. The bolting pattern will be on 1.2 m x 1.2 m spacing with 9-gauge wire mesh assumed to be required in 70% of the stoping areas. Shotcrete for 20% of the areas has only been assumed in the development areas but may be required in less than ideal ground conditions in some stopes. Since the area that is bolted will be mined out with the next only the necessary amount of ground control to safely mine out the cut will be installed. This ground control process will be under constant review by management, engineering staff, safety department, MSHA and most importantly the miners to ensure a safe working environment. Once the ground control cycle is completed, the jumbo drill is brought back into the heading and the production cycle is started again.

16.5.3 Development and Production Schedule

The mine operations schedule is based on 350 days/year, 7 days/week, with two 10-hour shifts each working day. The development, stope mining and backfill schedules were all created on a monthly basis. There are four crews scheduled working a four-on, four-off schedule. The production rate at full production is 600 tons per day with a 3-month ramp up period. Each stope is calculated to be able to produce 168 t/day, based on that assumption 3.5 active faces are required to meet production requirements. Due to inefficiencies in developing new stopes, backfill placement and unplanned delays a total of six active areas are scheduled in the mine plan.

Table 16-5 presents the annual mining schedule based on these assumptions. The mine schedule starts month one as of January 1, 2019 (Year -1) with development from the current underground ramp to the first mining area beginning August 1st, 2019 (month 8 of Year -1). The new portal and ramp to access the B zone will also begin in month 8 of Year -1 so there will be two main development faces being advanced at the same time. Mining of some development ore is planned for three months, with this material being stockpiled until November 1st, 2019 when the process plant will start up.

Table 16-5 Annual Mining Schedule

Production Schedule	Life-of-Mine	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
MINE PRODUCTION							
Tons Ore Mined	884,106	57,418	228,543	241,901	188,151	158,810	9,283
Au, oz/ton	0.198	0.211	0.195	0.200	0.194	0.199	0.199
Development Feet	43,619	3,287	16,907	11,854	6,364	4,842	364
Development Waste	537,001	44,317	223,457	153,988	63,384	48,226	3,628
Total Tons Mined	**1,421,107**	**101,735**	**452,000**	**395,889**	**251,535**	**207,037**	**12,911**

The cut and fill stopes were split up into 33 different areas for the scheduling process. The life of mine development and stopes by area are shown in Figure 16-12. As stated previously there will be two crews working on the main haulage ramps. One crew starts the development from the current underground working in the D zone and focus in opening up access to the C zone stopes. This crew provides access to stopes area 1 through 22 and takes three years to complete the development in this area out to Area 22, this is scheduled to be completed in August of 2021. The second crew works from the new portal in the pit bottom and also takes three years to complete the development in B and A Zones out to Area 33, after the ramp reaches this area the new portal in the A Zone is tied in during September of 2021.

Internal stope access and access backslashing is scheduled to follow the progression of the stope mining by area. The scheduling process does not address the detail within each cut and fill stope level, instead the schedule assumes that as soon as the stope access ramps reach the ore, production will commence at a rate of 168 t/d until the complete level for that area is mined out. When the level ore is mined out, backfill is placed at a rate of 176 t/d until the stope is filled. When the stope is filled the stope access ramp backslashing for the next lift starts. Over the monthly timeframe used for the representation of the scheduling results in the economic model, this lack of in-stope scheduling detail is acceptable. Figure 16-5 shows the stope mine schedule by area over the life of the mine. The stope access schedule is similar but just proceeds the mining for each level by the required development time to access the stope. The backfill schedule is also similar but just follows the stope mining schedule and is based on the volume of backfill that is required to fill for each level of each Area.

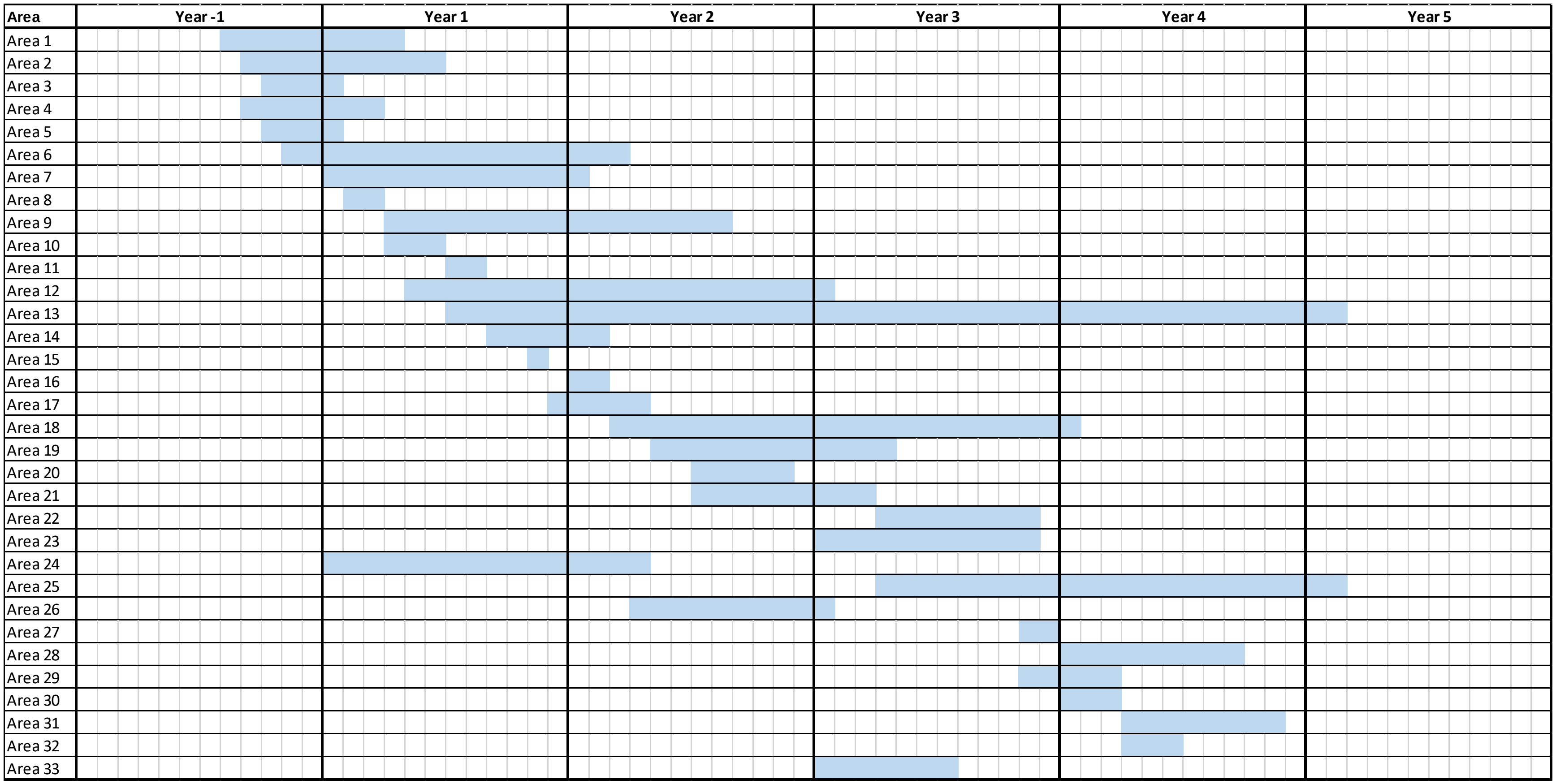


Figure 16-5 Stope Schedule by Area

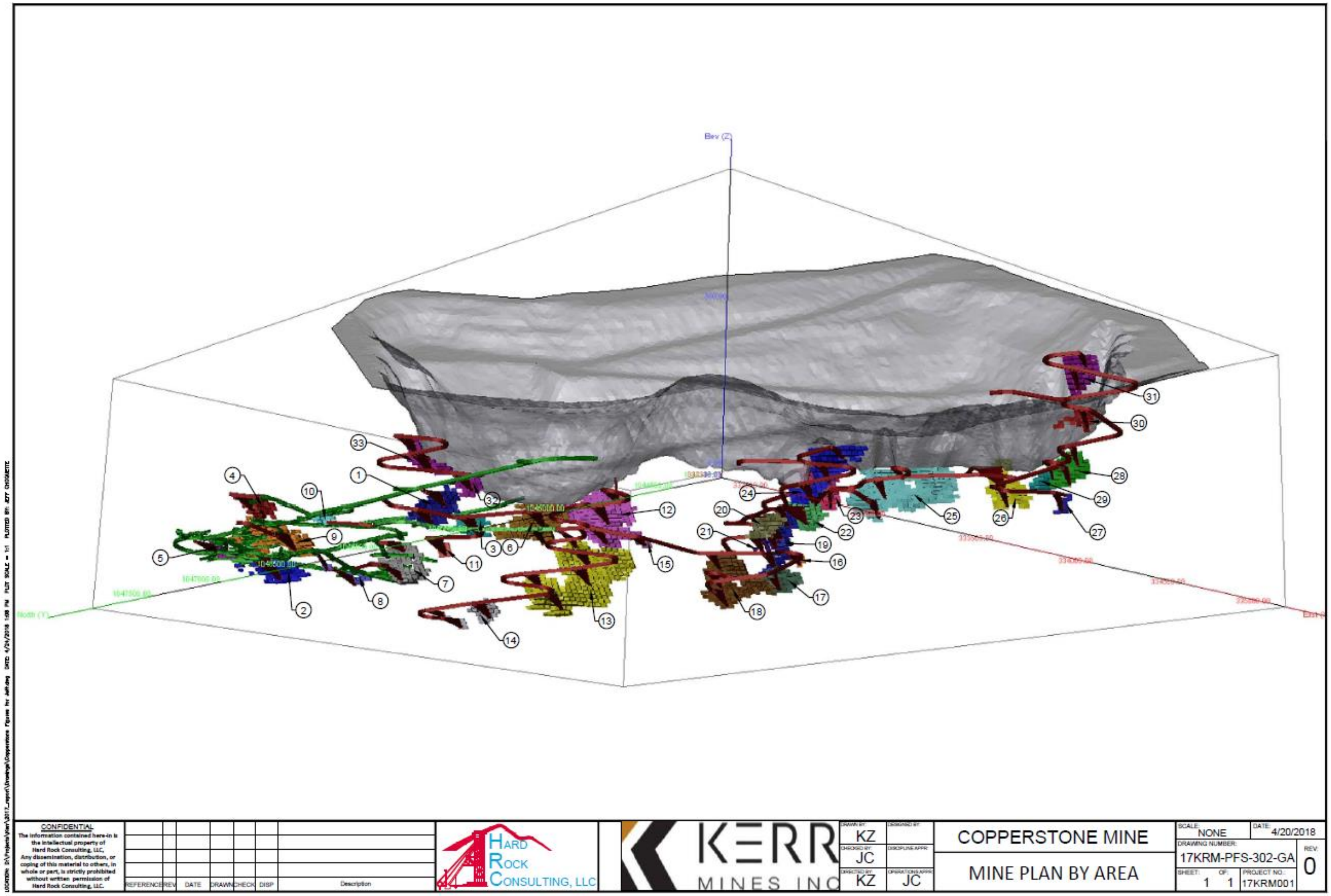


Figure 16-6 Stope Design by Area

16.5.4 Backfill Schedule

Patterson and Cooke assisted in developing costs for utilizing cemented hydraulic backfill ("CHF") generated from the mill tailings versus cemented rock fill ("CRF"). By utilizing CHF from the mill tailings, the Phase 2 lift of the tailings dam will not be required providing a future capital cost savings for CHF. Although the CRF option will require additional backfill sourced from the waste fill located within the open pit, the capital cost and infrastructure for the CHF plant were too high to offset the higher operating costs of the CRF option. Based on these results, CRF was chosen for the mine plan backfill strategy for this study.

The primary consideration for backfilling is to achieve a consistent tight fill throughout the wider cut and fill areas. This is necessary where multiple drifts will be mined adjacent to each other on the same lift. If tight fill is not achieved, in these areas, the apparent span could get very large resulting in a potential for stope back stability issues. In order to achieve consistent tight fill the mine design will utilize a cemented rockfill (CRF) and non-cemented rockfill (RF) backfill methodology. The CRF is packed into the stope using a 3 m^3 LHD set up with a rammer thus ensuring a completely tight fill through the length of the stope. A D5K is also planned to be purchased to help get a tight placement of the CRF in the stopes.

A backfill cement slurry plant is planned to be placed in the pit bottom, costs have been included for piping distribution system, so the slurry can be pumped underground and mixed with development waste for backfilling the stopes. All single pass stopes are planned to contain binder with 5% cement, stopes that require two or more passes are planned to contain 10% cement in all passes except for the last pass which is planned to be RF. This equates to an overall average of cement content of 5.2% required for all backfill areas, Table 16-6 shows the number of stope passes per stope and the subsequent cement content required. In addition to the cement 1% fly-ash was also included in the binder for the cost calculations. The cement content required is based on similar projects, future studies should be completed on the actual strengths that can be achieved using the waste material from the development areas to determine a more precise figure on the required cement content for each pass of a stope.

Table 16-6 Cement Requirement by Pass

Passes	Number of Stopes	Passes 5% Cement	Passes 10% Cement	Passes No cement
1	731	731		-
2	1042		521	521
3	149		99	50
4	52		39	13
5	13		10	3
6	3		3	1
Total	**1990**	**731**	**672**	**587**
		37%	**34%**	**29%**

Backfill placement on a per stope basis is scheduled at an average rate of 176 t/d (2,652 ft3/day). Taking into account that more than one stope will be in the backfill phase at one time the average backfill rate over the life of the mine is 378 t/day (5,700 ft3/day). As discussed above the majority of the backfill material will come from development waste but starting in November of 2020 (Month 11 of Year 2) a portion of the backfill will have to come from waste material in the open pit. A total of 218,000 tons of material is estimated to come from the waste backfill pile in the South end of the open pit. The placement of the material from the open pit was calculated to be placed at a lower rate of 115 t/d due to the longer haul. When backfill material was required from the pit the schedule assumes that four trucks would be used in the backfill cycle.

16.5.5 Surface Ore Haulage

Ore haulage from the bottom of the open pit to the ore stockpiles at the mill is scheduled using a 930 Cat loader a two 20 t dump trucks which are purchased as new units and are owner operated. This loader is also used for loading the underground trucks when backfill is required from the open pit waste dump stockpile. The schedule for the surface ore haul assumes that there would be two crews working a four on four off schedule 10 hours per day with no night shift. Based on this schedule 2 trucks are required to meet the mill schedule.

16.6 Mine Ventilation

16.6.1 Existing System

The existing ventilation circuit consists of a Jet-air 150hp fan with vent ducting and a Spendrup 100hp fan blowing air down the West portal. The air travels down the west decline to an intersection of the D zone declines, West decline and North decline where the air travels up the North decline to exit out the North portal. At the intersection, the air flow is directed to the D zone through a 50hp fan that carries the air through ducting to the 730 access drift intersection. A 25hp fan carries the air to the dewater station in the 730 HW decline. At the C zone decline the air travels through a Spendrup 100hp fan via ducting to the exploration drift developed during the summer of 2017. The current system has been measured to have air flows up to 110,000 cfm.

16.6.2 Ventilation System Upgrade

The total ventilation requirements for the mine at 600 tpd of ore are estimated to be 375,000 cfm as shown below in Table 16-7. The ventilation requirements are based on 125 cfm/hp, which meets current standards. The current system will need to be upgraded from the current 110,000 cfm capacity system by replacing the 150hp and 100hp fans at the current existing West portal with a 250 hp fan and also placing a 250 hp fan at the new portal accessing the B Zone.

Table 16-7 Ventilation Airflow Requirements

Item/Description	Operating Quantity (EA)	Motor Size (hp)	Operating Factor	Ventilation Req. (cfm)
Development/Production Equipment				
Jumbo Drill 2-Boom	5	130	50%	40,600
Jumbo Drill 1-Boom	1	130	50%	8,100
LHD - 3 m3	8	220	75%	165,000
Truck 17.5 ton	5	240	65%	97,500
Support Equipment				
Scissor Lift - Bolter	6	147	25%	27,600
Lube/Fuel Truck	1	147	40%	7,400
Boom Truck	1	147	25%	4,600
Man carrier	1	147	10%	1,800
Road Grader	1	147	40%	7,400
Tractor	2	58	15%	2,200
Mule Utility Vehicle	4	25	15%	1,900
Telehandler	1	147	10%	1,800
Misc. Equipment			10%	5,470
People	18	200		3,600
Total				**375,000**
Ventilation Requirement	125	CFM/BHP		

The underground mine ventilation circuit design is based on the use of two new 250 hp vent fans, one at the West portal and the other on the new portal that will be driven to access the B Zone. The air flow in the West portal will be similar to the existing circuit and exhaust out the North portal. During the first quarter of year one a vent raise from the C zone is planned to be completed and also used as an exhaust raise from the West portal. This configuration will continue for this area of the mine until the end of Year 1 at which time the D zone will be mined out and air flow will be limited to this end of the mine and the exhausting out of the North portal will be limited. Only some dewatering activities will be required in the D zone so only a small auxiliary fan with some ducting to the dewatering area will be required. During August of 2021 (Month 8 of Year 2) the West portal will tie into the B zone portal and the B zone portal will tie into the A zone portal. At this time both the vent raise in the pit bottom from the C zone and the A zone portal will be used to exhaust the air and provide a flow through system reducing the requirements for ventilation ducting.

Additional fans will be required in the underground areas of the mine to direct the air flow as required. The two current 100 hp Spendrup, fans and two current 25hp and 50hp current jet-air fans will be used as booster fans. The two current 150hp jet-air fans could be used as exhaust fans if required but are not anticipated to be required based on current calculations. Smaller auxiliary stope fans and flexible vent bag are planned to direct the ventilation air to the working faces. The 30hp auxiliary ventilation stope fans are used to direct fresh air from the ramp into each working stope. There will be up to six auxiliary stope fans running at any one time. These improvements to the ventilation circuit have been accounted for in the capital schedule for the underground mine development and operation.

16.7 Electrical Services and Compressed Air

A review of the current electrical system and the required upgrades for the mine to operate at 600 tpd of ore were provided by Bruno Engineering. Based on the power requirements for the new mine plan the main substation is planned to be upgraded to a 15/20 MVA oil-filled power transformer with a new capacitor bank and circuit breaker. A new motor control center, switchgear, overhead power line and infrastructure for ne underground feeders is also planned.

For the ventilation circuit a new PLC automation control system is planned along with a new fan motor starter and feeder. Two new power centers along with switch houses and motor start assemblies for each center are planned. New underground 15kV, Type MP-GC cable is planned for the power centers. Power feeder cable is also planned for the jumbo's, inline fans, stope fans, dewatering pumps and face lighting.

Compressed air will be required in the development and production headings to operate the jumbos, handheld jackleg and stoper drills required for drilling holes for ground control bolts, and utility requirements throughout the mine. The current compressor equipment, located on the surface, will be used to supply the compressed air requirements for the underground mine. The compressor (Atlas Copco 381hp model GA315VSD) is rated at 1,394 ft^3/min at a pressure of 150 psi.

16.8 Mining Equipment

The planned mine mobile equipment will consist of the diesel-powered equipment shown in Table 16-8. A total of 5 two boom Jumbo drills are planned, two of the units are assigned to the development heading and three units will be used in the stope headings. One single boom jumbo is also planned as a backup and will mainly be used in the stope heading areas. The electric/hydraulic drills will be operated by one operator, with help from the mining crew during setup and tear down for each heading.

Two 3.9 yd^3 LHD's are planned for the development headings and six 3.9 yd^3 LHD's are planned for the ore production headings for a total of eight LHD's. The LHD's will muck the development and/or ore production headings to the respective muckbay for that area. Once the heading is mucked out the bolting process can begin. The ore/waste in the muck bay is subsequently loaded on to the haul trucks for transport to the surface ore stockpile or designated backfill area underground. Development waste will be stored in muckbays near the production areas where the waste will subsequently be used for CRF backfill placement to allow an optimal turnaround time for the heading. A small track dozer is also planned to help get a tight placement of the CRF in the stopes.

A total of five 17.5 ton trucks will be required to haul the ore material to the surface and waste material to the backfill area as required. The trucks will hold 18 t and will be loaded by the 3.9 yd^3 LHD's.

Support equipment will consist of six scissor lifts to for bolting and hanging utilities, a boom truck, a 16-person man carrier, an underground road grader, two tractors, four utility vehicles and a telehandler.

As discussed previously a 5 yd. loader will be located in the pit bottom to load ore into two 20 t dump trucks for transportation to the mill. There is also a small track dozer planned for surface to help maintain the stockpiles on surface.

Table 16-8 Mining Equipment

Type	Quantity
Underground Equipment	
Jumbo Drill 2-Boom	5
Jumbo Drill 1-Boom	1
LHD - 3 m3	8
Underground Dozer	1
Truck 17.5 ton	5
Scissor Lift - Bolter	6
Lube/Fuel Truck	1
Boom Truck	1
Man carrier	1
Underground Road Grader	1
Tractor	2
Mule utility vehicles	4
Telehandler	1
Surface Equipment	
Loader – 5 yd^3	1
Dump Truck 20 t	2
Surface Dozer	1

Contract versus owner mining was also evaluated based on contractor mining quotes using their own equipment and owner mining with quotes for purchasing new mining equipment. The owner mining scenario was found to be the most cost-effective option. Owner mining was also evaluated using purchased mining equipment versus capital leased equipment. Purchase and lease rates were provided and the equipment lease option results in an increase for IRR from 34% to 40%. The capital lease of the mining equipment was chosen as the preferred option

Fixed capital equipment required for the mine will consist of the ventilation system upgrade, electrical system upgrade, CRF (cemented rock fill) binder plant, compressor and the mine dewatering system.

17. RECOVERY METHODS

Kerr Mines and HRC contracted Resource Development Inc (RDi) to carry out new metallurgical testing for the Copperstone deposit, confirm prior metallurgical testwork, and evaluate processing options from an economic perspective. Tests were completed for 3 process options: 1) flotation producing a gold concentrate, 2) flotation with leaching of gold concentrate, and 3) whole ore leaching. Options 2 and 3 produce a doré bar as a final saleable product. The ability to produce a doré bar is considerably advantageous versus sale of a gold concentrate from an offtake revenue perspective. Testing also focused on confirming Bond ball work indexes and density values. The test work results indicated a 97% recovery of gold, while the other processes were 88% to 90% recovery. Based upon economic and technical analysis, whole ore leaching was chosen as the best processing option for the Copperstone deposit. The WOL process can also be readily modified to incorporate SART process to produce copper as a by-product and reduce cyanide consumption in the leach process.

Although the operating costs for the whole ore leaching of Copperstone ore are the highest operating costs of the three options, the increase in recoveries and elimination of smelter charges make this option economically superior. Table 17-1 presents the economic results of the three processing options. Based on the results whole ore leach was chosen as the base case processing scenario for this study. The block flow sheet for the whole ore option is shown Figure 17-1, note that CIP refers to Carbon-in-Pulp. Processing is currently planned for 840 tons per day, on a 5-day per week schedule, which will coincide with the 7-day per week mining plan.

Table 17-1 Economic Results of Processing Options

Project Valuation Overview	After Tax results		
	Option 1	Option 2	Option 3
Net Cashflow (millions)	$13.67	-$84.10	$36.28
NPV @ 5.0%; (millions)	$7.41	-$71.68	$25.59
NPV @ 7.5%; (millions)	$5.06	-$66.44	$21.44
NPV @ 10.0%; (millions)	$3.10	-$61.74	$17.91
Internal Rate of Return	15.3%	0.0%	40.1%
Payback Period, Years	3.33	2.00	2.27
Payback Multiple	1.61	0.01	2.75
Total Initial Capital (millions)	-$21.57	-$22.95	-$22.74
Max Neg. Cashflow (millions)	-$22.25	-$85.15	-$20.74

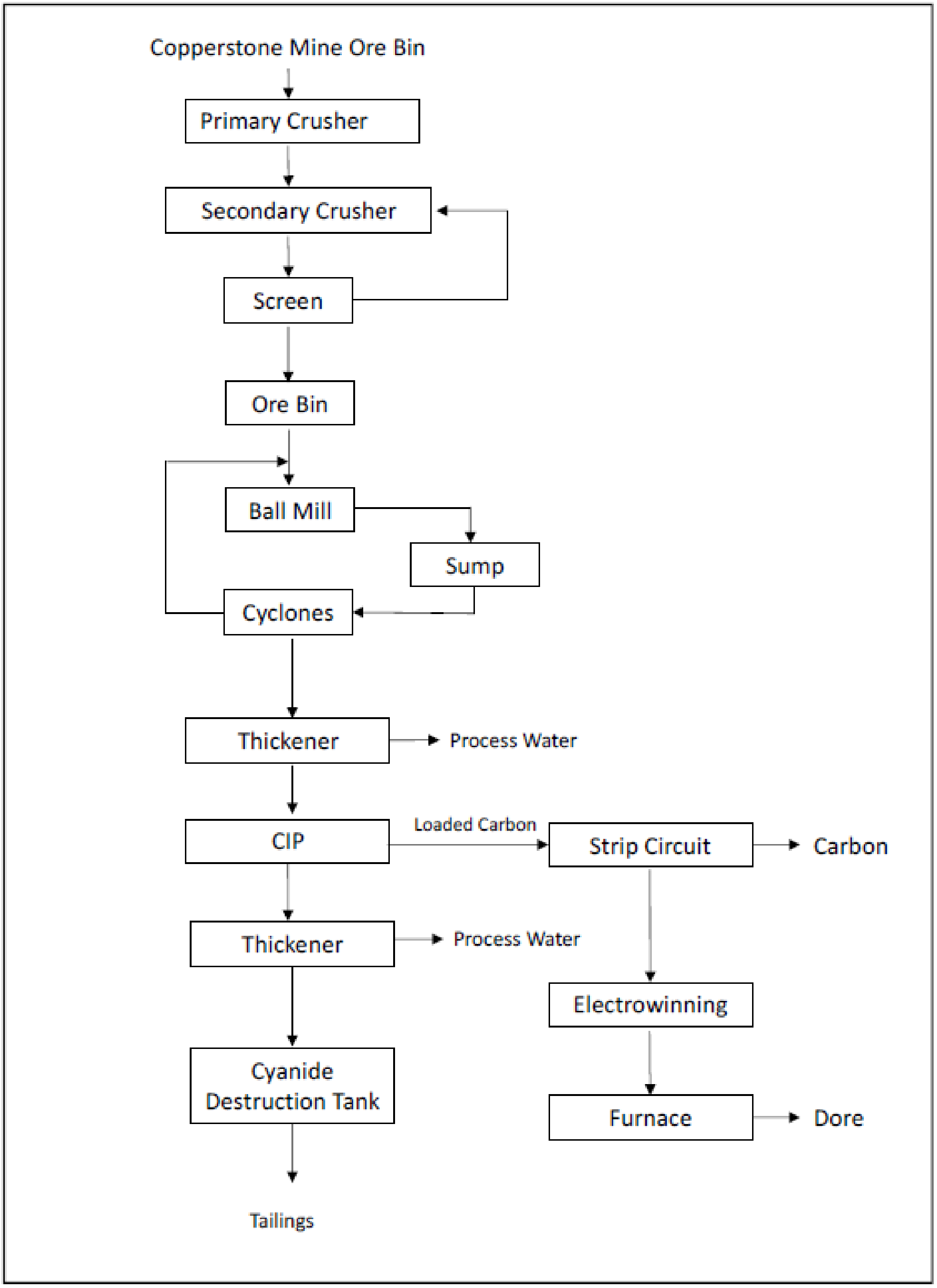


Figure 17-1 Whole Ore Leach Process Flow Diagram

Copper as a by-product of mining the gold ores, then extracting the copper during the processing of gold at the Copperstone mine is at the early stages of evaluation. The economics of monetizing copper as a by-product are potentially attractive as the cash costs of production are shared with the cash cost of producing the primary product – gold. Further exploration drilling, assaying and modelling work specific to copper bearing gold ore is required. Copper is not currently classified as a recoverable mineral resource according to any standard. Metallurgical testing for the economic extraction of copper is ongoing, but currently incomplete, and further testing is required. This study provides no certainty that the extraction of copper will be economically viable.

17.1 Design Criteria

Irrespective of the processing option, the plant throughput is dependent on the mining of the ore underground.

Based on the discussions with Kerr Mines management, the following design criteria was established:

1. The mine will provide 600 tpd based on process plant operating 5 days a week and the mine 7 days a week.
2. Plant availability was assumed to be 100%. It can operate two days a week extra when required or downtime will be utilized for maintenance.

The crushing and grinding circuit is currently in place and will require only minor modification. Hence, the design criteria for the grinding circuit is presented in Table 17-2. The design criteria for the selected whole ore leach processing scheme discussed above is given in Table 17-3.

Table 17-2 Crushing and Grinding Circuit

Design Criteria for Copperstone Plant Crushing and Grinding Circuit	
Plant Operation	5 days/week
Design Tonnage	600 tpd/week
Operation Time	5 days
Design Tonnage/5 days	840 tpd (35 tph)
Plant Availability	100%
Run-of-Mine Ore	P80 of 4 inch
Secondary Crusher Product	P80 of 3/8 inch
Ball Mill BWi	Average 14 Maximum 18 Low 11
Ball Mill Product	P80 of 200 mesh for Option 1 and 2 and 150 mesh for Option 3

Table 17-3 Whole Ore Leach Plant Design Criteria

Parameters	Criteria
Ball Mill Discharge, P80 mesh	150
Mill Throughput @ P80 of 150 mesh and	BWi = 11, tph : 51.4 BWi = 14, tph : 39.4 BWi = 18, tph : 31.4
Ball Mill Discharge, % solids	65
Cyclone O/F	
% solids	35
tph, range	31.4-51.9
tph, average	35.0
Thickener	
Feed % solids	30
Feed, Specific Gravity	2.8
Feed, tph	35
Feed, gpm	379
Underflow, % solids	40
Underflow, gpm	261.1
Underflow, cuft/t solids/hr	1.0
Settling Rate, ft2/t/day	0.005
Thickener Diameter, ft	5-10
Whole Ore Leach	
Leach Time, hrs	48
Leach Pulp Density, % solids	40
Volume with 20% free board, cuft.	2016
Leach Tanks	4
Carbon in Pulp Tank	1
Cyanide Destruction Tank	1
Size of all Tanks	
Diameter, ft	9
Height, ft	9
Gold Recovery Plant	Package
Tailing Thickener	
Unit Area, ft2/st/24hrs	3
Tailing, tpd	840
Diameter, ft	20

17.2 Plant Equipment

Dr. Deepak Malhotra visited the Copperstone property in February 2018 and reviewed the plant flowsheet and equipment in the plant. The equipment at the Project site includes jig and centrifugal gravity equipment for recovery of coarse gold. However, the present on-going testwork indicates that the deposit does not have free coarse gold. In addition, samples representing softer material and harder material were tested for Bond's Ball Mill Work Index at a closed size of 100 mesh. The two composite samples yielded BWi values of 10.74 kWh/st and 18.04 kWh/st. The samples were also submitted for Bond's Abrasion Index determination. The

Ai values were 0.0259 and 0.359. Based on the gravity testing and Work Index testing some of the equipment will not be needed and will be removed from the circuit, including the Knelson concentrator and rod mill.

The list of major equipment with specifications and projected throughput are given in Table 17-4. The list of equipment that needs to be removed from the plant along with the additional equipment required for the whole ore leach process is given in Table 17-5. Pumps, reagent tanks and reagent pumps have been lumped together into miscellaneous equipment at this time but will be detailed for construction. The thickeners were sized based on published information. On-going testwork will provide data to refine the size of the thickeners.

Table 17-4 Existing Equipment

Equipment	Make	Size	HP	No.	Projected Throughput TPH
Jaw Crusher	Nordberg	32"X40"	150	1	185
Conveyor Belt	Nordberg	36" wide	10	1	
Triple Deck Screen	Trio	6'X16'	40	1	
Cone Crusher	Symons	4'	150	1	110-130
Ball Mill	Hardinge	11'4"X6'10"	700	1	26-43
Ball Mill Sump Pump	Vacseal	4"X3" VD	30	1	
Rod Mill	Allis Chalmers	6' 6"x12' 1"	250	1	
Rougher Flotation Cells	Denver	50 cuft	64	16	19-28
Cleaner Flotation Cells	Denver	25 cuft	8	2	
Cleaner Flotation Sump Pump	Sala	2"	10	1	
Cleaner 2 Flotation Cells	Denver	12 cuft	8	2	
Tailings Pump	Warman Style	3"X2"	75	1	

Table 17-5 Additional Equipment Required

Removal of Equipment	Whole Ore Leach Additional Equipment
Rod Mill	10-ft Diameter Feed Thickener
Knelson Concentrator	Six 9 ft Diam X 9 ft High Leach Tanks w/Agitators
Jig	Gold Recovery Plant
Knelson Screen	20-ft Diameter Thickener
Pumps with above Equipment	
Dryer	
Flotation Cells	

17.3 Plant Operating Requirements

The existing flotation plant will be modified somewhat, with equipment eliminated as additional test work and process plans dictate. If the flotation of copper from the leach tails is proven to be economical this may require the use of some of the existing equipment, and therefore as test work progresses and required processing is finalized, the elimination of surplus equipment will be defined.

The new process will use the existing crushing circuit, conveyed to the ball mill, where it is ground to P80 minus 200 mesh, in a closed-circuit arrangement. The cyclone overflow will then be pumped to the new leach plant, for cyanide leaching, carbon loading, stripping, electrowinning, and gold room furnace. The power required for the whole ore leach option is given in Table 17-6 and the major consumables and reagent usage is given in Table 17-7. The startup water for the plant is estimated to be 350 gpm and the operating consumption is estimated at 52 gpm.

Ongoing testing indicates that the presence of intermittent copper in the ore feed may necessitate the precipitation of the copper from the cyanide using NaHS. This produces copper sulphide by removing the copper from the leach solution before carbon loading. The process then recycles the free cyanide back to the leach circuit thereby reducing the overall cyanide consumption. This would keep the overall consumption of cyanide for gold ore leaching at or below design parameters. The testing for this is ongoing and will likely necessitate the need for one additional 9 ftx9 ft leach tank and a small filter press.

The current plan is to construct the leach plant to the north of the existing flotation plant. The planned layout is shown in Figure 17-2.

Table 17-6 Plant Power Requirements

Area	kW
Plant G&A	59.6
Primary Crushing	113.2
Secondary Crushing	152.0
Grinding	685.4
Leaching / CIL Adsorption	35.8
Elution	238.4
Tailings - Process Water	183.0
Grand Total	**1,467.4**

Table 17-7 Major Plant Consumables

Consumables	
Grinding, lb/t	1.3
$/lb	$0.31
Mill Liner, lb/t	0.2
$/lb	$2.81
Lime, lb/t (Initial)	8.8
lb/t (Stabilized)	4.4
Cost$/lb	$0.07
NaCN, lb/t	4
Cost$/lb	$1.18
Carbon, lb/t	1.0
Cost$/lb	$1.75
Caustic Soda, lb/t	$0.10
Cost$/lb	$2.30
Misc. Laboratory Reagents, $/t	$0.06
Cyanide destruction	
Sodium Metabisulphite $/t	$0.48
Ferric Sulphate $/t	$0.03

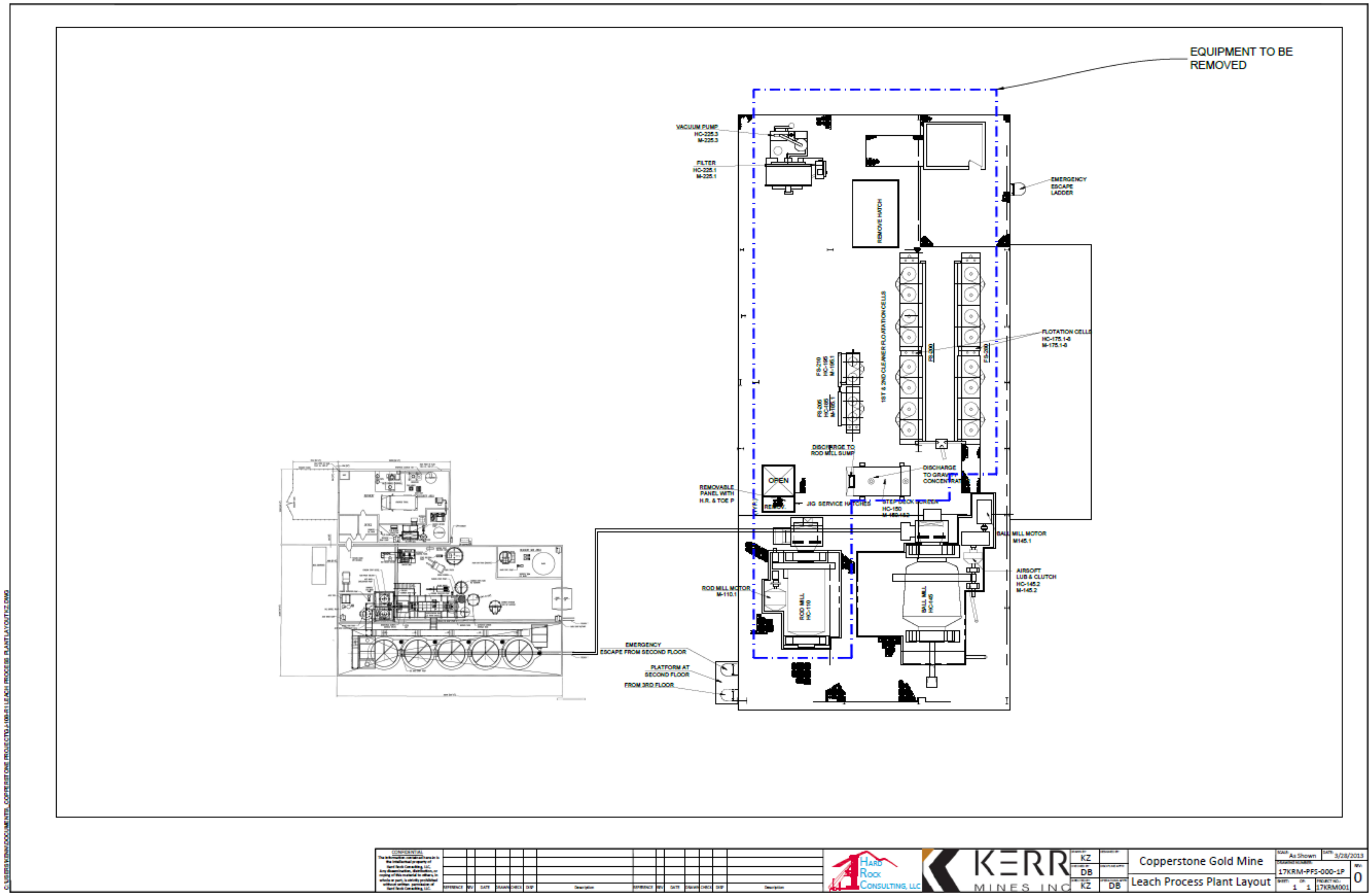


Figure 17-2 Process Plant Layout

18. PROJECT INFRASTRUCTURE

The Copperstone deposit is favorably located across flat, sandy desert. A main line of the Santa Fe railroad passes to the north of the property.

Adjacent to the existing site access road, water pipelines from existing site surface wells, and an existing overhead commercial power line is routed to the project site. All three have current permitted and renewable federal Right of Ways.

Existing site infrastructure includes an office building, warehouse/shop for mining surface equipment, laboratory building, change house, septic system, and various shipping containers, which act as secure storage for Kerr reverse circulation and diamond drill core logging boxes. Incoming commercial 69 kV overhead electrical power is delivered to a power substation located on site. Water is currently delivered from three water wells to an existing 375,000 gal storage tank located in the same area. The three water wells are covered under State of Arizona - Department of Water Resources registration numbers 55-514525, 55-514526, and 55-908563.

Within a 35-mile radius of Copperstone, several communities including Parker and Quartzsite, Arizona and Blythe, California, are equipped to provide housing, shopping and schools for mine personnel and their families.

18.1 Office, Mine Shop, Warehouse/Shop and Laboratory

The complex is located to the northwest and south of the process plant. See Figure 18-1 for the current infrastructure layout.

This office facility accommodates the accounting, purchasing, human resources, health and safety, and environmental personnel, as well as the general management and engineering staff. Senior mine and maintenance personnel will have offices in the mine shop. An office is included in the laboratory for the lab manager.

The general and administrative offices have both internal and external communication service.

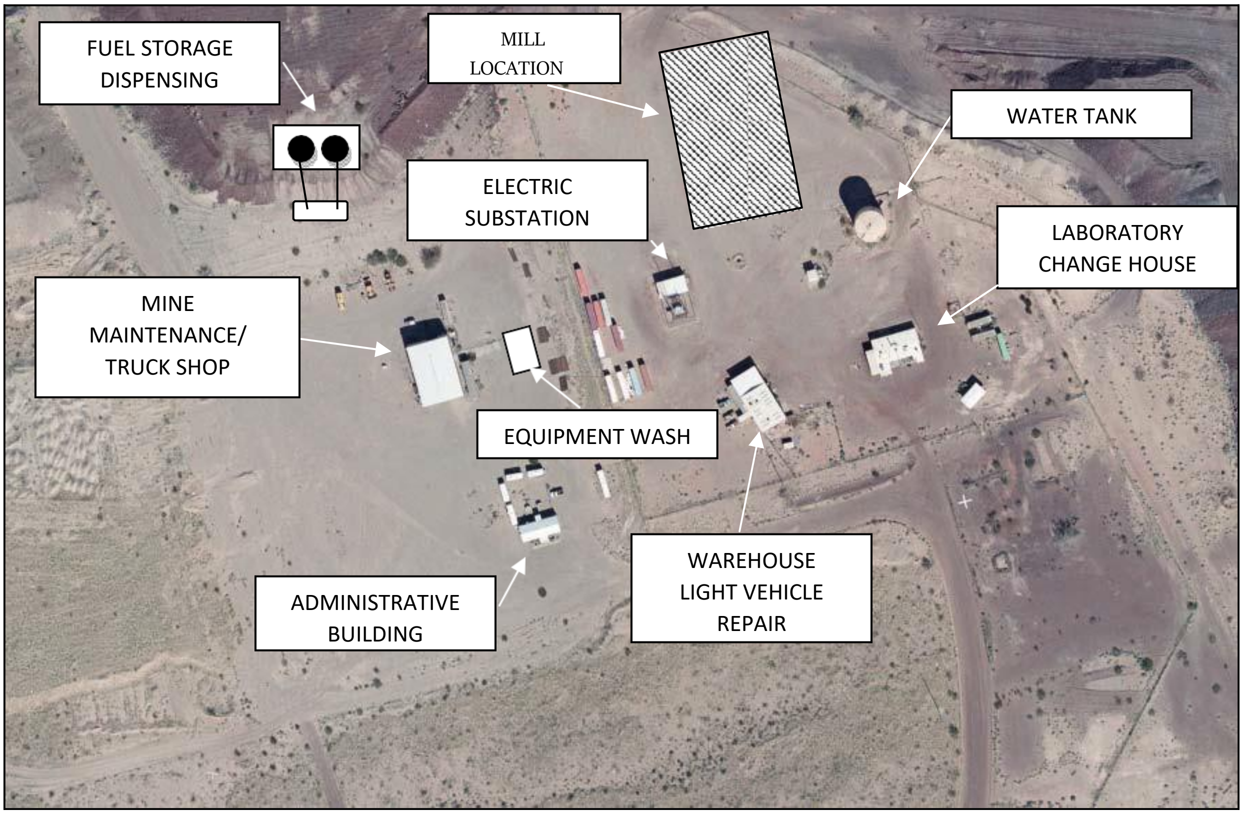


Figure 18-1 Ancillary Facilities

18.1.1 Office

The currently constructed administration building is approximately 1,950 sf and will house all the administrative and management personnel.

The administration building is a single story pre-engineered, prefabricated, multi- trailer building with corrugated metal roofing and siding located just north of the entrance to the plant, outside the fence line. Visitor parking is provided outside the fence line at the office facilities. Employee parking is provided as necessary within the facilities area. This configuration will allow many of the site's vendors and other visitors to access management and operating personnel without entering the process plant or mine area.

18.1.2 Mine Shop

The mine shop is a prefabricated steel construction butler type building with tin siding and is approximately 5,400 sf. Two-inch rolled fiberglass insulation covers the roof and walls with plywood around the base of the walls. The facility is located on the northwest side of the facilities area. Two truck bays, compressed air piping, welding equipment outlets, offices and a tool store are included. The mine shop is a "drive- through" facility with rail placed in the floor to protect the concrete from tracked equipment. Maintenance on all heavy vehicles will be conducted in this shop.

18.1.3 Warehouse

The warehouse is located on the south end of the facilities area and is approximately 2,600 sf. The warehouse is a prefabricated steel construction building with tin siding. All project supplies, with the exception of process plant reagents, are received, stored and dispersed from this facility. The facility includes inside storage for parts and supplies, an office and a tool crib/small parts area. A fenced storage yard south of the warehouse is used to store large items or bulk materials which can withstand exposure to the elements. The outside storage areas consist of a compacted, graveled area.

Most reagents and chemicals delivered to the project are for use at the process plant or at the laboratory. These materials are checked in at the main warehouse, then delivered to these facilities and stored there. An attached area to the existing plant facility provides storage of bulk reagents.

The lubricants and oil storage is located outside on the northeast side of the mine shop. These are stored in their individual containers and all are within a single steel containment unit.

Light vehicles and small mobile equipment maintenance is performed in the smaller shop attached to the warehouse. The area has reinforced concrete and an overhead crane.

18.1.4 Laboratory/Change House Area

The analytical laboratory is a single story pre-engineered building with corrugated roofing and siding located with the change house just east of the entrance to the plant. The laboratory is approximately 1,750 sf and consists of a sample preparation area, wet laboratory, fire assay metallurgical laboratory, environmental laboratory, offices, lunch room and restrooms. A 10-ft double door provides access at the north end of the building to receive materials into the sample preparation area.

The sample preparation area is isolated from the analytical laboratory by a wall. It will contain sample dryers, crushers, pulverizers, sample splitters, and a dust collection system to capture and contain any dust generated from this operation.

The analytical laboratory contains the wet laboratory, reagent storage area, balance rooms, and analytical equipment. Also included is a facility to collect and manage waste chemicals in the laboratory. Disposal of the chemical or laboratory wastes follow appropriate regulatory requirements dependent upon the waste generated. Laboratory offices are also included in this facility.

The employee change house is a single story pre-engineered steel building with corrugated metal roofing and siding located with the laboratory building just to the east of the plant area, inside the fence line. Employees park in the designated parking area inside the fence and walk about 50 ft to the change house. The Change House facility is approximately 1,750 sf. Separate changing rooms, with showers and bathrooms, provided for men and women.

A full septic system capable of 1,500 gallons per day is in place.

Waste products from the laboratory are generally compatible with the milling operation and are returned to the milling circuit.

18.2 Other Necessary Infrastructure

18.2.1 Lube Oil Tank Farm

The lubricants and oil storage is located outside on the northeast side of the mine shop. This area contains tanks or totes for engine oil, waste oil, hydraulic oil, gear oil and anti-freeze.These are stored in their individual containers and all are within a single steel containment unit.

18.2.2 Diesel Fuel/Gasoline Dispensing Area

Diesel fuel for the equipment fleet is to be located on the north of the Mine shop area outside the building on the old waste facility. Pumps and dispensers will be provided for fueling. A drive-through dispensing system will be provided for vehicles and for filling the fuel/lube truck. Two diesel storage tanks (10,000 gallons each) will be used to store diesel fuel.

The gasoline dispensing area is with the diesel dispensing area.

All fuel storage is constructed with containment to prevent hydrocarbon contamination of the surrounding area. These storage areas drain to a central collection sump where all spills are collected.

18.2.3 Wash Bay

A contained concrete pad is equipped for washing heavy and light vehicles. The wash station is located to the west of the mine shop and designed as a drive-through facility. Pressure washers and associated hoses/tanks exist. This pad is sloped to the central collection area to prevent any contaminated solution from being discharged. A concrete sump designed to be emptied with a loader is used to remove mud and material from the facility.

18.3 Explosives Storage

Separate magazines are provided for blasting powder and detonator caps. The powder and cap magazine is provided by the blasting contractor and will meet all appropriate ATF requirements. The magazines exceed code requirements and are separated by at least 200 ft with intervening separation berms.

The location of the magazines is directly north of the current pit entrance next to the Cyprus mine waste storage facility. This area is remote and is shielded from the mill and admin areas to the south by a waste facility and from the pit traffic due to location near the waste dump.

One elevated ammonium nitrate silo, with 75 T capacity, will be located to the south of the mine entrance in a location that allows for easy loading and turnaround. This area is also convenient for the mine ANFO trucks to fill up with ammonium nitrate and diesel before going to the mine. The ammonium nitrate and diesel are not mixed until ready to place in blast holes.

18.4 Power

The electrical power supply for the Project facilities is provided by Arizona Public Service Company (APS). APS is the main electric utility service provider for the entire facility.

The existing 69 kV power line was designed for a mill and heap leach facility of larger size and equipment and has sufficient line capacity for the new operation. The power line is owned by APS with a right-of-way permitted by the BLM for the power line corridor. An on-site substation is currently operational and located to the west of the existing mill site. Limited changes are expected to the current power supply system.

The total connected load for the Copperstone mine and process facilities is estimated to be 3,860 kVA and will require a minimum transmission voltage of 13.8 kV. Power requirements are expected at the mine, mill, and facilities and will require 4160, 480, and 220/110 voltage. Power to the new Leach plant will be through an underground concrete-incased ductwork.

Table 18-1 Power Requirements

Power Requirement Area	Installed	Connected		
	HP	HP	Diversity	HP
Crusher	460	460	71%	329
Water wells	500	500	75%	375
Mine	2,290	2,290	75%	1,718
Crushing circuit	439	439	75%	329
Mill	1,117	1,117	71%	798
Leach plant & refinery	525	525	71%	375
Buildings & other	455	455	50%	228
	4,742	4,742		4,152
Total			**kVA**	**3,860**

APS has maintained and repaired the existing substation. No repairs are expected to the electrical line or substation infrastructure.

18.5 Water

Fresh water for the facility will be supplied from dewatering of the underground mine and/or from three existing Patch Living Trust permitted wells located east of the Copperstone mine near the intersection of the Copperstone Mine Road and Arizona Highway 95 (See Figure 5-3).

The Patch Living Trust water wells are permitted under Arizona Department of Water Resources (ADWR) and are currently valid and can be located under the ADWR - GWSI Well Information site ID 514525, 514526, and 517883.

The water balance for the site indicates a net surplus of water, primarily as a result of water produced from the mine. It is currently anticipated that a permitted shallow evaporation pond/infiltration gallery will be constructed close to the site for use in evaporating excess water as required.

Table 18-2 Water Balance

Copperstone Water Balance		
Startup water needed for plant	350	gpm
During Operations Water usage		
Mine	107	gpm
Plant	52	gpm
Road etc	57	gpm
Total	**217**	**gpm**
Water produced from mine	**278**	**gpm**
Excess water	61	gpm

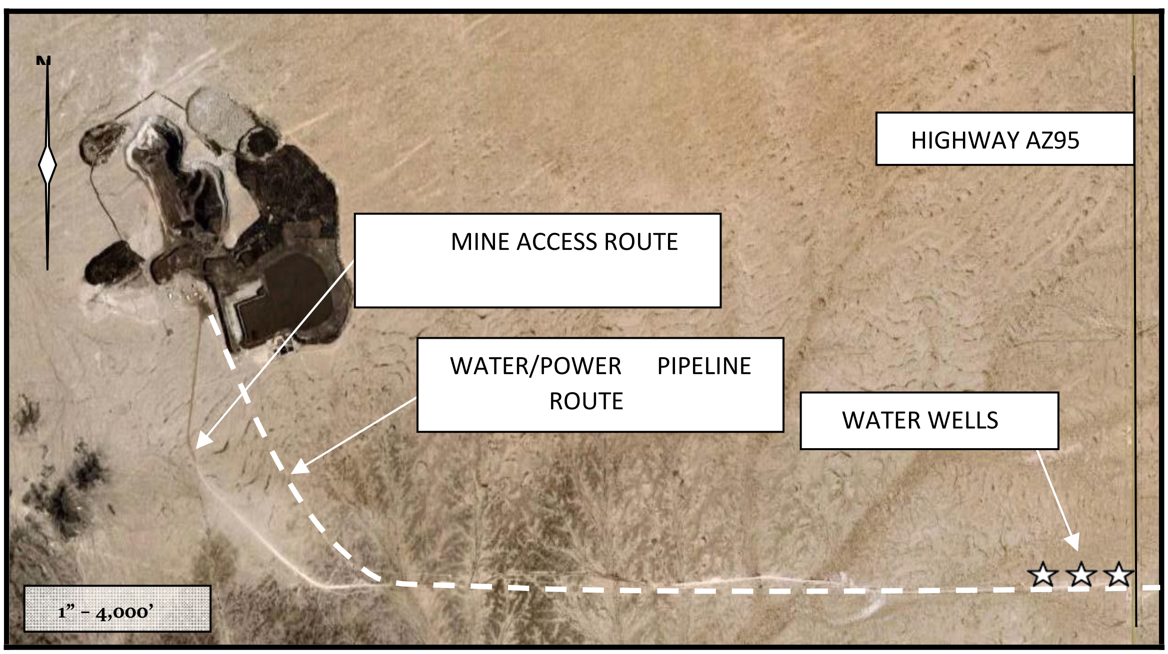


Figure 18-2 Water Well Location

Excess water from the mine that is not used for mineral processing or site dust control will be transported to an evaporation pond/infiltration gallery. Water from the existing water wells is transported to the mill site via a currently installed pipeline and booster system.

Water is supplied from the fresh/fire water tank to the facility by pump and level indicator. Fresh water will be distributed to:

- Gland seal water tank and by horizontal centrifugal pumps for seal water for mechanical equipment,
- Buildings for non-potable water, and
- Fire water distribution system in the mill site and admin areas.

Decant collected from the thickeners and filtering circuit is collected in the process water holding tank and recycled to the process circuit. Water in the TSF discharges to the reclaim water pond. This Process water will be pumped from the reclaim pond to the process water holding tank and will be distributed by pump and pipeline to mill usage points.

Drinking water is trucked to the site using a local drinking water vendor.

18.6 Communications

Cell phone telephone systems are provided for communications between the on-site offices in the main office, laboratory and mine shop area. Supervisors' and mechanics' vehicles and the process plant and crusher will be equipped with mobile radio units. Supervisors will be equipped with hand-held radios.

- A satellite internet system provides the project with external VOIP and data communications.
- Cell phone communications are currently available on site using a local provider.
- Hand held radio communication through FM radio communications is currently permitted.

18.7 Roads

The existing main access road to the site is Arizona Highway 95. It is a two-lane paved highway that connects the nearby towns of Parker and Quartzsite, Arizona.

The mine access road (approximately 5 miles) is an existing, well-traveled dirt road that terminates at the Copperstone mine.

Several facility and in-pit roads will continue to be used to access all areas of the mine, plant and admin facilities.

The access road is regularly maintained by the company and considered to be accessible year around.

18.8 Site Drainage

Diversion ditches are currently in place around the entire site and protect the surface facilities from damage due to rainfall runoff and to help control sediment runoff from previously disturbed areas of the project. No changes to these facilities are expected.

18.9 Fencing

The entire site including the mine area and waste dumps is fenced with barbed wire. A total of 45,000 feet of this fence is in place and requires minor maintenance. The main facilities are fenced using approximately 500 feet of 6-foot high chain link fence which ties into the barbed wire fence.

18.10 Tailings Storage Facility

The existing tailings storage facility (TSF) was designed for 1.24 million tons storage capacity. That design was completed by Schlumberger and approved by ADEQ. The tailings facility that was built was 17 feet high and included phase 1A - a portion of the overall footprint, allowing for the first 366,000 tons of material. During operation in 2012 and 2013, an estimated 101,500 tons of tailings were deposited into the tailings facility. At the anticipated throughput of the plant and matching up with the mining plan, the remaining capacity of the tailings facility as-built will allow for 1+ years of production. Therefore, the expansion and construction of phase 1B will need to occur during the first year of operation. Expansion by downstream raise of the impoundment another 4 feet will be needed by year 3 of operation.

The following drawings show the development of the TSF from the existing facility to the ultimate size.

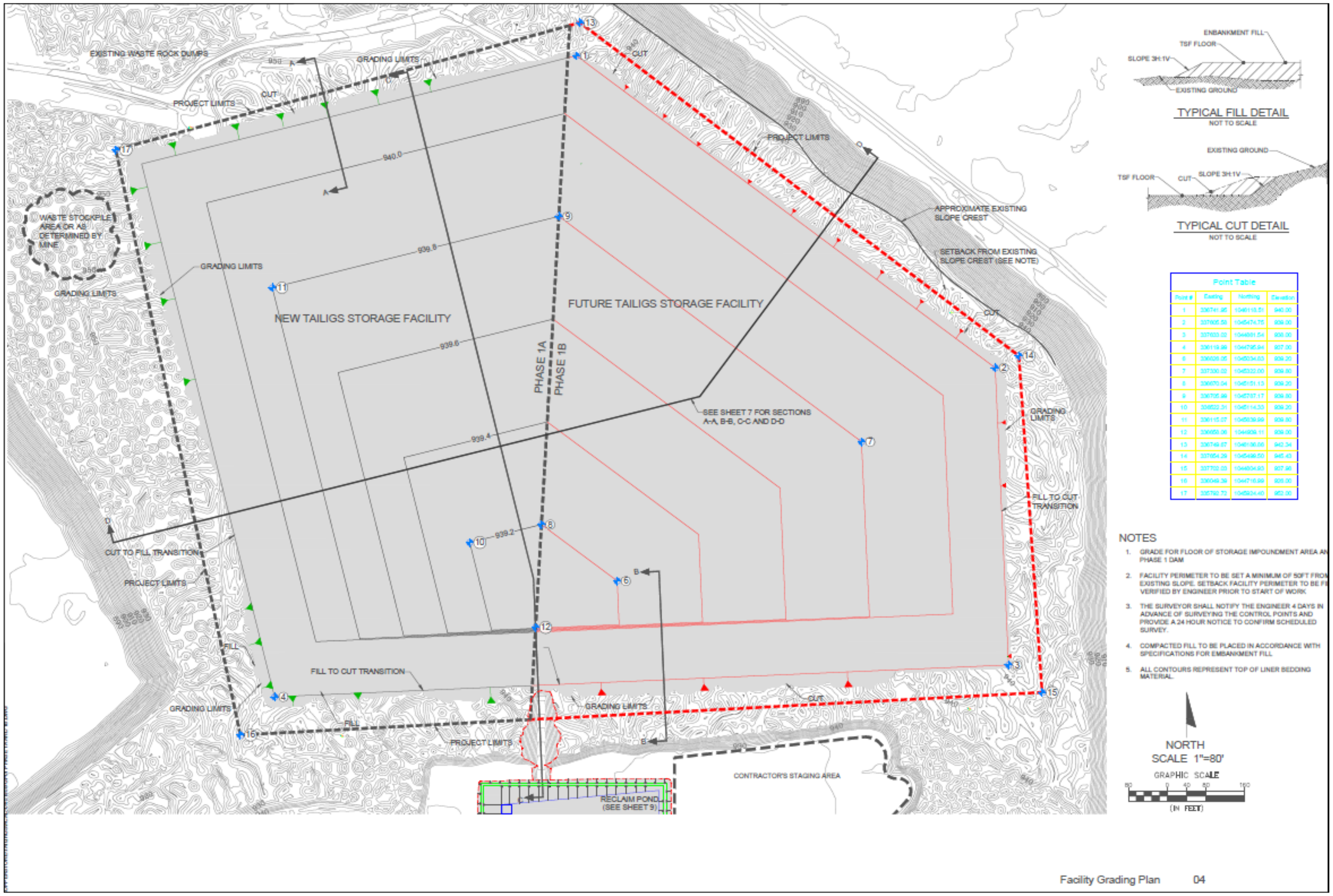


Figure 18-3 Existing TSF Phase 1A (left) and 1B (right)

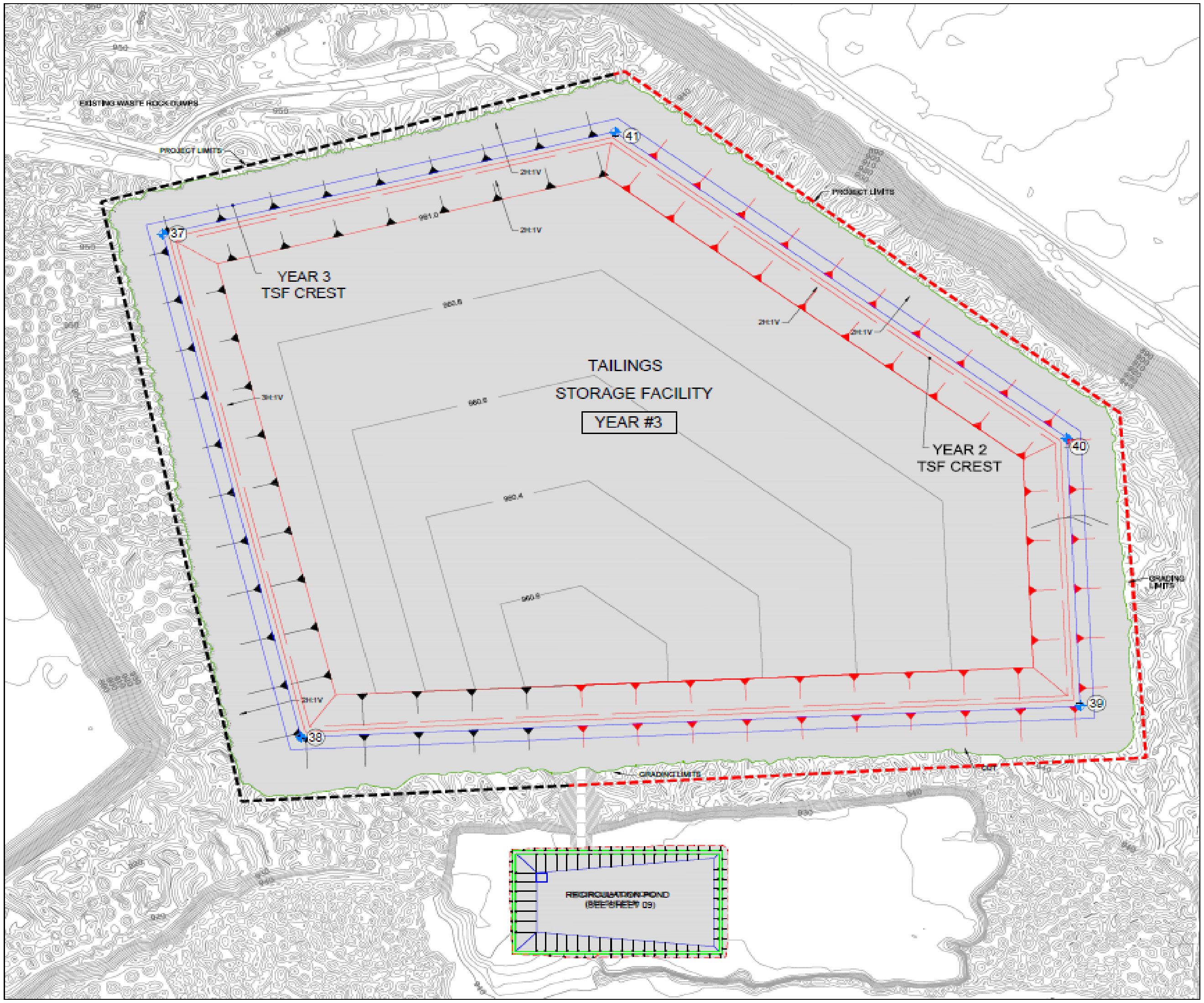


Figure 18-4 Ultimate Size TSF

19. MARKET STUDIES AND CONTRACTS

Gold markets are stable, transparent, global markets serviced by well-known smelters and refiners located throughout the world. Gold doré will be refined to 0.9999 or 0.99999 purity in the refinery, and, as such, would be a fungible commodity bought and sold universally. Therefore, no contracts have been negotiated at this stage of the Project. The Project does not plan to have forward sales of gold, nor plan to have any hedging programs at this time.

Kerr has not conducted any market studies, as gold is widely traded in the world markets. Due to the size of the bullion market, which in 2017 saw a demand for gold of 130.9 million ounces, the production from the Copperstone mine would not influence gold prices (it is projected to produced 40,000 ounces per year, or less than 0.05% of world demand).

The Copperstone mine would produce doré from whole ore leaching in the processing plant which is projected to provide strong recovery while eliminating concentrate treatment and transportation costs.

The gold doré produced on site at the Project gold recovery plant can be transported to a number of reputable refiners that can improve the metal product into LME acceptable fineness and sizes for final sale. A long-established, dynamic, worldwide market exists for the buying and selling of gold and silver. It is reasonable to assume that the product from the Project will be salable. A selling price of $1,250/oz. for gold has been used to develop this PFS, which is the same as the 60-monht trailing average. At the end of March 2018, the 36-month trailing average, as tabulated from public data from the website www.kitco.com, was $1,231/oz. for gold. The month-end closing spot price at that time was $1,324/oz. for gold. The high month-end closing spot gold price for the 12-month period was $1,332, and the low was $1,236. The historical gold prices are presented in Figure 19-1.

Figure 19-1 Historical Gold Prices

20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Studies

To support the development and approval of the 2008 Mine Plan of Operations (MPO) and State environmental permitting requirements, the following environmental studies/surveys were conducted:

- Water Resource Assessment (surface and groundwater)
- Threatened and Endangered Species and Wildlife Assessment
- Air Quality Assessment
- Biologic Survey
- Cultural Resources Assessment

20.1.1 Water Quality

Water quality samples were collected during the hydrogeological investigation, as well as from point of compliance (POC) wells designated by the Aquifer Protection Permit (APP) No. P106172 and they serve as a benchmark for water quality at the project site. A summary of the most recent POC test are show in Tables 20-1 and 20-2.

Table 20-1 POC-1 Test Data

POC-1					
Date Sampled	11/29/2017	UNITS	**CALCULATED AL & AQL LIMITS**		
Parameter			**POC-1**	**POC-1**	AWQS
Groundwater Level			**AL**	**AQL**	mg/L
Water elevation (amsl)		ft	520		
O & G	2	mg/L			
pH (lab)	8.2				
Specfic Condutivity (lab)	1580	uS/cm			
TOC	1	mg/L			
TDS	898	mg/L			
Alkalinty	146	mg/L			
Antimony	0.0014	mg/L	0.005	0.006	0.006
Arsenic	0.0027	mg/L	0.04	0.05	0.05
Barium	0.022	mg/L	1.6	2	2
Berylium	0.00005	mg/L	0.0032	0.004	0.004
Boron	1.1	mg/L			
Cadmium	0.0001	mg/L	0.004	0.005	0.005
Calcium	33.9	mg/L	30.5	NONE	
Chloride	199	mg/L	205	NONE	
Chromium	0.01	mg/L	0.08	0.1	0.1
Copper	0.01	mg/L	0.02	NONE	
Fluoride	4.68	mg/L	NONE	6.3	4
Hardness	104	mg/L	97	NONE	
Iron	0.02	mg/L			
Lead	0.0001	mg/L	0.04	0.05	0.05
Magnesium	4.8	mg/L	5.2	NONE	
Manganese	0.005	mg/L			
Mercury	0.0002	mg/L	0.0016	0.002	0.002
Nickel	0.008	mg/L	0.08	0.1	0.1
Nitrate	0.46	mg/L	1.70	10	10
Nitrite	0.01	mg/L	0.8	1	1
Nitrate + Nitrite as N	0.46	mg/L	1.70	10	10
Potassium	4	mg/L			
Selenium	0.0024	mg/L	0.040	0.050	0.05
Silver	0.01	mg/L	0.02	NONE	
Sodium	275	mg/L	291	NONE	
Sulfate	295	mg/L			
Thallium	0.0001	mg/L	0.0016	0.002	0.002
Zinc	0.01	mg/L			

Table 20-2 POC-2 Test Data

POC-2					
Date Sampled	11/29/2017	UNITS	CALCULATED AL & AQL LIMITS		
Parameter			POC-2	POC-2	AWQS
Groundwater Level			AL	AQL	mg/L
Water elevation (amsl)		ft	590		
O & G	2	mg/L			
pH (lab)	8.1				
Specfic Condutivity (lab)	1460	uS/cm			
TOC	1	mg/L			
TDS	838	mg/L			
Alkalinty	155	mg/L			
Antimony	0.0005	mg/L	0.005	0.006	0.006
Arsenic	0.0058	mg/L	0.04	0.05	0.05
Barium	0.031	mg/L	1.6	2	2
Berylium	0.00005	mg/L	0.0032	0.004	0.004
Boron	1.34	mg/L			
Cadmium	0.0001	mg/L	0.004	0.005	0.005
Calcium	31.3	mg/L	36.1	NONE	
Chloride	178	mg/L			
Chromium	0.01	mg/L	0.08	0.1	0.1
Copper	0.01	mg/L			
Fluoride	5.52	mg/L	NONE	5.5	4
Hardness	98	mg/L	113	NONE	
Iron	0.03	mg/L			
Lead	0.0001	mg/L	0.04	0.05	0.05
Magnesium	4.7	mg/L	5.5	NONE	
Manganese	0.005	mg/L	0.011	NONE	
Mercury	0.0002	mg/L	0.0016	0.002	0.002
Nickel	0.008	mg/L	0.08	0.1	0.1
Nitrate	0.02	mg/L	2.00	10	10
Nitrite	0.01	mg/L	0.8	1	1
Nitrate + Nitrite as N	0.02	mg/L	2.00	10	10
Potassium	4.2	mg/L	4.7	NONE	
Selenium	0.0024	mg/L	0.040	0.050	0.05
Silver	0.01	mg/L	0.02	NONE	
Sodium	252	mg/L	307	NONE	
Sulfate	248	mg/L	351	NONE	
Thallium	0.0001	mg/L	0.0016	0.002	0.002
Zinc	0.01	mg/L			

The water quality testing shows the water to be slightly alkaline with a pH of approximately 8. With the exception of fluoride, which is known to be naturally elevated in the area, there have been no quality parameters were detected above Arizona Aquifer Water Quality Standards (AWQS), and in summary the water appears to be very suitable for use as process water.

20.1.2 Air Quality

The major sources of degradation to air quality will be dust from the crusher/screening system. The crusher/screening dust will be mitigated with water spray bars at the jaw crusher in order to pre-wet the ore. Dust from the mining operations will be less significant and will be confined to the underground mine operations, ore stockpiles, tailings impoundment, and the haul roads. Dust in the temporary coarse ore stockpile is expected to be minimal as the ore coming from underground will be moist. As the ore dries in storage, any dust issues will be controlled by using a water spray and spraying the ore pile. Dust in the tailings area will be controlled using proper tailings deposition and keeping the pond area moist. The top of the tailings will be wetted during operation and will ultimately be covered with 6 inches of crushed waste rock to eliminate long term dust issues. Dust generated on the haul roads will be mitigated with frequent watering of the road surface and possibly through the application of a dust suppressant, if economic. The milling and leaching for gold recovery are wet processes with no potential for fugitive dust. A dilute sodium cyanide solution is used to extract gold from the milled ore as it passes through the leach tanks. The amounts of emissions are de minimis and well below any regulatory thresholds.

20.1.3 Noise

The major sources of noise at the project will be the crushing operations. Noise emissions from the crusher are mitigated by the remote location of the mill from any fixed base receptors such as residences and popular recreation sites. The noise from mining operations will primarily be confined to below ground and are not expected to be noticeable beyond the historic pit margins. The vibrations from blasting operations should not be noticeable beyond the project site given the relatively small charges that will be use.

20.1.4 Surface Water Management

The Copperstone mine is situated in a desert area of low precipitation with very flat sandy soils with low runoff capacity, adequate containment and good housekeeping facilities. Drainages downgradient from the mine site are ephemeral in nature and the mine intends to maintain zero discharge of process waters at the facility. The surface water flows in the Copperstone mine are ephemeral, with no outstanding waters, no impaired waters, and no outfalls. During periods of intense rainfall there may be sheet runoff from the travel ways and parking sites around the mineral processing facility. There are no areas of concentrated flow and the site does not accept run-on from adjacent areas.

20.1.5 Environmental Monitoring

Environmental monitoring will be carried out during the life of the project to ensure compliance with all permit conditions and current best practices. The environmental program for the Copperstone Mine will include:

- Quarterly monitoring of two POC wells installed down gradient of the designated area of impact in the APP to monitor for mine related contaminates in the groundwater.
- Annual and quarterly facility inspections, visual assessment and/or comprehensive facility inspection of storm water control systems, including routine inspections and audits of cyanide transport, handling and storage as required by the International Cyanide Management Code.

- Routine air quality control equipment performance testing as required by the Air Quality Permit.

The frequency and extent of the monitoring program may be modified during the permit modification process, in particular the Aquifer Protection Permit and the Air Quality Permit.

20.1.6 Hazard Operations Plans

The Copperstone Mine will prepare a number of hazard operations plans or procedures addressing fluid management, worker health and safety, training, emergency response, and monitoring and reporting, as well as various operating practices These plans may take several forms, including but not limited to formalized manuals, standard operating procedures, checklists, signs, work orders and training materials. These plans may be limited solely to issues involving cyanide management, but not necessarily. The intent of the Code is that management systems and procedures demonstrate that the operation understands the practices necessary to manage cyanide in a manner that prevents and controls releases to the environment and exposures to workers and the community.

The mine will obtain conditional certification of its operation per International Cyanide Management Code (ICMC) protocol for operations that is not yet active but are sufficiently advanced in its planning and design phases so that its site plans and proposed operating procedures can be audited for conformance with the ICMC principles and standards of practice. Verification of compliance may be done as appropriate by a third-party auditor in assessing whether the pre-operational mining operation can be conditionally certified based on the expectation that it will meet the standards of the ICMC.

20.2 Disposal, Monitoring, and Management Plans

20.2.1 Dispoal Facilities and Operations

The majority of the existing infrastructure for the ore processing facilities, ore handling conveyors, tailings conveyance and disposal impoundments, and miscellaneous support buildings will be operated as indicated in the current MPO without modification. These facilities are described in Section 3 of this report. Several operational modifications for the planned future operations that are not included in the current MPO will require the following new infrastructure and disposal facilities.

- Infiltration gallery for handling excess dewatering water and associated conveyance pipelines.
- Cyanide vat leaching pad and associated equipment.
- Doré electro winning and associated equipment.
- Gold room furnace, propane fuel tank and associated equipment.

20.2.2 Closure and Post-Closure

Throughout production closure and post closure, process water, surface water, and groundwater within the area of impact will be closely managed. Within 90 days submitting a notification of closure to ADEQ, Kerr will prepare a Closure Plan that meets the requirements of A.R.S 49-252 and A.A.C R-18-9-A209(B)(3) as required by APP P106172. At closure, mill and process plant fluids will be managed as part of the decommissioning process. Dewatering water will be significantly reduced or eliminated during closure, but will be recycled to the process plant as required for stockpiled ore processing, or evaporated/infiltrated in the infiltration gallery facility until dewatering is suspended. There is not anticipated to be residual surface or groundwater impacts at the mine that will prevent achieving a clean closure determination from ADEQ, therefore a Post Closure Plan to address ongoing discharges from the facility is not anticipated.

To control stormwater and limit erosion and sediment transport from disturbed areas during the pre-production, production, and post-production periods, stormwater management, erosion, and sediment control BMPs will be employed as appropriate, including:

- Diversion of stormwater run-on away from mine facilities to prevent stormwater contact with disturbed areas;
- Construction of erosion control berms around feature perimeters;
- Placing silt fences and straw bales around the perimeters of disturbed areas;
- Placing erosion control fabric on slopes during revegetation establishment;
- Site grading to route stormwater to constructed channels (i.e., diversion channels, terrace
- channels and down chute channels);
- Construction of runoff collection basins as required.

The closure and reclamation of specific Copperstone facilities are described in Section 20.4 of this report.

20.3 Project Permitting

20.3.1 Permit History/Background

A summary of the current environmental permits in place necessary to operate the mine according to the parameters stipulated in the 2008 MPO is provided in Section 4.3. The mine was operated as a fully permitted belowground gold mine for approximately 7 months in 2013. All required permit approvals for the mining, crushing, and surface flotation milling of approximately 70,000 tons of ore. The operation was reportedly plagued with operational issues that resulted in lower than planned production tonnage and grades. The mine elected to revert to "idle" status, per the requirements of the Interim Management Plan in the MPO. An Updated Interim Management Plan was approved by the BLM on 28 May 2015 and the Copperstone Mine continues to operate according to the requirements of this plan.

20.3.2 Compliance History

The permits and approvals that were granted for the historical operations at the Copperstone Mine specified certain requirements that needed to be met. With respect to the APP permit, this included an ongoing obligation to monitor and report groundwater quality in down gradient POC wells, and submittal of quarterly and annual reports that were contained in a compliance schedule. The air permit requires monthly method 9 opacity test be completed and reported to ADEQ. The Company has an excellent history of permit compliance and has fulfilled all the obligations for data collection, monitoring and reporting.

20.3.3 Description of Applicable Permits, Permit Amendments, and Approvals

The current MPO includes a maximum throughput of 450 ton per day, which will be increased to correspond to the maximum allowed by the current air permit of 210,000 ton per annum. The current MPO includes a stand-alone underground mine and associated process facilities all located on BLM managed land. As long as the throughput does not exceed the permitted quantity and the basic configuration of the mining method, process method, process fluid management and tailings management does not change, all of the required environmental permits are in place and do not require revision. However, the proposed modifications to the mining operations will require preparation of an MPO amendment that will be reviewed by the Federal (BLM) State (ADEQ) and regulatory authorities to evaluate if the changes do not meet design requirements in the existing permits and therefore will require permit modification applications and additional public notice and review. Such changes are routine and regularly submitted during final design.

In order to proceed with the redevelopment of the Copperstone Mine, it is anticipated that Kerr will have to obtain the following permits and approvals:

- Aquifer Protection Permit Amendment
- Air Quality Permit Minor Modification
- MPO Addendum
- Arizona Storm Water Multi Sector General Permit (SWPPP)

An APP amendment will be required for a new infiltration gallery to dispose of excess mine dewatering water and the discharge of cyanide to the existing tailings impoundment. The capacity of the of the infiltration gallery will range for approximately 50 gpm to 300 gpm depending on the amount of water used for mine processes. An update to the current SWPPP will be completed to address the control of storm water discharges from the new facilities prior to initiation of full scale mining operations.

Kerr will have to operate in conformance within the parameters of the current air permit until a modification issued to address the new facilities. Approval of the air permit modification is required before Kerr can initiation construction of any permit related facilities, such as the cyanide vat leaching pad and associated equipment.

The proposed Copperstone Mine operation will not require an amendment to the Reclamation Plan approval through the Arizona State Mine Inspector's Office, because there will be no significant changes to the area of disturbance outlined in the current MPO. However, as required by Aggregate Mine Land Reclamation Act (A.R.S. Title 27, Chapter 6), Kerr will obtain the Inspector's approval of the MPO amendment addressing new infrastructure and disposal facilities and plans for post-mining reclamation of those facilities. The MPO and the APP contain provisions for the closure and reclamation of facilities upon the cessation of mining activity are discussed in Section 20.4 of this report.

20.3.4 Permit Submittals and Approvals

An application will need to be submitted to the ADEQ for a minor amendment to the existing Air Quality Permit to address the new milling and refining facilities. The permit application will include a detailed process flow diagram, emissions calculations for predicted emissions from the proposed operations, an assessment of best available control technology (BADCT), analysis of new source performance standards (NSPS), review of applicability of National Emission Standards for Hazardous Air Pollutants (NESHAPS), and federal acid rain regulations. Preparation of the air permit modification will commence prior to the completion of MPO amendment and is expected to require 60 to 90 days for review, revision and approval.

Preparation of the permit amendment application package for the APP will also commence prior to the completion of MPO amendment, but the application package will not be complete until preliminary BLM review of the MPO amendment is completed. According to the regulations for the APP program, a permit must be issued within 180 days of the submittal of a complete application. That 180 days only includes the time that the application is under review and does not include the amount of time necessary for an applicant to respond to deficiencies identified during the review. ADEQ has completed significant improvements to review and approval procedure in order to reduce the time to permit issuance with a great deal of success.

Preparation of the MPO amendment will occur concurrent with the preparation of the APP amendment and air permit applications. The amendment will be submitted to the Yuma BLM Field Office. Typical processing for a MPO is approximately 250 days, including NEPA review and public comment; however the BLM's project manager in the Yuma Field Office conveyed a preference for expedited review and approval of the proposed changes to the MPO, with a goal to complete the process by the end of September 2018.

Copperstone Mine is covered under the Mining 2010 Multi-Sector General Permit (MSGP) (AZMSG 2010-003) which authorizes storm water discharges associated with Sector G: Metal Mining (Ore mining and Dressing). The mine site is configured to be a zero-discharge facility and therefore does not have any engineered storm water outfalls to maintain and monitor. Permit AZMSG2010-003 is valid through January 2016 and is extended by rule until a new general permit is issued. An update to the facility SWPPP is required every five years and/or as the new facilities are added. There is no bonding requirement or approval process for operation under this general permit, however a Notice of Intent (NOI) may be submitted when the new MSGP is issued by the State of Arizona.

20.4 Remediation and Reclamation

The Copperstone Mine Reclamation Plan must follow 43 CR 3809 as stipulated in the MPO. The reclamation regulatory requirements are also dictated by the Arizona Mined Land Reclamation Act, the BLM regulations, and the APP Program, although other regulatory requirements may contribute mitigation elements.

The current MPO is being designed to not affect any undisturbed land and only use previously disturbed land from previous mining. As a component of the overall environmental stewardship policy of Kerr Mines Inc, a reclamation plan has been designed to promote the final closure of the Copperstone Mine when all mining is completed. This approach provides for the ultimate closure of the facility without long-term mitigation efforts or environmental problems. Design criteria for the overall approach to mining, processing, and the sequencing of tailings placement within the final landform for optimum reclamation and closure conditions are addressed. The Plan contains provisions for protection of the environment during the operations phase using best management practices. These practices are primarily guided by the protection of surface water and groundwater resources. The proposed reclamation/closure mitigation elements for the mining operation include employment of concurrent reclamation of the facilities where practical. Therefore, reclamation obligations will be incrementally reduced as the operation progresses.

As described in the MPO, all planned land use is currently within the disturbed land area of the original Copperstone mine project boundary. The areas include:

- Administrative area,
- Tailings facility, mine openings, and
- Waste facilities.

The total land use acreage is estimated at approximately 127 acres which is entirely within the original disturbed footprint. Kerr's Reclamation Plan addresses reclamation for all planned activities, including the removal of buildings, underground mining facilities, process facilities, roads, pipelines electrical lines and reclamation of the land used. Kerr is not responsible for disturbance by previous owners/operators, including the old tailings/heap leach areas, the old reclaim pond, unused sections of the old waste dumps and facilities and full back fill of the pit.

The reclamation will be completed concurrent with mining operations as practicable during the life of the mine. Reclamation of mining and exploration operations may include: recontouring, ripping, stabilization, seedbed preparation; growth media application; and revegetation. The reclamation procedures for the Copperstone Project incorporate five basic components:

- Establishment of all mining related activities in or on previous disturbed acreage with no new disturbance;
- Stable topographic surface and drainage conditions that are compatible with the surrounding landscape and serve to control erosion;
- Establishment of soil conditions most conducive to establishment of a stable plant community through stripping, stockpiling, and reapplication of suitable growth medium;
- Revegetation of disturbed areas to establish a long-term productive biotic community compatible with proposed post-mining land uses;

Consideration of public safety through stabilization, removal, berming and/or limited fencing of structures or land forms that could constitute a public hazard; minimize the outward regrading or reshaping of slopes to reduce further impacts to undisturbed wildlife habitat; and consideration of the long-term visual character of the reclaimed area.

Because Copperstone is being built on previously disturbed land, the reclamation will include improving the currently disturbed areas by partially backfilling the pit bottoms, smoothing off areas as necessary and general clean-up and final closure of the buildings and ancillary facilities. The reclamation requirements that are stipulated in the MPO are summarized below.

20.4.1 Contouring and Shaping

Final grading will create land forms that are stable, do not allow for pooling or ponding, and blend with the surrounding disturbed topography. Final grading will minimize erosion potential and additional surface disturbance and will facilitate the establishment of post-mining vegetation. Straight lines will be altered to provide contours which are visually and functionally compatible with the surrounding terrain.

20.4.2 Seedbed Preparation

Seedbed preparation will take place after grading, stabilization, and growth media placement. Procedures used in seedbed preparation will include:

- Loosening of compacted surfaces, and ripping and/or disking or other mechanical manipulation to leave the surfaces in a rough condition, and
- Use of tillage implements, as needed, for all areas to be reclaimed that can safely be worked by surface equipment to create a friable surface with favorable bulk density.

The prepared surfaces will be seeded using a broadcast seeder and/or rangeland drill, depending on the working area and steepness of slope.

20.4.3 Seeding/Planting

Revegetation activities will be performed in the fall through late winter to take advantage of winter moisture. For broadcast applications, the seeder will be followed by dragging a light chain or other means to provide some soil cover of the seed. When possible, a range land drill will be used for more effective seeding. The rocky terrain and soil materials in the Project Area may dictate use of broadcast seeding.

20.4.4 Seed Mixtures and Application Rates

The selection and development of seed mixtures of grasses, forbs, and shrubs will focus on native species suitable for the desert climate and low moisture of the area. The seed mixture will be developed in consultation with BLM and may be adjusted to develop different plant communities in successive seedings. Proper range management, after reclamation, is an integral part of the long-term diversity development.

20.5 Reclamation Design

20.5.1 Underground Mine

The underground openings will be bulkheaded approximately 75 feet into the mine entrances and each entrance filled with material from the immediate area from top to bottom and out to the entrance. The material will be placed higher than and wider than the entrance so there are no openings or gaps.

The vertical vent shafts will be bulkheaded approximately 50 feet from the top of the shaft with steel sets and poured concrete. The bulkhead will be approximately 10 feet thick with 40 feet of material from the surrounding area placed in the existing hole. The dirt will be filled to level with the surrounding terrain and signs placed to identify potential hazards. The bulkheads will be of sufficient engineering design to ensure they will not collapse or create a public safety hazard.

20.5.2 Tailings Storage Facility

In the tailings areas, the final design TSF is not expected to extend above the elevation of the current facility more than 15 feet. As the tailings are deposited behind the buttress, another lift of buttress material will be placed until the full height of the dam is developed. The material used to make the buttress will be similar to the capping material used by the previous operator.

When TSF use is completed, the structure will be leveled to a 3H:1V slope, capped using an impervious cover material such as a plastic sheet or clay and covered with 2 to 3 feet of capping material consistent with the current material used by the previous operator (1' minus crushed gravel). The cap will ensure that any precipitation received in the tailings pond area effectively runs off into areas that do not contain previous tailings or heap leach material thus eliminating infiltration into the old tailings/leach pads.

The area will be seeded in accordance with the appropriate seed mixtures and application rates.

20.5.3 Reclaim Pond

After the ore milling has stopped and the tailings pond decant has stopped flowing from the TSF into the reclaim pond, the pond solution would be allowed to evaporate in place. The sludge in the reclaim pond would be sampled. Should sampling demonstrate that the sludge is considered toxic according to federal and state regulations, then the sludge would be removed from the site and disposed of in accordance with state and federal regulations. The pond bottom will be sliced open to allow drainage and the sides cut and brought into the center of the pond and buried. The reclaim pond will be filled in with material from the immediate area.

20.5.4 Buildings

All buildings will be dismantled, prepared for shipment and transported from the site. Following the removal of all structures and buildings, four concrete pads will remain in place:

- Maintenance shop floor,
- Warehouse floor,
- Laboratory/Change-house floor, and,
- Pad between storage units.

Each pad will be fractured thoroughly by ripping with a bulldozer and all protruding steel reinforcement will be cut-off and disposed of in-place. All concrete will be covered with at least two feet of waste rock material hauled from the adjacent waste rock dump and will be covered in accordance with the county solid waste disposal requirements and permits.

All other storage units and buildings are modular in nature and will be removed intact.

20.5.5 Crusher/Plant

The crusher facility is composed of a jaw and cone crusher, screen, and a system of conveyor belts leading to a crushed ore storage bin. The facility is portable and will be removed from site at the end of the project. The retaining wall to the north of the crusher station and the crushed ore storage bin will be broken down with steel components removed from site for scrap and inert concrete buried in place.

The mill is composed of a concrete containment pads and associated ball mill, tanks, and gold dore circuit. Closure of the plant area will consist of a number of activities. Milling and ore processing equipment will be sold and removed. All structural steel will either be removed from site for scrap. All concrete pedestals will be broken down, and protruding reinforcing steel will be cut off and buried in-place.

The mill facilities area covers approximately 9 acres. Material from the waste piles to the north and sand stockpiles to the immediate west of the maintenance building will be hauled and spread over the entire area to an approximate thickness of two feet. The area will be seeded with and approved BLM seed mixture but based on experience at the site, it is expected that natural propagation of vegetation will provide the best reclamation.

20.5.6 Fuel Storage

The above-ground fuel storage facility contains a total of four tanks including two 10,000-gallon tanks, a 6,000-gallon gasoline tank, and a 3,000 gallon waste oil tank. Unused liquid will be collected from the tanks and hauled off-site for recycling in compliance with all applicable state and federal regulations. The tanks and all associated liner material will be removed from the fuel storage area and shipped off-site. The entire facility area will be inspected for evidence of petroleum hydrocarbon contamination once the buildings and tanks have been removed. Contaminated soil or gravel will be identified by its discoloration from exposure to fuel, oil, grease or coolant and laboratory testing. This material will be excavated, loaded into trucks and hauled off-site for disposal in accordance with applicable laws and regulations.

20.5.7 Roads

The main haulage road out of the pit, all other links in the road network around the mine, and all remaining exploration roads and compacted surfaces will be contoured as near as possible to the surrounding terrain and revegetated. Any water diversion structures will be removed, and the natural drainage patterns restored. Water bars or other structures may be left in place to reduce any undue erosion. Public access roads will be left, or returned to the pre-mining condition and location, if practicable given the post-mining topography.

20.5.8 Other

Water for dust suppression and domestic use is supplied from one above-ground storage tank. When no longer needed, the tank will be drained, concrete busted and buried, and the tank transported from the site.

The explosives-storage area consists of a bulk-ANFO storage silo and two magazines. All tanks, magazines, and materials will be removed at the end of the project. The ANFO bin and magazines will then be hauled from the site.

Sewage will be pumped from the septic tank and the top cover of the tank will be removed. The concrete walls will be ripped with a dozer and the tank backfilled with earth to the level of the top of the ground.

A review of the electrical transmission line will be completed with APS near the end of mine life. APS will identify the best way to remove the power line and poles to an area appropriate for their and the BLM's end user needs.

All other areas of the Copperstone site not effected by Kerr's operations are to be left as is with no further disturbance.

20.6 Reclamation Costs

The cost estimate reclamation was prepared by Kerr as required by the Bureau of Land Management's bonding policies and with Arizona statute Title 27, Chapter 5, Article 1, Section 27-932. The reclamation cost estimate was developed by Kerr using the State of Nevada Standardized Reclamation Cost Estimator (Version 1.1.2) and reviewed against cost for local Arizona contractors. Reclamation activities and associated costs used in this estimate include:

- Fluid management
- Earthwork,
- Revegetation,
- Demolition, decontamination and disposal,
- Post-reclamation maintenance/monitoring,
- Mobilization/demobilization,
- Development of a long-term fluid management system, and
- Agency administrative costs.

The direct operational and maintenance costs are calculated to total $1,632,049. As this is a brownsfield site previously operated by Cyprus Mining Company, Kerr plans to only reclaim the areas outlined in the MPO. The cost to reclaim other areas of the site that were undisturbed by Kerr are not included in this estimate.

20.7 Social or Community Impact

The Copperstone mine is an established operation with a long history of positive economic impact on the surrounding local communities. Since 2016, Kerr has engaged in constructive conversation with the La Paz County Administration as well as the Tribal Council of the Colorado River Indian Tribes, with positive feedback in all cases. Kerr currently plans to hold town hall meetings in the communities of Quartzsite and Parker in mid-2018, but does not anticipate any significant impediments to future plans or operations from a social or community perspective. HRC knows of no other social or community related requirements or plans for the Project.

21. CAPITAL AND OPERATING COSTS

The capital costs for developing the project are estimated from other recent mine development capital cost history, budgetary quotes from a major mine equipment supplier on mine equipment, Patterson and Cooke for mine backfill infrastructure, Bruno Engineering for Electrical system upgrades, Tierra International for tailings dam raises and Info Mine's Cost Mine Service. Sustaining Capital costs are included for major mine equipment component rebuilds and additional mine equipment requirements. The operating costs were determined based on HRC's industry knowledge and prior experience, Info Mine's Cost Mine Service, RDi for plant consumables and actual cost quotes provided by Kerr for supplies and consumables from local vendors.

21.1 Capital Costs

21.1.1 Initial Capital

Initial Capital for this study includes items purchased in year -1 before production, production is estimated to start in month 11 of year -1 (November 2019). Capital costs were developed for the plant upgrade, infrastructure needs, and mining. Table 21-1 below shows the estimated initial capital costs for the upgrade and restart of the Copperstone Mine using the optimal project case of a WOL processing scheme and owner operated mining, with an equipment capital lease for mine equipment financing. The capital costs reflect the in-place infrastructure, buildings, and equipment which is a beneficial aspect of the Copperstone Mine. Total initial capital is estimated at $22.74 million.

Table 21-1 Initial Capital Costs

Initial Capital	Total
Mine	$5,987,850
Mine Development & Infill Drilling	$5,381,636
Mill Upgrades	$3,518,717
Infrastructure	$270,000
Indirects, EPCM, Owners Cost	$3,747,923
Contingency	$3,831,000
Total Initial Capital	**$22,737,126**

21.1.2 Initial Capital by Area

Initial mine equipment and mine infrastructure capital costs are presented in Table 21-2 by unit cost, units required and total cost. Tables 21-3 and 21-4 list the plant and G&A initial capital by unit cost, units required, and total cost. The capital lease for the mining equipment is based on a quote from a major equipment manufacturer which includes a 3-year term at 10% interest and a 25% down payment. For this option, principal and interest payments reduce cash required from initial financing activity and gross capital costs are booked as assets on the balance sheet. Contingencies for the mine equipment are included at 15% and a contingency of 20% is included for all other items.

Table 21-2 Initial Mine Department Capital Costs

Area	Description	Cost/Unit	Units	Initial Capital
Mine	Truck 17.5 ton	$479,356	5	$2,396,800
Mine	LHD - 3 m3	$489,407	8	$3,915,300
Mine	Scissor Lift	$284,474	6	$1,706,800
Mine	Jumbo Drill 2 Boom	$753,592	5	$3,768,000
Mine	Jumbo Drill 2 Boom	$538,582	1	$538,600
Mine	Man carrier	$274,006	1	$274,000
Mine	UG Road Grader UG20K	$507,600	1	$507,600
Mine	Lube/Fuel Truck	$319,318	1	$319,300
Mine	Boom Truck	$287,544	1	$287,500
Mine	Mule utility vehicles	$16,000	4	$64,000
Mine	Telehandler	$199,745	1	$199,700
Mine	Surface Loader 5yd3	$203,500	1	$203,500
Mine	Dump Truck 20 t	$190,000	2	$380,000
Mine	Underground dozer	$163,700	1	$163,700
Mine	Surface dozer	$232,500	1	$232,500
Mine	250 hp Surface fans - Elec feeder	$209,343	2	$418,700
Mine	Stope Silencer	$2,000	6	$12,000
Mine	Stope Fans 30hp	$24,100	6	$144,600
Mine	New Portal 1	$250,000	1	$250,000
Mine	Backfill Slurry Plant	$450,000	1	$450,000
Mine	Mine substation- upgrade	$915,600	1	$915,600
Mine	Surface power facilities	$235,932	1	$235,900
Mine	Jackleg	$5,500	8	$44,000
Mine	Misc Equipment, Safety, Survey, etc..	$100,000	1	$100,000
Mine	Mine Mobile Equipment Capital Lease			($11,540,250)
Mine Development	Initial Development			$5,381,636
Total				**$11,369,486**

Table 21-3 Initial Plant Capital Costs

Area	Description	Cost/Unit	Units	Initial Capital
Plant	Plant Sustaining Capital			$35,517
Plant	Surface Loader	$429,700	1	$429,700
Plant	10-ft diameter tails thickener	$40,000	1	$40,000
Plant	Gold Recovery Plant	$2,363,450	1	$2,363,500
Plant	10-ft diameter feed thickener	$80,000	1	$80,000
Plant	Six 9 ft dia x 9 ft high leach tanks with agitators	$66,666	6	$400,000
Plant	Remove Old Equipment	$150,000	1	$150,000
Plant	Mill Safety Supplies	$5,000	1	$5,000
Plant	General Communications	$15,000	1	$15,000
Total				**$3,518,717**

Table 21-4 Initial G&A Capital Cost

Area	Description	Cost/Unit	Units	Initial Capital
G&A	Parking lots and signs	$20,000	1	$20,000
G&A	Pickups	$50,000	5	$250,000
Indirects	Site Construction Insurance	$100,000	1	$100,000
Indirects	Mine Training, including Salaries	$50,000	1	$50,000
Indirects	Mill Site Security Costs	$25,000	1	$25,000
Indirects	Recruitment	$15,000	1	$15,000
Indirects	Site G&A Operating Cost	$10,000	1	$10,000
Indirects	Construction Management	$250,000	1	$250,000
Indirects	Operations Staff During Construction	$250,000	1	$250,000
Indirects	EPCM - Permitting	$750,000	1	$750,000
Indirects	Working Capital			$2,381,000
Contingency	Contingency			$3,747,923
Total				**$7,848,923**

21.1.3 Sustaining Capital

Sustaining capital costs are included for additional mine dewatering equipment, A zone portal and primary development, plant equipment rebuilds, and two tailings dam raises. The principal portion of the mine equipment lease payments are also included as sustaining capital. The sustaining capital requirements by year and area are presented in Table 21-5. Reclamation bonding costs are estimated at an additional $500,000 to the $1.6 million that is currently posted.

Table 21-5 Sustaining Capital Costs

Sustaining Capital	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Mine	$0	$0	$156,000	$250,000	$0	$0	$0	$406,000
Mine Primary Development	$0	$0	$5,835,976	$4,251,749	$81,166	$79,194	$0	$10,248,084
Plant	$0	$0	$3,063,126	$287,087	$1,358,151	$158,952	$0	$4,867,316
Indirects & Contingency	$0	$0	$643,825	$107,417	$271,630	$31,790	$0	$1,054,663
Working Capital Credit	$0	$0	$0	$0	$0	$0	($2,381,000)	($2,381,000)
Reclamation Bonding	$500,000	$0	$0	$0	$0	$0	$0	$500,000
Mine Equip. Principal	$0	$1,380,499	$3,615,200	$3,993,758	$2,550,793	$0	$0	$11,540,250
Total Sustaining Capital	**$500,000**	**$1,380,499**	**$13,314,127**	**$8,890,011**	**$4,261,740**	**$269,937**	**-$2,381,000**	**$26,235,313**

21.1.4 Development Costs

The primary development costs are included in the initial and sustaining capital cost estimates presented above. As production begins, the secondary development in the ore zones is included as an operating cost. The total life of mine development and overall costs, including labor, are presented in Table 21-6. Development costs are broken out and calculated by four discrete areas: main ramp, raise, access drift and access drift slash.

Table 21-6 Development Requirements and Costs

	Capital Development					
	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
feet	2,940	7,759	5,670	0	0	0
$/ft	$1,830	$752	$750	$0	$0	$0
	Operating Development					
	Year -1	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
feet	1,451	8,086	6,991	5,741	4,842	139
$/ft	$248	$422	$428	$449	$474	$707

21.2 Operating Cost Estimates

The operating costs were determined based on HRC's industry knowledge and prior experience, Info Mine's Cost Mine Service, RDi for plant consumables and actual cost quotes provided by Kerr for supplies and consumables from local vendors. Following the All-In-Sustaining-Cost ("AISC") guidelines, life-of-mine average Cash Operating Cost is projected to be $684/oz of gold sold. The AISC life-of-mine average base case Total Operating Cost (including royalties and production taxes) is expected to be $713/oz. The total AISC summary per ton of ore and per ounce of gold is expected to be $874/oz as shown in Table 21-7.

Table 21-7 Total Operating Cost Summary

Operating Costs	$/oz Au	$/t ore
Total Mining	-$407.04	-$76.50
Total Processing	-$192.99	-$36.27
Total Site G & A	-$74.61	-$14.02
Transportation and Refining	-$9.39	-$1.76
Cash Operating Costs	**-$684.03**	**-$128.55**
Royalties	-$25.00	-$4.70
Production Taxes	-$4.91	-$0.92
Total Operating Costs	**-$713.94**	**-$134.17**
Corporate General/Admin	$0.00	$0.00
Reclamation cost - prorated	-$3.01	-$0.57
Capital costs - sustaining	-$157.88	-$31.80
All-In-Sustaining-Costs	**-$874.83**	**-$166.54**
Notes: Corporate costs not included		

21.2.1 Mine Operating Costs

Mine operating costs are calculated in detail by equipment, consumables, supplies, services and manpower requirements based on the mine schedule. Equipment costs are calculated based on required hours of operation to meet the production schedule and hourly costs for equipment components, supplies, consumables and manpower. Diesel costs were estimated at $2.50/gallon. Mine maintenance costs are principally based on manufacturer's recommendations, and component replacement and cost. HRC also used data from operating mines of similar size in developing the operating costs for the mine. The costs details by department and category over the life of the mine are shown in Table 21-8.

Table 21-8 Mine Operating Costs

Department	Category	Average Yearly Costs	$/ton Ore	$/oz Au Sold
Mine G&A	Fuel & Lubes	$3,604	$0.02	$0.09
	Labor & Benefits	$857,816	$4.20	$22.35
	Materials/Supplies	$30,033	$0.15	$0.78
	Service	$3,003	$0.01	$0.08
Mine G&A Total		**$894,456**	**$4.38**	**$23.30**
Secondary Development	Allocation	$1,998,168	$9.78	$52.05
	Labor & Benefits	$714,085	$3.50	$18.60
Secondary Development Total		**$2,712,253**	**$13.28**	**$70.65**
UG Stoping	Blasting Supplies	$979,155	$4.79	$25.51
	Labor & Benefits	$1,292,030	$6.33	$33.66
	Materials/Supplies	$758,084	$3.71	$19.75
	Drilling Supplies	$177,350	$0.87	$4.62
	Ground Support Supplies	$255,440	$1.25	$6.65
	Direct Equipment cost	$324,349	$1.59	$8.45
UG Stoping Total		**$3,786,408**	**$18.54**	**$98.63**
Backfill	Labor & Benefits	$491,365	$2.41	$12.80
	Materials/Supplies	$1,671,556	$8.18	$43.54
Backfill Total		**$2,162,920**	**$10.59**	**$56.34**
Ore/Waste Transport	Labor & Benefits	$856,439	$4.19	$22.31
	Materials/Supplies	$525,962	$2.58	$13.70
Ore/Waste Transport Total		**$1,382,401**	**$6.77**	**$36.01**
Mine Services	Energy	$777,559	$3.81	$20.25
	Labor & Benefits	$139,301	$0.68	$3.63
	Lease	$2,403	$0.01	$0.06
	Materials/Supplies	$60,065	$0.29	$1.56
	Direct Equipment cost	$1,277,867	$6.26	$33.29
Mine Services Total		**$2,257,194**	**$11.05**	**$58.80**
Surface Haulage	Materials/Supplies	$485,473	$2.38	$12.65
Surface Haulage Total		**$485,473**	**$2.38**	**$12.65**
Engineering	Energy	$12,013	$0.06	$0.31
	Fuel & Lubes	$25,227	$0.12	$0.66
	Labor & Benefits	$526,912	$2.58	$13.73
	Materials/Supplies	$33,036	$0.16	$0.86
Engineering Total		**$597,189**	**$2.92**	**$15.56**
Geology	Fuel & Lubes	$1,802	$0.01	$0.05
	Labor & Benefits	$593,951	$2.91	$15.47
	Materials/Supplies	$15,016	$0.07	$0.39
	Service	$355,642	$1.74	$9.26
Geology Total		**$966,411**	**$4.73**	**$25.17**
Contingency		**$381,118**	**$1.86**	**$9.93**
Grand Total		**$15,625,822**	**$76.50**	**$407.04**

21.2.2 Plant Operating Costs

Processing costs were estimated based on equipment requirements built up in detail utilizing hourly costs for equipment components, supplies, consumables and manpower. Reagent usages and wear material estimates were provided by Kerr. Power was estimated at $0.065/Kwh based on current rates in the area. Table 12-9 shows the life of mine costs by department and cost category.

Table 21-9 Process Plant Operating Costs

Department	Category	Average Yearly Costs	$/ton Ore	$/oz Au Sold
Plant G&A	Energy	$32,807	$0.16	$0.85
	Fuel & Lubes	$12,789	$0.06	$0.33
	Labor & Benefits	$652,520	$3.19	$17.00
	Lease	$3,064	$0.02	$0.08
	Materials/Supplies	$15,433	$0.08	$0.40
	Services	$10,314	$0.05	$0.27
	Travel	$2,328	$0.01	$0.06
	Wear Parts	$569	$0.00	$0.01
Plant G&A Total		**$729,824**	**$3.57**	**$19.01**
Primary Crushing	Allocation	$123,455	$0.60	$3.22
	Energy	$43,564	$0.21	$1.13
	Fuel & Lubes	$95,078	$0.47	$2.48
	Labor & Benefits	$234,588	$1.15	$6.11
	Materials/Supplies	$90,384	$0.44	$2.35
	Wear Parts	$128,312	$0.63	$3.34
Primary Crushing Total		**$715,380**	**$3.50**	**$18.64**
Secondary Crushing	Allocation	$255,833	$1.25	$6.66
	Energy	$64,688	$0.32	$1.69
	Fuel & Lubes	$44,818	$0.22	$1.17
	Materials/Supplies	$469	$0.00	$0.01
	Wear Parts	$145,424	$0.71	$3.79
Secondary Crushing Total		**$511,232**	**$2.50**	**$13.32**
Grinding	Allocation	$294,264	$1.44	$7.67
	Energy	$189,170	$0.93	$4.93
	Fuel & Lubes	$43,069	$0.21	$1.12
	Labor & Benefits	$234,588	$1.15	$6.11
	Materials/Supplies	$234,058	$1.15	$6.10
	Wear Parts	$118,807	$0.58	$3.09
Grinding Total		**$1,113,956**	**$5.45**	**$29.02**
Leaching / CIL Adsorption	Energy	$14,277	$0.07	$0.37
	Labor & Benefits	$234,588	$1.15	$6.11
	Materials/Supplies	$153,760	$0.75	$4.01
	Reagents	$12,229	$0.06	$0.32
Leaching / CIL Adsorption Total		**$414,854**	**$2.03**	**$10.81**
Solutions	Labor & Benefits	$372,767	$1.83	$9.71
	Materials/Supplies	$10,673	$0.05	$0.28
	Reagents	$1,034,083	$5.06	$26.94
Solutions Total		**$1,417,524**	**$6.94**	**$36.93**
Elution	Energy	$95,180	$0.47	$2.48
	Materials/Supplies	$266,152	$1.30	$6.93
	Reagents	$404,408	$1.98	$10.53
Elution Total		**$765,740**	**$3.75**	**$19.95**

Table 21-10 Continued Process Plant Operating Costs

Department	Category	Average Yearly Costs	$/ton Ore	$/oz Au Sold
Refinery	Labor & Benefits	$469,176	$2.30	$12.22
	Materials/Supplies	$47,522	$0.23	$1.24
Refinery Total		**$516,698**	**$2.53**	**$13.46**
Tailings - Process Water	Allocation	$69,693	$0.34	$1.82
	Energy	$29,149	$0.14	$0.76
	Fuel & Lubes	$19,357	$0.09	$0.50
	Materials/Supplies	$274,538	$1.34	$7.15
	Wear Parts	$17,256	$0.08	$0.45
Tailings - Process Water Total		**$409,994**	**$2.01**	**$10.68**
Plant Mntnc	Allocation	-$685,183	-$3.35	-$17.85
	Fuel & Lubes	$23,634	$0.12	$0.62
	Labor & Benefits	$581,176	$2.85	$15.14
	Materials/Supplies	$226,356	$1.11	$5.90
	Wear Parts	$1,052	$0.01	$0.03
Plant Mntnc Total		**$147,035**	**$0.72**	**$3.83**
Assay Lab	Labor & Benefits	$383,797	$1.88	$10.00
	Materials/Supplies	$101,924	$0.50	$2.66
Assay Lab Total		**$485,721**	**$2.38**	**$12.65**
Contingency		**$180,699**	**$0.88**	**$4.71**
Grand Total		**$7,408,655**	**$36.27**	**$192.99**

21.2.3 G&A Operating Cost

The G&A costs have been developed from HRC's knowledge and experience as well as data from similar size operations. The major G&A cost component is staff and labor, but G&A also covers such things as security, office equipment, heat and lighting, communications, overtime, property insurance, office supplies, computer system license fees, admin building maintenance, janitorial services, outside services and allowances for travel and meetings. Table 12-11 show the life of mine costs by department and cost category for the G&A department.

Table 21-11 G&A Operating Costs

Department	Category	Average Yearly Costs	$/ton Ore	$/oz Au Sold
Admin	Energy	$25,759	$0.13	$0.67
	Fuel & Lubes	$5,684	$0.03	$0.15
	Gen Costs	$843,448	$4.13	$21.97
	Labor & Benefits	$327,996	$1.61	$8.54
	Lease	$2,918	$0.01	$0.08
	Materials/Supplies	$22,205	$0.11	$0.58
	Services	$46,097	$0.23	$1.20
	Travel	$17,505	$0.09	$0.46
Admin Total		**$1,291,611**	**$6.32**	**$33.65**
Human Relations	Gen Costs	$16,338	$0.08	$0.43
	Labor & Benefits	$127,495	$0.62	$3.32
	Materials/Supplies	$584	$0.00	$0.02
	Services	$8,753	$0.04	$0.23
	Travel	$438	$0.00	$0.01
Human Relations Total		**$153,607**	**$0.75**	**$4.00**
Security & Safety	Gen Costs	$3,209	$0.02	$0.08
	Labor & Benefits	$587,745	$2.88	$15.31
	Lease	$292	$0.00	$0.01
	Materials/Supplies	$8,461	$0.04	$0.22
	Services	$1,459	$0.01	$0.04
	Travel	$1,167	$0.01	$0.03
Security & Safety Total		**$602,333**	**$2.95**	**$15.69**
Accounting	Gen Costs	$875	$0.00	$0.02
	Labor & Benefits	$197,287	$0.97	$5.14
	Materials/Supplies	$6,127	$0.03	$0.16
	Services	$5,835	$0.03	$0.15
	Travel	$4,668	$0.02	$0.12
Accounting Total		**$214,792**	**$1.05**	**$5.60**
Purchasing	Gen Costs	$292	$0.00	$0.01
	Labor & Benefits	$180,423	$0.88	$4.70
	Materials/Supplies	$8,753	$0.04	$0.23
	Services	$584	$0.00	$0.02
	Travel	$729	$0.00	$0.02
Purchasing Total		**$190,780**	**$0.93**	**$4.97**
Environmental	Gen Costs	$3,004	$0.01	$0.08
	Labor & Benefits	$217,113	$1.06	$5.66
	Materials/Supplies	$22,349	$0.11	$0.58
	Services	$24,031	$0.12	$0.63
	Travel	$3,304	$0.02	$0.09
Environmental Total		**$269,801**	**$1.32**	**$7.03**
Contingency		**$68,073**	**$0.33**	**$1.77**
Grand Total		**$2,790,997**	**$13.66**	**$72.70**

21.2.4 Labor

Operating labor rates and burdens percentages are based on mines of similar size and compared to Cost Mine data for labor rates in mines in Arizona. Staffing levels and rates for the life of the reserve are shown in Table 21-12 through 21-15. Overtime was estimated at 2.5% and payroll burdens were estimated at 38% with a 10% bonus for the underground miners.

Table 21-12 Manpower Requirements for Mine Operations

Manpower Summary		Rate	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5		Average
Mining G&A										
Mine Superintendent	Mine G&A	$135,000	1	1	1	1	1	1		1
Mine Foreman	Mine G&A	$100,000	4	4	4	4	4	2		4
Mine G&A			**5**	**5**	**5**	**5**	**5**	**3**		**5**
Mining G&A										
Mine Clerk	Mine G&A	$19.00	**1**	**1**	**1**	**1**	**1**	**1**		**1**
Development										
Miner 1	Development	$32.00	4	4	3	0	0	0		2
Miner 2	Development	$28.00	4	4	3	0	0	0		2
Helper	Development	$25.00	6	6	5	0	0	0		3
Development			**14**	**14**	**11**	**0**	**0**	**0**		**7**
Secondary Development										
Miner 1	Ore Access	$30.00	4	4	4	4	4	2		4
Miner 2	Ore Access	$28.00	4	4	4	4	4	2		4
Raises			**8**	**8**	**8**	**8**	**8**	**4**		**8**
U/G Production										
Miner 1	UG Stoping	$32.00	3	4	4	3	3	2		4
Miner 2	UG Stoping	$28.00	3	4	4	3	3	2		4
Helper	UG Stoping	$25.00	3	4	4	3	3	2		4
Backfill	Backfill	$30.00	6	6	6	6	6	3		6
Blaster	UG Stoping	$32.00	2	2	3	2	2	1		2
Stoping			**16**	**22**	**21**	**18**	**17**	**9**		**19**
Haulage										
Miner 1	Surface Ore	$28.00	4	6	6	5	5	4		5
Miner 3	Ore/Waste	$28.00	5	10	8	7	6	3		7
Miner 4	Ore/Waste	$25.00	5	10	8	7	6	3		7
Haulage			**14**	**26**	**21**	**19**	**17**	**10**		**20**
Mine Services										
U/G Helper	Mine Services	$25.00	**2**	**2**	**2**	**2**	**2**	**1**		**2**
Mine Maintenance										
Lead Mechanic	UG Stoping	$35.00	1	1	1	1	1	1		1
Mechanic	UG Stoping	$30.00	1	1	1	1	1	1		1
Mechanic/Welder	Ore Access	$25.00	1	1	1	1	1	0		1
Electrician	Development	$31.50	1	1	1	0	0	0		0
Total Mine Maintenance			**4**	**4**	**4**	**3**	**3**	**1**		**3**
Total Mine Operations			**64**	**81**	**72**	**56**	**52**	**29**		**64**

Table 21-13 Manpower Requirements for Engineering and Geology

Manpower Summary		Rate	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5		Average
Engineering										
Sr Mining Engineer	Engineering	$110,000	1	1	1	1	1	1		1
Jr Mining Engineer	Engineering	$95,000	1	1	1	1	1	1		1
Chief Surveyor	Engineering	$90,000	1	1	1	1	1	1		1
Surveyor Tech	Engineering	$22.00	2	2	2	2	2	1		2
Engineering			**5**	**5**	**5**	**5**	**5**	**3**		**5**
Geology & Grade Control										
Sr Geologist	Geology	$90,000	**1**	**1**	**1**	**1**	**1**	**1**		**1**
Ore Control Geologist	Geology	$80,000	**2**	**2**	**2**	**2**	**2**	**1**		**2**
Sampler	Geology	$22.00	**4**	**4**	**4**	**4**	**4**	**2**		**4**
Geology			**7**	**7**	**7**	**7**	**7**	**4**		**7**
Total Engineering and Geology			**12**	**12**	**12**	**12**	**12**	**7**		**12**

Table 21-14 Manpower Requirements for Process Plant Operations

Manpower Summary		Rate	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5		Average
Processing Plant										
Salary Personnel										
Plant Superintendent	Plant G&A	$135,000	1	1	1	1	1	1		1
Plant Foreman	Plant G&A	$95,000	3	3	3	3	3	2		3
Metallurgist	Solutions	$100,000	1	1	1	1	1	1		1
Assay Lab Manager	Assay Lab	$85,000	1	1	1	1	1	1		1
Mntnce Forman	Plant Mntnc	$75,000	1	1	1	1	1	1		1
Process Salary			**7**	**7**	**7**	**7**	**7**	**6**		**7**
Hourly Personnel										
Instrument Technician	Plant G&A	$28.00	1	1	1	1	1	1		1
Crushing Operators	Crushing	$27.00	3	3	3	3	3	2		3
Operator	Solutions	$27.00	3	3	3	3	3	2		3
Plant Operator	Grinding	$27.00	3	3	3	3	3	2		3
Plant Operator	Leaching	$27.00	3	3	3	3	3	2		3
Plant Operator	Refinery	$27.00	6	6	6	6	6	3		6
Assayer	Assay Lab	$28.33	2	2	2	2	2	2		2
Sample Prep	Assay Lab	$16.33	2	2	2	2	2	2		2
Mechanic	Plant Mntnc	$28.00	3	3	3	3	3	2		3
Mechanic Helper	Plant Mntnc	$25.00	2	2	2	2	2	1		2
Electrician	Plant Mntnc	$30.00	1	1	1	1	1	1		1
Process Hourly			**29**	**29**	**29**	**29**	**28**	**18**		**28**
Total Process Operations			**36**	**36**	**36**	**36**	**35**	**23**		**35**

Table 21-15 Manpower Requirements for G&A and Totals for Project

Manpower Summary		Rate	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5		Average
General and Administrative										
Mine Manager	Admin	$150,000	1	1	1	1	1	1		1
Enviro Manager	Environmental	$100,000	0	1	1	1	1	1		1
HR Manager	Human Relations	$95,000	0	1	1	1	1	1		1
Safety Super.	Security & Safety	$90,000	1	1	1	1	1	1		1
Controller	Accounting	$65,000	1	1	1	1	1	1		1
Purchasing Manager	Purchasing	$90,000	1	1	1	1	1	1		1
Environmental Tech	Environmental	$60,000	0	1	1	1	1	1		1
IT Tech	Admin	$55,000	0	1	1	1	1	1		1
Payroll	Accounting	$20.00	1	1	1	1	1	1		1
Accounts Payable	Accounting	$18.00	1	1	1	1	1	1		1
Admin Assistant	Admin	$15.00	1	1	1	1	1	1		1
Safety/Security	Security & Safety	$20.00	8	8	8	8	8	4		8
Warehousemen	Purchasing	$20.00	1	1	1	1	1	1		1
Total G&A			**18**	**20**	**20**	**20**	**19**	**13**		**19**
Totals for all Departments										
Total Salary			**24**	**26**	**26**	**26**	**25**	**19**		**25**
Total Hourly			**106**	**123**	**114**	**98**	**93**	**53**		**103**
Total Property			**130**	**149**	**140**	**124**	**118**	**72**		**128**

22. ECONOMIC ANALYSIS

22.1 Summary

Information contained and certain statements made herein are considered forward-looking within the meaning of applicable Canadian securities laws. These statements address future events and conditions and so involve inherent risks and uncertainties. Actual results could differ from those currently projected.

The Project is planned to be an underground mining operation with milling and Whole-Ore Cyanidation Leaching ("WOL") of the ore with an estimated production of 884,000 tons from its reserves, grading 0.198 opt gold. The process operations are planned to run at a rate of 840 tons per day, five days per week with a 96% availability during the operating days, with all mineralized material being crushed, milled and processed by WOL. Gold recovery is expected to average 95% for gold. There is a potential by-product credit for copper which is not included in this report, and which is understudy by the Company.

Economic analysis of the base case scenario for the Project uses a price of US$1,250/oz for gold, which is the 60-month trailing average price and $74/oz less than the closing spot price at the end of March 2018. The economic model shows an After-Tax Net Present Value @ 10% ("NPV-10") of $17.91 million using a 0.111 opt Au mining cut-off grade, as well as an After-Tax Internal Rate of Return ("IRR") of 40.1%. Table 22-1 summarizes the projected Net Present Value, NPV-10; Internal Rate of Return, IRR; years of positive cash flows to repay the negative cash flow ("payback period"); multiple of positive cash flows compared to the maximum negative cash flow ("payback multiple") for the Project on both After-Tax and Before-Tax bases.

Table 22-1 Summary of Copperstone Economic Results

Project Valuation Overview	After Tax	Before Tax
Net Cashflow (millions)	$36.28	$38.24
NPV @ 5.0%; (millions)	$25.59	$27.12
NPV @ 7.5%; (millions)	$21.44	$22.80
NPV @ 10.0%; (millions)	$17.91	$19.12
Internal Rate of Return	40.1%	41.7%
Payback Period, Years	2.27	2.26
Payback Multiple	2.75	2.84
Total Initial Capital (millions)	-$22.74	-$22.74
Max Neg. Cashflow (millions)	-$20.74	-$20.74

Table 22-2 summarizes the projected production schedule and cash flows. The economic evaluation and schedule is based on Proven and Probable reserves. Additional mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of additional estimated mineral resources will be converted into mineral reserves.

Table 22-2 Copperstone Project Schedule and Cash Flow

Note: All Dollars are in US	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Life-of-Mine
MINE PRODUCTION								
Tons Ore Mined		57,418	237,988	238,576	182,031	158,810	9,283	884,106
Au, oz/tn		0.211	0.194	0.201	0.194	0.199	0.199	0.198
Development Feet		4,391	15,845	12,661	5,741	4,842	139	43,619
Development Waste		62,277	206,059	161,871	57,179	48,226	1,387	537,001
Total Tons Mined		**119,695**	**444,047**	**400,447**	**239,210**	**207,037**	**10,670**	**1,421,107**
PROCESS PRODUCTION								
Tons Ore Processed		35,096	210,000	210,000	210,000	209,727	9,283	**884,106**
Au, oz/t		0.221	0.195	0.200	0.194	0.199	0.199	0.198
Income Statement								
REVENUE								
Contained Oz Au to Mill		7,744	40,872	42,083	40,801	41,746	1,847	175,093
Saleable Oz Au, post 99.9% Refinery credit		7,349	38,790	39,939	38,722	39,619	1,753	166,171
Gross Revenue		**$9,186,375**	**$48,487,000**	**$49,923,625**	**$48,402,250**	**$49,523,375**	**$2,191,625**	**$207,714,250**
Transportation and Refinery Charges		(65,978)	(362,678)	(369,868)	(362,254)	(367,865)	(30,969)	(1,559,612)
Net Refined Revenue		**$9,120,397**	**$48,124,322**	**$49,553,757**	**$48,039,996**	**$49,155,510**	**$2,160,656**	**$206,154,638**
Royalties		(183,728)	(969,740)	(998,473)	(968,045)	(990,468)	(43,833)	(4,154,285)
Net Revenue	**$0**	**$8,936,670**	**$47,154,582**	**$48,555,285**	**$47,071,951**	**$48,165,043**	**$2,116,824**	**$202,000,353**
OPERATING EXPENSES								
Mining								
Mine G&A	0	(152,194)	(913,161)	(910,767)	(910,767)	(884,981)	(99,892)	(3,871,761)
Secondary Development	0	(359,855)	(3,413,582)	(2,993,662)	(2,577,183)	(2,297,524)	(98,510)	(11,740,315)
UG Stoping	0	(682,685)	(4,462,356)	(4,457,225)	(3,458,068)	(3,122,409)	(207,181)	(16,389,925)
Ore/Waste Transport	0	(175,580)	(1,539,478)	(1,280,056)	(1,611,057)	(1,275,495)	(102,224)	(5,983,890)
Surface Haulage	0	(274,357)	(496,900)	(483,170)	(389,500)	(403,500)	(54,000)	(2,101,427)
Mine Services	0	(368,304)	(2,306,018)	(2,299,888)	(2,299,888)	(2,238,005)	(258,433)	(9,770,537)
Backfill	0	(404,301)	(2,655,397)	(2,113,601)	(2,196,370)	(1,865,565)	(127,229)	(9,362,463)
Engineering	0	(101,635)	(609,808)	(608,334)	(608,334)	(590,756)	(66,138)	(2,585,004)
Geology	0	(162,474)	(1,080,840)	(1,036,636)	(954,770)	(881,944)	(66,561)	(4,183,225)
Contingency, @ 2.5%	0	(67,035)	(436,939)	(404,583)	(375,148)	(339,004)	(27,004)	(1,649,713)
Total Mining		**($2,748,418)**	**($17,914,480)**	**($16,587,922)**	**($15,381,085)**	**($13,899,184)**	**($1,107,172)**	**($67,638,260)**
Processing & ROM handling								
Plant G&A	0	(123,948)	(743,604)	(741,658)	(741,658)	(724,916)	(83,349)	(3,159,133)
Primary Crushing	0	(122,869)	(736,048)	(735,202)	(735,202)	(724,405)	(42,884)	(3,096,610)
Secondary Crushing	0	(87,845)	(525,632)	(525,632)	(525,632)	(524,950)	(23,235)	(2,212,928)
Grinding	0	(190,836)	(1,144,355)	(1,141,885)	(1,141,885)	(1,131,329)	(71,602)	(4,821,892)
Leaching / CIL Adsorption	0	(71,276)	(427,189)	(426,488)	(426,488)	(416,023)	(28,281)	(1,795,744)
Solutions	0	(242,898)	(1,454,446)	(1,453,407)	(1,453,407)	(1,441,769)	(89,994)	(6,135,922)
Elution	0	(131,492)	(787,065)	(786,798)	(786,798)	(785,903)	(36,544)	(3,314,599)
Tailings - Process Water	0	(70,275)	(420,879)	(420,497)	(420,497)	(420,132)	(22,427)	(1,774,707)
Assay Lab	0	(81,522)	(488,876)	(487,799)	(487,799)	(487,676)	(68,829)	(2,102,501)
Refinery	0	(88,793)	(532,625)	(531,303)	(531,303)	(510,752)	(41,813)	(2,236,589)
Plant Mntnc	0	(24,682)	(148,186)	(147,689)	(147,689)	(130,787)	(37,423)	(636,458)
Contingency, @ 2.5%	0	(30,911)	(185,223)	(184,959)	(184,959)	(182,466)	(13,660)	(782,178)
Total Processing	**$0**	**($1,267,349)**	**($7,594,127)**	**($7,583,318)**	**($7,583,318)**	**($7,481,106)**	**($560,041)**	**($32,069,260)**
Site General & Administration								
Admin	0	(216,298)	(1,297,786)	(1,294,240)	(1,294,240)	(1,287,883)	(200,448)	(5,590,895)
Human Relations	0	(26,397)	(158,383)	(157,950)	(157,950)	(151,243)	(12,982)	(664,905)
Security & Safety	0	(102,896)	(617,373)	(615,686)	(615,686)	(594,815)	(60,813)	(2,607,269)
Accounting	0	(36,912)	(221,471)	(220,866)	(220,866)	(211,486)	(18,153)	(929,753)
Purchasing	0	(32,491)	(194,943)	(194,411)	(194,411)	(188,684)	(20,874)	(825,814)
Environmental	0	(45,695)	(274,169)	(273,420)	(273,420)	(267,560)	(33,603)	(1,167,867)
Contingency, @ 2.5%	0	(11,517)	(69,103)	(68,914)	(68,914)	(67,542)	(8,672)	(294,662)
Total G&A		**($472,205)**	**($2,833,228)**	**($2,825,487)**	**($2,825,487)**	**($2,769,213)**	**($355,545)**	**($12,081,165)**
Property Tax	0	(61,363)	(65,095)	(60,698)	(58,563)	(36,608)	(34,445)	(316,772)
Mine Severance Tax	0	(57,138)	(164,391)	(169,687)	(187,617)	(237,674)	0	(816,507)
Total Operating Costs	**$0**	**($4,606,472)**	**($28,571,321)**	**($27,227,112)**	**($26,036,070)**	**($24,423,785)**	**($2,057,204)**	**($112,921,964)**

Table 22-2 Copperstone Project Schedule and Cash Flow (cont.)

Continued	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Life-of-Mine
Operating Margin (EBITDA)	**$0**	**$4,330,197**	**$18,583,261**	**$21,328,173**	**$21,035,881**	**$23,741,257**	**$59,620**	**$89,078,389**
Development Deduction	0	(3,767,145)	(4,085,183)	(2,976,224)	(56,816)	(55,436)	0	(10,940,803)
Amortization	0	(161,449)	(336,528)	(464,081)	(466,516)	(468,892)	(2,791,451)	(4,688,917)
Depreciation	0	0	(6,566,101)	(8,921,388)	(7,182,147)	(5,955,520)	(4,217,564)	(32,842,720)
Reclamation Deduction	0	0	0	0	0	0	(500,000)	(500,000)
Interest Expense	0	(450,161)	(853,257)	(474,699)	(87,003)	0	0	(1,865,121)
Income - before NOL & Perc Depletion	**$0**	**($48,558)**	**$6,742,192**	**$8,491,781**	**$13,243,399**	**$17,261,410**	**($7,449,396)**	**$38,240,828**
Net Operating Loss Adjustment	0	48,558	(6,742,192)	(8,491,781)	(8,667,584)	0	0	(23,853,000)
Depletion	0	0	0	0	(2,207,830)	(7,224,756)	2,490,459	(6,942,127)
State Income Tax	0	0	0	0	(160,154)	(702,566)	359,145	(503,575)
Federal Income Tax	0	0	0	0	(463,644)	(1,960,158)	965,956	(1,457,846)
Taxable Income, less Tax	**$0**	**$0**	**$0**	**$0**	**$1,744,187**	**$7,373,930**	**($3,633,836)**	**$5,484,280**
Cash Flow Calculation								
Adjustments for Non Cash Items								
Development Deduction	0	3,767,145	4,085,183	2,976,224	56,816	55,436	0	10,940,803
Amortization	0	161,449	336,528	464,081	466,516	468,892	2,791,451	4,688,917
Depreciation/Reclamation/Salvage	0	0	6,566,101	8,921,388	7,182,147	5,955,520	4,717,564	33,342,720
Net Operating Loss Adjustment	0	(48,558)	6,742,192	8,491,781	8,667,584	0	0	23,853,000
Depletion	0	0	0	0	2,207,830	7,224,756	(2,490,459)	6,942,127
Total Adjustments for Non Cash Items	**$0**	**$3,880,036**	**$17,730,004**	**$20,853,474**	**$18,580,893**	**$13,704,604**	**$5,018,556**	**$79,767,567**
Capital								
Investment - Mine	0	(17,528,100)						(17,528,100)
Investment - Primary Development	0	(5,381,636)						(5,381,636)
Investment - Plant	0	(3,518,717)	0					(3,518,717)
Investment - G&A	0	(270,000)	0					(270,000)
Capital Indirects & Contingency	(603,670)	(4,594,254)	0					(5,197,923)
Total Capital	**($603,670)**	**($31,292,707)**	**$0**	**$0**	**$0**	**$0**	**$0**	**($31,896,376)**
Sustaining Capital - Mine			(156,000)	(250,000)	0	0	0	(406,000)
Sustaining - Primary Development			(5,835,976)	(4,251,749)	(81,166)	(79,194)	0	(10,248,084)
Sustaining Capital - Plant			(3,063,126)	(287,087)	(1,358,151)	(158,952)	0	(4,867,316)
Sustaining Capital - Indirects& Contingency			(643,825)	(107,417)	(271,630)	(31,790)	0	(1,054,663)
Reclamation Closure Costs	(500,000)	0	0	0	0	0	0	(500,000)
Total Capital & Sustaining	**($1,103,670)**	**($31,292,707)**	**($9,698,927)**	**($4,896,252)**	**($1,710,947)**	**($269,937)**	**$0**	**($48,972,440)**
Working capital	0	(2,381,000)	0	0	0	0	2,381,000	0
Equipment Financing	0	11,540,250	0	0	0	0	0	11,540,250
Principal Payments	0	(1,380,499)	(3,615,200)	(3,993,758)	(2,550,793)	0	0	(11,540,250)
Total Capital & Working Capital	**($1,103,670)**	**($23,513,956)**	**($13,314,127)**	**($8,890,011)**	**($4,261,740)**	**($269,937)**	**$2,381,000**	**($48,972,440)**
Beginning Cash	**$0**	**($1,103,670)**	**($20,737,589)**	**($16,321,713)**	**($4,358,249)**	**$11,705,091**	**$32,513,687**	
Period Net Cash Flow	**($1,103,670)**	**($19,633,920)**	**$4,415,877**	**$11,963,463**	**$16,063,340**	**$20,808,596**	**$3,765,721**	**$36,279,408**
Ending Cash	**($1,103,670)**	**($20,737,589)**	**($16,321,713)**	**($4,358,249)**	**$11,705,091**	**$32,513,687**	**$36,279,408**	**$36,279,408**

The projected total lifespan of the Project is 5.4 years: one year of pre-production and construction, and 4.4 years of full operations. Approximately 175,100 oz of gold is projected to be mined, with 166,200 oz recovered and produced for sale. An initial capital investment of $22.7 million, including contingency/working capital/reclamation and combined with $$11.5 million of mine equipment capital lease, is projected. Following the All-In-Sustaining-Cost ("AISC") guidelines, life-of-mine average base case Cash Operating Cost is projected to be $684/oz of gold sold. The AISC life-of-mine average base case Total Operating Cost (including royalties and production taxes), is expected to be $714/oz. The All-In-Sustaining-Cost is projected to be $875/oz.

Table 22-3 Copperstone Project Total Operating Cost/ounce Gold & per ton Ore

Operating Costs	$/oz Au	$/t ore
Total Mining	-$407.04	-$76.50
Total Processing	-$192.99	-$36.27
Total Site G & A	-$74.61	-$14.02
Transportation and Refining	-$9.39	-$1.76
Cash Operating Costs	**-$684.03**	**-$128.55**
Royalties	-$25.00	-$4.70
Production Taxes	-$4.91	-$0.92
Total Operating Costs	**-$713.94**	**-$134.17**
Corporate General/Admin	$0.00	$0.00
Reclamation cost - prorated	-$3.01	-$0.57
Capital costs - sustaining	-$157.88	-$31.80
All-In-Sustaining-Costs	**-$874.83**	**-$166.54**
Notes: Corporate costs not included		

As previously mentioned, the gold price used in the economic evaluation (US $1,250/oz Au) is the 60-month trailing average price and $74/oz less than the spot price as of the end of March 2018.

22.1.1 Taxes

State, local, and federal taxes, including income taxes and the Arizona Transaction Privilege Tax, Mining (Severance Tax), and tax loss carry-forwards have been considered in this study, and are included in the economic analysis.

22.1.2 Royalties

A 2.0 percent royalty, calculated on the gross proceeds less transportation and refining costs, has been included for all of the metal produced, as required by underlying agreements provided by Kerr.

22.1.3 Corporate Income Taxes

United States and State corporate taxes have been considered in the economic analysis.

22.2 Economic Model

22.2.1 Basis of Evaluation

Mineral resources were incorporated in the model only if classified as Proven or Probable Reserves according to CIM definitions. A throughput of 840 tons per day five days per week is the base case processing rate, and operations and capital factors were developed from this basis. Recovery for gold is expected to average 95% for the base case. Construction of the facilities is projected to conclude at the end of year -1.

After-Tax cash flows were calculated on a yearly basis for the life of the base case. Federal, state and local taxes were considered for this evaluation.

The Project is projected to have robust economics at the base case gold price of $1,250/oz. The projected sensitivities in the Net Present Value from variations in the discount rate have also been calculated on an After-Tax and Before-Tax basis. Table 22-4 presents the summary economic results, on an After-Tax and a Before-Tax basis.

Table 22-4 Summary Projected Economic Results

Project Valuation Overview	After Tax	Before Tax
Net Cashflow (millions)	$36.28	$38.24
NPV @ 5.0%; (millions)	$25.59	$27.12
NPV @ 7.5%; (millions)	$21.44	$22.80
NPV @ 10.0%; (millions)	$17.91	$19.12
Internal Rate of Return	40.1%	41.7%
Payback Period, Years	2.27	2.26
Payback Multiple	2.75	2.84
Total Initial Capital (millions)	-$22.74	-$22.74
Max Neg. Cashflow (millions)	-$20.74	-$20.74

22.3 Sensitivity Analysis

22.3.1 Price

The Project, like almost all precious metals projects, is very responsive to changes in the price of its chief commodity, gold. From the base case, a change in the average gold price of US$50/oz Au would change the NPV-10 by 26%, or approximately $4.6 million (Figure 22-1). Table 22-5 also shows the economic sensitivities, due to the change in gold price, in the Net Cash Flow, the Net Present Value at 10%, the Internal Rate of Return, the Payback Period, and the Payback Multiple.

Table 22-5 Gold Price Sensitivity Economic Results

Au Price	Net Cash Flow, millions	NPV-10.0%, millions	IRR	Payback Period, Years	Payback Multiple
$1,100	$14.25	$3.27	15.3%	3.3	1.6
$1,150	$22.24	$8.51	23.9%	3.0	2.0
$1,200	$29.51	$13.37	32.1%	2.6	2.4
$1,250	**$36.28**	**$17.91**	**40.1%**	**2.3**	**2.7**
$1,300	$43.19	$22.53	48.4%	2.0	3.1
$1,350	$49.98	$27.07	56.9%	1.8	3.5
$1,400	$56.65	$31.50	65.2%	1.6	3.9

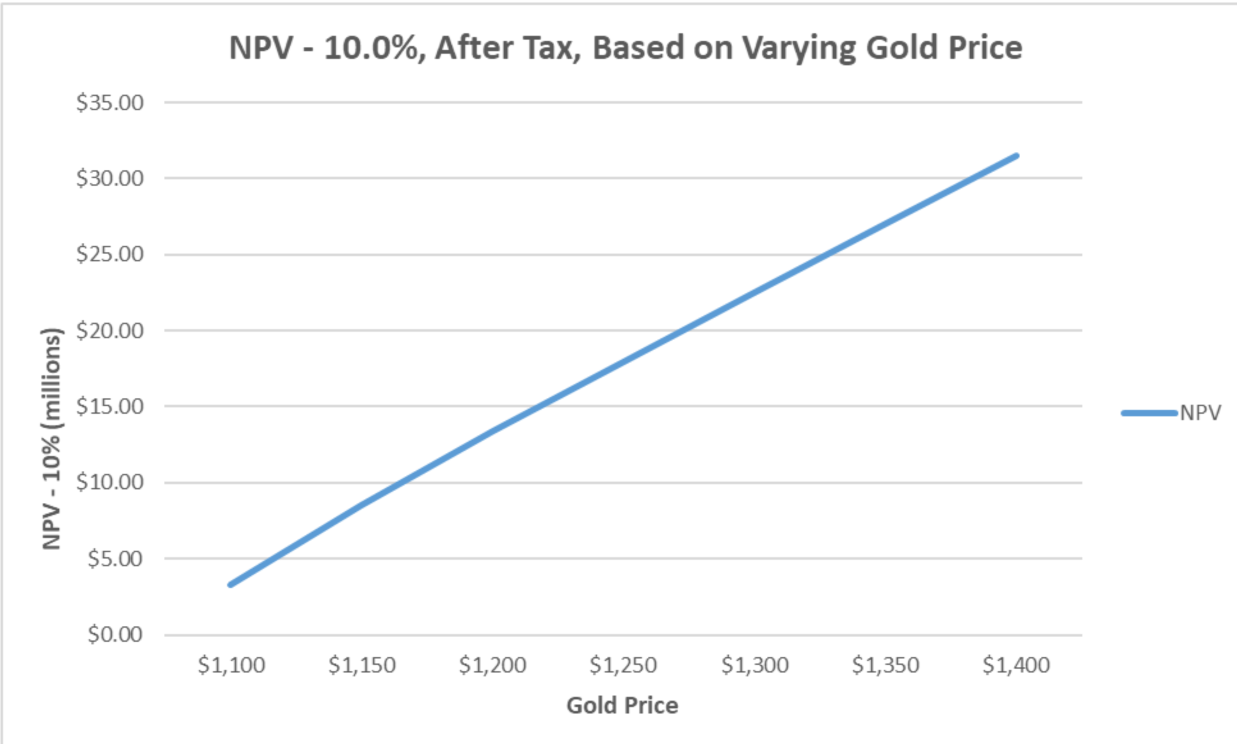


Figure 22-1 Project Gold Price Sensitivity Analysis

22.3.2 Cost and Recovery

The Project is very sensitive to the cost of operations, incurring an approximately 36% decline in the NPV-10 for each increase of 10% in the operating costs. The Project is less sensitive to variances in the cost of capital, experiencing about 19% in decline in the NPV-10 for each increase of 10% in the capital costs, as shown in Figure 22-2.

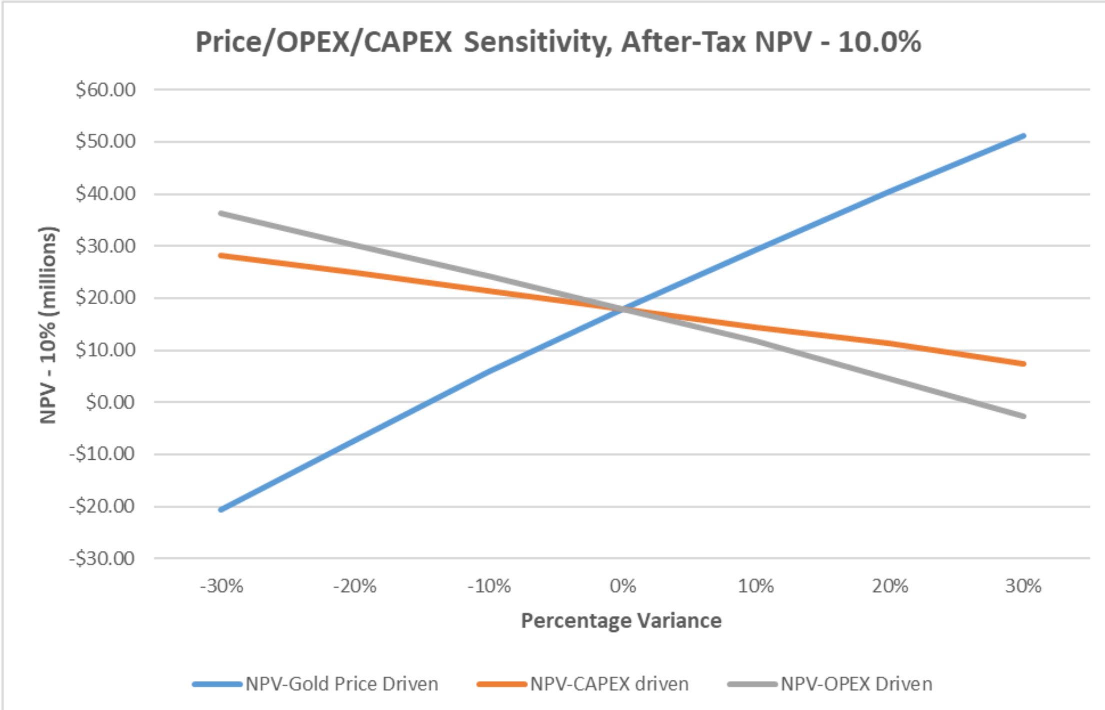


Figure 22-2 Project Operating Cost & Capital Cost Sensitivity Analysis

22.4 Conclusion

The Project would be economically viable based on the parameters considered in this study. The base case scenario produces approximately 166,200 salable ounces of gold over a 4.5-year period. The Project is most sensitive to the gold price and to operating costs, but sensitive to a lesser extent to capital costs.

The base case economic analysis of the Project at a gold price of US$1,250/oz shows an After-Tax NPV-10 of $17.91 million using an 840 ton/day crushing/grinding/WOL plant.

23. ADJACENT PROPERTIES

HRC knows of no adjacent properties which might materially affect the interpretation or evaluation of the mineralization or exploration targets of the Copperstone Project.

24. OTHER RELEVANT DATA AND INFORMATION

The Copperstone mine benefits from extensive existing infrastructure development including 10,000 feet of underground development with two portals to access the underground mine from the bottom of the historic open pit mine. Supporting the underground development are electrical equipment, compressors and ventilation. Also present are a mineral processing plant with crush/grind and flotation capable of 840 tons per day, a tailings storage facility expandable, within existing permits, to contain the Study life of mine ore tailings; and other surface infrastructure including line power, office buildings, maintenance shop, fuel bay, wash rack, assay lab, warehouse and a dry. The entire mine-site layout is compact with the underground operations proximal to the process plant, tailings facility and site buildings.

All permits are in place for operations with the infrastructure as described above. Modifications to existing permits are underway for the Study case of WOL, and also for the ability to discharge ground water from the underground workings to an evaporation pond/infiltration gallery near the crest of the open pit. The summary schedule is shown in Figure 24-1, and the detailed development schedule is shown in Figure 24-2. Highlights of the development schedule are:

- Completion of Detailed Engineering – 4th quarter, 2018
- Completion of all permitting activities – 1st quarter 2019
- Beginning construction – 1st quarter 2019
- Beginning mine development – 2nd quarter 2019
- Begin mining – 3rd quarter 2019
- Commissioning and startup – 4th quarter 2019
- First gold pour – 4th quarter, 2019

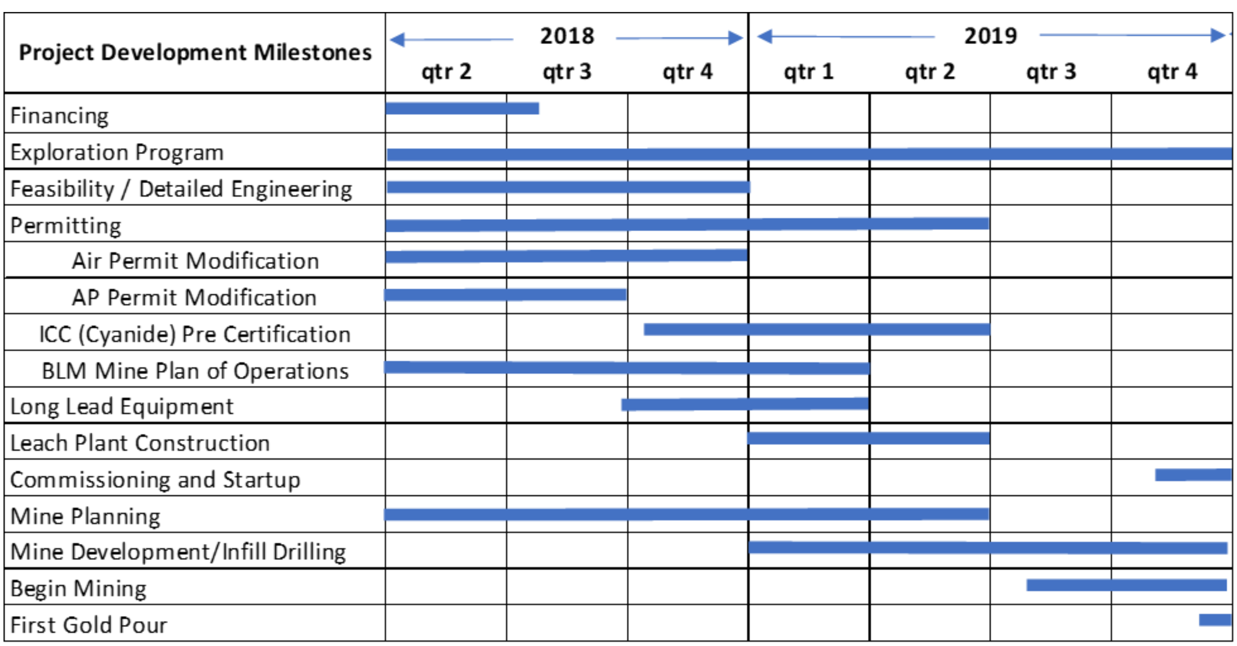
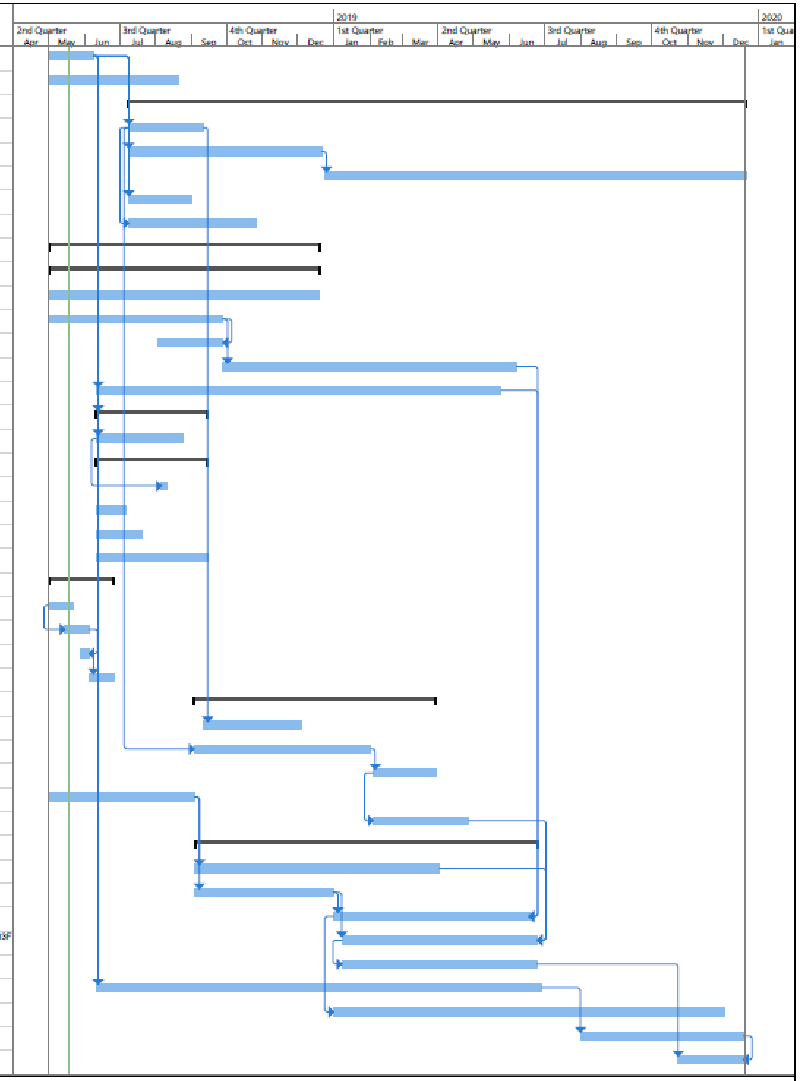


Figure 24-1 Summary Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Project Start**	29 days	Tue 5/1/18	Fri 6/8/18	
2		**Financing**	80 days	Tue 5/1/18	Mon 8/20/18	
3		**Drilling and Exploration**	380 days	Mon 7/9/18	Fri 12/20/19	
4		metallurgical Core	46 days	Mon 7/9/18	Mon 9/10/18	1FS+20 days
5		RC in-fill 2018	120 days	Mon 7/9/18	Fri 12/21/18	1FS+20 days
6		Exploration 2019	260 days	Mon 12/24/18	Fri 12/20/19	5
7		Core Drilling	40 days	Mon 7/9/18	Fri 8/31/18	1FS+20 days
8		Gotechnical core	79 days	Mon 7/9/18	Thu 10/25/18	4SS
9		**Permitting Activities**	167 days	Tue 5/1/18	Wed 12/19/18	
10		**Plan of operations**	167 days	Tue 5/1/18	Wed 12/19/18	
11		Air Permit Modification	167 days	Tue 5/1/18	Wed 12/19/18	
12		2018 APP Amendment	108 days	Tue 5/1/18	Thu 9/27/18	
13		Building and Local permits	40 days	Fri 8/3/18	Thu 9/27/18	12FF
14		Cyanide Pre Certification	180 days	Fri 9/28/18	Thu 6/6/19	12
15		BLM Mine Plan of Operations	250 days	Mon 6/11/18	Fri 5/24/19	1
16		**tailings expansion design**	70 days	Mon 6/11/18	Fri 9/14/18	1
17		**Conceptual design and site characterization**	55 days	Mon 6/11/18	Fri 8/24/18	1
18		**Site Characterization Implementation**	70 days	Mon 6/11/18	Fri 9/14/18	
19		Update Site Characterization Plan	5 days	Mon 8/6/18	Fri 8/10/18	17SS+40 days
20		Geotechnical Testing	20 days	Mon 6/11/18	Fri 7/6/18	
21		Hydrogeo testing and site confirmation	30 days	Mon 6/11/18	Fri 7/20/18	
22		Geochemical Testing	70 days	Mon 6/11/18	Fri 9/14/18	
23		**Geotechnical Engineering**	40 days	Tue 5/1/18	Mon 6/25/18	
24		Detailed Design Analyses and Calcs	15 days	Tue 5/1/18	Mon 5/21/18	
25		Preparation of Construction Drawings	15 days	Tue 5/15/18	Mon 6/4/18	24SS+10 days
26		Construction Specs and QA	5 days	Tue 5/29/18	Mon 6/4/18	25FF
27		Engineering Design Report	15 days	Tue 6/5/18	Mon 6/25/18	26
28		**Feasibility/Detailed Enginering**	150 days	Mon 9/3/18	Fri 3/29/19	
29		Resource / Geologic Model update	60 days	Tue 9/11/18	Mon 12/3/18	4
30		Preliminary Met Data	110 days	Mon 9/3/18	Fri 2/1/19	4SS+40 days
31		Final Process Design	40 days	Mon 2/4/19	Fri 3/29/19	30
32		**Construction Funding**	90 days	Tue 5/1/18	Mon 9/3/18	
33		**Detailed Design**	60 days	Mon 2/4/19	Fri 4/26/19	31SS
34		**Construction**	210 days	Tue 9/4/18	Mon 6/24/19	
35		Procure& deliver Long Lead Equipment	150 days	Tue 9/4/18	Mon 4/1/19	32
36		Let Construction Contracts	85 days	Tue 9/4/18	Mon 12/31/18	32
37		Leach Plant Construction	120 days	Tue 1/1/19	Mon 6/17/19	36,14FF,15FF
38		on-site Construction	120 days	Tue 1/8/19	Mon 6/24/19	36,35FF+60 days,33F
39		Hiring and training of operations personnel	120 days	Tue 1/8/19	Mon 6/24/19	38SS
40		Mine Planning and Design	275 days	Mon 6/11/18	Fri 6/28/19	1
41		Mine Development and infill drilling	240 days	Tue 1/1/19	Mon 12/2/19	37SS
42		Begin Mining	100 days	Thu 8/1/19	Wed 12/18/19	40
43		**Commissioning & Startup**	40 days	Thu 10/24/19	Wed 12/18/19	42FF,39



Project: project development sc
Date: Fri 5/18/18

Task · Split · Milestone · Summary · Project Summary · Inactive Task · Inactive Milestone · Inactive Summary · Manual Task · Duration-only · Manual Summary Rollup · Manual Summary · Start-only · Finish-only · External Tasks · External Milestone · Deadline · Progress · Manual Progress

Page 1

Figure 24-2 Detailed Development Schedule

Hard Rock Consulting, LLC

HRC knows of no other relevant technical or other data or information that might materially impact the interpretations and conclusions presented herein, nor of any additional information necessary to make the report more understandable or not misleading.

25. INTERPRETATION AND CONCLUSIONS

25.1 Introduction

Results of the PFS indicate that the Project is economically viable, benefitting from significant in-place infrastructure, underground development and permitting. There are numerous targets to increase the resources and reserves, and economic grade ore appears to be readily available for mining and processing. The base case scenario produces approximately 166,200 salable ounces of gold over a 4.5-year period. The Project is most sensitive to the gold price and to operating costs, but sensitive to a lesser extent to capital costs. The base case economic analysis of the Project at a gold price of US$1,250/oz shows an After-Tax NPV-10 of $17.91 million using an 840 ton/day crushing/grinding/WOL plant.

25.2 Geology and Mineral Resource Estimate

The Copperstone deposit is a mid-Tertiary, detachment fault related gold deposit. Mineralization is predominantly controlled by the northwest trending shallow angle Copperstone fault and shear zone. These structures are not confined to any lithologic unit, although the majority of the mineralization is hosted in quartz latite porphyry. Breccia textures as well as chloritization, silicification, and hematite and specularite flooding are reliable indications of gold mineralization.

The drillhole database was vetted to identify missing values, duplicate records, interval overlap errors, from-to data exceeding maximum collar depth, and special (i.e. non-numeric or less than zero) values. Errors identified by the mechanical audit were reviewed with Kerr staff and resolved prior to modelling and calculation of the mineral resource estimate. In addition, 665 holes of historic core drill logs totaling 83,265 meters were re-interpreted for alteration and digitized for inclusion into the 2017 resource estimate program database. A random manual check of 10% of the assay database against original certificates was conducted by HRC. The error rate within the database is considered to be less than 1% based on the number of samples spot checked. Identified errors were corrected prior to modelling and calculation of the mineral resource estimate.

HRC concludes that the sample preparation, security and analytical procedures are appropriate and adequate to ensure the integrity of the sample data. The sample methods and density are appropriate, and the samples are of sufficient quality to comprise a representative, unbiased database.

Mineral resource estimation was performed only for gold. Copper may be a by-product of mining economic gold ores and extracting the copper during the processing of the economic gold ore at the Copperstone mine is at the early stages of being evaluated. The economics of monetizing copper as a by-product are potentially attractive as the cash costs of production are shared with the cash cost of producing the primary product – gold. Further exploration drilling, assaying and modelling work of copper bearing gold ore is required. Metallurgical testing for the economic extraction of copper is ongoing, but currently incomplete, and further testing is required. Copper may be incorporated into a mineral resource dependent upon favorable metallurgical results, and a complete review of copper data for adequacy.

Factors that may affect the Mineral resources include: changes to geological or grade interpretations, including grade shell considerations; changes to the modelling method or approach; changes to metallurgical recovery assumptions; and changes to any of the social, political, economic, permitting, and environmental assumptions considered when evaluating reasonable prospects for eventual economic extraction.

25.3 Mining and Mineral Reserve Estimate

A detailed mine plan was engineered using only Measured & Indicated mineral resources. Mechanized overhand cut and fill was chosen as the preferred mining method. Datamine's® Minable Stope Optimizer (MSO) was used to generate the stopes utilizing a metal price of $1,250/oz for gold and a 0.111 oz/ton gold cutoff. Mineral reserves have been estimated using standard practices for the industry, and conform to the 2014 CIM Definition Standards.

The mine plan for the Project includes approximately 884,100 tons of ore grade material to be extracted by underground mining in 4.4 years. The mine production schedule calls for ore production of 600 tpd seven days per week and 840 tpd of ore processed per mill working day, 5 days per week. Mining recoveries of 95% were applied and overall dilution factors averaged 25.3%. Dilution factors are calculated based on internal stope dilution calculations and external dilution factors of 10%. Due to the historic underground mining that has taken place on the property in 2012 and 2013 and the exploration drift put in by Kerr in the summer of 2017, there is currently 12,800 ft of access development. This existing access includes two declines from the bottom of the pit and extends across 500 ft of strike. Therefore, a reduced amount of development is required to get the mine up to full production.

Dr. Dermot Ross-Brown from Tierra Group International, Ltd completed a review of past geotechnical studies and visited the current underground workings in order to provide an estimate of the required ground support and maximum opening sizes for the mine plan. Main ramp development headings are planned at 14 ft x 14 ft, ore access drifts are planned at 12 ft x 10 ft and stope heights are planned at 12 ft with a maximum width of 16 ft.

In order to select the preferred mining method, several trade-offs were conducted as part of the pre-feasibility study. The results are summarized below:

- <u>Mining Method</u> – The Copperstone orebody is relatively flat with an average dip of 38 degrees. Although there are some areas where the ore will flow, above a 45-degree dip, the majority of the deposit is too flat to facilitate a long hole mining method. Mining costs comparisons were completed on mechanized overhand cut and fill versus conventional overhand cut and fill utilizing slushers and hydraulic backfill. Although the conventional cut and fill reduces the required development costs versus the mechanized method, the savings were not enough to offset the higher operating costs. As a result, mechanized cut and fill was chosen as the preferred option. Mining utilizing the Shallow Angle Mining System – ("SAMS™") was also evaluated as an option. Although mining utilizing SAMS is currently being tested at a mining site in Canada, further geotechnical and hydraulic backfill evaluations for Copperstone must be completed and were beyond the scope of this Study. These factors resulted in not choosing SAMS for the Study.

- Backfill Method – Patterson and Cooke assisted in developing costs for utilizing cemented hydraulic backfill ("CHF") generated from the mill tailings versus cemented rock fill ("CRF"). By utilizing CHF from the mill tailings, the Phase 2 lift of the tailings dam will not be required providing a future capital cost savings for CHF. Although the CRF option will require additional backfill sourced from the waste fill located within the open pit, the capital cost and infrastructure for the CHF plant were too high to offset the higher operating costs of the CRF option. Based on these results, CRF was chosen for the mine plan backfill strategy.
- Operations Strategy - Contract versus owner mining was also evaluated based on contractor mining quotes using their own equipment and owner mining with quotes for purchasing new mining equipment. The owner mining scenario was found to be the most cost-effective option. Owner mining was also evaluated using purchased mining equipment versus capital leased equipment. Purchase and lease rates were provided and the equipment lease option results in an increase for IRR from 34% to 40%. The capital lease of the mining equipment was chosen as the preferred option.

25.3.1 Potential Risks

HRC identified the following potential risks that mat material impact the Mineral Reserves:

- Variations in the forecast commodity price.
- Variations to the assumptions used in the constraining stope shapes, including mining loss/dilution, metallurgical recoveries, geotechnical assumptions and operating costs.
- Variations in assumptions as to permitting, environmental, and social license to operate. The project currently is permitted for production but does need to permit the use of cyanide in the proposed processing method.

Other than the above, HRC is unaware of any legal, political, environmental or other risks that could materially affect the potential development of the mineral reserves.

25.3.2 Potential Opportunities

HRC has identified the following potential opportunities for mining and mine planning:

- The opportunity to use Shallow Angle Mining Systems may provide a better mining method, depending upon additional geotechnical and hydraulic backfill analysis at Copperstone.
- By utilizing CHF from the mill tailings, the Phase 2 lift of the tailings dam will not be required providing a future capital cost savings for CHF, especially if the mine life is expanded with additional ore identification from exploration.

25.4 Mineral Processing

Kerr Mines and HRC contracted Resource Development Inc (RDi) who provided new metallurgical testing of the Copperstone deposit, confirmed prior metallurgical testwork and economically evaluated processing options. Metallurgical test work focused on the A, B, C, and D zones of the Copperstone zone. Testing also confirmed Bond ball work indexes, abrasion and density values. The production and sale of a doré bar versus sale of a gold concentrate has much lower offtake costs. Listed below is a description and results for three processing options that were evaluated as part of this study:

Flotation Producing a Concentrate: This is the approach taken by the previous operators. The flotation concentrate is estimated to assay ± 500 g/tonne Au and would be sold to a broker or smelter. A marketing study is needed to determine the marketability and cost of sales for this grade of gold concentrate. The flotation circuit would consist of rougher flotation followed by two stages of cleaners to produce the required grade of concentrate. This confirms historical testwork and production results. Recoveries for gold from flotation for high grade saleable concentrate averaged 88%.

Flotation and Cyanide Leach of the Concentrate: The objective of this process is to produce a rougher concentrate maximizing recovery of gold, then leach the concentrate and produce a doré bar. Recoveries for gold from flotation concentrate produced for final leach averaged 90%. Testing for final recovery of gold from leaching the flotation concentrate is inconclusive and further testing is required.

Whole Ore Leach: WOL utilizes direct cyanidation leaching of the entire ore feed. This option also includes the production of a doré bar. WOL resulted in gold extraction of 88% to 97%. There exists an opportunity to decrease the Processing Cash Operating cost below the Study results with further cyanide consumption testwork, which is in progress. In addition, the SART process has the potential to produce copper as a by-product.

WOL of Copperstone ore exhibits the highest operating costs of the three options but the increase in recoveries and elimination of concentrate smelter charges make this option economically superior. The increase in recovery from an estimated 89% to 97% provides an additional $12 million in net cash flow. In addition, the existing processing plant will be simplified by eliminating both the coarse gold circuit and one of the mills. WOL leach was chosen as the base case processing scenario for the Study.

Copper may be a by-product of mining economic gold ores and extracting the copper during the processing of the economic gold ore at the Copperstone Mine is at the early stages of being evaluated. The economics of monetizing copper as a by-product are potentially attractive as the cash costs of production are shared with the cash cost of producing the primary product – gold. Further exploration drilling, assaying and modelling work of copper bearing gold ore is required. Metallurgical testing for the economic extraction of copper is ongoing, but currently incomplete, and further testing is required. Copper may be incorporated into a mineral resource dependent upon favorable metallurgical results, and a complete review of copper data for adequacy.

25.4.1 Potential Risks

HRC and RDi identified the following potential risks to the mineral processing:

- Laboratory metallurgical recoveries are not always attainable under operating plant conditions.

- The variability of the ore deposit with respect to silica content and gold grade indicate that blending may be required. Failure of appropriate grade control may result in inefficient operation leading to higher operating costs/lower recoveries.
- The plant is designed as a single line throughout. Unplanned breakdown of key equipment can completely suspend the production temporarily.

25.4.2 Potential Opportunities

HRC and RDi have identified the following potential opportunities for mineral processing:

- The possibility of including the SART process could have a very beneficial impact on cyanide consumption, as well as producing copper as a by-product
- Optimization of the whole ore leach process could potentially reduce the operating costs.
- The possibility of keeping the rod mill in place as a limited capacity back-up for the ball mill

25.5 Economic Analysis

The Project Case for the Study includes mine mobile equipment financing costs with no financing cost applied to the remaining Initial Capital. Capital costs were developed for the plant upgrade, infrastructure needs, and mining. Table 25-1 below shows the estimated initial capital costs for the upgrade and restart of the Copperstone Mine using the optimal project case of a WOL processing scheme and owner operated mining, with an equipment capital lease for mine equipment financing. The capital costs reflect the in-place infrastructure, buildings, and equipment which is a beneficial aspect of the Copperstone Mine.

Table 25-1 Initial Capital with Mine Equipment Capital Lease

Initial Capital	$USM
Mine	5.99
Mine Development & Infill Drilling	5.38
Mill Upgrades	3.52
Indirects, EPCM, Owners Cost	4.02
Contingency	3.83
Total Initial Capital	**22.74**

The capital lease for the mining equipment is based on a major equipment manufacturer's quote which includes a 3-year term at 10% interest and a 25% down payment. For this option, principal and interest payments reduce cash required from initial financing activity and gross capital costs are booked as assets on the balance sheet.

Economic analysis of the Project case uses a 0.111 oz/ton cut-off grade and a gold price of US$1,250/oz, which is the 60-month trailing average price. The Table below summarize the economic results.

Table 25-2 Economic Results with Mine Equipment Capital Lease

Before Tax			After Tax	
$USM	19.12	Net Present Value (10.0%)	$USM	17.91
%	41.7%	Internal Rate of Return	%	40.1%
Yrs	2.26	Payback Period	Yrs	2.27

25.5.1 Equity Case Economic Results

The Equity case for the Study assumes no equipment financing and no financing cost for Initial Capital. Table 25-3 below shows the estimated initial capital costs for the upgrade and restart of the Copperstone Mine using the Equity model case of a WOL processing scheme and owner operated mining without mine equipment financing. The economic results for this case are also below in Table 25-4.

Table 25-3 Initial Capital with Mine Equipment Purchase

Initial Capital	$USM
Mine	**17.53**
Mine Development & Infill Drilling	**5.38**
Mill Upgrades	**3.52**
Indirects, EPCM, Owners Cost	**4.02**
Contingency	**3.83**
Total Initial Capital	**34.28**

Table 25-4 Economic Results with Mine Equipment Purchase

Before Tax			After Tax	
$USM	19.14	Net Present Value (10.0%)	$USM	17.78
%	35%	Internal Rate of Return	%	34%
Yrs	2.27	Payback Period	Yrs	2.28

25.6 Infrastructure and Permitting

The Copperstone mine benefits from extensive existing infrastructure development including 10,000 ft of underground development with two portals to access the underground mine from the bottom of the historic open pit mine. Supporting the underground development are electrical equipment, compressors and ventilation. Also present are a mineral processing plant with crush/grind and flotation capable of +840 tons per day, a tailings storage facility expandable, within existing permits, to contain the Study life of mine ore tailings; and other surface infrastructure including line power, office buildings, maintenance shop, fuel bay, wash rack, assay lab, warehouse and a dry. The entire mine-site layout is compact with the underground operations proximal to the process plant, tailings facility and site buildings.

All permits are in place for operations with the infrastructure as described above. Modifications to existing permits are underway for the Study case of WOL, and also for the ability to pump ground water from the underground workings to an evaporation pond/infiltration gallery near the crest of the open pit.

26. RECOMMENDATIONS

HRC recommends the following tasks be completed to advance the Project and to prepare for Project development and operation.

26.1 Drillhole Database

The geologic information within the drillhole database is not in a standard, or consistent format. HRC recommends the following in order to standardize the geologic information contained in the database:

- Remove structural fabrics (such as breccia, faults, etc..), and alterations from the lithologic database. The lithologic database should represent the proto-lithology observed in the geologic logs. The litholigic database should then be simplified to only the most significant geologic types. Finally, the lithologic database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct lithology.
- Structural fabrics identified in core, or RC cuttings, should be separated into its own table and entered into the database in a consistent format. The structural database should be simplified to only the most significant structural types. The structural database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct structure.
- Alteration and mineralization should be separated into its own table and entered into the database in a consistent format. The alteration database should be simplified to only the most significant alteration and mineralization types. The alteration database should be reviewed for drillhole to drillhole inconsistencies in 3D and in section. Once inconsistencies are identified, geologists should review core or chip trays to determine the correct alteration.

In 2017, Kerr commenced bringing lithology, alteration, mineralization, and structural information into a simplified and standardized format. Kerr is currently addressing, or has addressed the other recommendations above, and HRC encourages Kerr to continue these efforts by standardizing the geologic database, it is possible estimation domains could be developed independent of gold grades, ultimately improving the confidence of the geologic interpretation and model.

26.2 Maximum Mined Out Pit Extent

HRC recommends a seismic survey to determine the actual maximum extent of the pit. The contrast between backfill and quartz latite porphyry should be sufficient to resolve the contact. As an additional benefit, the seismic survey might be able to resolve some structural features on the property. A limited seismic survey was conducted at Copperstone by Cooksley Geophysics, Inc in 1989. HRC's review of the interpretations (Figure 26-1) show structures similar to those modeled by HRC.

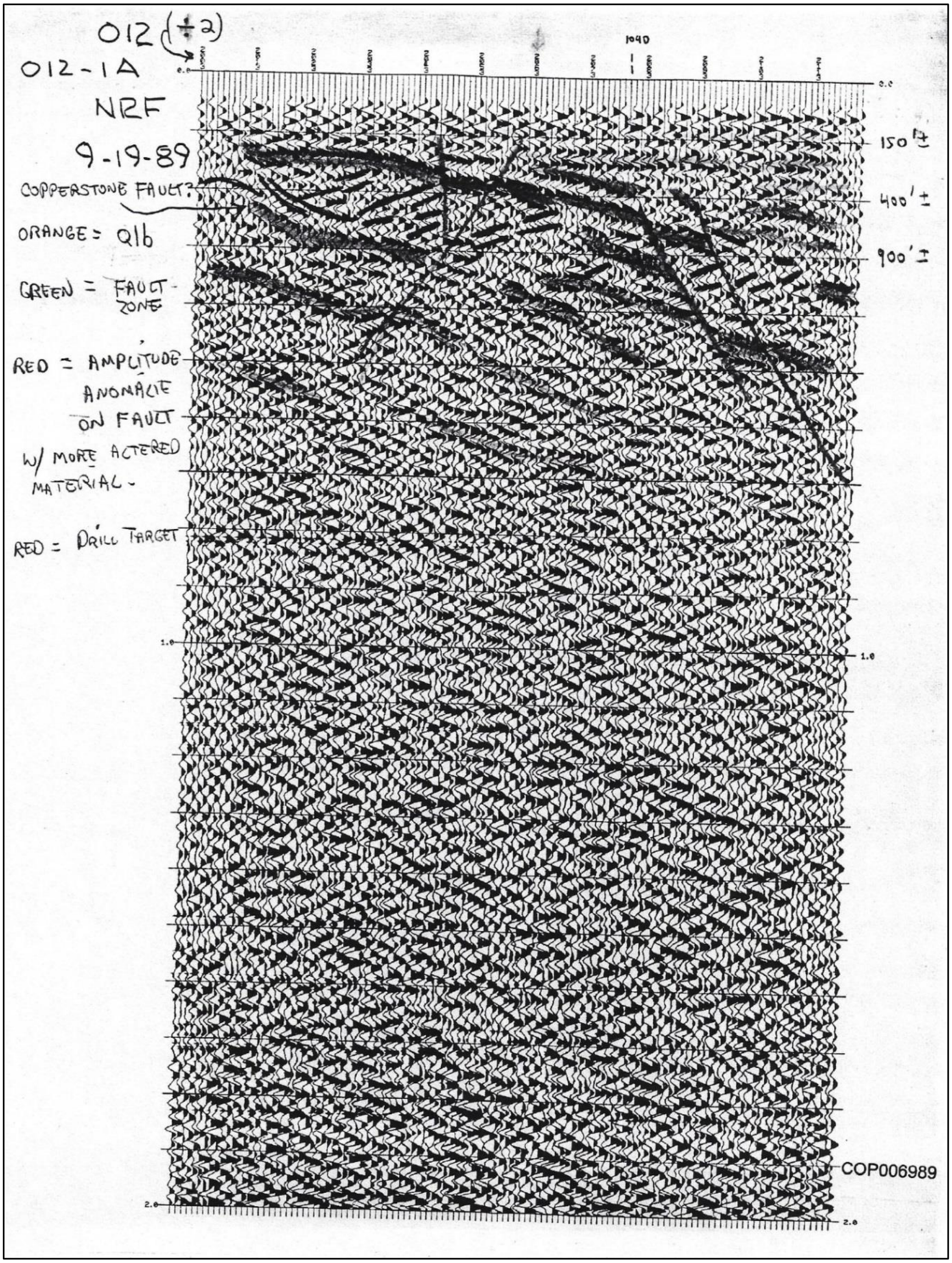


Figure 26-1 Interpretation of Seismic Line from 1989 Survey.

26.3 Structural Understanding

HRC recommends that Kerr initiate a limited oriented core drilling program, testing up-dip and down-dip in known areas of mineralization, and penetrating the Copperstone and footwall zones. HRC recommends four holes in the AB zone, eight in the C zone, and four in the D zone.

If seismic survey is not conducted or fails to identify structures, structural mapping should be conducted inside the pit and underground to identify significant structures, such as the northeast trending offset faults, the Copperstone fault, and other structures determined to have significant impact on mineralization. Kerr might consider funding a thesis project to accomplish this task.

Geologic structural mapping at Copperstone is currently in progress. Additionally, Kerr plans to incorporate the use of down-hole Televiewer imagery. The imagery produces accurate in-situ structural measurements which can be linked to the geological and assay logs for modeling purposes. If successful, this technology can be used in lieu of oriented core.

26.4 Additional Drilling

26.4.1 Infill Drilling

HRC recommends continued infill drilling in the current Footwall zone and South zone to improve the understanding of geometry and orientation of mineralized structures. Figure 26-2 shows the block model for domains classified as Measured, Indicated, and Inferred resources. Areas colored dark blue and white space are areas for infill drilling in A/B, C, and D zones

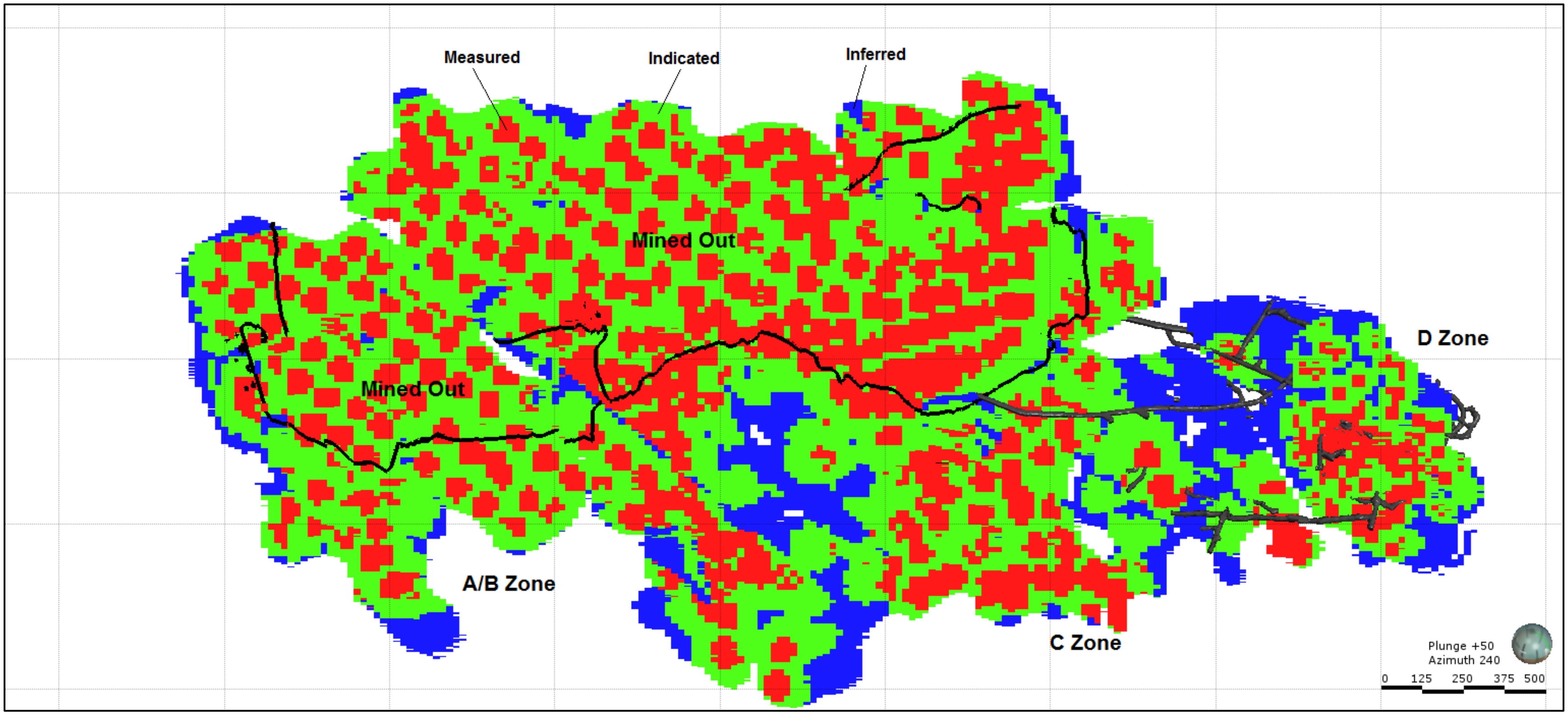


Figure 26-2 Block Model showing Domains with Measured (Red), Indicated (Green) and Inferred (Blue) Infill Drilling should be Targeted to Blue and Green areas to Convert Classifications

26.4.2 Step Out Drilling

HRC recommends testing the down dip continuity of Copperstone mineralization in the A/B, C and D zones. There are several drillhole intercepts to suggest these zones are still open down dip.

Anomalous gold grades have been intersected by drilling northeast of the C zone. Drillhole C96-15 has two intercepts greater 0.1 opt gold (810'-815' 0.185 opt Au, 855'-860' 0.112 opt Au). Additionally, hole C96-16 encountered two intervals of greater than 0.1 opt Au (1135'-1140' 0.182 opt Au; 1205'-1210' 0.192 opt Au). C96-16 is 283 ft northwest from C96-15. Drillhole C96-14 is 287 ft southeast of C96-15, but returned no significant gold values. No drilling has been completed to the northeast or southwest of C96-15. The intercepts could represent either the down dip extension of the C zone, or the expression of a new mineralization zone. HRC recommends 2 drillholes to test between C96-15 & C96-14, and C96-15 & C96-16; 2 drillholes testing up dip between C96-16 & H4-63 on approximately 200' centers; and a step out drillhole 100' northeast of C96-15 to test down dip.

Drillhole H5-108 encountered significant grade grades intercepts at depth (1084'-1088' 0.3 opt Au; 1121'-1124' 0.64 opt Au; 1124'-1129' 0.35 opt Au). The hole ended in low grade gold. These intercepts could be the expression of the Footwall zone beneath the A/B zone. HRC recommends follow up drilling surrounding this intercept to test the extent and continuity of mineralization, as well as its relation to South zone.

26.4.3 Exploration Drilling

HRC recommends the following targets for exploration drilling:

- Test Footwall zone continuity down dip and along strike below the C zone on 200 ft centers;
- Test for expression of Footwall zone mineralization at depth below D zone;
- Testing around CS-266 which had a 5 ft intercept of 0.1 opt Au from 780' to 790'. The intercept is approximately 1,000 ft southwest from the Copperstone pit, and is not currently incorporated into any known zone of mineralization; and
- Expansion of the Southwest target, located approximately 2,500 ft southwest of the Copperstone mine, to determine mineralization extent.

26.5 Metallurgy

HRC and RDi recommend the following based on the preliminary results of the on-going metallurgical program:

1. Optimize the whole ore leach process to reduce operating cost.
2. Characterize the deposit with respect to copper minerals.
3. Evaluate the SART process to potentially recover copper as an economic by-product and recycle cyanide to reduce operating costs.
4. Geo-metallurgical testing of samples from the deposit.

26.6 Mining

Based on the favorable results of this PFS, HRC recommends that the mine design and mine plan be advanced to a feasibility or detailed design level prior to production. The following areas are recommended for further study during the next phase of work:

- Optimize the mine design, including number of access points, internal raises to improve ventilation, stope height and width;
- Review the use of a lower cutoff grade in the operational mining plan to take advantage of the high gold price to increase to amount of gold recovered from the resource;
- Review to see if marginal grade material can be added to the stopes if the stope access cost is excluded due to the stope already being developed;
- Further investigate contract mining versus owner mining;
- Further investigate possible mining methods;
- Hire key underground technical and management staff on a priority basis to facilitate the feasibility or detailed design phase;
- Optimize the ventilation, water management, and electrical power systems; and
- Carry out detailed geotechnical studies as well as backfill binder quantity requirement studies.

Mining utilizing the Shallow Angle Mining System ("SAMS™") was also evaluated as a mining method option. Although mining utilizing SAMS is currently being tested at a mining site in Canada, further geotechnical and hydraulic backfill evaluations for Copperstone must be completed and were beyond the scope of the current study. HRC recommends that the SAMS method be investigated further to determine if it is a valid mining method option at Copperstone.

Kerr should continue to build the geotechnical database concurrently with the geological database, so that the core is logged geotechnically, particularly in the vicinity of potential ore zones. This includes core photos in the boxes before the core is split with estimates of core recovery and RQD (both as percentages), and notes in the geological log about shear zones, faults, and altered zones (already being noted), and any other geotechnical observations that could help with mine design. Old core should be re-evaluated by Kerr to expand their geological models. New geotechnical holes may need to be drilled, but this should not be done until the relevant geotechnical data has been assessed from the existing array of boreholes. Core samples from the main rock types should be selected for strength testing, particularly Unconfined Compressive Strength (UCS) testing (at least four tests to start with for each of the main rock types in the vicinity of the ore zones). Other laboratory strength tests also may be required. In addition to mapping rock type and structure, new exposures in tunnels should be mapped using the Q and RMR methods and the data used to specify support in the tunnels. This data can be used later to help with the detailed design of the stopes and the standoff distance of access drifts. Rock falls and collapses in tunnels should be logged in a geotechnical log book, and any persistent underground movements should be monitored and measured.

Studies should be completed on the backfill binder quantity requirements to meet the required strengths from further geotechnical studies. In addition, the tradeoff of utilizing cemented hydraulic backfill ("CHF") generated from the mill tailings versus cemented rock fill ("CRF") should be investigated further. By utilizing CHF from the mill tailings, the Phase 2 lift of the tailings dam will not be required providing a future capital cost savings for CHF. Although the CRF option will require additional backfill sourced from the waste fill located within the open pit, the capital cost and infrastructure for the CHF plant were too high to offset the higher operating costs of the CRF option. Based on these results, CRF was chosen for the mine plan backfill strategy although the longer the mine plan extends beyond the current mine plan of 4.4 years the more favorable the CHF option becomes as the operating costs are lower than CRF and future tailings construction costs can be saved.

The estimated cost to complete the recommended scope of work is broken out by task in in Table 26-1:

Table 26-1 Recommended Scope of Work Cost for the Copperstone Project

Recommendation	Estimate
Drillhole Database	$12,000
Mined out Pit Extent	$30,000
Structural Understanding	$30,000
Additional Drilling (up to 15,000 meters)	$4,00,000
Metallurgy	
Optimize the WOL process	$25,000
Characterize the deposit re Cu minerals	$45,000
Evaluate the SART process for Cu recovery	$65,000
Total Metallurgical	**$135,000**
Mining	
Optimize the mine design	$25,000
Review use of lower cutoff grades	$5,000
Marginal grade analysis	$5,000
Contract Mining vs Owner Mining analysis	$8,000
Alternative Mining Method analysis	$25,000
Key underground mining staff	$100,000
Optimize Ventilation, Water, and Power systems	$25,000
Geotechnical and CHF/CRF studies	$50,000
Total Mining	**$243,000**
Total Budget	**$4,450,000**

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APPENDIX A

Project List of Patented Claims and State Claims

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#1	AMC335231	Copperstone#338	AMC260468
Copperstone#2	AMC335232	Copperstone#339	AMC260469
Copperstone#3	AMC335233	Copperstone#340	AMC401022
Copperstone#4	AMC335234	Copperstone#341	AMC401023
Copperstone#5	AMC335235	Copperstone#342	AMC401024
Copperstone#6	AMC335236	Copperstone#343	AMC401025
Copperstone#7	AMC335237	Copperstone#344	AMC401026
Copperstone#8	AMC335238	Copperstone#345	AMC401027
Copperstone#9	AMC335239	Copperstone#346	AMC401028
Copperstone#10	AMC335240	Copperstone#347	AMC401029
Copperstone#11	AMC335241	Copperstone#348	AMC401030
Copperstone#12	AMC335242	Copperstone#349	AMC401031
Copperstone#13	AMC335243	Copperstone#350	AMC401032
Copperstone#14	AMC335244	Copperstone#351	AMC401033
Copperstone#15	AMC335245	Copperstone#352	AMC401034
Copperstone#16	AMC335246	Copperstone#353	AMC401035
Copperstone#17	AMC335247	Copperstone#354	AMC401036
Copperstone#18	AMC335248	Copperstone#355	AMC401037
Copperstone#19	AMC335249	Copperstone#356	AMC401038
Copperstone#20	AMC335250	Copperstone#357	AMC401039
Copperstone#21	AMC335251	Copperstone#358	AMC401040
Copperstone#22	AMC335252	Copperstone#359	AMC401041
Copperstone#23	AMC335253	Copperstone#360	AMC401042
Copperstone#24	AMC335254	Copperstone#361	AMC401043
Copperstone#25	AMC335255	Copperstone#362	AMC401044
Copperstone#26	AMC335256	Copperstone#363	AMC401045
Copperstone#27	AMC335257	Copperstone#364	AMC401046
Copperstone#28	AMC335258	Copperstone#365	AMC401047
Copperstone#29	AMC335259	Copperstone#366	AMC401048
Copperstone#30	AMC98423	Copperstone#367	AMC401049
Copperstone#31	AMC98424	Copperstone#368	AMC401050
Copperstone#32	AMC98425	Copperstone#369	AMC401051
Copperstone#33	AMC98426	Copperstone#370	AMC401052
Copperstone#34	AMC98427	Copperstone#371	AMC401053
Copperstone#35	AMC98428	Copperstone#372	AMC401054
Copperstone#36	AMC98429	Copperstone#373	AMC401055
Copperstone#37	AMC98430	Copperstone#374	AMC401056
Copperstone#38	AMC98431	Copperstone#375	AMC401057
Copperstone#39	AMC98432	Copperstone#376	AMC401058
Copperstone#40	AMC98433	Copperstone#377	AMC401059
Copperstone#41	AMC98957	Copperstone#378	AMC401060
Copperstone#42	AMC98958	Copperstone#379	AMC401061
Copperstone#43	AMC98959	Copperstone#380	AMC401062
Copperstone#44	AMC98960	Copperstone#381	AMC401063
Copperstone#45	AMC98961	Copperstone#382	AMC401064
Copperstone#46	AMC98962	Copperstone#383	AMC401065
Copperstone#47	AMC98963	Copperstone#384	AMC401066
Copperstone#48	AMC98964	Copperstone#385	AMC401067
Copperstone#49	AMC98965	Copperstone#386	AMC401068

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#50	AMC98966	Copperstone#387	AMC401069
Copperstone#51	AMC98967	Copperstone#388	AMC401070
Copperstone#52	AMC98968	Copperstone#389	AMC401071
Copperstone#53	AMC98969	Copperstone#390	AMC401072
Copperstone#54	AMC98970	Copperstone#391	AMC401073
Copperstone#55	AMC98971	Copperstone#392	AMC401074
Copperstone#56	AMC98972	Copperstone#393	AMC401075
Copperstone#57	AMC98973	Copperstone#394	AMC401076
Copperstone#58	AMC98974	Copperstone#395	AMC401077
Copperstone#59	AMC98975	Copperstone#403	AMC401078
Copperstone#60	AMC98976	Copperstone#404	AMC401079
Copperstone#61	AMC98977	Copperstone#405	AMC401080
Copperstone#62	AMC98978	Copperstone#406	AMC401081
Copperstone#63	AMC98979	Copperstone#407	AMC401082
Copperstone#64	AMC108058	Copperstone#408	AMC401083
Copperstone#65	AMC108059	Copperstone#409	AMC401084
Copperstone#101	AMC144884	Copperstone#410	AMC401085
Copperstone#102	AMC144885	Copperstone#411	AMC401086
Copperstone#103	AMC144886	Copperstone#412	AMC401087
Copperstone#104	AMC144887	Copperstone#413	AMC401088
Copperstone#105	AMC144888	Copperstone#414	AMC401089
Copperstone#106	AMC144889	Copperstone#415	AMC401090
Copperstone#107	AMC144890	Copperstone#416	AMC401091
Copperstone#108	AMC144891	Copperstone#417	AMC401092
Copperstone#109	AMC144892	Copperstone#418	AMC401093
Copperstone#110	AMC144893	Copperstone#419	AMC401094
Copperstone#111	AMC144894	Copperstone#420	AMC401095
Copperstone#112	AMC144895	Copperstone#421	AMC401096
Copperstone#113	AMC144896	Copperstone#422	AMC401097
Copperstone#114	AMC144897	Copperstone#423	AMC401098
Copperstone#115	AMC144898	Copperstone#424	AMC401099
Copperstone#116A	AMC144899	Copperstone#425	AMC401100
Copperstone#117	AMC144900	Copperstone#426	AMC401101
Copperstone#118	AMC144901	Copperstone#427	AMC401102
Copperstone#119	AMC144902	Copperstone#428	AMC401103
Copperstone#120	AMC144903	Copperstone#429	AMC401104
Copperstone#122	AMC144905	Copperstone#430	AMC401105
Copperstone#123	AMC144906	Copperstone#431	AMC401106
Copperstone#124	AMC144907	Copperstone#432	AMC401107
Copperstone#125	AMC144908	Copperstone#433	AMC401108
Copperstone#126	AMC144909	Copperstone#434	AMC401109
Copperstone#127	AMC144910	Copperstone#435	AMC401110
Copperstone#128	AMC144911	Copperstone#436	AMC401111
Copperstone#129	AMC144912	Copperstone#437	AMC401112
Copperstone#130	AMC144913	Copperstone#438	AMC401113
Copperstone#131	AMC144914	Copperstone#439	AMC401114
Copperstone#132	AMC144915	Copperstone#440	AMC401115
Copperstone#133	AMC144916	Copperstone#441	AMC401116
Copperstone#134	AMC144917	Copperstone#442	AMC401117

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#135	AMC144918	Copperstone#443	AMC401118
Copperstone#136	AMC144919	Copperstone#444	AMC401119
Copperstone#137	AMC144920	Copperstone#445	AMC401120
Copperstone#138	AMC144921	Copperstone#446	AMC401121
Copperstone#139	AMC144922	Copperstone#447	AMC401122
Copperstone#140	AMC144923	Copperstone#448	AMC401123
Copperstone#141	AMC144924	Copperstone#449	AMC401124
Copperstone#142	AMC144925	Copperstone#450	AMC401125
Copperstone#143	AMC144926	Copperstone#451	AMC401126
Copperstone#144	AMC144927	Copperstone#452	AMC401127
Copperstone#145	AMC144928	Copperstone#453	AMC401128
Copperstone#146	AMC144929	Copperstone#454	AMC401129
Copperstone#147	AMC144930	Copperstone#455	AMC401130
Copperstone#148	AMC144931	Copperstone#456	AMC401131
Copperstone#149	AMC144932	Copperstone#457	AMC401132
Copperstone#150	AMC144933	Copperstone#458	AMC401133
Copperstone#151	AMC144934	Copperstone#459	AMC401134
Copperstone#152	AMC144935	Copperstone#460	AMC401135
Copperstone#153	AMC144936	Copperstone#461	AMC401136
Copperstone#154	AMC144937	Copperstone#462	AMC401137
Copperstone#155	AMC144938	Copperstone#463	AMC401138
Copperstone#156	AMC144939	Copperstone#464	AMC401139
Copperstone#157	AMC144940	Copperstone#465	AMC401140
Copperstone#158	AMC144941	Copperstone#466	AMC401141
Copperstone#159	AMC144942	Copperstone#467	AMC401142
Copperstone#160	AMC144943	Copperstone#468	AMC401143
Copperstone#161	AMC144944	Copperstone#469	AMC401144
Copperstone#162	AMC164418	Copperstone#470	AMC401145
Copperstone#163	AMC164419	Copperstone#471	AMC401146
Copperstone#164	AMC164420	Copperstone#472	AMC401147
Copperstone#165	AMC164421	Copperstone#473	AMC401148
Copperstone#166	AMC164422	Copperstone#474	AMC401149
Copperstone#167	AMC164423	Copperstone#475	AMC401150
Copperstone#168	AMC164424	Copperstone#476	AMC401151
Copperstone#169	AMC164425	Copperstone#477	AMC401152
Copperstone#170	AMC164426	Copperstone#478	AMC401153
Copperstone#171	AMC164427	Copperstone#479	AMC401154
Copperstone#172A	AMC164428	Copperstone#480	AMC401155
Copperstone#183A	AMC164439	Copperstone#481	AMC401156
Copperstone#184	AMC164440	Copperstone#482	AMC401157
Copperstone#185	AMC164441	Copperstone#483	AMC401158
Copperstone#186	AMC164442	Copperstone#484	AMC401159
Copperstone#187	AMC164443	Copperstone#485	AMC401160
Copperstone#188	AMC164444	Copperstone#486	AMC401161
Copperstone#189	AMC164445	Copperstone#487	AMC401162
Copperstone#190	AMC164446	Copperstone#488	AMC401163
Copperstone#191	AMC164447	Copperstone#489	AMC401164
Copperstone#192A	AMC164448	Copperstone#490	AMC401165
Copperstone#210	AMC164466	Copperstone#491	AMC401166

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#211	AMC164467	Copperstone#492	AMC401167
Copperstone#212	AMC164468	Copperstone#493	AMC401168
Copperstone#213	AMC164469	Copperstone#494	AMC401169
Copperstone#214	AMC164470	Copperstone#495	AMC401170
Copperstone#215	AMC164471	Copperstone#496	AMC401171
Copperstone#216	AMC164472	Copperstone#497	AMC401172
Copperstone#217	AMC164473	Copperstone#498	AMC401173
Copperstone#218	AMC164474	Copperstone#499	AMC401174
Copperstone#219	AMC164475	Copperstone#500	AMC401175
Copperstone#220	AMC164476	Copperstone#501	AMC401176
Copperstone#221	AMC164477	Copperstone#502	AMC401177
Copperstone#222	AMC164478	Copperstone#503	AMC401178
Copperstone#223	AMC164479	Copperstone#504	AMC401179
Copperstone#224	AMC164480	Copperstone#505	AMC401180
Copperstone#225	AMC164481	Copperstone#506	AMC401181
Copperstone#226	AMC164482	Copperstone#507	AMC401182
Copperstone#227	AMC164483	Copperstone#508	AMC401183
Copperstone#228	AMC164484	Copperstone#509	AMC401184
Copperstone#229	AMC164485	Copperstone#510	AMC401185
Copperstone#230	AMC164486	Copperstone#511	AMC401186
Copperstone#231	AMC164487	Copperstone#512	AMC401187
Copperstone#232	AMC164488	Copperstone#513	AMC401188
Copperstone#233	AMC164489	Copperstone#514	AMC401189
Copperstone#234	AMC164490	Copperstone#515	AMC401190
Copperstone#235	AMC164491	Copperstone#516	AMC401191
Copperstone#236	AMC164492	Copperstone#517	AMC401192
Copperstone#237	AMC164493	Copperstone#518	AMC401193
Copperstone#238	AMC164494	Copperstone#519	AMC401194
Copperstone#239	AMC164495	Copperstone#520	AMC401195
Copperstone#240	AMC164496	Copperstone#521	AMC401196
Copperstone#241	AMC164497	Copperstone#522	AMC401197
Copperstone#242	AMC164498	Copperstone#523	AMC401198
Copperstone#243	AMC164499	Copperstone#524	AMC401199
Copperstone#244	AMC164500	Copperstone#525	AMC401200
Copperstone#245	AMC164501	Copperstone#526	AMC401201
Copperstone#246	AMC164502	Copperstone#527	AMC401202
Copperstone#247	AMC164503	Copperstone#528	AMC401203
Copperstone#248	AMC164504	Copperstone#529	AMC401204
Copperstone#249	AMC164505	Copperstone#530	AMC401205
Copperstone#250	AMC164506	Copperstone#531	AMC401206
Copperstone#251	AMC164507	Copperstone#532	AMC401207
Copperstone#252	AMC164508	Copperstone#533	AMC401208
Copperstone#253	AMC164509	Copperstone#534	AMC401209
Copperstone#254	AMC164510	Copperstone#535	AMC401210
Copperstone#255	AMC164511	Copperstone#536	AMC401211
Copperstone#256	AMC164512	Copperstone#537	AMC401212
Copperstone#257	AMC164513	Copperstone#538	AMC401213
Copperstone#258	AMC164514	Copperstone#539	AMC401214
Copperstone#259	AMC164515	Copperstone#540	AMC401215

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#260	AMC164516	Copperstone#541	AMC401216
Copperstone#261	AMC164517	Copperstone#542	AMC401217
Copperstone#262	AMC164518	Copperstone#543	AMC401218
Copperstone#263	AMC164519	Copperstone#544	AMC401219
Copperstone#264	AMC164520	Copperstone#545	AMC401220
Copperstone#265	AMC164521	Copperstone#546	AMC401221
Copperstone#266	AMC164522	Copperstone#547	AMC401222
Copperstone#267	AMC164523	Copperstone#548	AMC401223
Copperstone#268	AMC164524	Copperstone#549	AMC401224
Copperstone#269	AMC164525	Copperstone#550	AMC401225
Copperstone#270	AMC164526	Copperstone#551	AMC401226
Copperstone#271	AMC164527	Copperstone#552	AMC401227
Copperstone#272	AMC164528	Copperstone#553	AMC401228
Copperstone#273	AMC164529	Copperstone#554	AMC401229
Copperstone#274	AMC164530	Copperstone#555	AMC401230
Copperstone#275	AMC164531	Copperstone#556	AMC401231
Copperstone#276	AMC164532	Copperstone#557	AMC401232
Copperstone#277	AMC164533	CSA1	AMC362237
Copperstone#278	AMC164534	CSA2	AMC362238
Copperstone#279	AMC164535	CSA3	AMC362239
Copperstone#280	AMC164536	CSA4	AMC362240
Copperstone#281	AMC164537	CSA5	AMC362241
Copperstone#282	AMC164538	CSA6	AMC362242
Copperstone#283	AMC164539	CSA7	AMC362243
Copperstone#284	AMC164540	CSA8	AMC362244
Copperstone#285	AMC164541	CSA9	AMC362245
Copperstone#286	AMC164542	CSA10	AMC362246
Copperstone#287	AMC164543	CSA11	AMC362247
Copperstone#288	AMC164544	CSA12	AMC362248
Copperstone#289	AMC164545	CSA13	AMC362249
Copperstone#290	AMC164546	CSA14	AMC362250
Copperstone#291	AMC164547	CSA15	AMC362251
Copperstone#292	AMC164548	CSA16	AMC362252
Copperstone#293	AMC164549	CSA17	AMC362253
Copperstone#294	AMC164550	CSA18	AMC362254
Copperstone#295	AMC164551	CSA19	AMC362255
Copperstone#296	AMC164552	CSA20	AMC362256
Copperstone#297	AMC164553	CSA21	AMC362257
Copperstone#298	AMC164554	CSA22	AMC362258
Copperstone#299	AMC164555	CSA23	AMC362259
Copperstone#300	AMC164556	CSA24	AMC362260
Copperstone#301	AMC164557	CSA25	AMC362261
Copperstone#302	AMC164558	CSA26	AMC362262
Copperstone#303	AMC164559	CSA27	AMC362263
Copperstone#304	AMC164560	CSA28	AMC362264
Copperstone#305	AMC164561	CSA29	AMC362265
Copperstone#306	AMC164562	CSA30	AMC362266
Copperstone#307	AMC164563	CSA31	AMC362267
Copperstone#308	AMC164564	CSA32	AMC362268

Claim Name	Serial No.	Claim Name	Serial No.
Copperstone#309	AMC164565	CSA33	AMC362269
Copperstone#310	AMC164566	CSA34	AMC362270
Copperstone#311	AMC164567	CSA35	AMC362271
Copperstone#312	AMC164568	CSA36	AMC362272
Copperstone#313	AMC164569	CSA37	AMC362273
Copperstone#314	AMC164570	CSA38	AMC362274
Copperstone#315	AMC164571	CSA39	AMC362275
Copperstone#316	AMC220648	CSA40	AMC362276
Copperstone#317	AMC220649	CSA41	AMC362277
Copperstone#318	AMC220650	CSA42	AMC362278
Copperstone#319	AMC220651	CSA43	AMC362279
Copperstone#320	AMC220652	CSA44	AMC362280
Copperstone#321	AMC220653	CSA45	AMC362281
Copperstone#322	AMC220654	CSA46	AMC362282
Copperstone#323	AMC220655	CSA47	AMC362283
Copperstone#324	AMC220656	CSA48	AMC362284
Copperstone#325	AMC220657	CSA49	AMC362285
Copperstone#326	AMC220658	CSA50	AMC362286
Copperstone#327	AMC220659	CSA51	AMC362287
Copperstone#328	AMC220660	Iron Reef #1	AMC105953
Copperstone#329	AMC260459	Iron Reef #2	AMC105954
Copperstone#330	AMC260460	Iron Reef #3	AMC105955
Copperstone#331	AMC260461	Iron Reef #4	AMC105956
Copperstone#332	AMC260462	Iron Reef #5	AMC105957
Copperstone#333	AMC260463	Iron Reef #6	AMC105958
Copperstone#334	AMC260464	Iron Reef #7	AMC105959
Copperstone#335	AMC260465	Iron Reef #8	AMC105960
Copperstone#336	AMC260466	Iron Reef #9	AMC105961
Copperstone#337	AMC260467	Iron Reef #10	AMC105962

APPENDIX B

Drillhole Collar Locations by Year

Drillholes Collar Locations

All coordinates are in Arizona State Plane West North American Datum 1927 (NAD27) feet projection. Elevation and Total Depth are in feet. Drillholes with negative dips point up.

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
06CS-01	330696.34	1047751.38	871.53	1100.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-02	330963.56	1048015.00	873.77	1040.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-03	331412.59	1047898.50	878.28	1080.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-04	330893.00	1047374.88	867.48	1100.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-05	335481.19	1041373.00	878.42	980.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-06	335949.06	1041529.38	875.00	900.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-07	337657.81	1041874.75	870.53	950.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-08	337991.22	1042183.38	868.02	900.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-09	337477.56	1045911.25	890.36	865.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-10	332624.13	1042577.56	881.58	1160.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-11	335058.41	1045148.69	887.74	910.0	90.0	0.0	2006	DDH	American Bonanza	Included
06CS-12	334858.53	1043670.94	941.13	1160.0	90.0	0.0	2006	DDH	American Bonanza	Included
06CS-13	339525.00	1036682.00	876.00	620.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-14	335918.53	1044120.13	950.70	940.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-15	333799.78	1045400.06	549.72	600.0	60.0	210.0	2006	DDH	American Bonanza	Included
06CS-16	332692.13	1046157.31	752.24	720.0	60.0	330.0	2006	DDH	American Bonanza	Included
06CS-17	333011.72	1045941.50	729.98	600.0	60.0	210.0	2006	DDH	American Bonanza	Included
06CS-18	333985.69	1044785.63	618.43	540.0	60.0	210.0	2006	DDH	American Bonanza	Included
06CS-19	331019.75	1043618.81	859.74	965.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-20	331609.16	1041750.56	880.99	1105.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-21	331456.22	1042441.75	870.77	880.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-22	330830.59	1043400.25	858.96	1025.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-23	330790.09	1044422.38	856.01	1000.0	90.0	0.0	2006	DDH	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
06CS-24	334754.44	1043646.13	940.65	1170.0	*assumed vertical*		2006	DDH	American Bonanza	Excluded
06CS-25	334822.72	1043639.31	940.76	1140.0	*assumed vertical*		2006	DDH	American Bonanza	Excluded
06CS-26	337454.13	1045425.75	940.04	960.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
06CS-27	333208.66	1050145.13	869.35	1000.0	90.0	0.0	2006	DDH	American Bonanza	Excluded
07CS-28	332884.13	1049718.25	881.97	780.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-29	337031.72	1046272.50	889.24	1203.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-30	330740.41	1043407.25	859.03	1203.0	88.8	16.3	2007	DDH	American Bonanza	Excluded
07CS-31	330823.66	1043290.44	858.95	1129.0	88.2	210.5	2007	DDH	American Bonanza	Excluded
07CS-32	334744.47	1043712.13	939.49	1184.0	89.3	100.5	2007	DDH	American Bonanza	Included
07CS-33	334873.28	1043580.38	942.11	1200.0	89.1	338.5	2007	DDH	American Bonanza	Included
07CS-34	334753.66	1044191.56	891.10	1017.0	60.0	225.0	2007	DDH	American Bonanza	Included
07CS-35	337378.69	1041842.81	973.48	800.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-36	334679.34	1044544.50	876.07	1102.0	54.0	225.0	2007	DDH	American Bonanza	Included
07CS-37	334741.59	1045110.25	808.45	1095.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-38	332854.34	1050543.25	865.06	1130.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-39	332570.66	1049315.13	873.20	1200.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-40	336131.28	1047462.50	888.98	1200.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-41	336572.34	1047917.31	891.59	1190.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-42	333487.34	1042314.44	884.51	1200.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-43	330766.69	1042224.19	864.85	930.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
07CS-44	337159.09	1041384.00	869.96	420.0	*assumed vertical*		2007	DDH	American Bonanza	Excluded
08CS-45	330801.91	1043358.44	854.48	1130.0	90.0	0.0	2008	DDH	American Bonanza	Excluded
08CS-46	330770.38	1043276.06	854.83	1000.0	90.0	0.0	2008	DDH	American Bonanza	Excluded
08CS-47	330886.97	1043297.69	856.16	1282.5	89.5	125.3	2008	DDH	American Bonanza	Excluded
08CS-48	330837.63	1043226.63	856.35	1130.0	89.7	187.9	2008	DDH	American Bonanza	Excluded
08CS-49A	334360.63	1044119.75	893.74	1020.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-50	334423.97	1044012.88	897.65	900.0	89.5	177.3	2008	DDH	American Bonanza	Included
08CS-51	334264.59	1044307.63	894.38	869.0	90.0	0.0	2008	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
08CS-52	334258.38	1044144.31	896.99	910.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-53	332826.81	1047465.44	874.84	660.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-54	332875.03	1047425.75	876.83	690.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-55	332937.88	1047465.31	876.62	715.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-56	330791.81	1043461.25	852.59	1091.0	90.0	0.0	2008	DDH	American Bonanza	Excluded
08CS-57	330752.31	1043379.44	852.72	1000.0	90.0	0.0	2008	DDH	American Bonanza	Excluded
08CS-58	334323.19	1043995.44	890.86	900.0	90.0	0.0	2008	DDH	American Bonanza	Included
08CS-59	334205.94	1044199.81	895.00	850.0	90.0	0.0	2008	DDH	American Bonanza	Included
520-1	332625.00	1047500.00	360.00	125.0	-60.0	90.0	2013	Missing	American Bonanza	Excluded
520-10	332625.00	1047400.00	360.00	185.0	-35.0	90.0	2013	Missing	American Bonanza	Excluded
520-11	332625.00	1047400.00	360.00	225.0	-15.0	90.0	2013	Missing	American Bonanza	Excluded
520-12	332625.00	1047350.00	360.00	175.0	-75.0	90.0	2013	Missing	American Bonanza	Excluded
520-13	332625.00	1047350.00	360.00	165.0	-55.0	90.0	2013	Missing	American Bonanza	Excluded
520-14	332625.00	1047350.00	360.00	185.0	-24.0	90.0	2013	Missing	American Bonanza	Excluded
520-15	332625.00	1047350.00	360.00	225.0	0.0	0.0	2013	Missing	American Bonanza	Excluded
520-16	332625.00	1047300.00	360.00	175.0	-50.0	90.0	2013	Missing	American Bonanza	Excluded
520-17	332625.00	1047300.00	360.00	185.0	-20.0	90.0	2013	Missing	American Bonanza	Excluded
520-2	332625.00	1047500.00	360.00	170.0	-35.0	90.0	2013	Missing	American Bonanza	Excluded
520-3	332625.00	1047500.00	360.00	185.0	-10.0	90.0	2013	Missing	American Bonanza	Excluded
520-4	332625.00	1047450.00	360.00	125.0	-70.0	90.0	2013	Missing	American Bonanza	Excluded
520-5	332625.00	1047450.00	360.00	150.0	-50.0	90.0	2013	Missing	American Bonanza	Excluded
520-6	332625.00	1047450.00	360.00	180.0	-25.0	90.0	2013	Missing	American Bonanza	Excluded
520-7	332625.00	1047450.00	360.00	200.0	-5.0	90.0	2013	Missing	American Bonanza	Excluded
520-8	332625.00	1047400.00	360.00	150.0	-85.0	90.0	2013	Missing	American Bonanza	Excluded
520-9	332625.00	1047400.00	360.00	150.0	-65.0	90.0	2013	Missing	American Bonanza	Excluded
650W-1	332764.01	1047583.41	318.41	64.0	-16.0	264.0	2013	Missing	American Bonanza	Excluded
650W-10	332777.11	1047496.64	318.68	64.0	-64.0	277.0	2013	Missing	American Bonanza	Excluded
650W-12	332772.67	1047468.56	308.25	56.0	-15.0	278.0	2013	Missing	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
650W-13	332775.09	1047467.86	313.91	52.0	-59.0	267.0	2013	Missing	American Bonanza	Excluded
650W-14	332786.82	1047469.81	314.13	100.0	-53.0	104.0	2013	Missing	American Bonanza	Excluded
650W-15	332772.30	1047443.35	303.02	100.0	-8.0	274.0	2013	Missing	American Bonanza	Excluded
650W-16	332774.38	1047443.48	308.12	100.0	-63.0	261.0	2013	Missing	American Bonanza	Excluded
650W-17	332783.77	1047441.97	306.87	100.0	-57.0	95.0	2013	Missing	American Bonanza	Excluded
650W-2	332764.54	1047583.45	317.66	60.0	-60.0	266.0	2013	Missing	American Bonanza	Excluded
650W-3	332779.57	1047584.94	313.98	52.0	-38.0	81.0	2013	Missing	American Bonanza	Excluded
650W-4	332770.84	1047531.82	315.43	60.0	-12.0	259.0	2013	Missing	American Bonanza	Excluded
650W-5	332771.78	1047531.88	314.85	60.0	-32.0	266.0	2013	Missing	American Bonanza	Excluded
650W-6	332773.22	1047532.25	320.39	60.0	-67.0	260.0	2013	Missing	American Bonanza	Excluded
650W-8	332774.68	1047497.02	314.14	52.0	-33.0	277.0	2013	Missing	American Bonanza	Excluded
650W-9	332776.75	1047496.69	319.43	56.0	-55.0	279.0	2013	Missing	American Bonanza	Excluded
654-1	332815.83	1047424.03	297.40	100.0	-20.0	145.0	2013	Missing	American Bonanza	Excluded
654-2	332818.93	1047426.90	298.42	100.0	-20.0	123.0	2013	Missing	American Bonanza	Excluded
654-50	332817.45	1047681.63	303.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-51	332822.16	1047684.70	303.00	52.0	-12.0	32.0	2013	Missing	American Bonanza	Excluded
654-52	332834.28	1047656.10	302.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-53	332839.29	1047659.78	302.00	100.0	-12.0	35.0	2013	Missing	American Bonanza	Excluded
654-54	332854.69	1047616.70	302.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-55	332863.12	1047619.31	302.00	52.0	-12.0	23.0	2013	Missing	American Bonanza	Excluded
654-56	332835.34	1047554.31	302.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-57	332842.51	1047553.31	302.00	100.0	-12.0	97.0	2013	Missing	American Bonanza	Excluded
654-58	332836.68	1047522.86	302.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-59	332844.57	1047523.02	302.00	52.0	-12.0	71.0	2013	Missing	American Bonanza	Excluded
654-60	332836.78	1047493.91	302.00	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
654-61	332844.12	1047493.26	302.00	52.0	-12.0	100.0	2013	Missing	American Bonanza	Excluded
654cc-1	332788.62	1047481.44	314.07	60.0	-15.0	95.0	2013	Missing	American Bonanza	Excluded
654cc-2	332790.27	1047524.78	314.28	60.0	-15.0	78.0	2013	Missing	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
654cc-3	332789.84	1047530.79	315.86	100.0	-15.0	51.0	2013	Missing	American Bonanza	Excluded
690-1	332774.69	1047858.89	240.98	52.0	-10.0	75.0	2013	Missing	American Bonanza	Excluded
690-10	332760.79	1047772.41	250.49	52.0	-10.0	33.0	2013	Missing	American Bonanza	Excluded
690-11	332758.63	1047770.68	244.35	52.0	-45.0	77.0	2013	Missing	American Bonanza	Excluded
690-12	332759.93	1047770.06	246.71	52.0	-80.0	79.0	2013	Missing	American Bonanza	Excluded
690-13	332757.16	1047741.73	252.70	52.0	-10.0	48.0	2013	Missing	American Bonanza	Excluded
690-14	332756.02	1047741.53	248.51	52.0	-45.0	63.0	2013	Missing	American Bonanza	Excluded
690-15	332755.53	1047740.92	245.99	52.0	-80.0	75.0	2013	Missing	American Bonanza	Excluded
690-19	332719.43	1047881.97	237.34	84.0	-11.0	29.0	2013	Missing	American Bonanza	Excluded
690-2	332774.69	1047858.57	240.87	52.0	-45.0	75.0	2013	Missing	American Bonanza	Excluded
690-20	332717.06	1047861.89	240.30	88.0	-11.0	115.0	2013	Missing	American Bonanza	Excluded
690-21	332717.01	1047861.58	236.55	76.0	-45.0	117.0	2013	Missing	American Bonanza	Excluded
690-22	332717.32	1047874.82	241.76	88.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
690-23	332724.41	1047874.92	239.94	88.0	-45.0	55.0	2013	Missing	American Bonanza	Excluded
690-24	332725.58	1047874.90	236.44	64.0	-10.0	60.0	2013	Missing	American Bonanza	Excluded
690-25	332721.80	1047831.88	238.44	88.0	-10.0	89.0	2013	Missing	American Bonanza	Excluded
690-26	332721.73	1047830.93	238.16	88.0	-45.0	80.0	2013	Missing	American Bonanza	Excluded
690-28	332754.21	1047821.78	237.21	66.0	-10.0	41.0	2013	Missing	American Bonanza	Excluded
690-29	332755.67	1047821.53	239.90	60.0	-45.0	36.0	2013	Missing	American Bonanza	Excluded
690-3	332774.69	1047859.68	240.16	44.0	-80.0	75.0	2013	Missing	American Bonanza	Excluded
690-31	332774.92	1047819.54	231.37	28.0	90.0	0.0	2013	Missing	American Bonanza	Excluded
690-32	332767.46	1047759.63	231.37	28.0	90.0	0.0	2013	Missing	American Bonanza	Excluded
690-33	332721.00	1047650.00	260.00	100.0	-55.0	103.0	2013	Missing	American Bonanza	Excluded
690-34	332721.00	1047650.00	260.00	100.0	-86.0	170.0	2013	Missing	American Bonanza	Excluded
690-35	332721.00	1047650.00	260.00	85.0	-55.0	90.0	2013	Missing	American Bonanza	Excluded
690-36	332721.00	1047650.00	260.00	70.0	-85.0	90.0	2013	Missing	American Bonanza	Excluded
690-38	332630.00	1047650.00	260.00	125.0	-60.0	90.0	2013	Missing	American Bonanza	Excluded
690-39	332726.00	1047700.00	260.00	76.0	-50.0	90.0	2013	Missing	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
690-40	332726.00	1047700.00	260.00	72.0	-90.0	90.0	2013	Missing	American Bonanza	Excluded
690-41	332714.00	1047700.00	260.00	90.0	-90.0	270.0	2013	Missing	American Bonanza	Excluded
690-42	332714.00	1047700.00	260.00	125.0	-45.0	270.0	2013	Missing	American Bonanza	Excluded
690-43	332757.00	1047750.00	260.00	60.0	-70.0	270.0	2013	Missing	American Bonanza	Excluded
690-44	332757.00	1047750.00	260.00	100.0	-35.0	270.0	2013	Missing	American Bonanza	Excluded
690-45	332557.00	1047750.00	255.00	120.0	-37.0	90.0	2013	Missing	American Bonanza	Excluded
690-46	332557.00	1047750.00	255.00	100.0	-60.0	90.0	2013	Missing	American Bonanza	Excluded
690-47	332763.00	1047800.00	250.00	80.0	-65.0	270.0	2013	Missing	American Bonanza	Excluded
690-48	332654.00	1047800.00	250.00	110.0	-65.0	90.0	2013	Missing	American Bonanza	Excluded
690-49	332654.00	1047800.00	250.00	120.0	-90.0	90.0	2013	Missing	American Bonanza	Excluded
690-50	332724.00	1047850.00	245.00	125.0	-40.0	270.0	2013	Missing	American Bonanza	Excluded
690-51	332724.00	1047850.00	245.00	100.0	-60.0	270.0	2013	Missing	American Bonanza	Excluded
690-7	332765.33	1047799.92	243.55	52.0	-10.0	73.0	2013	Missing	American Bonanza	Excluded
690-8	332765.14	1047799.61	240.44	52.0	-45.0	80.0	2013	Missing	American Bonanza	Excluded
726-1	332819.42	1047933.98	227.02	52.0	-12.0	86.0	2013	Missing	American Bonanza	Excluded
726-10	332850.36	1047850.02	233.32	100.0	-12.0	47.0	2013	Missing	American Bonanza	Excluded
726-11	332845.19	1047844.34	235.87	100.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
726-13	332876.66	1047825.42	233.17	52.0	-12.0	44.0	2013	Missing	American Bonanza	Excluded
726-14	332870.94	1047820.03	233.59	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
726-2	332812.95	1047933.76	236.35	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
726-3	332804.96	1047933.28	229.24	100.0	-70.0	272.0	2013	Missing	American Bonanza	Excluded
726-4	332817.32	1047899.50	233.18	52.0	-12.0	90.0	2013	Missing	American Bonanza	Excluded
726-5	332810.13	1047899.46	236.07	52.0	-90.0	0.0	2013	Missing	American Bonanza	Excluded
726-6	332800.54	1047900.08	233.75	52.0	-80.0	279.0	2013	Missing	American Bonanza	Excluded
726-7	332824.31	1047872.43	234.04	52.0	-12.0	45.0	2013	Missing	American Bonanza	Excluded
730-11	332952.46	1047637.75	243.01	52.0	-86.0	180.0	2013	Missing	American Bonanza	Excluded
730-13	332947.65	1047674.09	230.82	120.0	-47.0	93.0	2013	Missing	American Bonanza	Excluded
730-14	332933.81	1047674.33	231.02	132.0	-64.0	259.0	2013	Missing	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
730-15	332842.56	1047833.73	246.30	60.0	-79.0	101.0	2013	Missing	American Bonanza	Excluded
730-16	332862.55	1047813.01	236.58	20.0	-88.0	137.0	2013	Missing	American Bonanza	Excluded
730-17	332896.71	1047767.45	231.78	80.0	-81.0	35.0	2013	Missing	American Bonanza	Excluded
730-18	332903.54	1047761.78	230.86	100.0	-54.0	116.0	2013	Missing	American Bonanza	Excluded
730-19	332842.71	1047833.71	245.00	28.0	-7.0	90.0	2013	Missing	American Bonanza	Excluded
730-2	332935.98	1047578.98	248.90	100.0	-50.0	137.0	2013	Missing	American Bonanza	Excluded
730-20	332896.85	1047761.95	222.61	56.0	89.0	180.0	2013	Missing	American Bonanza	Excluded
730-21	332920.35	1047723.90	230.82	120.0	-88.0	302.0	2013	Missing	American Bonanza	Excluded
730-22	332927.89	1047723.51	227.66	152.0	-32.0	94.0	2013	Missing	American Bonanza	Excluded
730-23	332908.66	1047732.73	221.59	76.0	75.0	163.0	2013	Missing	American Bonanza	Excluded
730-3	332934.02	1047580.89	239.52	104.0	25.0	151.0	2013	Missing	American Bonanza	Excluded
730-4	332931.95	1047587.51	237.90	64.0	82.0	45.0	2013	Missing	American Bonanza	Excluded
730-5	332938.54	1047593.99	251.06	100.0	-87.0	3.0	2013	Missing	American Bonanza	Excluded
730-7	332949.77	1047613.05	245.91	52.0	-89.0	220.0	2013	Missing	American Bonanza	Excluded
730-8	332946.97	1047613.48	244.76	132.0	-66.0	275.0	2013	Missing	American Bonanza	Excluded
730-9	332944.14	1047617.57	240.88	132.0	-12.0	264.0	2013	Missing	American Bonanza	Excluded
750-1	333070.05	1047144.77	194.00	52.0	-12.0	237.0	2013	Missing	American Bonanza	Excluded
750-10	333236.81	1047015.90	194.00	96.0	-12.0	206.0	2013	Missing	American Bonanza	Excluded
750-11	333239.87	1047025.21	202.00	60.0	-80.0	159.0	2013	Missing	American Bonanza	Excluded
750-12	333244.07	1047033.44	194.00	52.0	-12.0	23.0	2013	Missing	American Bonanza	Excluded
750-13	333138.28	1047074.16	194.00	52.0	-12.0	43.0	2013	Missing	American Bonanza	Excluded
750-14	333173.61	1047044.15	194.00	52.0	-43.0	12.0	2013	Missing	American Bonanza	Excluded
750-17	333248.09	1047003.59	194.00	100.0	-12.0	165.0	2013	Missing	American Bonanza	Excluded
750-18	333253.81	1047015.85	194.00	100.0	-12.0	96.0	2013	Missing	American Bonanza	Excluded
750-2	333076.66	1047147.66	202.00	48.0	-80.0	344.0	2013	Missing	American Bonanza	Excluded
750-20	333214.46	1047026.57	194.00	40.0	-12.0	203.0	2013	Missing	American Bonanza	Excluded
750-3	333083.40	1047150.25	194.00	52.0	-12.0	57.0	2013	Missing	American Bonanza	Excluded
750-4	333144.96	1047043.96	194.00	100.0	-12.0	223.0	2013	Missing	American Bonanza	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
750-5	333151.20	1047049.53	202.00	56.0	-80.0	136.0	2013	Missing	American Bonanza	Excluded
750-6	333155.17	1047054.85	194.00	52.0	-12.0	43.0	2013	Missing	American Bonanza	Excluded
750-7	333186.93	1047022.31	194.00	100.0	-12.0	215.0	2013	Missing	American Bonanza	Excluded
750-8	333194.12	1047034.10	202.00	60.0	-80.0	82.0	2013	Missing	American Bonanza	Excluded
750-9	333201.09	1047044.69	194.00	52.0	-12.0	30.0	2013	Missing	American Bonanza	Excluded
810-10	333107.59	1047310.74	156.22	100.0	-51.0	294.0	2013	Missing	American Bonanza	Excluded
810-12	333107.87	1047309.83	155.89	104.0	-19.0	343.0	2013	Missing	American Bonanza	Excluded
810-13	333030.16	1047281.31	162.91	104.0	-18.0	323.0	2013	Missing	American Bonanza	Excluded
810-14	333030.25	1047281.18	166.97	100.0	-47.0	328.0	2013	Missing	American Bonanza	Excluded
810-15	332995.04	1047251.33	173.71	100.0	-30.0	163.0	2013	Missing	American Bonanza	Excluded
810-16	332995.04	1047251.33	173.71	100.0	-60.0	163.0	2013	Missing	American Bonanza	Excluded
810-16a	333127.92	1047410.59	160.20	100.0	-59.0	259.0	2013	Missing	American Bonanza	Excluded
810-17	333140.46	1047411.75	156.06	108.0	-9.0	108.0	2013	Missing	American Bonanza	Excluded
810-18	333127.91	1047364.03	159.49	100.0	-58.0	290.0	2013	Missing	American Bonanza	Excluded
810-19	333140.14	1047360.91	154.55	100.0	-9.0	70.0	2013	Missing	American Bonanza	Excluded
810-2	333079.50	1047344.30	160.00	100.0	-10.0	52.0	2013	Missing	American Bonanza	Excluded
810-20	333136.67	1047399.97	150.61	56.0	90.0	360.0	2013	Missing	American Bonanza	Excluded
810-21	333136.70	1047374.70	150.50	56.0	90.0	360.0	2013	Missing	American Bonanza	Excluded
810-3	333077.50	1047337.90	162.00	100.0	-45.0	52.0	2013	Missing	American Bonanza	Excluded
810-4	333075.70	1047337.00	162.00	100.0	-45.0	80.0	2013	Missing	American Bonanza	Excluded
810-8	333064.00	1047343.00	162.00	100.0	-45.0	313.0	2013	Missing	American Bonanza	Excluded
810-9	333065.00	1047347.00	160.00	100.0	-10.0	313.0	2013	Missing	American Bonanza	Excluded
A00-1	332819.25	1048319.63	885.93	534.0	90.0	0.0	2000	DDH	Asia Minerals	Included
A00-10	333711.84	1045430.81	539.36	649.0	89.7	159.0	2000	DDH	Asia Minerals	Included
A00-11	332799.69	1046994.69	871.70	700.0	90.0	0.0	2000	RC	Asia Minerals	Included
A00-2	332835.13	1047934.25	875.21	743.5	87.8	350.0	2000	DDH	Asia Minerals	Included
A00-3	332925.00	1048416.13	878.14	595.0	90.0	0.0	2000	RC	Asia Minerals	Included
A00-4	332762.22	1047365.63	873.81	645.5	87.8	174.0	2000	DDH	Asia Minerals	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
A00-5	332729.53	1047128.50	872.41	637.5	87.4	223.0	2000	DDH	Asia Minerals	Included
A00-6	333024.69	1048512.75	878.02	890.0	90.0	0.0	2000	RC	Asia Minerals	Included
A00-7	333028.94	1048715.75	876.13	1035.0	90.0	0.0	2000	RC	Asia Minerals	Included
A00-8	332824.69	1048519.75	876.00	880.0	90.0	0.0	2000	RC	Asia Minerals	Included
A00-9	333223.50	1048714.63	877.50	1300.0	90.0	0.0	2000	RC	Asia Minerals	Included
A98-1	332744.16	1047643.31	873.80	665.2	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-10	332771.75	1047171.31	873.92	651.5	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-11	332883.56	1047823.81	874.29	734.3	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-12	332969.59	1048170.25	875.76	943.2	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-13	332872.00	1047573.56	874.47	693.9	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-14	332911.66	1047911.75	874.64	745.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-15	332957.47	1047758.06	875.13	747.1	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-2	332877.97	1047677.50	874.69	731.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-3	332825.78	1047824.38	874.02	728.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-4	332707.88	1047507.44	873.09	660.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-5	332775.59	1047475.50	873.19	690.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-6	333424.34	1047323.88	876.58	900.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-7	333433.72	1047132.81	875.27	630.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-8	333300.88	1047300.31	875.19	915.0	90.0	0.0	1998	DDH	Asia Minerals	Included
A98-9	332698.41	1046997.69	870.47	545.0	90.0	0.0	1998	DDH	Asia Minerals	Included
C95-01	334989.69	1045574.19	882.39	744.5	68.0	225.0	1995	DDH	Royal Oak	Included
C95-02	333062.81	1044953.31	901.76	500.0	55.0	226.0	1995	DDH	Royal Oak	Included
C95-03	333677.09	1046868.94	875.77	850.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-04	333744.03	1046843.81	876.59	820.0	74.0	225.0	1995	RC	Royal Oak	Included
C95-05	333624.53	1046923.44	875.84	850.0	75.0	225.0	1995	RC	Royal Oak	Included
C95-06	333431.41	1047036.00	873.34	800.0	70.0	225.0	1995	RC	Royal Oak	Included
C95-07	334327.91	1046428.50	877.22	820.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-08	333218.81	1047114.69	872.52	785.0	90.0	0.0	1995	RC	Royal Oak	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
C95-09	334154.72	1046363.00	875.50	796.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-10	332770.81	1047066.31	871.37	624.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-11	333369.44	1047384.94	875.92	795.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-12	334081.94	1046695.13	878.69	867.0	90.0	0.0	1995	RC	Royal Oak	Included
C95-13	333998.56	1046396.69	874.66	750.0	65.0	224.0	1995	RC	Royal Oak	Included
C96-14	334470.00	1047170.00	920.81	1227.0	90.0	0.0	1996	RC/DDH	Royal Oak	Included
C96-15	334225.00	1047320.00	921.69	1313.0	90.0	0.0	1996	DDH	Royal Oak	Included
C96-16	334030.00	1047520.00	875.00	1245.0	90.0	0.0	1996	DDH	Royal Oak	Included
C96-17	334513.84	1046528.25	895.93	1007.0	90.0	0.0	1996	DDH	Royal Oak	Included
C96-18	333853.38	1046744.00	876.64	958.0	90.0	0.0	1996	RC	Royal Oak	Included
C96-19	332792.44	1047558.13	874.35	704.0	90.0	0.0	1996	DDH	Royal Oak	Included
C97-20	335084.78	1045660.44	883.18	950.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-21	333588.63	1047269.56	876.26	710.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-22	334392.44	1046766.38	905.25	1123.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-23	332928.00	1047124.00	873.93	628.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-24	332828.00	1047720.00	874.86	700.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-25	332726.00	1048018.00	875.33	801.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-26	332630.00	1047620.00	872.72	650.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-27	332928.00	1047818.00	875.46	600.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-28	333175.00	1047568.00	881.76	834.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-29	333520.00	1047220.00	876.23	906.0	90.0	0.0	1997	DDH	Royal Oak	Included
C97-30	333880.00	1046873.00	879.32	931.0	90.0	0.0	1997	RC/DDH	Royal Oak	Included
C97-31	332933.00	1048037.31	875.39	870.0	90.0	0.0	1997	RC	Royal Oak	Included
C97-32	334528.00	1046225.00	881.44	950.0	90.0	0.0	1997	RC	Royal Oak	Included
C97-33	332780.00	1047270.00	879.98	571.0	90.0	0.0	1997	RC/DDH	Royal Oak	Included
C97-34	332978.00	1047572.00	875.35	734.0	90.0	0.0	1997	DDH	Royal Oak	Included
CDH-1	332746.19	1047073.81	281.90	77.0	10.0	62.0	2001	DDH	Asia Minerals	Included
CDH-10	332741.31	1047077.19	285.10	92.0	12.0	35.0	2001	DDH	Asia Minerals	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CDH-2	332746.19	1047073.81	284.60	68.0	12.0	62.0	2001	DDH	Asia Minerals	Included
CDH-3	332744.81	1047074.69	285.40	80.0	12.0	51.0	2001	DDH	Asia Minerals	Included
CDH-4	332744.81	1047074.69	282.50	75.0	11.0	51.0	2001	DDH	Asia Minerals	Included
CDH-5	332747.50	1047071.81	285.90	118.0	12.5	76.0	2001	DDH	Asia Minerals	Included
CDH-5A	332747.50	1047071.81	282.00	8.0	10.0	76.0	2001	DDH	Asia Minerals	Included
CDH-6	332745.91	1047067.81	284.20	75.0	10.5	103.0	2001	DDH	Asia Minerals	Included
CDH-7	332744.31	1047065.31	284.40	101.0	10.0	125.0	2001	DDH	Asia Minerals	Included
CDH-8	332747.50	1047071.81	283.00	98.0	5.0	76.0	2001	DDH	Asia Minerals	Included
CDH-9	332747.50	1047071.81	288.80	101.0	20.0	76.0	2001	DDH	Asia Minerals	Included
CR-380	333528.69	1045925.00	740.20	360.0	90.0	0.0	1985	RC	Cyprus	Included
CR-381	333594.50	1045817.00	739.00	410.0	90.0	0.0	1985	RC	Cyprus	Included
CR-382	333565.28	1046076.00	740.80	385.0	90.0	0.0	1985	RC	Cyprus	Included
CRD-03-01	333708.91	1045438.44	538.70	600.0	90.0	0.0	2003	RC	American Bonanza	Included
CRD-03-02	333705.91	1045444.50	538.60	600.0	90.0	0.0	2003	DDH	American Bonanza	Included
CRD-03-03	333702.41	1045453.25	537.40	520.0	85.0	330.0	2003	DDH	American Bonanza	Included
CRD-03-04	333759.00	1045360.00	548.90	595.0	90.0	0.0	2003	RC	American Bonanza	Included
CRD-03-05	333758.69	1045363.00	548.90	600.0	90.0	0.0	2003	DDH	American Bonanza	Included
CRD-03-06	333738.00	1045397.00	548.00	650.0	90.0	0.0	2003	DDH	American Bonanza	Included
CRD-03-07	333731.00	1045394.00	548.00	600.0	85.0	240.0	2003	DDH	American Bonanza	Included
CRD-03-08	333757.00	1045355.63	549.30	600.0	85.0	240.0	2003	DDH	American Bonanza	Included
CRD-03-09	333761.81	1045355.63	548.70	600.0	85.0	150.0	2003	DDH	American Bonanza	Included
CRD-03-10	333760.19	1045398.38	546.00	600.0	85.0	282.0	2003	DDH	American Bonanza	Included
CRD-03-11	333801.81	1045376.25	547.50	600.0	90.0	0.0	2003	DDH	American Bonanza	Included
CRD-03-12	333810.28	1045421.63	547.22	600.0	85.0	330.0	2003	DDH	American Bonanza	Included
CRD-03-13	333777.31	1045414.88	547.00	600.0	90.0	0.0	2003	DDH	American Bonanza	Included
CRD-04-01	333797.34	1046833.19	877.00	885.0	82.0	180.0	2004	RC/DDH	American Bonanza	Included
CRD-04-02	333819.09	1046821.63	877.00	920.0	90.0	0.0	2004	RC/DDH	American Bonanza	Included
CRD-04-03	333790.72	1046831.50	877.00	920.0	76.0	189.0	2004	RC/DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CRD-04-04	333927.16	1046728.88	876.00	988.0	90.0	0.0	2004	RC/DDH	American Bonanza	Included
CRD-04-05	333880.09	1046613.50	874.00	896.0	90.0	0.0	2004	RC/DDH	American Bonanza	Included
CRD-04-06	333886.78	1046622.63	875.00	901.0	80.0	229.0	2004	RC/DDH	American Bonanza	Included
CRD-04-07	333786.28	1046828.38	877.00	869.0	71.0	203.0	2004	RC/DDH	American Bonanza	Included
CRD-04-08	333786.28	1046819.31	877.00	850.0	64.0	214.0	2004	RC/DDH	American Bonanza	Included
CRD-04-09	333786.22	1046819.25	877.00	951.0	59.0	219.0	2004	RC/DDH	American Bonanza	Included
CRD-04-10	333714.78	1046874.94	876.00	850.0	66.0	219.0	2004	RC/DDH	American Bonanza	Included
CRD-04-11	333896.78	1046639.63	876.00	847.0	73.0	239.0	2004	RC/DDH	American Bonanza	Included
CRD-04-12	333988.88	1046771.63	879.00	987.0	90.0	0.0	2004	RC/DDH	American Bonanza	Included
CRD-04-13	333715.59	1046889.19	877.00	977.0	90.0	0.0	2004	RC/DDH	American Bonanza	Included
CS-103	332123.00	1046968.00	868.32	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-106	332695.00	1047778.00	867.00	640.0	90.0	0.0	1985	RC	Cyprus	Included
CS-107	335085.00	1045767.00	876.40	680.0	90.0	0.0	1985	RC	Cyprus	Included
CS-108	335060.00	1045368.00	882.17	680.0	90.0	0.0	1985	RC	Cyprus	Included
CS-109	332295.00	1047780.00	868.00	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-111	332273.00	1047385.00	862.00	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-112	331540.31	1044815.88	851.00	450.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-113	331131.31	1042853.81	852.20	400.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-115	333176.00	1047385.00	868.00	790.0	90.0	0.0	1985	RC	Cyprus	Included
CS-116	331528.81	1045984.88	851.10	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-117	331489.69	1043967.50	849.70	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-119A	336770.91	1043692.81	871.60	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-120	328302.50	1038613.81	855.55	285.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-121	327765.31	1038947.69	903.00	300.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-122	328824.91	1037564.00	960.00	440.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-123	328628.41	1038222.13	918.00	280.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-124	331085.81	1041855.00	860.00	300.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-125	328691.19	1037247.69	960.00	160.0	90.0	0.0	1985	RC	Cyprus	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-126	330618.09	1038527.50	957.00	325.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-127	330079.19	1038730.38	925.00	290.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-128	328662.91	1037557.88	990.00	200.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-129	330795.00	1037946.50	902.00	250.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-130	331786.91	1042251.31	860.00	250.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-131	327596.59	1038253.63	920.00	200.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-132	328115.50	1038050.81	920.00	270.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-133A	326097.00	1034769.63	950.00	800.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-134	325308.00	1032341.69	890.00	340.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-135A	326405.00	1032329.88	885.00	600.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-136	326202.91	1035130.00	920.00	400.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-137	332020.91	1042439.13	860.00	300.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-137A	332009.81	1042970.13	876.00	820.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-138	328489.00	1040590.88	875.00	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-139	328882.00	1038730.00	905.00	480.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-140	332467.00	1038768.00	870.00	300.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-141	329521.69	1033388.19	880.00	670.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-151	333184.91	1045960.00	891.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-152	333097.59	1045877.00	891.00	160.0	90.0	0.0	1985	RC	Cyprus	Included
CS-153	332885.41	1046071.00	869.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-154	332789.41	1045981.00	869.10	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-155	332886.81	1045883.00	870.80	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-156	333013.00	1046172.00	870.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-157	332988.41	1045973.00	872.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-158	333087.69	1046068.00	878.30	240.0	90.0	0.0	1985	RC	Cyprus	Included
CS-159	333180.69	1045777.00	890.50	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-160	333282.69	1045873.00	892.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-161	333385.41	1045970.00	878.70	300.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-162	332781.69	1046179.00	866.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-163	333288.59	1046084.00	873.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-164	333385.59	1045875.00	884.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-165	333136.69	1045823.00	892.10	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-166	333574.31	1044793.00	894.50	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-167	333682.81	1044877.00	885.70	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-168	333780.50	1044972.00	884.10	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-169	333878.00	1044872.00	883.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-170	333778.19	1044771.00	887.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-171	333678.59	1044676.00	892.60	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-172	334386.09	1044679.00	879.30	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-173	334483.91	1044777.00	879.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-174	333983.19	1044771.00	883.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-175	334479.81	1045165.00	882.90	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-176	333636.00	1044726.00	892.50	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-177	333526.00	1044630.00	891.20	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-178	333286.81	1045677.00	882.70	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-179	333234.69	1045921.00	893.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-180	333191.00	1045593.00	880.10	100.0	90.0	0.0	1985	RC	Cyprus	Included
CS-181	333033.50	1045724.00	879.20	100.0	90.0	0.0	1985	RC	Cyprus	Included
CS-182	333384.81	1045577.00	878.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-183	333284.19	1045475.00	884.30	100.0	90.0	0.0	1985	RC	Cyprus	Included
CS-184	333282.81	1044984.00	892.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-185	333079.31	1045180.00	888.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-186	333487.81	1045474.00	879.30	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-187	333384.50	1045368.00	882.70	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-188	333282.00	1045269.00	884.10	100.0	90.0	0.0	1985	RC	Cyprus	Included
CS-189	334564.50	1044874.00	880.20	300.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-190	334367.31	1044963.00	880.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-191	334170.59	1045075.00	882.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-192	334072.81	1044975.00	883.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-193	333579.91	1045377.00	881.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-194	333481.69	1045277.00	882.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-195	333354.19	1045168.00	890.00	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-196	333681.59	1045275.00	884.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-197	333585.00	1045177.00	888.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-198	333485.41	1045073.00	888.90	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-199	333682.81	1045071.00	885.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-200	334164.69	1045268.00	880.00	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-201	332887.09	1045585.00	876.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-202	334109.59	1045417.00	884.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-203	333883.41	1045084.00	880.90	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-204	334272.81	1045077.00	882.60	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-205	334078.00	1044270.00	879.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-206	334181.69	1044372.00	879.80	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-207	334078.50	1044473.00	878.40	220.0	90.0	0.0	1985	RC	Cyprus	Included
CS-208	332618.69	1046105.00	866.00	225.0	90.0	0.0	1985	RC	Cyprus	Included
CS-209	332789.31	1046278.00	868.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-210	333581.91	1044974.00	886.60	225.0	90.0	0.0	1985	RC	Cyprus	Included
CS-211	333778.31	1045175.00	885.70	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-212	334062.19	1045267.00	880.10	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-213	334063.91	1045169.00	879.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-214	334262.59	1045268.00	879.50	340.0	90.0	0.0	1985	RC	Cyprus	Included
CS-215	334264.69	1045168.00	880.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-216	334368.09	1045167.00	880.30	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-217	334164.00	1044765.00	880.80	300.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-218	334280.59	1044867.00	881.30	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-219	334467.81	1045074.00	881.60	355.0	90.0	0.0	1985	RC	Cyprus	Included
CS-220	334468.19	1044870.00	884.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-221	334564.19	1044973.00	880.10	340.0	90.0	0.0	1985	RC	Cyprus	Included
CS-222	334281.59	1044672.00	879.70	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-223	334383.19	1044774.00	879.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-224	334569.09	1044773.00	879.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-225	334669.91	1044877.00	879.60	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-226	334472.19	1044667.00	878.80	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-227	334180.50	1044973.00	883.00	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-228	334081.19	1044871.00	882.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-229	333971.00	1044974.00	882.70	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-230	334088.09	1045067.00	881.10	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-231	334164.91	1045169.00	880.20	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-232	334365.50	1045272.00	880.20	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-233	334281.09	1044575.00	879.70	345.0	90.0	0.0	1985	RC	Cyprus	Included
CS-234	333881.81	1044675.00	885.10	275.0	90.0	0.0	1985	RC	Cyprus	Included
CS-235	333030.69	1045930.00	877.40	225.0	90.0	0.0	1985	RC	Cyprus	Included
CS-236A	332887.00	1046270.00	866.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-237	334164.50	1045367.00	882.50	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-238	333892.00	1045295.00	883.80	385.0	90.0	0.0	1985	RC	Cyprus	Included
CS-238A	333892.00	1045295.00	883.80	275.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-239	333791.69	1045384.00	883.30	365.0	90.0	0.0	1985	RC	Cyprus	Included
CS-240	333684.69	1045476.00	881.90	375.0	90.0	0.0	1985	RC	Cyprus	Included
CS-241	333585.00	1045575.00	878.80	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-242	333488.69	1045684.00	877.90	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-243	333381.09	1045773.00	882.40	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-244	332686.81	1046281.00	865.10	260.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-245	333189.41	1046180.00	871.60	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-246	333349.41	1046179.00	870.50	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-247	333011.19	1045811.00	880.20	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-248	333120.00	1045705.00	892.30	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-249	333658.19	1045548.00	878.30	365.0	90.0	0.0	1985	RC	Cyprus	Included
CS-250	333882.81	1045179.00	883.80	345.0	90.0	0.0	1985	RC	Cyprus	Included
CS-251	334183.59	1044571.00	882.10	245.0	90.0	0.0	1985	RC	Cyprus	Included
CS-252	334278.31	1044465.00	881.00	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-253	334375.00	1044466.00	881.90	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-254	334373.59	1044568.00	881.90	275.0	90.0	0.0	1985	RC	Cyprus	Included
CS-255	333217.69	1045436.00	891.90	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-256	334346.41	1046043.00	878.40	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-257	332647.00	1047330.00	871.00	605.0	90.0	0.0	1985	RC	Cyprus	Included
CS-258	334349.91	1046244.00	877.30	805.0	90.0	0.0	1985	RC	Cyprus	Included
CS-259	334673.00	1045167.00	882.20	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-260	332669.59	1045586.00	873.70	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-261	333196.00	1045086.00	893.40	705.0	90.0	0.0	1985	RC	Cyprus	Included
CS-262	332894.31	1044969.00	917.70	540.0	90.0	0.0	1985	RC	Cyprus	Included
CS-263	340429.09	1047619.00	884.44	600.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-264	332595.00	1047485.00	866.50	880.0	90.0	0.0	1985	RC	Cyprus	Included
CS-265	332083.00	1044776.81	867.30	570.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-266	332596.31	1044536.00	879.40	905.0	90.0	0.0	1985	RC	Cyprus	Included
CS-267	333985.00	1046892.00	875.00	1160.0	90.0	0.0	1985	RC	Cyprus	Included
CS-268	332530.00	1048180.00	872.00	905.0	90.0	0.0	1985	RC	Cyprus	Included
CS-269	334563.41	1045080.00	883.00	425.0	90.0	0.0	1985	RC	Cyprus	Included
CS-270	334665.19	1045076.00	882.50	425.0	90.0	0.0	1985	RC	Cyprus	Included
CS-271	334568.00	1045170.00	883.90	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-273	334950.00	1045990.00	880.00	1140.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-274	333785.19	1045576.00	881.90	485.0	90.0	0.0	1985	RC	Cyprus	Included
CS-275	333882.81	1045491.00	882.50	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-276	333985.00	1044173.00	882.70	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-277	334075.69	1044073.00	882.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-278	333984.59	1044280.00	883.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-279	332775.00	1046269.00	870.50	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-280	332984.00	1046379.00	870.10	450.0	90.0	0.0	1985	RC	Cyprus	Included
CS-281	334383.00	1045373.00	880.90	425.0	90.0	0.0	1985	RC	Cyprus	Included
CS-282	334283.00	1045473.00	882.70	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-283	333680.00	1045673.00	879.20	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-284	334480.00	1045273.00	881.40	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-285	333434.50	1046301.00	870.20	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-286	333257.00	1046298.00	869.30	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-287	334681.00	1045273.00	881.70	605.0	90.0	0.0	1985	RC	Cyprus	Included
CS-288	333480.00	1046073.00	875.60	375.0	90.0	0.0	1985	RC	Cyprus	Included
CS-289	333955.00	1044373.00	881.30	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-290	334030.00	1044333.00	883.00	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-291	333480.00	1045873.00	875.60	265.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-292	334130.00	1044333.00	881.30	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-293	333930.00	1044223.00	884.50	175.0	90.0	0.0	1985	RC	Cyprus	Included
CS-294	334030.00	1044223.00	882.60	175.0	90.0	0.0	1985	RC	Cyprus	Included
CS-295	334775.00	1045173.00	880.90	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-296	333985.00	1045273.00	880.60	425.0	90.0	0.0	1985	RC	Cyprus	Included
CS-297	334280.00	1044273.00	882.00	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-298	334145.00	1044223.00	880.00	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-299	334180.00	1044173.00	882.20	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-300	333985.00	1045173.00	879.90	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-301	334035.00	1044123.00	882.20	275.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-302	333583.00	1045768.00	878.10	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-303	333883.00	1045573.00	881.20	530.0	90.0	0.0	1985	RC	Cyprus	Included
CS-304	334085.00	1044673.00	859.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-305	332935.00	1046323.00	868.00	375.0	90.0	0.0	1985	RC	Cyprus	Included
CS-306	333480.00	1045873.00	875.60	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-307	332835.00	1046223.00	868.50	275.0	90.0	0.0	1985	RC	Cyprus	Included
CS-308	332685.00	1046073.00	869.90	250.0	90.0	0.0	1985	RC	Cyprus	Included
CS-309	334783.00	1044973.00	879.90	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-310	332585.00	1046173.00	865.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-311	334380.00	1045478.00	882.10	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-312	332735.00	1046223.00	867.80	305.0	90.0	0.0	1985	RC	Cyprus	Included
CS-313	334480.00	1045378.00	880.70	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-314	333085.00	1046473.00	867.10	345.0	90.0	0.0	1985	RC	Cyprus	Included
CS-315	334080.00	1045578.00	881.40	610.0	90.0	0.0	1985	RC	Cyprus	Included
CS-316	333080.00	1046273.00	868.50	395.0	90.0	0.0	1985	RC	Cyprus	Included
CS-317	334183.00	1045476.00	881.80	565.0	90.0	0.0	1985	RC	Cyprus	Included
CS-318	334285.00	1045573.00	882.20	555.0	90.0	0.0	1985	RC	Cyprus	Included
CS-319	333584.31	1045679.00	881.10	450.0	90.0	0.0	1985	RC	Cyprus	Included
CS-320	333773.91	1045462.00	879.30	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-321	333883.91	1045382.00	881.10	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-322	334185.81	1045675.00	881.50	545.0	90.0	0.0	1985	RC	Cyprus	Included
CS-323	334388.91	1045668.00	880.80	656.0	90.0	0.0	1985	RC	Cyprus	Included
CS-324	334079.31	1045381.00	881.30	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-325	333781.31	1045690.00	880.00	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-326	333679.59	1045786.00	876.40	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-327	333579.19	1045886.00	875.20	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-328	333480.69	1045985.00	872.50	400.0	90.0	0.0	1985	RC	Cyprus	Included
CS-329	334387.19	1045280.00	880.50	500.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-330	334579.19	1045278.00	879.90	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-331	334779.69	1045274.00	882.60	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-332	334776.81	1045069.00	877.20	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-333	334581.09	1045474.00	881.90	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-334	333198.41	1046365.00	867.40	480.0	90.0	0.0	1985	RC	Cyprus	Included
CS-335	334187.69	1045870.00	877.00	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-336	334187.50	1046075.00	875.30	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-337	334481.09	1045576.00	881.40	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-338	333976.69	1045684.00	878.00	565.0	90.0	0.0	1985	RC	Cyprus	Included
CS-339	334878.00	1045174.00	879.80	620.0	90.0	0.0	1985	RC	Cyprus	Included
CS-340	334289.59	1045968.00	877.80	685.0	90.0	0.0	1985	RC	Cyprus	Included
CS-341	334393.19	1045859.00	879.60	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-342	334093.00	1045959.00	877.30	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-343	334094.09	1046162.00	877.10	615.0	90.0	0.0	1985	RC	Cyprus	Included
CS-344	333964.19	1046094.00	877.40	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-345	334777.59	1045486.00	882.00	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-346	334878.69	1045386.00	881.10	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-347	333978.41	1046275.00	877.70	1000.0	90.0	0.0	1985	RC	Cyprus	Included
CS-348	333989.31	1045868.00	879.80	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-349	334082.69	1045781.00	860.60	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-350	333176.09	1046559.00	868.80	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-351	333080.00	1046675.00	868.00	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-352	333886.19	1045771.00	860.60	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-353	334078.00	1046159.00	877.40	625.0	90.0	0.0	1985	RC	Cyprus	Included
CS-354	333780.00	1045876.00	860.00	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-355	334584.69	1045378.00	880.90	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-356	334478.59	1045474.00	881.10	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-357	334381.19	1045574.00	881.80	650.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-358	334180.31	1045575.00	881.20	500.0	90.0	0.0	1985	RC	Cyprus	Included
CS-359	333879.19	1045671.00	860.00	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-360	334080.50	1045674.00	882.10	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-361	334880.81	1044875.00	879.60	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-362	334631.19	1044724.00	860.10	450.0	90.0	0.0	1985	RC	Cyprus	Included
CS-363	334980.00	1044575.00	875.00	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-364	335030.41	1045224.81	882.30	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-365	334182.59	1045771.00	879.90	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-366	334081.28	1045875.00	878.10	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-367	334279.09	1045874.00	879.80	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-368	334483.31	1045770.00	879.70	680.0	90.0	0.0	1985	RC	Cyprus	Included
CS-369	334435.81	1046307.00	876.40	880.0	90.0	0.0	1985	RC	Cyprus	Included
CS-370	334193.31	1046277.00	875.50	795.0	90.0	0.0	1985	RC	Cyprus	Included
CS-371	334431.69	1046115.00	877.40	690.0	90.0	0.0	1985	RC	Cyprus	Included
CS-372	333291.09	1046670.00	869.30	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-373	333190.00	1046780.00	862.00	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-374	333182.00	1046875.00	869.47	690.0	90.0	0.0	1985	RC	Cyprus	Included
CS-375	332988.00	1046882.00	869.50	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-376	333080.00	1046977.00	869.00	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-377	333981.41	1045775.00	861.20	640.0	90.0	0.0	1985	RC	Cyprus	Included
CS-378	332990.00	1046680.00	870.00	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-379	334185.00	1046472.00	880.00	835.0	90.0	0.0	1985	RC	Cyprus	Included
CS-383	333377.09	1046274.00	740.30	410.0	90.0	0.0	1985	RC	Cyprus	Included
CS-384	333478.00	1046275.00	740.50	450.0	90.0	0.0	1985	RC	Cyprus	Included
CS-385	333478.50	1046174.00	739.90	385.0	90.0	0.0	1985	RC	Cyprus	Included
CS-386	333378.81	1046372.00	739.40	440.0	90.0	0.0	1985	RC	Cyprus	Included
CS-387	333228.41	1046424.00	739.70	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-388	333129.09	1046522.00	740.90	440.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-389	333297.69	1046492.00	739.40	480.0	90.0	0.0	1985	RC	Cyprus	Included
CS-390	332977.31	1046476.00	741.30	385.0	90.0	0.0	1985	RC	Cyprus	Included
CS-391	332827.09	1046324.00	740.60	310.0	90.0	0.0	1985	RC	Cyprus	Included
CS-392	333427.59	1046326.00	740.70	470.0	90.0	0.0	1985	RC	Cyprus	Included
CS-393	333280.50	1046373.00	740.30	405.0	90.0	0.0	1985	RC	Cyprus	Included
CS-394	333556.69	1046188.00	740.00	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-395	332626.00	1046223.00	739.80	285.0	90.0	0.0	1985	RC	Cyprus	Included
CS-396	332726.00	1046324.00	740.20	325.0	90.0	0.0	1985	RC	Cyprus	Included
CS-397	332622.69	1046314.00	740.40	310.0	90.0	0.0	1985	RC	Cyprus	Included
CS-398	332575.19	1046270.00	740.10	310.0	90.0	0.0	1985	RC	Cyprus	Included
CS-399	332538.81	1046216.00	740.20	445.0	90.0	0.0	1985	RC	Cyprus	Included
CS-400	333129.50	1046424.00	740.50	385.0	90.0	0.0	1985	RC	Cyprus	Included
CS-401	333226.19	1046323.00	740.10	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-402	333331.09	1046324.00	740.80	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-403	333327.00	1046223.00	740.00	345.0	90.0	0.0	1985	RC	Cyprus	Included
CS-404	333428.31	1046225.00	740.50	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-405	333429.41	1046123.00	740.30	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-406	333527.50	1046026.00	740.60	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-407	333329.50	1046423.00	737.80	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-408	333179.19	1046473.00	740.00	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-409	333128.50	1046326.00	740.30	440.0	90.0	0.0	1985	RC	Cyprus	Included
CS-410	333232.00	1046525.00	739.50	465.0	90.0	0.0	1985	RC	Cyprus	Included
CS-411	333028.00	1046523.00	740.80	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-412	333572.81	1045977.00	739.20	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-413	333526.59	1046124.00	740.60	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-414	333554.69	1046252.00	741.30	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-415	333416.81	1046413.00	740.10	420.0	90.0	0.0	1985	RC	Cyprus	Included
CS-416	333462.91	1046361.00	741.00	485.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-417	333512.00	1046303.00	740.30	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-418	333097.81	1046557.00	739.60	410.0	90.0	0.0	1985	RC	Cyprus	Included
CS-419	332827.09	1046416.00	739.80	340.0	90.0	0.0	1985	RC	Cyprus	Included
CS-420	332938.81	1046506.00	742.50	460.0	90.0	0.0	1985	RC	Cyprus	Included
CS-421	333019.91	1046438.00	740.50	385.0	90.0	0.0	1985	RC	Cyprus	Included
CS-422	333361.41	1046452.00	739.10	465.0	90.0	0.0	1985	RC	Cyprus	Included
CS-423	333517.19	1046213.00	739.10	440.0	90.0	0.0	1985	RC	Cyprus	Included
CS-424	333591.41	1046487.00	872.90	670.0	90.0	0.0	1985	RC	Cyprus	Included
CS-425	333435.59	1046624.00	870.40	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-426	333628.00	1045925.00	760.50	430.0	90.0	0.0	1985	RC	Cyprus	Included
CS-427	333688.19	1045686.00	758.20	405.0	90.0	0.0	1985	RC	Cyprus	Included
CS-428	333728.09	1045626.00	755.20	440.0	90.0	0.0	1985	RC	Cyprus	Included
CS-429	333541.81	1046535.00	874.10	750.0	90.0	0.0	1985	RC	Cyprus	Included
CS-430	333728.91	1046224.00	882.00	785.0	90.0	0.0	1985	RC	Cyprus	Included
CS-431	333703.19	1045893.00	802.40	520.0	90.0	0.0	1985	RC	Cyprus	Included
CS-432	333828.69	1045727.00	800.40	485.0	90.0	0.0	1985	RC	Cyprus	Included
CS-433	333777.09	1045775.00	799.70	560.0	90.0	0.0	1985	RC	Cyprus	Included
CS-434	333588.69	1045759.00	721.40	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-434-A	333577.81	1045775.00	721.70	125.0	90.0	0.0	1985	RC	Cyprus	Included
CS-435	333624.00	1045723.00	720.00	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-436	333846.91	1045638.00	799.70	525.0	90.0	0.0	1985	RC	Cyprus	Included
CS-437	333738.00	1045739.00	800.50	515.0	90.0	0.0	1985	RC	Cyprus	Included
CS-438	333981.31	1045580.00	800.20	545.0	90.0	0.0	1985	RC	Cyprus	Included
CS-439	333822.19	1045817.00	800.80	525.0	90.0	0.0	1985	RC	Cyprus	Included
CS-440	333930.59	1045826.00	801.40	545.0	90.0	0.0	1985	RC	Cyprus	Included
CS-441	333927.69	1045725.00	800.00	555.0	90.0	0.0	1985	RC	Cyprus	Included
CS-442	333932.19	1045626.00	800.90	525.0	90.0	0.0	1985	RC	Cyprus	Included
CS-443	333934.69	1045527.00	800.50	515.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-444	334028.69	1045633.00	800.00	560.0	90.0	0.0	1985	RC	Cyprus	Included
CS-445	333489.00	1046580.00	870.70	665.0	90.0	0.0	1985	RC	Cyprus	Included
CS-446	333380.19	1046674.00	869.40	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-447	333302.91	1046708.00	870.60	725.0	90.0	0.0	1985	RC	Cyprus	Included
CS-448	333231.19	1046734.00	871.60	650.0	90.0	0.0	1985	RC	Cyprus	Included
CS-449	333428.69	1046632.00	870.10	625.0	79.0	225.0	1985	RC	Cyprus	Included
CS-45	332265.00	1046365.00	859.89	320.0	90.0	0.0	1985	RC	Cyprus	Included
CS-450	333641.31	1046436.00	872.20	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-451	333534.91	1046539.00	871.30	620.0	80.0	225.0	1985	RC	Cyprus	Included
CS-452	333373.31	1046667.00	868.90	140.0	75.5	225.0	1985	RC	Cyprus	Included
CS-453	333628.59	1046426.00	873.30	640.0	82.0	225.0	1985	RC	Cyprus	Included
CS-454	333727.41	1046228.00	884.30	645.0	81.0	225.0	1985	RC	Cyprus	Included
CS-455	333727.19	1046125.00	884.70	600.0	80.0	225.0	1985	RC	Cyprus	Included
CS-456	331168.94	1043270.00	857.39	765.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-457	332123.38	1044049.50	871.93	665.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-458	331723.50	1044077.00	859.57	922.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-459	331101.81	1045402.75	849.37	600.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-46	332275.00	1046160.00	864.46	300.0	90.0	0.0	1985	RC	Cyprus	Included
CS-460	331287.16	1044273.00	854.76	745.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-461	342087.94	1050225.88	888.97	360.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-462	344189.50	1048618.88	882.79	600.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-463	352150.00	1060290.00	882.00	870.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-464	342419.78	1059917.13	899.19	720.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-465	348420.00	1054500.00	885.00	660.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-466	342026.44	1048365.56	886.29	625.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-467	337490.66	1040424.81	858.71	600.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-468	333984.84	1043800.38	886.36	520.0	90.0	0.0	1985	RC	Cyprus	Included
CS-469	334578.16	1044676.19	658.99	130.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-470	334578.44	1044775.00	659.96	200.0	90.0	0.0	1985	RC	Cyprus	Included
CS-471	334479.53	1044777.25	659.66	160.0	90.0	0.0	1985	RC	Cyprus	Included
CS-472	334377.66	1044875.50	659.98	180.0	90.0	0.0	1985	RC	Cyprus	Included
CS-473	334377.53	1044975.50	660.80	180.0	90.0	0.0	1985	RC	Cyprus	Included
CS-474	334377.25	1045076.25	661.13	210.0	90.0	0.0	1985	RC	Cyprus	Included
CS-475	334278.13	1045174.81	659.66	215.0	90.0	0.0	1985	RC	Cyprus	Included
CS-476	341224.38	1048479.75	886.71	710.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-477	341260.13	1049449.13	887.63	805.0	90.0	0.0	1985	RC	Cyprus	Excluded
CS-478	327440.63	1034614.19	907.65	385.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-479	326712.69	1035055.31	931.31	350.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-480	326405.75	1034292.13	929.21	500.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-481	332824.91	1046925.31	871.19	580.0	80.0	135.0	1985	RC	Cyprus	Included
CS-482	332775.56	1046874.81	874.15	620.0	90.0	0.0	1985	RC	Cyprus	Included
CS-483	332770.53	1046776.56	867.29	520.0	90.0	0.0	1985	RC	Cyprus	Included
CS-484	332748.44	1046674.44	866.14	600.0	90.0	0.0	1985	RC	Cyprus	Included
CS-485	333027.50	1046725.19	560.00	320.0	65.0	315.0	1985	RC	Cyprus	Included
CS-486	333381.50	1045972.50	559.40	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-487	333341.91	1046032.31	558.80	170.0	90.0	0.0	1985	RC	Cyprus	Included
CS-488	333127.81	1046227.50	559.36	160.0	90.0	0.0	1985	RC	Cyprus	Included
CS-489	333230.38	1046125.69	600.00	180.0	90.0	0.0	1985	RC	Cyprus	Included
CS-490	333175.78	1046176.31	600.25	150.0	90.0	0.0	1985	RC	Cyprus	Included
CS-491	334226.47	1045873.25	725.07	480.0	*assumed vertical*		1985	RC	Cyprus	Excluded
CS-492	334175.19	1046031.63	875.45	700.0	90.0	0.0	1985	RC	Cyprus	Included
CS-493	334257.38	1045890.88	725.68	545.0	82.0	315.0	1985	RC	Cyprus	Included
CS-494	332833.31	1046922.69	870.10	450.0	68.0	135.0	1985	RC	Cyprus	Included
CS-495	332784.00	1046867.63	869.70	440.0	61.0	135.0	1985	RC	Cyprus	Included
CS-496	332740.31	1046814.13	869.20	400.0	63.0	135.0	1985	RC	Cyprus	Included
CS-55	332462.00	1046576.00	862.00	350.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CS-56	332260.00	1046580.00	862.50	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-57	332066.00	1046570.00	862.90	350.0	90.0	0.0	1985	RC	Cyprus	Included
CS-58	332105.00	1046780.00	868.27	360.0	90.0	0.0	1985	RC	Cyprus	Included
CS-59	333674.00	1046975.00	870.00	820.0	90.0	0.0	1985	RC	Cyprus	Included
CS-62	333080.00	1046782.00	863.76	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-64	332881.00	1046783.00	862.57	725.0	90.0	0.0	1985	RC	Cyprus	Included
CS-72	332685.00	1046785.00	861.66	550.0	90.0	0.0	1985	RC	Cyprus	Included
CS-73	332881.00	1046981.00	867.00	675.0	90.0	0.0	1985	RC	Cyprus	Included
CS-74	332678.00	1047384.00	867.00	540.0	90.0	0.0	1985	RC	Cyprus	Included
CS-80	332480.00	1047385.00	867.00	525.0	90.0	0.0	1985	RC	Cyprus	Included
CS-99	332479.00	1046978.00	869.83	725.0	90.0	0.0	1985	RC	Cyprus	Included
CSD-1	333301.88	1045971.00	879.80	364.0	90.0	0.0	1985	RC	Cyprus	Included
CSD-10	331492.59	1047008.13	854.40	852.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSD-11	334651.81	1044978.00	876.60	495.0	90.0	0.0	1985	RC/DDH	Cyprus	Included
CSD-12	334301.09	1044237.00	875.00	546.0	55.0	225.0	1985	DDH	Cyprus	Included
CSD-13	333879.00	1044789.00	884.30	222.5	90.0	0.0	1985	DDH	Cyprus	Included
CSD-15	333278.00	1045590.00	882.20	130.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-16	333675.31	1044572.00	893.30	269.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-17	333662.31	1044773.00	891.40	130.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-18	333881.19	1044388.00	881.80	304.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-19	334078.31	1044171.00	879.90	249.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-2	333780.00	1044874.00	884.90	294.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-20	333683.09	1044973.00	885.60	250.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-21	333877.91	1044975.00	883.60	350.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-22	334272.19	1044966.00	882.00	301.5	90.0	0.0	1985	DDH	Cyprus	Included
CSD-23	333478.91	1045366.00	881.30	220.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-24	333685.59	1045376.00	881.60	392.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-25	333286.00	1045368.00	891.30	200.0	90.0	0.0	1984	DDH	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSD-26	333372.91	1045684.00	879.90	250.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-27	332878.59	1045972.00	871.00	180.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-28	333097.19	1045975.00	876.00	200.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-29	333258.19	1046177.00	872.50	320.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-3	333371.41	1045303.00	885.80	241.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-30	333096.69	1046384.00	870.70	400.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-31	333974.59	1045080.00	881.80	400.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-32	333782.19	1045077.00	882.00	270.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-33	333381.19	1045475.00	881.80	220.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-34	333581.00	1045479.00	881.60	300.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-35	333188.69	1045878.00	895.30	400.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-36	333584.00	1045276.00	884.70	250.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-37	333570.00	1045070.00	891.80	250.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-38	333787.31	1045273.00	886.00	370.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-39	332779.00	1045865.00	870.20	150.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-4	333379.00	1045673.00	879.80	347.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-40	332675.69	1045959.00	868.60	170.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-41	332775.31	1046063.00	868.90	220.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-42	332991.19	1046071.00	871.10	221.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-43	332988.41	1046271.00	868.70	246.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-43A	332994.50	1046269.00	867.20	351.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-44	333192.00	1046271.00	870.70	341.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-45	333283.91	1046381.00	869.60	301.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-46	333975.19	1044871.00	883.20	400.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-47	334173.00	1044870.00	883.10	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-48	334270.91	1044767.00	880.80	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-49	334365.69	1044873.00	881.40	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-5	334179.69	1044282.00	879.50	400.5	90.0	0.0	1985	DDH	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSD-50	332983.09	1045874.00	878.10	189.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-51	333586.50	1044872.00	889.60	150.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-52	333577.31	1044467.00	884.50	150.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-53	333685.50	1044373.00	883.00	200.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-54	333389.00	1045880.00	885.30	200.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-55	333775.69	1044278.00	881.30	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-56	333187.59	1045676.00	887.90	150.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-57	333576.88	1044677.00	895.40	200.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-58	333783.00	1044679.00	889.90	350.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-59	333980.69	1044676.00	883.20	301.0	90.0	0.0	1984	DDH	Cyprus	Included
CSD-6	332695.69	1046174.00	867.10	282.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-60	333188.41	1046080.00	877.70	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-61	333977.69	1044482.00	881.50	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-62	334175.00	1044674.00	881.00	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-63	334376.81	1045078.00	884.40	301.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-64	334178.69	1044484.00	880.50	300.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-65	333780.69	1044469.00	880.90	199.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-66	333781.09	1044897.00	885.70	285.5	55.0	225.0	1985	DDH	Cyprus	Included
CSD-67	333085.50	1044977.00	897.90	432.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-68	333208.69	1045489.00	885.90	300.0	45.0	270.0	1985	DDH	Cyprus	Included
CSD-69	334127.50	1044525.00	880.10	331.0	45.0	270.0	1985	DDH	Cyprus	Included
CSD-7	333275.00	1046975.00	872.00	721.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-70	332843.00	1044341.00	883.30	210.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-71	334731.59	1045215.00	882.20	620.0	90.0	0.0	1986	DDH	Cyprus	Included
CSD-72	334283.00	1045673.00	879.50	569.0	90.0	0.0	1986	DDH	Cyprus	Included
CSD-73	334180.50	1045971.00	877.70	722.0	90.0	0.0	1985	DDH	Cyprus	Included
CSD-74	333629.41	1045723.00	857.80	585.4	90.0	0.0	1985	DDH	Cyprus	Included
CSD-75	333177.50	1045131.38	868.50	510.0	90.0	0.0	1985	DDH	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSD-76	332384.19	1044149.00	875.30	274.3	90.0	0.0	1988	DDH	Cyprus	Included
CSD-8	333884.88	1046383.00	874.20	950.0	90.0	0.0	1988	DDH	Cyprus	Included
CSD-9	332678.00	1047410.00	866.44	676.0	90.0	0.0	1988	DDH	Cyprus	Included
CSR-1	333479.59	1044785.00	898.70	125.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-10	334075.09	1044384.00	880.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-100	334240.00	1046142.00	871.80	840.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-100A	334245.00	1046121.00	871.00	825.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-101	335087.00	1046167.00	874.40	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-102	334687.00	1046169.00	872.70	750.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-104	334689.00	1046569.00	878.70	700.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-105	334289.00	1046571.00	870.00	750.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-11	333487.19	1044976.00	889.90	130.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-110	334869.41	1044976.00	876.10	600.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-114	332878.00	1047383.00	872.77	690.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-118	333464.31	1044785.00	898.70	635.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-11A	333486.59	1044963.00	890.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-12	333091.28	1045977.00	873.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-13	333086.50	1045585.00	879.90	265.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-14	333491.91	1045189.00	885.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-142	333666.19	1044781.00	889.30	280.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-143	333065.19	1044944.00	899.30	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-144	333092.69	1045775.00	891.40	280.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-145	333196.91	1044870.00	895.00	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-146	332894.81	1044761.00	903.10	325.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-147	332980.50	1045076.00	908.60	430.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-148	332783.88	1044868.00	898.40	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-15	333688.41	1044978.00	884.40	225.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-16	333272.09	1045197.00	884.40	200.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSR-17	333484.59	1045374.00	880.20	220.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-18	332889.59	1046188.00	868.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-19	333872.59	1044200.00	879.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-2	333678.81	1044584.00	893.30	200.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-20	334074.50	1044187.00	878.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-21	334073.19	1044591.00	881.40	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-22	333874.00	1044784.00	884.30	270.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-23	333889.19	1044987.00	883.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-24	333689.31	1045191.00	887.10	145.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-24A	333675.69	1045191.00	887.10	130.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-25	333689.81	1045386.00	881.10	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-26	333490.19	1045585.00	878.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-27	333488.91	1045785.00	879.00	220.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-28	332887.91	1045978.00	871.10	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-29	332689.09	1046164.00	867.50	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-3	333282.81	1045376.00	891.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-30	332688.69	1046379.00	863.60	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-31	332894.31	1046378.00	866.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-32	333288.69	1045962.00	880.70	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-33B	334302.69	1044199.00	877.70	305.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-34	334696.00	1043986.88	878.80	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-35	334480.50	1043980.63	882.40	400.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-36	334687.41	1043787.13	877.30	400.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-37	334891.69	1043594.69	874.90	380.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-38	334081.31	1044790.00	883.10	430.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-39	333719.41	1045185.00	888.10	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-4	333088.41	1045770.00	891.10	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-40	332979.19	1045674.00	889.50	300.0	90.0	0.0	1985	RC	Cyprus	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSR-41	333068.50	1046176.00	871.60	350.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-42	333273.41	1046179.00	872.00	450.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-43	332480.81	1046170.38	866.90	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-44	332469.19	1046373.00	860.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-47	334287.00	1043983.00	882.00	360.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-48	334275.50	1043773.38	879.20	340.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-49	334481.50	1043780.19	877.80	305.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-5	333282.69	1045796.00	893.70	46.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-50	334687.50	1043575.13	876.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-51	333488.31	1045780.00	879.70	310.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-52	333488.31	1045798.00	878.90	470.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-53	333683.69	1046581.00	873.00	110.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-54	333670.38	1046565.00	873.20	750.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-5A	333266.59	1045801.00	894.00	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-6	333879.19	1044595.00	883.40	160.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-60	333086.09	1046385.00	866.70	420.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-61	332883.81	1046579.00	860.70	530.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-62	333081.81	1046781.69	863.80	550.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-63	333391.69	1046077.00	873.30	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-65	332681.19	1045373.00	874.90	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-66	334277.69	1044978.00	883.90	320.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-67	333480.00	1044572.00	883.40	400.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-68	332468.81	1044381.00	892.40	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-69	332575.59	1043881.81	872.20	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-7	333278.31	1045577.00	882.20	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-70	333893.31	1045985.00	877.90	700.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-71	333485.81	1046376.00	873.40	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-75A	331463.81	1047007.88	853.90	470.0	90.0	0.0	1985	RC	Cyprus	Excluded

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CSR-76	331275.59	1047144.31	855.30	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-77	334466.91	1044972.00	877.60	400.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-78A	334674.41	1044975.00	876.50	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-79	334670.00	1044775.00	876.70	430.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-8	333684.69	1044774.00	888.60	190.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-81	335074.19	1044777.19	876.20	700.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-82A	335093.91	1044372.00	877.40	870.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-83	333470.00	1044171.00	877.80	595.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-84	333072.31	1044167.00	879.70	700.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-85	334673.69	1044371.00	877.00	700.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-86	334672.91	1045373.00	876.60	550.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-87A	334288.00	1044188.00	874.70	650.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-88	334475.09	1044568.00	877.10	560.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-89	333956.91	1045464.00	876.70	550.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-9	333895.81	1044376.00	882.80	300.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-90	334265.41	1045368.00	877.10	500.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-90A	334285.59	1045370.00	876.50	200.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-91	331639.00	1047279.00	856.60	500.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-92	334685.00	1045769.00	880.70	800.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-93	330909.81	1047441.88	859.10	350.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-94	335069.50	1044968.88	876.20	750.0	90.0	0.0	1985	RC	Cyprus	Included
CSR-95	330770.50	1047061.63	855.10	400.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-96A	336322.50	1042518.19	864.10	815.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-97	333422.19	1040894.88	870.50	600.0	90.0	0.0	1985	RC	Cyprus	Excluded
CSR-98	334285.00	1045771.00	877.10	775.0	90.0	0.0	1985	RC	Cyprus	Included
CUDH-03-01	332718.19	1047576.31	300.50	138.0	20.0	96.0	2003	DDH	American Bonanza	Included
CUDH-03-02	332718.19	1047576.31	299.00	196.5	10.0	96.0	2003	DDH	American Bonanza	Included
CUDH-03-03	332718.19	1047576.31	297.50	172.0	0.0	96.0	2003	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CUDH-03-04	332718.19	1047576.31	296.00	199.0	5.0	96.0	2003	DDH	American Bonanza	Included
CUDH-03-05	332718.19	1047576.31	294.50	340.1	15.0	96.0	2003	DDH	American Bonanza	Included
CUDH-03-06	332717.50	1047580.00	300.50	124.0	20.0	66.0	2003	DDH	American Bonanza	Included
CUDH-03-07	332717.50	1047580.00	299.00	128.0	10.0	66.0	2003	DDH	American Bonanza	Included
CUDH-03-08	332717.50	1047580.00	297.50	167.0	0.0	66.0	2003	DDH	American Bonanza	Included
CUDH-03-09	332717.50	1047580.00	296.00	244.0	5.0	66.0	2003	DDH	American Bonanza	Included
CUDH-03-10	332718.09	1047578.81	299.00	159.0	10.0	79.0	2003	DDH	American Bonanza	Included
CUDH-03-11	332718.09	1047578.81	297.50	222.5	0.0	79.0	2003	DDH	American Bonanza	Included
CUDH-03-12	332718.09	1047578.81	296.00	226.2	5.0	79.0	2003	DDH	American Bonanza	Included
CUDH-03-13	332718.09	1047578.81	295.00	349.0	10.0	79.0	2003	DDH	American Bonanza	Included
CUDH-03-14	332714.19	1047583.38	296.00	299.0	5.0	45.0	2003	DDH	American Bonanza	Included
CUDH-03-15	332714.19	1047583.38	297.50	274.0	0.0	45.0	2003	DDH	American Bonanza	Included
CUDH-04-16	332714.19	1047583.38	295.00	299.0	10.0	45.0	2004	DDH	American Bonanza	Included
CUDH-04-17	332716.00	1047582.50	297.50	267.5	0.0	48.0	2004	DDH	American Bonanza	Included
CUDH-04-18	332716.00	1047582.50	296.00	255.0	5.0	48.0	2004	DDH	American Bonanza	Included
CUDH-04-19	332716.00	1047582.50	295.00	284.0	10.0	48.0	2004	DDH	American Bonanza	Included
CUDH-04-20	332712.91	1047584.00	294.50	353.0	12.0	28.0	2004	DDH	American Bonanza	Included
CUDH-04-21	332712.91	1047584.00	295.50	279.0	8.0	28.0	2004	DDH	American Bonanza	Included
CUDH-04-22	332712.91	1047584.00	296.30	250.0	4.0	28.0	2004	DDH	American Bonanza	Included
CUDH-04-23	332712.91	1047584.00	295.50	509.0	16.0	28.0	2004	DDH	American Bonanza	Included
CUDH-04-24	332715.81	1047583.38	295.00	344.0	10.0	45.0	2004	DDH	American Bonanza	Included
CUDH-04-25	332715.81	1047583.38	294.00	508.6	15.0	45.0	2004	DDH	American Bonanza	Included
CUDH-04-26	332715.81	1047583.38	294.00	749.0	18.0	45.0	2004	DDH	American Bonanza	Included
CUDH-04-27	332712.91	1047584.00	294.00	46.0	19.0	28.0	2004	DDH	American Bonanza	Included
CUDH-04-28	332712.00	1047580.00	296.50	219.0	5.0	45.0	2004	DDH	American Bonanza	Included
CUDH-04-29	332713.00	1047579.00	294.00	345.0	15.0	48.0	2004	DDH	American Bonanza	Included
CUDH-04-30	332715.00	1047576.50	300.00	150.0	18.0	79.0	2004	DDH	American Bonanza	Included
CUDH-04-31	332717.50	1047578.00	295.00	348.0	10.0	66.0	2004	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
CUDH-04-32	332718.19	1047576.31	294.00	764.0	22.0	96.0	2004	DDH	American Bonanza	Included
DCU-1	333265.00	1044640.00	890.00	700.0	65.0	242.0	1993	RC	Santa Fe	Excluded
DCU-10	331390.00	1043940.00	855.00	700.0	65.0	238.0	1993	RC	Santa Fe	Excluded
DCU-11	331730.00	1044120.00	859.00	700.0	65.0	241.0	1993	RC	Santa Fe	Excluded
DCU-12	337380.00	1045930.00	883.00	700.0	90.0	0.0	1993	RC	Santa Fe	Excluded
DCU-13	331490.00	1044760.00	856.00	700.0	65.0	239.0	1993	RC	Santa Fe	Excluded
DCU-14	331130.00	1044550.00	852.00	700.0	65.0	239.0	1993	RC	Santa Fe	Excluded
DCU-15	336600.00	1046550.00	884.00	500.0	90.0	0.0	1993	RC	Santa Fe	Excluded
DCU-16	336700.00	1046740.00	883.00	800.0	90.0	0.0	1993	RC	Santa Fe	Excluded
DCU-17	340500.00	1048500.00	885.00	700.0	90.0	0.0	1993	RC	Santa Fe	Excluded
DCU-2	332940.00	1045380.00	881.00	700.0	65.0	240.0	1993	RC	Santa Fe	Included
DCU-3	334160.00	1046240.00	878.00	1000.0	90.0	0.0	1993	RC	Santa Fe	Included
DCU-4	333943.00	1046565.00	875.00	800.0	90.0	0.0	1993	RC	Santa Fe	Included
DCU-5	332800.00	1044140.00	881.00	700.0	65.0	240.0	1993	RC	Santa Fe	Included
DCU-6	332310.00	1044770.00	872.00	700.0	65.0	242.0	1993	RC	Santa Fe	Excluded
DCU-7	332500.00	1043550.00	870.00	700.0	65.0	245.0	1993	RC	Santa Fe	Excluded
DCU-8	333760.00	1045350.00	540.00	1000.0	90.0	0.0	1993	RC	Santa Fe	Included
DCU-9	332120.00	1043330.00	867.00	700.0	65.0	240.0	1993	RC	Santa Fe	Excluded
DU4-33	332718.19	1047576.31	295.00	499.0	10.0	96.0	2004	DDH	American Bonanza	Included
DU4-34	332713.50	1047583.50	298.00	266.0	7.0	37.0	2004	DDH	American Bonanza	Included
DU4-35	332713.50	1047583.50	296.00	322.0	0.0	37.0	2004	DDH	American Bonanza	Included
DU4-36	332713.50	1047583.50	295.50	352.0	8.0	37.0	2004	DDH	American Bonanza	Included
DU4-37	332713.50	1047583.50	294.00	489.0	12.0	37.0	2004	DDH	American Bonanza	Included
DU4-38	332713.50	1047583.50	294.00	867.0	18.0	37.0	2004	DDH	American Bonanza	Included
DU4-39	332718.09	1047579.63	296.00	264.0	5.0	76.0	2004	DDH	American Bonanza	Included
DU4-40	332718.09	1047578.81	294.00	349.0	12.0	79.0	2004	DDH	American Bonanza	Included
DU4-41	332717.50	1047580.00	294.00	537.0	14.0	66.0	2004	DDH	American Bonanza	Included
DU4-42	332715.81	1047583.38	292.00	914.0	21.0	48.0	2004	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
DU4-43	332715.00	1047576.50	293.00	374.0	17.0	79.0	2004	DDH	American Bonanza	Included
DU4-44	332714.19	1047583.38	293.00	494.0	20.0	45.0	2004	DDH	American Bonanza	Included
DU4-45	332704.91	1047584.19	298.00	424.0	4.0	0.0	2004	DDH	American Bonanza	Included
DU4-46	332708.59	1047584.81	297.50	349.0	0.0	14.0	2004	DDH	American Bonanza	Included
DU4-47	332701.00	1047582.88	298.50	411.0	5.0	345.0	2004	DDH	American Bonanza	Included
DU4-48	332701.00	1047582.88	296.50	279.0	12.0	345.0	2004	DDH	American Bonanza	Included
DU4-49	332701.00	1047582.88	295.50	186.5	2.0	345.0	2004	DDH	American Bonanza	Included
DU4-50	332711.91	1047555.63	295.50	188.0	9.0	100.0	2004	DDH	American Bonanza	Included
DU4-51	332711.31	1047554.19	295.50	184.0	9.0	112.0	2004	DDH	American Bonanza	Included
DU4-52	332711.31	1047554.19	298.00	183.5	9.0	112.0	2004	DDH	American Bonanza	Included
DU4-53	332711.91	1047555.63	298.00	179.0	9.0	100.0	2004	DDH	American Bonanza	Included
DU4-54	332708.31	1047552.81	296.00	237.0	5.0	140.0	2004	DDH	American Bonanza	Included
DU4-55	332711.91	1047555.63	297.50	46.0	0.0	100.0	2004	DDH	American Bonanza	Included
DU5-56	332778.81	1047550.19	298.00	198.0	7.0	85.0	2005	DDH	American Bonanza	Included
DU5-57	332778.81	1047549.31	298.00	181.0	7.0	105.0	2005	DDH	American Bonanza	Included
DU5-58	332778.81	1047549.31	300.00	161.0	10.0	105.0	2005	DDH	American Bonanza	Included
DU5-59	332778.81	1047549.31	297.50	231.0	12.0	105.0	2005	DDH	American Bonanza	Included
DU5-60	332778.81	1047549.31	297.00	317.6	18.0	105.0	2005	DDH	American Bonanza	Included
DU5-61	332778.50	1047547.50	298.00	178.2	5.0	115.0	2005	DDH	American Bonanza	Included
DU5-62	332778.50	1047547.50	299.00	135.0	5.0	115.0	2005	DDH	American Bonanza	Included
DU5-63	332778.50	1047547.50	301.00	114.0	15.0	115.0	2005	DDH	American Bonanza	Included
DU5-64	332778.50	1047547.50	297.00	295.0	15.0	115.0	2005	DDH	American Bonanza	Included
DU5-65	332778.50	1047547.50	296.00	344.0	20.0	115.0	2005	DDH	American Bonanza	Included
DU5-66	332778.50	1047547.00	298.50	148.5	0.0	125.0	2005	DDH	American Bonanza	Included
DU5-67	332778.50	1047547.00	301.00	119.0	15.0	125.0	2005	DDH	American Bonanza	Included
DU5-68	332778.50	1047547.00	297.00	350.7	15.0	125.0	2005	DDH	American Bonanza	Included
DU5-69	332778.50	1047547.00	302.50	109.0	27.0	125.0	2005	DDH	American Bonanza	Included
DU5-70	332711.91	1047555.63	300.00	178.4	12.0	120.0	2005	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
DU5-71	332711.91	1047555.63	302.00	159.0	24.0	120.0	2005	DDH	American Bonanza	Included
DU5-72	332710.59	1047553.19	298.00	230.0	10.0	140.0	2005	DDH	American Bonanza	Included
DU5-73	332710.59	1047553.19	301.00	189.0	20.0	140.0	2005	DDH	American Bonanza	Included
DU5-74	332707.59	1047552.81	300.00	349.0	12.0	160.0	2005	DDH	American Bonanza	Included
DU5-75	332707.59	1047552.81	302.00	274.0	25.0	160.0	2005	DDH	American Bonanza	Included
DU5-76	332703.81	1047553.13	302.00	373.4	23.0	190.0	2005	DDH	American Bonanza	Included
DU5-78	332701.59	1047553.00	301.00	274.8	18.0	190.0	2005	DDH	American Bonanza	Included
DZ12-1	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ12-2	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ12-3	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ12-4	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ12-5	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ12-6	332664.90	1047794.00	230.39	100.0	-55.0	80.0	2012	Missing	American Bonanza	Excluded
DZ-3	332689.38	1047345.87	303.99	100.0	-45.0	120.0	2012	Missing	American Bonanza	Included
DZ-4	332690.40	1047354.22	305.90	100.0	-45.0	67.0	2012	Missing	American Bonanza	Included
F4-1	333756.59	1045403.56	545.88	624.0	83.0	290.0	2004	DDH	American Bonanza	Included
F4-2	333757.88	1045399.06	546.56	789.0	72.0	277.5	2004	DDH	American Bonanza	Included
F4-3	333758.25	1045393.75	546.48	600.0	75.0	256.0	2004	DDH	American Bonanza	Included
F4-4	333764.63	1045359.06	549.30	660.0	79.0	247.0	2004	DDH	American Bonanza	Included
F4-5	333767.88	1045353.56	549.00	880.0	84.0	218.0	2004	DDH	American Bonanza	Included
F4-6	333767.53	1045345.38	549.30	776.0	83.0	180.0	2004	DDH	American Bonanza	Included
F4-7	333717.63	1045449.50	540.85	760.0	80.0	286.0	2004	DDH	American Bonanza	Included
F4-8	333784.41	1045294.75	561.50	750.0	83.0	180.0	2004	DDH	American Bonanza	Included
F4-9	333774.00	1045348.81	549.20	655.0	79.0	345.0	2004	DDH	American Bonanza	Included
H4-14	333782.63	1046827.19	877.00	850.0	59.0	214.0	2004	DDH	American Bonanza	Included
H4-15	333720.78	1046884.63	879.00	900.0	73.0	219.0	2004	DDH	American Bonanza	Included
H4-16	333724.56	1046884.88	879.00	1151.0	78.0	219.0	2004	DDH	American Bonanza	Included
H4-17	333627.94	1046919.38	877.00	1053.0	90.0	0.0	2004	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H4-18	333779.34	1046912.69	878.00	872.0	71.0	210.0	2004	DDH	American Bonanza	Included
H4-19	333773.75	1046918.63	878.00	922.0	70.8	209.4	2004	DDH	American Bonanza	Included
H4-20	333630.69	1046941.31	877.00	940.0	86.5	352.5	2004	DDH	American Bonanza	Included
H4-21	333619.16	1046942.69	876.00	883.0	59.0	219.0	2004	DDH	American Bonanza	Included
H4-22	333725.50	1046889.50	879.00	972.0	84.0	219.0	2004	DDH	American Bonanza	Included
H4-23	333550.19	1046996.25	877.00	752.0	59.0	219.0	2004	DDH	American Bonanza	Included
H4-24	333553.63	1047000.00	877.00	819.0	66.0	219.0	2004	DDH	American Bonanza	Included
H4-25	333546.13	1047001.25	875.00	848.0	72.0	219.0	2004	DDH	American Bonanza	Included
H4-26	333445.94	1047045.25	875.00	782.0	59.0	219.0	2004	DDH	American Bonanza	Included
H4-27	333448.69	1047048.75	875.00	801.0	66.0	219.0	2004	DDH	American Bonanza	Included
H4-28	333435.00	1047050.81	874.00	863.0	73.0	219.0	2004	DDH	American Bonanza	Included
H4-29	333800.94	1046969.13	878.00	1051.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-30	333609.38	1047066.13	878.00	1013.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-31	333510.72	1047121.56	875.00	972.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-32	333709.47	1047016.50	878.00	1063.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-33	333623.09	1046947.50	877.00	812.0	66.0	219.0	2004	DDH	American Bonanza	Included
H4-34	333625.94	1046950.50	877.00	850.0	73.0	219.0	2004	DDH	American Bonanza	Included
H4-35	333629.38	1046955.44	877.00	1012.0	78.0	219.0	2004	DDH	American Bonanza	Included
H4-36	333443.16	1047058.31	873.00	1000.0	78.0	219.0	2004	DDH	American Bonanza	Included
H4-37	333446.44	1047071.88	870.00	975.0	84.0	219.0	2004	DDH	American Bonanza	Included
H4-38	333450.53	1047072.56	874.00	975.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-39	333562.47	1047016.38	876.00	915.0	78.0	219.0	2004	DDH	American Bonanza	Included
H4-40	333554.59	1047005.75	876.00	970.0	84.0	219.0	2004	DDH	American Bonanza	Included
H4-41	333908.63	1046622.19	877.00	950.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-42	333911.66	1046696.56	876.00	952.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-43	333887.63	1046633.88	874.00	968.0	71.0	229.0	2004	DDH	American Bonanza	Included
H4-44	333548.84	1047011.25	876.00	996.5	90.0	0.0	2004	DDH	American Bonanza	Included
H4-45	333903.38	1046783.38	877.00	954.0	90.0	0.0	2004	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H4-46	333793.97	1046809.19	878.00	999.0	65.0	215.0	2004	DDH	American Bonanza	Included
H4-47	333803.13	1046811.75	878.00	971.0	76.0	200.0	2004	DDH	American Bonanza	Included
H4-48	333757.03	1046886.50	877.00	920.0	82.0	180.0	2004	DDH	American Bonanza	Included
H4-49	334088.09	1046163.50	878.00	817.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-50	334295.63	1046191.75	878.00	1072.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-51	333295.03	1047296.13	876.00	877.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-52	333281.84	1047280.63	878.00	822.0	75.0	219.0	2004	DDH	American Bonanza	Included
H4-53	333581.13	1047184.31	874.00	989.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-54	333650.75	1047257.44	877.00	1054.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-55	334367.69	1046562.63	894.00	1200.0	85.0	163.0	2004	DDH	American Bonanza	Included
H4-56	334370.13	1046575.69	894.00	1000.0	83.1	178.2	2004	DDH	American Bonanza	Included
H4-57	334289.03	1046572.50	890.00	1024.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-58	333498.59	1047178.06	872.00	1000.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-59	333353.53	1047197.19	878.00	834.5	76.1	208.3	2004	DDH	American Bonanza	Included
H4-60	333354.75	1047197.50	878.00	983.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-61	333432.88	1047138.50	875.00	843.0	75.0	220.2	2004	DDH	American Bonanza	Included
H4-62	333437.44	1047139.75	877.00	1008.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-63	333843.72	1046928.44	879.00	1047.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-64	334012.97	1046519.50	875.00	891.0	75.2	220.6	2004	DDH	American Bonanza	Included
H4-65	334015.09	1046521.88	875.00	888.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-66	333777.06	1046826.06	878.00	900.0	64.5	215.6	2004	DDH	American Bonanza	Included
H4-67	333774.91	1046828.63	877.00	1002.0	58.1	230.5	2004	DDH	American Bonanza	Included
H4-68	333936.00	1046567.25	878.00	932.0	58.9	229.7	2004	DDH	American Bonanza	Included
H4-69	333942.84	1046567.63	875.00	970.0	68.3	228.8	2004	DDH	American Bonanza	Included
H4-70	333946.38	1046569.88	875.00	934.0	76.6	226.7	2004	DDH	American Bonanza	Included
H4-71	332999.06	1047260.94	877.00	784.0	75.7	223.1	2004	DDH	American Bonanza	Included
H4-72	333005.16	1047263.06	878.00	800.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-73	333230.34	1047330.31	875.00	813.0	75.5	223.5	2004	DDH	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H4-74	333229.91	1047337.56	891.00	875.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-75	333174.91	1047382.88	868.00	804.0	75.7	214.5	2004	DDH	American Bonanza	Included
H4-76	333287.22	1047390.56	876.00	852.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-77	333590.66	1047270.25	877.00	1022.0	90.0	0.0	2004	DDH	American Bonanza	Included
H4-78	332825.72	1047776.00	875.00	744.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-79	333777.06	1046826.06	878.00	1200.0	65.6	221.9	2005	DDH	American Bonanza	Included
H4-80	332775.38	1047826.13	875.00	769.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-81	332828.97	1047863.00	875.00	904.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-82	333444.97	1047384.75	877.00	924.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-83	333232.59	1047130.94	873.00	1060.0	77.1	218.2	2005	DDH	American Bonanza	Included
H4-84	333235.78	1047135.69	873.00	876.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-85	333371.00	1047447.38	878.00	914.0	90.0	0.0	2005	DDH	American Bonanza	Included
H4-86	333294.69	1047459.69	877.00	900.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-100	334306.78	1046135.13	878.00	1027.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-101	333364.00	1047320.63	876.00	937.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-102	334227.38	1046192.63	905.00	944.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-103	333827.47	1046896.69	878.00	975.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-104	334146.00	1046312.13	878.00	440.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-105	333620.53	1047026.88	878.00	200.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-106	334136.88	1046314.19	878.00	1026.0	90.0	0.0	2005	DDH	American Bonanza	Included
H5-107	333620.53	1047026.88	878.00	1040.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-108	334175.13	1046125.94	878.00	1137.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-109	334410.03	1046253.69	879.07	1228.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-110	332764.03	1047883.06	874.87	778.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-111	332716.47	1047842.75	874.32	814.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-112	332765.53	1047739.50	874.48	711.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-113	334173.41	1046127.00	878.64	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-114	333328.19	1047345.13	876.58	240.0	90.0	0.0	2005	RC	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H5-115	333336.22	1047343.88	876.18	920.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-116	334183.38	1046128.31	877.70	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-117	334163.63	1046125.44	878.88	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-118	334299.34	1046132.63	878.57	1035.0	80.6	209.2	2005	RC	American Bonanza	Included
H5-119	334169.94	1046137.19	878.59	834.8	90.0	0.0	2005	RC	American Bonanza	Included
H5-120	333524.75	1047337.69	878.27	360.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-121	333391.69	1047171.94	875.71	924.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-122	333605.78	1047366.63	879.15	540.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-123	334200.66	1046229.13	876.55	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-124	334204.78	1046230.31	876.94	929.0	90.0	0.0	2005	RC/DDH	American Bonanza	Included
H5-125	333202.34	1047601.00	877.73	300.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-126	333660.97	1047346.75	878.62	1070.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-127	333200.84	1047609.31	878.15	260.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-128	333245.59	1047555.31	881.78	420.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-129	333238.19	1047465.88	878.85	640.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-130	333800.13	1048002.50	881.04	1210.0	90.0	0.0	2005	RC	American Bonanza	Excluded
H5-131	333631.72	1047237.19	878.51	640.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-132	333941.25	1046845.69	881.71	630.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-133	333171.81	1047480.00	878.07	640.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-134	333926.84	1046926.00	881.24	200.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-135	333906.00	1046597.31	877.00	45.0	79.0	219.0	2005	RC	American Bonanza	Included
H5-136	333078.56	1048277.56	877.56	1455.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-137	332289.56	1048304.69	874.63	620.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-138	333187.72	1048820.25	877.30	1600.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-139	332353.34	1048869.38	874.26	1202.0	90.0	0.0	2005	RC	American Bonanza	Excluded
H5-140	332399.84	1049502.25	869.83	1200.0	90.0	0.0	2005	RC	American Bonanza	Excluded
H5-141	333058.19	1044889.88	903.43	600.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-142	332253.03	1047698.88	871.58	1202.0	90.0	0.0	2005	RC	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H5-143	332553.16	1047561.81	872.17	790.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-144	333898.75	1046601.19	874.86	300.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-145	333904.63	1046608.63	875.93	320.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-146	333910.31	1046615.69	875.68	300.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-147	333036.16	1044972.63	904.74	500.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-148	333138.66	1044883.00	899.04	60.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-149	334269.38	1047769.19	881.55	730.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-150	332268.50	1047206.00	870.49	663.0	89.8	250.6	2005	RC	American Bonanza	Included
H5-151	334848.47	1048094.19	882.47	600.0	90.0	0.0	2005	RC	American Bonanza	Excluded
H5-152	333933.94	1047363.56	879.46	800.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-153	334002.72	1047461.50	880.83	600.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-154	332611.78	1047423.13	872.22	400.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-155	333744.25	1046871.44	877.09	1029.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-156	333751.88	1046880.44	877.76	1000.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-157	333827.28	1046788.38	876.34	1000.0	60.2	229.3	2005	RC	American Bonanza	Included
H5-158	333832.56	1046793.25	876.45	1040.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-159	333024.75	1048224.88	876.76	600.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-160	333076.75	1048170.13	878.09	1200.0	89.4	120.4	2005	RC	American Bonanza	Included
H5-161	333131.66	1048222.00	878.43	400.0	89.4	306.9	2005	RC	American Bonanza	Included
H5-162	331482.13	1047023.00	862.09	1064.0	89.7	15.8	2005	RC	American Bonanza	Excluded
H5-163	333031.03	1045077.63	901.87	150.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-87	331657.88	1047005.25	864.80	885.0	90.0	0.0	2005	RC	American Bonanza	Excluded
H5-88	333366.88	1047309.06	877.00	640.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-89	333479.47	1047291.69	877.00	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-90	333543.22	1047285.31	878.00	260.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-91	333535.72	1047277.81	877.00	990.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-92	333471.03	1047296.25	877.00	965.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-93	333437.91	1047450.06	877.00	942.0	90.0	0.0	2005	RC	American Bonanza	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
H5-94	334208.75	1046232.69	888.00	240.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-95	333863.56	1046768.88	877.00	1028.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-96	333508.19	1047060.69	876.00	928.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-97	333445.69	1047202.69	876.00	260.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-98	333438.91	1047210.69	876.00	360.0	90.0	0.0	2005	RC	American Bonanza	Included
H5-99	333438.91	1047210.69	876.00	985.0	90.0	0.0	2005	RC	American Bonanza	Included
KER-15-01	333738.00	1045390.00	544.00	752.0	88.7	88.6	2015	DDH	Kerr	Included
KER-15-02	333738.00	1045390.00	544.00	691.0	67.0	217.1	2015	DDH	Kerr	Included
KER-15-03	333738.00	1045390.00	544.00	1021.5	45.5	220.7	2015	DDH	Kerr	Included
KER-15-04	333539.20	1045699.00	505.00	581.0	90.0	0.0	2015	DDH	Kerr	Included
KER-17S-01	334848.99	1045287.63	797.13	709.0	90.0	0.0	2017	DDH	Kerr	Included
KER-17S-02	333749.95	1045254.47	557.83	665.0	65.0	240.0	2017	DDH	Kerr	Included
KER-17S-03	333746.95	1045252.99	558.38	665.0	43.1	240.0	2017	DDH	Kerr	Included
KER-17S-04	333852.18	1045044.88	583.38	775.0	65.0	240.0	2017	DDH	Kerr	Included
KER-17S-06	333513.15	1045341.45	652.33	860.0	89.6	243.9	2017	RC	Kerr	Included
KER-17S-07	333535.16	1045333.22	650.47	831.0	62.0	240.0	2017	DDH	Kerr	Included
KER-17S-08	333462.09	1045427.08	663.45	240.0	65.0	240.0	2017	DDH	Kerr	not sampled
KER-17S-08B	333461.68	1045426.30	663.60	262.0	55.0	240.0	2017	DDH	Kerr	not sampled
KER-17S-09	333427.00	1045480.16	669.87	970.0	79.4	236.4	2017	RC	Kerr	Included
KER-17S-10	333365.88	1045567.58	681.86	855.0	86.0	240.0	2017	DDH	Kerr	Included
KER-17S-11	333363.32	1045566.66	682.01	949.0	60.0	240.0	2017	DDH	Kerr	Included
KER-17S-12	333218.65	1045731.01	702.39	1040.0	89.7	236.0	2017	DDH	Kerr	Included
KER-17S-13	333112.73	1045887.99	720.32	980.0	89.9	193.2	2017	RC	Kerr	Included
KER-17S-14	334835.91	1045316.41	794.04	660.0	89.7	265.5	2017	RC	Kerr	Included
KER-17S-15	334836.29	1045318.76	794.01	800.0	67.2	11.2	2017	RC	Kerr	Included
KER-17S-16	333740.66	1045241.94	558.14	760.0	89.4	346.1	2017	RC	Kerr	Included
KER-17S-17	333229.80	1045726.19	702.00	842.0	53.2	239.1	2017	DDH	Kerr	Included
KER-17S-18	333112.49	1045891.96	720.93	428.0	60.0	240.0	2017	DDH	Kerr	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
KER-17S-19	333816.71	1045055.46	580.73	820.0	89.2	114.1	2017	RC	Kerr	Included
KER-17S-20	333440.09	1045459.21	667.12	330.0	88.8	331.0	2017	RC	Kerr	Included
KER-17S-21	333894.63	1044783.30	612.68	620.0	64.3	235.7	2017	RC	Kerr	Included
KER-17S-22	334376.41	1045442.79	693.02	280.0	89.4	328.3	2017	RC	Kerr	Included
KER-17S-23	334198.27	1044201.74	887.78	280.0	51.4	258.0	2017	RC	Kerr	Included
KER-17U-01	333091.23	1047769.18	220.09	130.0	35.0	240.0	2017	DDH	Kerr	Included
KER-17U-02	333093.49	1047771.35	220.19	175.0	80.0	240.0	2017	DDH	Kerr	Included
KER-17U-03	333105.50	1047776.14	220.37	176.0	65.0	60.0	2017	DDH	Kerr	Included
KER-17U-04	333096.05	1047780.53	220.78	200.0	50.0	358.0	2017	DDH	Kerr	Included
KER-17U-05	333093.07	1047780.92	221.41	218.0	35.0	330.0	2017	DDH	Kerr	Included
KER-17U-06	333079.68	1047776.21	221.16	220.0	20.0	277.0	2017	DDH	Kerr	Included
KER-17U-07	332745.96	1047184.22	293.54	206.0	80.0	240.0	2017	DDH	Kerr	Included
KER-17U-08	332751.90	1047185.10	305.46	151.0	-88.0	240.0	2017	DDH	Kerr	Included
KER-17U-09	332752.20	1047184.78	305.69	151.0	-45.0	330.0	2017	DDH	Kerr	Included
KER-17U-10	332789.82	1047368.67	300.00	238.0	11.0	41.0	2017	DDH	Kerr	Included
KER-17U-11	332789.81	1047363.45	296.03	220.5	15.0	65.0	2017	DDH	Kerr	Included
KER-17U-12	332788.00	1047366.00	300.00	284.0	11.0	44.0	2017	DDH	Kerr	Included
KER-17U-13	332788.00	1047366.00	300.00	170.0	15.0	72.0	2017	DDH	Kerr	Included
KER-17U-14	332788.00	1047366.00	300.00	243.0	12.0	48.0	2017	DDH	Kerr	Included
KER-17U-15	332772.03	1047362.69	292.69	154.0	42.0	264.0	2017	DDH	Kerr	Included
KER-17U-16	332773.26	1047364.56	302.61	178.0	-35.0	284.0	2017	DDH	Kerr	Included
KER-17U-17	332790.18	1047367.19	295.31	220.0	17.0	45.0	2017	DDH	Kerr	Included
KER-17U-18	332605.57	1047237.46	343.86	16.5	90.0	0.0	2017	DDH	Kerr	Included
KER-17U-18B	332604.10	1047243.87	342.02	193.5	-25.0	105.0	2017	DDH	Kerr	Included
KER-17U-19	332589.39	1047232.92	356.03	150.0	-60.0	62.0	2017	DDH	Kerr	Included
KER-17U-20	332589.89	1047232.95	341.93	302.0	40.0	36.0	2017	DDH	Kerr	Included
KER-17U-21B	332590.23	1047238.67	341.89	134.0	70.0	291.0	2017	DDH	Kerr	Included
KER-17U-22B	332588.69	1047239.19	357.75	175.0	-35.0	288.0	2017	DDH	Kerr	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
KER-17U-23	332588.70	1047239.00	357.75	200.0	-60.0	320.0	2017	DDH	Kerr	not sampled
KER-17U-24	332590.23	1047238.67	341.89	19.0	70.0	320.0	2017	DDH	Kerr	Included
KER-17U-25	332625.87	1047636.08	265.12	227.0	-61.0	177.0	2017	DDH	Kerr	Included
KER-17U-26	332627.33	1047641.19	267.92	152.0	-78.0	113.0	2017	DDH	Kerr	Included
KER-17U-27	332627.33	1047641.19	267.92	202.0	-50.0	107.0	2017	DDH	Kerr	Included
KER-17U-28	332627.33	1047641.19	267.92	152.0	-62.0	93.0	2017	DDH	Kerr	Included
KER-17U-29	332811.99	1046826.28	318.21	202.0	-40.8	58.6	2017	DDH	Kerr	Included
KER-17U-30	332811.32	1046826.7	315.45	252.0	-25.3	57.2	2017	DDH	Kerr	not sampled
KER-17U-34	332811.99	1046826.28	318.21	204.0	-74.1	57.7	2017	DDH	Kerr	Included
KER-17U-50	333079.49	1047756.04	219.78	105.0	19.0	222.5	2017	DDH	Kerr	Included
KER-17U-51	333084.72	1047762.21	219.55	110.0	32.7	222.5	2017	DDH	Kerr	Included
KER-17U-52	333087.49	1047763.01	220.00	100.0	40.7	215.5	2017	DDH	Kerr	Included
KER-17U-53	333090.71	1047764.34	219.80	98.0	52.1	200.0	2017	DDH	Kerr	Included
KER-17U-54	333100.11	1047764.06	220.89	280.5	52.7	136.0	2017	DDH	Kerr	Included
KER-17U-55	333087.94	1047779.19	225.79	270.0	3.8	311.0	2017	DDH	Kerr	Included
KER-17U-56	333086.87	1047779.21	224.88	151.0	9.2	305.0	2017	DDH	Kerr	Included
KER-17U-57	333081.54	1047776.75	222.73	160.0	17.3	288.0	2017	DDH	Kerr	Included
KER-17U-58	333082.83	1047774.36	220.17	251.0	35.3	274.0	2017	DDH	Kerr	Included
KER-17U-59	333130.89	1047621.89	207.00	182.5	11.7	223.0	2017	DDH	Kerr	Included
KER-17U-60	333132.63	1047619.27	200.54	220.0	53.2	202.0	2017	DDH	Kerr	Included
KER-17U-61	333136.84	1047619.96	199.25	187.0	53.0	202.0	2017	DDH	Kerr	Included
KER-17U-62	333147.57	1047628.65	202.84	190.0	56.2	88.0	2017	DDH	Kerr	Included
KER-17U-63	333141.83	1047637.82	203.08	178.0	54.7	25.0	2017	DDH	Kerr	Included
KER-17U-64	333139.13	1047637.41	202.40	171.0	65.4	330.0	2017	DDH	Kerr	Included
KER-17U-65	333128.33	1047629.99	203.44	150.0	50.2	282.0	2017	DDH	Kerr	Included
KER-17U-66	333128.74	1047627.73	206.88	180.0	15.3	260.0	2017	DDH	Kerr	Included
KER-17U-67	333157.87	1047528.17	194.89	201.0	9.4	225.0	2017	DDH	Kerr	Included
KER-17U-68	333158.12	1047528.28	190.52	169.0	55.0	205.0	2017	DDH	Kerr	Included

Drillhole ID	X Coordinate	Y Coordinate	Elevation	Total Depth	Dip	Azimuth	Year	Type	Company	Use in Model
KER-17U-69	333176.30	1047523.00	194.68	279.0	5.1	130.0	2017	DDH	Kerr	not sampled
KER-17U-70	333176.60	1047521.93	188.50	180.0	45.6	134.0	2017	DDH	Kerr	Included
KER-17U-71	333167.82	1047523.99	188.50	151.0	70.0	147.0	2017	DDH	Kerr	Included
KER-17U-72	333173.46	1047529.72	190.34	242.0	60.4	88.0	2017	DDH	Kerr	Included
KER-17U-73	333171.37	1047535.25	191.65	224.0	56.3	61.7	2017	DDH	Kerr	Included
KER-17U-74	333166.32	1047528.14	189.46	162.0	89.1	0.0	2017	DDH	Kerr	Included
KER-17U-75	333164.48	1047520.05	187.94	172.0	61.0	241.7	2017	DDH	Kerr	Included
KER-17U-76	333158.63	1047525.16	194.48	200.0	10.5	240.0	2017	DDH	Kerr	Included
KER-17U-77	333164.30	1047523.19	188.74	240.0	53.0	168.0	2017	DDH	Kerr	Included

APPENDIX C

Mechanical Audit of the Drillhole Database

Mechanical Audit Details

Survey Table:

Hole id	Depth	Type	Error	Conflicting Hole ID	Conflicting Depth	Action
CS-238	0	Warning	Duplicate collar and surveys	CS-238A	0	CS-238A Ignored from database
CS-291	0	Warning	Duplicate collar and surveys	CS-306	0	CS-291 Ignored from database
DZ12-1	0	Warning	Duplicate collar and surveys	DZ12-2	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-1	0	Warning	Duplicate collar and surveys	DZ12-3	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-1	0	Warning	Duplicate collar and surveys	DZ12-4	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-1	0	Warning	Duplicate collar and surveys	DZ12-5	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-1	0	Warning	Duplicate collar and surveys	DZ12-6	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-2	0	Warning	Duplicate collar and surveys	DZ12-3	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-2	0	Warning	Duplicate collar and surveys	DZ12-4	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-2	0	Warning	Duplicate collar and surveys	DZ12-5	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-2	0	Warning	Duplicate collar and surveys	DZ12-6	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-3	0	Warning	Duplicate collar and surveys	DZ12-4	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-3	0	Warning	Duplicate collar and surveys	DZ12-5	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-3	0	Warning	Duplicate collar and surveys	DZ12-6	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-4	0	Warning	Duplicate collar and surveys	DZ12-5	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database
DZ12-4	0	Warning	Duplicate collar and surveys	DZ12-6	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 ignored from database
DZ12-5	0	Warning	Duplicate collar and surveys	DZ12-6	0	DZ12-1, DZ12-2, DZ12-3, DZ12-4, DZ12-5,&DZ12-6 Ignored from database

Hole id	Depth	Type	Error	Conflicting Hole ID	Conflicting Depth	Action
06CS-24		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
06CS-25		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-28		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-29		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-35		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-37		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-38		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-39		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-40		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-41		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-42		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-43		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
07CS-44		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-456		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-457		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-458		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-459		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-460		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-461		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-462		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-463		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-464		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-465		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-466		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-478		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-479		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
CS-480		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole

Hole id	Depth	Type	Error	Conflicting Hole ID	Conflicting Depth	Action
CS-491		Warning	No surveys for collar			Kerr to confirm no downhole surveys for hole
H5-105	0	Warning	Wedge found. (possible duplicate collar)	H5-107	0	None taken, Kerr to review for accuracy
H5-98	0	Warning	Wedge found. (possible duplicate collar)	H5-99	0	None taken, Kerr to review for accuracy

Assay Table:

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-238	0	70	Error	Interval overlaps another interval	CS-238A	65	70	CS-238A ignored from database
690-39	72	76	Error	To value exceeds max depth in collar table				Changed collar depth from 75 to 76 based on assay table
690-40	68	72	Error	To value exceeds max depth in collar table				Changed collar depth from 60 to 72 based on assay table
CSD-76	270	274.3	Error	To value exceeds max depth in collar table				Changed collar depth from 274 to 274.3 based on assay table
H5-111	811	814	Error	To value exceeds max depth in collar table				Changed collar depth from 812 to 814 based on assay table
H5-119	830	834.8	Error	To value exceeds max depth in collar table				Changed collar depth from 834 to 834.8 based on assay table
KER-15-03	1016.5	1021.5	Error	To value exceeds max depth in collar table				Changed collar depth from 1021 to 1021.5 based on assay table
H5-105	0	155	Warning	Interval overlaps an interval in a wedge hole	H5-107	150	155	None taken
H5-107	0	10	Warning	Interval overlaps an interval in a wedge hole	H5-105	0	155	None taken
H5-107	10	50	Warning	Interval overlaps an interval in a wedge hole	H5-105	0	155	None taken
H5-107	50	100	Warning	Interval overlaps an interval in a wedge hole	H5-105	0	155	None taken
H5-107	100	150	Warning	Interval overlaps an interval in a wedge hole	H5-105	0	155	None taken
H5-98	0	170	Warning	Interval overlaps an interval in a wedge hole	H5-99	50	100	None taken
H5-99	0	10	Warning	Interval overlaps an interval in a wedge hole	H5-98	0	170	None taken
H5-99	10	50	Warning	Interval overlaps an interval in a wedge hole	H5-98	0	170	None taken
06CS-13			Warning	No samples for collar				None taken
07CS-44			Warning	No samples for collar				None taken
520-1			Warning	No samples for collar				None taken
520-10			Warning	No samples for collar				None taken
520-11			Warning	No samples for collar				None taken
520-12			Warning	No samples for collar				None taken
520-13			Warning	No samples for collar				None taken
520-14			Warning	No samples for collar				None taken
520-15			Warning	No samples for collar				None taken
520-16			Warning	No samples for collar				None taken
520-17			Warning	No samples for collar				None taken
520-2			Warning	No samples for collar				None taken
520-3			Warning	No samples for collar				None taken
520-4			Warning	No samples for collar				None taken
520-5			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
520-6			Warning	No samples for collar				None taken
520-7			Warning	No samples for collar				None taken
520-8			Warning	No samples for collar				None taken
520-9			Warning	No samples for collar				None taken
690-33			Warning	No samples for collar				None taken
690-36			Warning	No samples for collar				None taken
690-38			Warning	No samples for collar				None taken
690-43			Warning	No samples for collar				None taken
690-44			Warning	No samples for collar				None taken
690-45			Warning	No samples for collar				None taken
690-46			Warning	No samples for collar				None taken
690-47			Warning	No samples for collar				None taken
690-48			Warning	No samples for collar				None taken
690-49			Warning	No samples for collar				None taken
690-50			Warning	No samples for collar				None taken
690-51			Warning	No samples for collar				None taken
C95-02			Warning	No samples for collar				None taken
CS-121			Warning	No samples for collar				None taken
CS-122			Warning	No samples for collar				None taken
CS-123			Warning	No samples for collar				None taken
CS-124			Warning	No samples for collar				None taken
CS-125			Warning	No samples for collar				None taken
CS-126			Warning	No samples for collar				None taken
CS-127			Warning	No samples for collar				None taken
CS-128			Warning	No samples for collar				None taken
CS-129			Warning	No samples for collar				None taken
CS-130			Warning	No samples for collar				None taken
CS-131			Warning	No samples for collar				None taken
CS-132			Warning	No samples for collar				None taken
CS-133A			Warning	No samples for collar				None taken
CS-134			Warning	No samples for collar				None taken
CS-135A			Warning	No samples for collar				None taken
CS-136			Warning	No samples for collar				None taken
CS-137			Warning	No samples for collar				None taken
CS-137A			Warning	No samples for collar				None taken
CS-138			Warning	No samples for collar				None taken
CS-139			Warning	No samples for collar				None taken
CS-140			Warning	No samples for collar				None taken
CS-141			Warning	No samples for collar				None taken
CS-312			Warning	No samples for collar				None taken
CS-452			Warning	No samples for collar				None taken
CS-456			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-457			Warning	No samples for collar				None taken
CS-458			Warning	No samples for collar				None taken
CS-459			Warning	No samples for collar				None taken
CS-460			Warning	No samples for collar				None taken
CS-461			Warning	No samples for collar				None taken
CS-462			Warning	No samples for collar				None taken
CS-463			Warning	No samples for collar				None taken
CS-464			Warning	No samples for collar				None taken
CS-465			Warning	No samples for collar				None taken
CS-466			Warning	No samples for collar				None taken
CS-478			Warning	No samples for collar				None taken
CS-479			Warning	No samples for collar				None taken
CS-480			Warning	No samples for collar				None taken
CSD-10			Warning	No samples for collar				None taken
CSD-75			Warning	No samples for collar				None taken
DCU-1			Warning	No samples for collar				None taken
DCU-11			Warning	No samples for collar				None taken
DCU-12			Warning	No samples for collar				None taken
DCU-13			Warning	No samples for collar				None taken
DCU-15			Warning	No samples for collar				None taken
DCU-16			Warning	No samples for collar				None taken
DCU-17			Warning	No samples for collar				None taken
DCU-6			Warning	No samples for collar				None taken
DCU-7			Warning	No samples for collar				None taken
DCU-9			Warning	No samples for collar				None taken
H5-151			Warning	No samples for collar				None taken
CS-238	70	75	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	70	75	None taken
CS-238	75	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	75	80	None taken
CS-238	80	85	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	80	85	None taken
CS-238	85	90	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	85	90	None taken
CS-238	90	95	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	90	95	None taken
CS-238	100	105	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	100	105	None taken
CS-238	180	185	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	180	185	None taken
CS-238	185	190	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	185	190	None taken
CS-238	190	195	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	190	195	None taken
CS-238	195	200	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	195	200	None taken
CS-238	200	205	Warning	Re-drilled hole has conflicting data in 'au_opt'	CS-238A	200	205	None taken
DZ12-1	36	40	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	36	40	None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
DZ12-1	40	44	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	40	44	None taken
DZ12-1	52	56	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	52	56	None taken
DZ12-1	56	60	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	56	60	None taken
DZ12-1	60	64	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	60	64	None taken
DZ12-1	64	68	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	64	68	None taken
DZ12-1	68	72	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	68	72	None taken
DZ12-1	72	76	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	72	76	None taken
DZ12-1	76	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	76	80	None taken
DZ12-1	80	84	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	80	84	None taken
DZ12-1	84	88	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	84	88	None taken
DZ12-1	88	92	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	88	92	None taken
DZ12-1	92	96	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	92	96	None taken
DZ12-1	96	100	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	96	100	None taken
DZ12-2	32	36	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	32	36	None taken
DZ12-2	48	52	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	48	52	None taken
DZ12-2	52	56	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	52	56	None taken
DZ12-2	56	60	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	56	60	None taken
DZ12-2	60	64	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	60	64	None taken
DZ12-2	64	68	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	64	68	None taken
DZ12-2	68	72	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	68	72	None taken
DZ12-2	72	76	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	72	76	None taken
DZ12-2	76	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	76	80	None taken
DZ12-2	80	84	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	80	84	None taken
DZ12-2	84	88	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	84	88	None taken
DZ12-2	88	92	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	88	92	None taken
DZ12-2	92	96	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	92	96	None taken
DZ12-2	96	100	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	96	100	None taken
DZ12-3	48	52	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	48	52	None taken
DZ12-3	52	56	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	52	56	None taken
DZ12-3	56	60	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	56	60	None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
DZ12-3	60	64	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	60	64	None taken
DZ12-3	64	68	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	64	68	None taken
DZ12-3	68	72	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	68	72	None taken
DZ12-3	72	76	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	72	76	None taken
DZ12-3	76	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	76	80	None taken
DZ12-3	80	84	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	80	84	None taken
DZ12-3	84	88	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	84	88	None taken
DZ12-3	88	92	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	88	92	None taken
DZ12-3	92	96	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	92	96	None taken
DZ12-3	96	100	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	96	100	None taken
DZ12-4	28	32	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	28	32	None taken
DZ12-4	32	36	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	32	36	None taken
DZ12-4	36	40	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	36	40	None taken
DZ12-4	48	52	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	48	52	None taken
DZ12-4	52	56	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	52	56	None taken
DZ12-4	56	60	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	56	60	None taken
DZ12-4	60	64	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	60	64	None taken
DZ12-4	64	68	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	64	68	None taken
DZ12-4	68	72	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	68	72	None taken
DZ12-4	72	76	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	72	76	None taken
DZ12-4	76	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	76	80	None taken
DZ12-4	96	100	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-5	96	100	None taken
DZ12-5	40	44	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	40	44	None taken
DZ12-5	44	48	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	44	48	None taken
DZ12-5	48	52	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	48	52	None taken
DZ12-5	52	56	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	52	56	None taken
DZ12-5	56	60	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	56	60	None taken
DZ12-5	60	64	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	60	64	None taken
DZ12-5	64	68	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	64	68	None taken
DZ12-5	68	72	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	68	72	None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
DZ12-5	72	76	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	72	76	None taken
DZ12-5	76	80	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	76	80	None taken
DZ12-5	80	84	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	80	84	None taken
DZ12-5	84	88	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	84	88	None taken
DZ12-5	88	92	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	88	92	None taken
DZ12-5	92	96	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	92	96	None taken
DZ12-5	96	100	Warning	Re-drilled hole has conflicting data in 'au_opt'	DZ12-6	96	100	None taken

Lithology Table

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
08CS-51	148.7	210	Error	Interval overlaps another interval	08CS-51	130	210	148.7 - 210 ignored
08CS-51	363.41	869	Error	Interval overlaps another interval	08CS-51	310	460	363.41 - 869 ignored
08CS-51	460	470	Error	Interval overlaps another interval	08CS-51	363.41	869	363.41 - 869 ignored
08CS-51	470	500	Error	Interval overlaps another interval	08CS-51	363.41	869	363.41 - 869 ignored
08CS-51	500	869	Error	Interval overlaps another interval	08CS-51	363.41	869	363.41 - 869 ignored
08CS-57	232.71	680	Error	Interval overlaps another interval	08CS-57	219.06	400	232.71 - 680 ignored
08CS-57	400	440	Error	Interval overlaps another interval	08CS-57	232.71	680	232.71 - 680 ignored
08CS-57	440	445	Error	Interval overlaps another interval	08CS-57	232.71	680	232.71 - 680 ignored
08CS-57	445	680	Error	Interval overlaps another interval	08CS-57	232.71	680	232.71 - 680 ignored
C95-13	695	680	Error	from depth >= to depth				swithed from to intervals (680-695)
C95-13	695	680	Error	Interval overlaps another interval	C95-13	680	700	Correct interval 695 - 700
CS-181	15	100	Error	Interval overlaps another interval	CS-181	15	100	removed duplicate interval
CS-203	310	230	Error	from depth >= to depth				Correct interval is 310 - 320
CS-203	230	325	Error	Interval overlaps another interval	CS-203	225	235	Correct interval is 320 - 325
CS-203	235	255	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	255	260	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	260	290	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	290	295	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	295	300	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	300	310	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-203	310	230	Error	Interval overlaps another interval	CS-203	230	325	Correct interval is 320 - 325
CS-238	0	70	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	70	90	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	90	130	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	130	160	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	160	170	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	170	225	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	225	245	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	245	305	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-270	265	265	Error	from depth >= to depth				Removed unnecessary interval (265 - 265)
CS-270	265	265	Error	Interval overlaps another interval	CS-270	230	270	Removed unnecessary interval (265 - 265)
CS-291	20	250	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
CS-291	250	265	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
CS-323	655	656	Error	To value exceeds max depth in collar table				changed collar max depth to 656 based on lithology table
CS-340	680	680	Error	from depth >= to depth				Correct interval 680 - 685
CS-397	135	135	Error	from depth >= to depth				Correct interval 135-170
CS-416	460	485	Error	Interval overlaps another interval	CS-416	455	485	Correct interval 455 - 460
CS-468	360	295	Error	from depth >= to depth				interval ignored
CS-468	360	295	Error	Interval overlaps another interval	CS-468	350	380	interval ignored
CSD-43A	230	230	Error	from depth >= to depth				Correct interval 230 - 240
CSD-71	448	430	Error	from depth >= to depth				interval ignored
CSD-71	448	430	Error	Interval overlaps another interval	CSD-71	430	452	interval ignored
CSD-73	722	655	Error	from depth >= to depth				interval ignored
CSR-143	310	310	Error	from depth >= to depth				Correct interval 310 - 340
07CS-35			Warning	No samples for collar				None taken
520-1			Warning	No samples for collar				None taken
520-10			Warning	No samples for collar				None taken
520-11			Warning	No samples for collar				None taken
520-12			Warning	No samples for collar				None taken
520-13			Warning	No samples for collar				None taken
520-14			Warning	No samples for collar				None taken
520-15			Warning	No samples for collar				None taken
520-16			Warning	No samples for collar				None taken
520-17			Warning	No samples for collar				None taken
520-2			Warning	No samples for collar				None taken
520-3			Warning	No samples for collar				None taken
520-4			Warning	No samples for collar				None taken
520-5			Warning	No samples for collar				None taken
520-6			Warning	No samples for collar				None taken
520-7			Warning	No samples for collar				None taken
520-8			Warning	No samples for collar				None taken
520-9			Warning	No samples for collar				None taken
650W-1			Warning	No samples for collar				None taken
650W-10			Warning	No samples for collar				None taken
650W-12			Warning	No samples for collar				None taken
650W-13			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
650W-14			Warning	No samples for collar				None taken
650W-15			Warning	No samples for collar				None taken
650W-16			Warning	No samples for collar				None taken
650W-17			Warning	No samples for collar				None taken
650W-2			Warning	No samples for collar				None taken
650W-3			Warning	No samples for collar				None taken
650W-4			Warning	No samples for collar				None taken
650W-5			Warning	No samples for collar				None taken
650W-6			Warning	No samples for collar				None taken
650W-8			Warning	No samples for collar				None taken
650W-9			Warning	No samples for collar				None taken
654-1			Warning	No samples for collar				None taken
654-2			Warning	No samples for collar				None taken
654-50			Warning	No samples for collar				None taken
654-51			Warning	No samples for collar				None taken
654-52			Warning	No samples for collar				None taken
654-53			Warning	No samples for collar				None taken
654-54			Warning	No samples for collar				None taken
654-55			Warning	No samples for collar				None taken
654-56			Warning	No samples for collar				None taken
654-57			Warning	No samples for collar				None taken
654-58			Warning	No samples for collar				None taken
654-59			Warning	No samples for collar				None taken
654-60			Warning	No samples for collar				None taken
654-61			Warning	No samples for collar				None taken
654cc-1			Warning	No samples for collar				None taken
654cc-2			Warning	No samples for collar				None taken
654cc-3			Warning	No samples for collar				None taken
690-1			Warning	No samples for collar				None taken
690-10			Warning	No samples for collar				None taken
690-11			Warning	No samples for collar				None taken
690-12			Warning	No samples for collar				None taken
690-13			Warning	No samples for collar				None taken
690-14			Warning	No samples for collar				None taken
690-15			Warning	No samples for collar				None taken
690-19			Warning	No samples for collar				None taken
690-2			Warning	No samples for collar				None taken
690-20			Warning	No samples for collar				None taken
690-21			Warning	No samples for collar				None taken
690-22			Warning	No samples for collar				None taken
690-23			Warning	No samples for collar				None taken
690-24			Warning	No samples for collar				None taken
690-25			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
690-26			Warning	No samples for collar				None taken
690-28			Warning	No samples for collar				None taken
690-29			Warning	No samples for collar				None taken
690-3			Warning	No samples for collar				None taken
690-31			Warning	No samples for collar				None taken
690-32			Warning	No samples for collar				None taken
690-33			Warning	No samples for collar				None taken
690-34			Warning	No samples for collar				None taken
690-35			Warning	No samples for collar				None taken
690-36			Warning	No samples for collar				None taken
690-38			Warning	No samples for collar				None taken
690-39			Warning	No samples for collar				None taken
690-40			Warning	No samples for collar				None taken
690-41			Warning	No samples for collar				None taken
690-42			Warning	No samples for collar				None taken
690-43			Warning	No samples for collar				None taken
690-44			Warning	No samples for collar				None taken
690-45			Warning	No samples for collar				None taken
690-46			Warning	No samples for collar				None taken
690-47			Warning	No samples for collar				None taken
690-48			Warning	No samples for collar				None taken
690-49			Warning	No samples for collar				None taken
690-50			Warning	No samples for collar				None taken
690-51			Warning	No samples for collar				None taken
690-7			Warning	No samples for collar				None taken
690-8			Warning	No samples for collar				None taken
726-1			Warning	No samples for collar				None taken
726-10			Warning	No samples for collar				None taken
726-11			Warning	No samples for collar				None taken
726-13			Warning	No samples for collar				None taken
726-14			Warning	No samples for collar				None taken
726-2			Warning	No samples for collar				None taken
726-3			Warning	No samples for collar				None taken
726-4			Warning	No samples for collar				None taken
726-5			Warning	No samples for collar				None taken
726-6			Warning	No samples for collar				None taken
726-7			Warning	No samples for collar				None taken
730-11			Warning	No samples for collar				None taken
730-13			Warning	No samples for collar				None taken
730-14			Warning	No samples for collar				None taken
730-15			Warning	No samples for collar				None taken
730-16			Warning	No samples for collar				None taken
730-17			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
730-18			Warning	No samples for collar				None taken
730-19			Warning	No samples for collar				None taken
730-2			Warning	No samples for collar				None taken
730-20			Warning	No samples for collar				None taken
730-21			Warning	No samples for collar				None taken
730-22			Warning	No samples for collar				None taken
730-23			Warning	No samples for collar				None taken
730-3			Warning	No samples for collar				None taken
730-4			Warning	No samples for collar				None taken
730-5			Warning	No samples for collar				None taken
730-7			Warning	No samples for collar				None taken
730-8			Warning	No samples for collar				None taken
730-9			Warning	No samples for collar				None taken
750-1			Warning	No samples for collar				None taken
750-10			Warning	No samples for collar				None taken
750-11			Warning	No samples for collar				None taken
750-12			Warning	No samples for collar				None taken
750-13			Warning	No samples for collar				None taken
750-14			Warning	No samples for collar				None taken
750-17			Warning	No samples for collar				None taken
750-18			Warning	No samples for collar				None taken
750-2			Warning	No samples for collar				None taken
750-20			Warning	No samples for collar				None taken
750-3			Warning	No samples for collar				None taken
750-4			Warning	No samples for collar				None taken
750-5			Warning	No samples for collar				None taken
750-6			Warning	No samples for collar				None taken
750-7			Warning	No samples for collar				None taken
750-8			Warning	No samples for collar				None taken
750-9			Warning	No samples for collar				None taken
810-10			Warning	No samples for collar				None taken
810-12			Warning	No samples for collar				None taken
810-13			Warning	No samples for collar				None taken
810-14			Warning	No samples for collar				None taken
810-15			Warning	No samples for collar				None taken
810-16			Warning	No samples for collar				None taken
810-16a			Warning	No samples for collar				None taken
810-17			Warning	No samples for collar				None taken
810-18			Warning	No samples for collar				None taken
810-19			Warning	No samples for collar				None taken
810-2			Warning	No samples for collar				None taken
810-20			Warning	No samples for collar				None taken
810-21			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
810-3			Warning	No samples for collar				None taken
810-4			Warning	No samples for collar				None taken
810-8			Warning	No samples for collar				None taken
810-9			Warning	No samples for collar				None taken
A98-1			Warning	No samples for collar				None taken
A98-10			Warning	No samples for collar				None taken
A98-11			Warning	No samples for collar				None taken
A98-12			Warning	No samples for collar				None taken
A98-13			Warning	No samples for collar				None taken
A98-14			Warning	No samples for collar				None taken
A98-15			Warning	No samples for collar				None taken
A98-2			Warning	No samples for collar				None taken
A98-3			Warning	No samples for collar				None taken
A98-4			Warning	No samples for collar				None taken
A98-5			Warning	No samples for collar				None taken
A98-6			Warning	No samples for collar				None taken
A98-7			Warning	No samples for collar				None taken
A98-8			Warning	No samples for collar				None taken
A98-9			Warning	No samples for collar				None taken
C95-03			Warning	No samples for collar				None taken
C95-04			Warning	No samples for collar				None taken
C95-05			Warning	No samples for collar				None taken
C95-06			Warning	No samples for collar				None taken
C95-08			Warning	No samples for collar				None taken
C95-10			Warning	No samples for collar				None taken
C95-11			Warning	No samples for collar				None taken
C95-12			Warning	No samples for collar				None taken
C96-14			Warning	No samples for collar				None taken
C96-15			Warning	No samples for collar				None taken
C96-16			Warning	No samples for collar				None taken
C96-18			Warning	No samples for collar				None taken
C96-19			Warning	No samples for collar				None taken
C97-21			Warning	No samples for collar				None taken
C97-23			Warning	No samples for collar				None taken
C97-24			Warning	No samples for collar				None taken
C97-25			Warning	No samples for collar				None taken
C97-26			Warning	No samples for collar				None taken
C97-27			Warning	No samples for collar				None taken
C97-28			Warning	No samples for collar				None taken
C97-29			Warning	No samples for collar				None taken
C97-30			Warning	No samples for collar				None taken
C97-31			Warning	No samples for collar				None taken
C97-32			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
C97-33			Warning	No samples for collar				None taken
C97-34			Warning	No samples for collar				None taken
CDH-1			Warning	No samples for collar				None taken
CDH-10			Warning	No samples for collar				None taken
CDH-2			Warning	No samples for collar				None taken
CDH-3			Warning	No samples for collar				None taken
CDH-4			Warning	No samples for collar				None taken
CDH-5			Warning	No samples for collar				None taken
CDH-5A			Warning	No samples for collar				None taken
CDH-6			Warning	No samples for collar				None taken
CDH-7			Warning	No samples for collar				None taken
CDH-8			Warning	No samples for collar				None taken
CDH-9			Warning	No samples for collar				None taken
CRD-03-01			Warning	No samples for collar				None taken
CRD-03-04			Warning	No samples for collar				None taken
CS-103			Warning	No samples for collar				None taken
CS-106			Warning	No samples for collar				None taken
CS-109			Warning	No samples for collar				None taken
CS-111			Warning	No samples for collar				None taken
CS-115			Warning	No samples for collar				None taken
CS-257			Warning	No samples for collar				None taken
CS-263			Warning	No samples for collar				None taken
CS-264			Warning	No samples for collar				None taken
CS-267			Warning	No samples for collar				None taken
CS-268			Warning	No samples for collar				None taken
CS-350			Warning	No samples for collar				None taken
CS-351			Warning	No samples for collar				None taken
CS-363			Warning	No samples for collar				None taken
CS-372			Warning	No samples for collar				None taken
CS-373			Warning	No samples for collar				None taken
CS-374			Warning	No samples for collar				None taken
CS-375			Warning	No samples for collar				None taken
CS-376			Warning	No samples for collar				None taken
CS-378			Warning	No samples for collar				None taken
CS-384			Warning	No samples for collar				None taken
CS-389			Warning	No samples for collar				None taken
CS-394			Warning	No samples for collar				None taken
CS-406			Warning	No samples for collar				None taken
CS-407			Warning	No samples for collar				None taken
CS-408			Warning	No samples for collar				None taken
CS-410			Warning	No samples for collar				None taken
CS-413			Warning	No samples for collar				None taken
CS-414			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-417			Warning	No samples for collar				None taken
CS-422			Warning	No samples for collar				None taken
CS-423			Warning	No samples for collar				None taken
CS-424			Warning	No samples for collar				None taken
CS-425			Warning	No samples for collar				None taken
CS-429			Warning	No samples for collar				None taken
CS-430			Warning	No samples for collar				None taken
CS-445			Warning	No samples for collar				None taken
CS-446			Warning	No samples for collar				None taken
CS-447			Warning	No samples for collar				None taken
CS-448			Warning	No samples for collar				None taken
CS-449			Warning	No samples for collar				None taken
CS-45			Warning	No samples for collar				None taken
CS-450			Warning	No samples for collar				None taken
CS-451			Warning	No samples for collar				None taken
CS-453			Warning	No samples for collar				None taken
CS-454			Warning	No samples for collar				None taken
CS-456			Warning	No samples for collar				None taken
CS-457			Warning	No samples for collar				None taken
CS-458			Warning	No samples for collar				None taken
CS-459			Warning	No samples for collar				None taken
CS-46			Warning	No samples for collar				None taken
CS-460			Warning	No samples for collar				None taken
CS-461			Warning	No samples for collar				None taken
CS-462			Warning	No samples for collar				None taken
CS-463			Warning	No samples for collar				None taken
CS-464			Warning	No samples for collar				None taken
CS-465			Warning	No samples for collar				None taken
CS-466			Warning	No samples for collar				None taken
CS-478			Warning	No samples for collar				None taken
CS-479			Warning	No samples for collar				None taken
CS-480			Warning	No samples for collar				None taken
CS-481			Warning	No samples for collar				None taken
CS-482			Warning	No samples for collar				None taken
CS-483			Warning	No samples for collar				None taken
CS-484			Warning	No samples for collar				None taken
CS-491			Warning	No samples for collar				None taken
CS-494			Warning	No samples for collar				None taken
CS-495			Warning	No samples for collar				None taken
CS-496			Warning	No samples for collar				None taken
CS-55			Warning	No samples for collar				None taken
CS-56			Warning	No samples for collar				None taken
CS-57			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-58			Warning	No samples for collar				None taken
CS-59			Warning	No samples for collar				None taken
CS-62			Warning	No samples for collar				None taken
CS-64			Warning	No samples for collar				None taken
CS-72			Warning	No samples for collar				None taken
CS-73			Warning	No samples for collar				None taken
CS-74			Warning	No samples for collar				None taken
CS-80			Warning	No samples for collar				None taken
CS-99			Warning	No samples for collar				None taken
CSD-7			Warning	No samples for collar				None taken
CSD-9			Warning	No samples for collar				None taken
CSR-10			Warning	No samples for collar				None taken
CSR-114			Warning	No samples for collar				None taken
CSR-54			Warning	No samples for collar				None taken
CSR-63			Warning	No samples for collar				None taken
DCU-3			Warning	No samples for collar				None taken
DCU-4			Warning	No samples for collar				None taken
DZ12-1			Warning	No samples for collar				None taken
DZ12-2			Warning	No samples for collar				None taken
DZ12-3			Warning	No samples for collar				None taken
DZ12-4			Warning	No samples for collar				None taken
DZ12-5			Warning	No samples for collar				None taken
DZ12-6			Warning	No samples for collar				None taken
DZ-3			Warning	No samples for collar				None taken
DZ-4			Warning	No samples for collar				None taken
F4-1			Warning	No samples for collar				None taken
H5-105	0	155	Warning	Interval overlaps an interval in a wedge hole	H5-107	150	260	None taken
H5-107	0	150	Warning	Interval overlaps an interval in a wedge hole	H5-105	0	155	None taken
H5-131			Warning	No samples for collar				None taken
H5-132			Warning	No samples for collar				None taken
H5-133			Warning	No samples for collar				None taken
H5-134			Warning	No samples for collar				None taken
H5-135			Warning	No samples for collar				None taken
H5-136			Warning	No samples for collar				None taken
H5-137			Warning	No samples for collar				None taken
H5-144			Warning	No samples for collar				None taken
H5-145			Warning	No samples for collar				None taken
H5-146			Warning	No samples for collar				None taken
H5-148			Warning	No samples for collar				None taken
H5-149			Warning	No samples for collar				None taken
H5-151			Warning	No samples for collar				None taken
H5-152			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H5-153			Warning	No samples for collar				None taken
H5-154			Warning	No samples for collar				None taken
H5-159			Warning	No samples for collar				None taken
H5-161			Warning	No samples for collar				None taken
H5-98	0	170	Warning	Interval overlaps an interval in a wedge hole	H5-99	0	165	None taken

Alteration Table

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CRD-04-09	425	425	Error	from depth >= to depth				Removed unnecessary interval (425-425)
CRD-04-11	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
CRD-04-12	425	425	Error	from depth >= to depth				Removed unnecessary interval (425-425)
CS-238	0	70	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	70	90	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	90	130	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	130	160	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	160	170	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	170	225	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	225	245	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	245	305	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-291	20	250	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
CS-291	250	265	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
F4-1	276	276	Error	from depth >= to depth				Removed unnecessary interval (276-276)
F4-3	173	173	Error	from depth >= to depth				Removed unnecessary interval (173-173)
F4-4	190	190	Error	from depth >= to depth				Removed unnecessary interval (190-190)
H4-15	125	125	Error	from depth >= to depth				Removed unnecessary interval (125-125)
H4-16	60	60	Error	from depth >= to depth				Removed unnecessary interval (60-60)
H4-17	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
H4-19	300	300	Error	from depth >= to depth				Removed unnecessary interval (300-300)
H4-21	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-21	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
H4-22	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-26	320	320	Error	from depth >= to depth				Removed unnecessary interval (320-320)
H4-29	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-29	610	610	Error	from depth >= to depth				Removed unnecessary interval (610-610)
H4-29	728.5	732	Error	Interval overlaps another interval	H4-29	723.5	729	Correct interval 723.5 - 728.5
H4-29	791.5	795	Error	Interval overlaps another interval	H4-29	786.2	792	Correct interval 786.2-791.5
H4-29	916.5	920	Error	Interval overlaps another interval	H4-29	912	917	Correct interval 912-916.5

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H4-29	919.5	925	Error	Interval overlaps another interval	H4-29	916.5	920	Correct interval 916.5-919.5
H4-29	924.8	930	Error	Interval overlaps another interval	H4-29	919.5	925	Correct interval 919.5-924.8
H4-29	944.6	950	Error	Interval overlaps another interval	H4-29	939.3	945	Correct interval 939.3-944.6
H4-29	949.6	952	Error	Interval overlaps another interval	H4-29	944.6	950	Correct interval944.6 - 949.6
H4-31	100	100	Error	from depth >= to depth				Removed unnecessary interval (100-100)
H4-32	822.5	828	Error	Interval overlaps another interval	H4-32	817.5	823	Correct interval 822.5-827.5
H4-32	827.5	833	Error	Interval overlaps another interval	H4-32	822.5	828	Correct interval 827.5-832.5
H4-32	832.5	838	Error	Interval overlaps another interval	H4-32	827.5	833	Correct interval 827.5-832.5
H4-32	962.5	968	Error	Interval overlaps another interval	H4-32	957	963	Correct interval 957-962.5
H4-32	967.5	973	Error	Interval overlaps another interval	H4-32	962.5	968	Correct interval 962.5-967.5
H4-32	972.5	978	Error	Interval overlaps another interval	H4-32	967.5	973	Correct interval 967.5-972.5
H4-32	977.5	983	Error	Interval overlaps another interval	H4-32	972.5	978	Correct interval 972.5-977.5
H4-39	450	450	Error	from depth >= to depth				Removed unnecessary interval (450-450)
H4-41	280	280	Error	from depth >= to depth				Removed unnecessary interval (280-280)
H4-44	600	601	Error	Interval overlaps another interval	H4-44	600	605	Removed 600-605
H4-44	601	666	Error	Interval overlaps another interval	H4-44	600	605	Removed 600-605
H4-44	605	610	Error	Interval overlaps another interval	H4-44	601	666	Removed 605-610
H4-44	610	615	Error	Interval overlaps another interval	H4-44	601	666	Removed 610-615
H4-44	615	620	Error	Interval overlaps another interval	H4-44	601	666	Removed 615-620
H4-44	620	625	Error	Interval overlaps another interval	H4-44	601	666	Removed 620-625
H4-44	625	630	Error	Interval overlaps another interval	H4-44	601	666	Removed 625-630
H4-44	630	635	Error	Interval overlaps another interval	H4-44	601	666	Removed 630-635
H4-44	635	640	Error	Interval overlaps another interval	H4-44	601	666	Removed 635-640
H4-44	640	645	Error	Interval overlaps another interval	H4-44	601	666	Removed 640-645
H4-44	645	650	Error	Interval overlaps another interval	H4-44	601	666	Removed 645-650
H4-44	650	655	Error	Interval overlaps another interval	H4-44	601	666	Removed 650-655
H4-44	655	660	Error	Interval overlaps another interval	H4-44	601	666	Removed 655-660
H4-48	245	245	Error	from depth >= to depth				Removed unnecessary interval (245-245)
H4-61	839	844	Error	To value exceeds max depth in collar table				Changed interval to 839-843
06CS-01			Warning	No samples for collar				None taken
06CS-02			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
06CS-03			Warning	No samples for collar				None taken
06CS-04			Warning	No samples for collar				None taken
06CS-05			Warning	No samples for collar				None taken
06CS-06			Warning	No samples for collar				None taken
06CS-07			Warning	No samples for collar				None taken
06CS-08			Warning	No samples for collar				None taken
06CS-09			Warning	No samples for collar				None taken
06CS-10			Warning	No samples for collar				None taken
06CS-11			Warning	No samples for collar				None taken
06CS-12			Warning	No samples for collar				None taken
06CS-13			Warning	No samples for collar				None taken
06CS-14			Warning	No samples for collar				None taken
06CS-15			Warning	No samples for collar				None taken
06CS-16			Warning	No samples for collar				None taken
06CS-17			Warning	No samples for collar				None taken
06CS-18			Warning	No samples for collar				None taken
06CS-19			Warning	No samples for collar				None taken
06CS-20			Warning	No samples for collar				None taken
06CS-21			Warning	No samples for collar				None taken
06CS-22			Warning	No samples for collar				None taken
06CS-23			Warning	No samples for collar				None taken
06CS-24			Warning	No samples for collar				None taken
06CS-25			Warning	No samples for collar				None taken
06CS-26			Warning	No samples for collar				None taken
06CS-27			Warning	No samples for collar				None taken
07CS-28			Warning	No samples for collar				None taken
07CS-29			Warning	No samples for collar				None taken
07CS-30			Warning	No samples for collar				None taken
07CS-31			Warning	No samples for collar				None taken
07CS-32			Warning	No samples for collar				None taken
07CS-33			Warning	No samples for collar				None taken
07CS-34			Warning	No samples for collar				None taken
07CS-35			Warning	No samples for collar				None taken
07CS-36			Warning	No samples for collar				None taken
07CS-37			Warning	No samples for collar				None taken
07CS-38			Warning	No samples for collar				None taken
07CS-39			Warning	No samples for collar				None taken
07CS-40			Warning	No samples for collar				None taken
07CS-41			Warning	No samples for collar				None taken
07CS-42			Warning	No samples for collar				None taken
07CS-43			Warning	No samples for collar				None taken
07CS-44			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
08CS-45			Warning	No samples for collar				None taken
08CS-46			Warning	No samples for collar				None taken
08CS-47			Warning	No samples for collar				None taken
08CS-48			Warning	No samples for collar				None taken
08CS-49A			Warning	No samples for collar				None taken
08CS-50			Warning	No samples for collar				None taken
08CS-51			Warning	No samples for collar				None taken
08CS-52			Warning	No samples for collar				None taken
08CS-53			Warning	No samples for collar				None taken
08CS-54			Warning	No samples for collar				None taken
08CS-55			Warning	No samples for collar				None taken
08CS-56			Warning	No samples for collar				None taken
08CS-57			Warning	No samples for collar				None taken
08CS-58			Warning	No samples for collar				None taken
08CS-59			Warning	No samples for collar				None taken
520-1			Warning	No samples for collar				None taken
520-10			Warning	No samples for collar				None taken
520-11			Warning	No samples for collar				None taken
520-12			Warning	No samples for collar				None taken
520-13			Warning	No samples for collar				None taken
520-14			Warning	No samples for collar				None taken
520-15			Warning	No samples for collar				None taken
520-16			Warning	No samples for collar				None taken
520-17			Warning	No samples for collar				None taken
520-2			Warning	No samples for collar				None taken
520-3			Warning	No samples for collar				None taken
520-4			Warning	No samples for collar				None taken
520-5			Warning	No samples for collar				None taken
520-6			Warning	No samples for collar				None taken
520-7			Warning	No samples for collar				None taken
520-8			Warning	No samples for collar				None taken
520-9			Warning	No samples for collar				None taken
650W-1			Warning	No samples for collar				None taken
650W-10			Warning	No samples for collar				None taken
650W-12			Warning	No samples for collar				None taken
650W-13			Warning	No samples for collar				None taken
650W-14			Warning	No samples for collar				None taken
650W-15			Warning	No samples for collar				None taken
650W-16			Warning	No samples for collar				None taken
650W-17			Warning	No samples for collar				None taken
650W-2			Warning	No samples for collar				None taken
650W-3			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
650W-4			Warning	No samples for collar				None taken
650W-5			Warning	No samples for collar				None taken
650W-6			Warning	No samples for collar				None taken
650W-8			Warning	No samples for collar				None taken
650W-9			Warning	No samples for collar				None taken
654-1			Warning	No samples for collar				None taken
654-2			Warning	No samples for collar				None taken
654-50			Warning	No samples for collar				None taken
654-51			Warning	No samples for collar				None taken
654-52			Warning	No samples for collar				None taken
654-53			Warning	No samples for collar				None taken
654-54			Warning	No samples for collar				None taken
654-55			Warning	No samples for collar				None taken
654-56			Warning	No samples for collar				None taken
654-57			Warning	No samples for collar				None taken
654-58			Warning	No samples for collar				None taken
654-59			Warning	No samples for collar				None taken
654-60			Warning	No samples for collar				None taken
654-61			Warning	No samples for collar				None taken
654cc-1			Warning	No samples for collar				None taken
654cc-2			Warning	No samples for collar				None taken
654cc-3			Warning	No samples for collar				None taken
690-1			Warning	No samples for collar				None taken
690-10			Warning	No samples for collar				None taken
690-11			Warning	No samples for collar				None taken
690-12			Warning	No samples for collar				None taken
690-13			Warning	No samples for collar				None taken
690-14			Warning	No samples for collar				None taken
690-15			Warning	No samples for collar				None taken
690-19			Warning	No samples for collar				None taken
690-2			Warning	No samples for collar				None taken
690-20			Warning	No samples for collar				None taken
690-21			Warning	No samples for collar				None taken
690-22			Warning	No samples for collar				None taken
690-23			Warning	No samples for collar				None taken
690-24			Warning	No samples for collar				None taken
690-25			Warning	No samples for collar				None taken
690-26			Warning	No samples for collar				None taken
690-28			Warning	No samples for collar				None taken
690-29			Warning	No samples for collar				None taken
690-3			Warning	No samples for collar				None taken
690-31			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
690-32			Warning	No samples for collar				None taken
690-33			Warning	No samples for collar				None taken
690-34			Warning	No samples for collar				None taken
690-35			Warning	No samples for collar				None taken
690-36			Warning	No samples for collar				None taken
690-38			Warning	No samples for collar				None taken
690-39			Warning	No samples for collar				None taken
690-40			Warning	No samples for collar				None taken
690-41			Warning	No samples for collar				None taken
690-42			Warning	No samples for collar				None taken
690-43			Warning	No samples for collar				None taken
690-44			Warning	No samples for collar				None taken
690-45			Warning	No samples for collar				None taken
690-46			Warning	No samples for collar				None taken
690-47			Warning	No samples for collar				None taken
690-48			Warning	No samples for collar				None taken
690-49			Warning	No samples for collar				None taken
690-50			Warning	No samples for collar				None taken
690-51			Warning	No samples for collar				None taken
690-7			Warning	No samples for collar				None taken
690-8			Warning	No samples for collar				None taken
726-1			Warning	No samples for collar				None taken
726-10			Warning	No samples for collar				None taken
726-11			Warning	No samples for collar				None taken
726-13			Warning	No samples for collar				None taken
726-14			Warning	No samples for collar				None taken
726-2			Warning	No samples for collar				None taken
726-3			Warning	No samples for collar				None taken
726-4			Warning	No samples for collar				None taken
726-5			Warning	No samples for collar				None taken
726-6			Warning	No samples for collar				None taken
726-7			Warning	No samples for collar				None taken
730-11			Warning	No samples for collar				None taken
730-13			Warning	No samples for collar				None taken
730-14			Warning	No samples for collar				None taken
730-15			Warning	No samples for collar				None taken
730-16			Warning	No samples for collar				None taken
730-17			Warning	No samples for collar				None taken
730-18			Warning	No samples for collar				None taken
730-19			Warning	No samples for collar				None taken
730-2			Warning	No samples for collar				None taken
730-20			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
730-21			Warning	No samples for collar				None taken
730-22			Warning	No samples for collar				None taken
730-23			Warning	No samples for collar				None taken
730-3			Warning	No samples for collar				None taken
730-4			Warning	No samples for collar				None taken
730-5			Warning	No samples for collar				None taken
730-7			Warning	No samples for collar				None taken
730-8			Warning	No samples for collar				None taken
730-9			Warning	No samples for collar				None taken
750-1			Warning	No samples for collar				None taken
750-10			Warning	No samples for collar				None taken
750-11			Warning	No samples for collar				None taken
750-12			Warning	No samples for collar				None taken
750-13			Warning	No samples for collar				None taken
750-14			Warning	No samples for collar				None taken
750-17			Warning	No samples for collar				None taken
750-18			Warning	No samples for collar				None taken
750-2			Warning	No samples for collar				None taken
750-20			Warning	No samples for collar				None taken
750-3			Warning	No samples for collar				None taken
750-4			Warning	No samples for collar				None taken
750-5			Warning	No samples for collar				None taken
750-6			Warning	No samples for collar				None taken
750-7			Warning	No samples for collar				None taken
750-8			Warning	No samples for collar				None taken
750-9			Warning	No samples for collar				None taken
810-10			Warning	No samples for collar				None taken
810-12			Warning	No samples for collar				None taken
810-13			Warning	No samples for collar				None taken
810-14			Warning	No samples for collar				None taken
810-15			Warning	No samples for collar				None taken
810-16			Warning	No samples for collar				None taken
810-16a			Warning	No samples for collar				None taken
810-17			Warning	No samples for collar				None taken
810-18			Warning	No samples for collar				None taken
810-19			Warning	No samples for collar				None taken
810-2			Warning	No samples for collar				None taken
810-20			Warning	No samples for collar				None taken
810-21			Warning	No samples for collar				None taken
810-3			Warning	No samples for collar				None taken
810-4			Warning	No samples for collar				None taken
810-8			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
810-9			Warning	No samples for collar				None taken
CDH-1			Warning	No samples for collar				None taken
CDH-10			Warning	No samples for collar				None taken
CDH-2			Warning	No samples for collar				None taken
CDH-3			Warning	No samples for collar				None taken
CDH-4			Warning	No samples for collar				None taken
CDH-5			Warning	No samples for collar				None taken
CDH-5A			Warning	No samples for collar				None taken
CDH-6			Warning	No samples for collar				None taken
CDH-7			Warning	No samples for collar				None taken
CDH-8			Warning	No samples for collar				None taken
CDH-9			Warning	No samples for collar				None taken
CRD-03-01			Warning	No samples for collar				None taken
CRD-03-02			Warning	No samples for collar				None taken
CRD-03-03			Warning	No samples for collar				None taken
CRD-03-04			Warning	No samples for collar				None taken
CRD-03-05			Warning	No samples for collar				None taken
CRD-03-06			Warning	No samples for collar				None taken
CRD-03-07			Warning	No samples for collar				None taken
CRD-03-08			Warning	No samples for collar				None taken
CRD-03-09			Warning	No samples for collar				None taken
CRD-03-10			Warning	No samples for collar				None taken
CRD-03-11			Warning	No samples for collar				None taken
CRD-03-12			Warning	No samples for collar				None taken
CRD-03-13			Warning	No samples for collar				None taken
CS-121			Warning	No samples for collar				None taken
CS-122			Warning	No samples for collar				None taken
CS-123			Warning	No samples for collar				None taken
CS-124			Warning	No samples for collar				None taken
CS-125			Warning	No samples for collar				None taken
CS-126			Warning	No samples for collar				None taken
CS-127			Warning	No samples for collar				None taken
CS-128			Warning	No samples for collar				None taken
CS-129			Warning	No samples for collar				None taken
CS-130			Warning	No samples for collar				None taken
CS-131			Warning	No samples for collar				None taken
CS-132			Warning	No samples for collar				None taken
CS-133A			Warning	No samples for collar				None taken
CS-134			Warning	No samples for collar				None taken
CS-135A			Warning	No samples for collar				None taken
CS-136			Warning	No samples for collar				None taken
CS-137			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-137A			Warning	No samples for collar				None taken
CS-138			Warning	No samples for collar				None taken
CS-139			Warning	No samples for collar				None taken
CS-140			Warning	No samples for collar				None taken
CS-141			Warning	No samples for collar				None taken
CS-166			Warning	No samples for collar				None taken
CS-170			Warning	No samples for collar				None taken
CS-171			Warning	No samples for collar				None taken
CS-176			Warning	No samples for collar				None taken
CS-177			Warning	No samples for collar				None taken
CS-234			Warning	No samples for collar				None taken
CS-263			Warning	No samples for collar				None taken
CS-265			Warning	No samples for collar				None taken
CS-266			Warning	No samples for collar				None taken
CS-276			Warning	No samples for collar				None taken
CS-278			Warning	No samples for collar				None taken
CS-289			Warning	No samples for collar				None taken
CS-293			Warning	No samples for collar				None taken
CS-301			Warning	No samples for collar				None taken
CS-412			Warning	No samples for collar				None taken
CS-415			Warning	No samples for collar				None taken
CS-416			Warning	No samples for collar				None taken
CS-419			Warning	No samples for collar				None taken
CS-420			Warning	No samples for collar				None taken
CS-421			Warning	No samples for collar				None taken
CS-426			Warning	No samples for collar				None taken
CS-427			Warning	No samples for collar				None taken
CS-428			Warning	No samples for collar				None taken
CS-431			Warning	No samples for collar				None taken
CS-432			Warning	No samples for collar				None taken
CS-433			Warning	No samples for collar				None taken
CS-434			Warning	No samples for collar				None taken
CS-434-A			Warning	No samples for collar				None taken
CS-435			Warning	No samples for collar				None taken
CS-436			Warning	No samples for collar				None taken
CS-437			Warning	No samples for collar				None taken
CS-438			Warning	No samples for collar				None taken
CS-439			Warning	No samples for collar				None taken
CS-440			Warning	No samples for collar				None taken
CS-441			Warning	No samples for collar				None taken
CS-442			Warning	No samples for collar				None taken
CS-443			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-444			Warning	No samples for collar				None taken
CS-452			Warning	No samples for collar				None taken
CS-455			Warning	No samples for collar				None taken
CS-456			Warning	No samples for collar				None taken
CS-457			Warning	No samples for collar				None taken
CS-458			Warning	No samples for collar				None taken
CS-459			Warning	No samples for collar				None taken
CS-460			Warning	No samples for collar				None taken
CS-461			Warning	No samples for collar				None taken
CS-462			Warning	No samples for collar				None taken
CS-463			Warning	No samples for collar				None taken
CS-464			Warning	No samples for collar				None taken
CS-465			Warning	No samples for collar				None taken
CS-466			Warning	No samples for collar				None taken
CS-467			Warning	No samples for collar				None taken
CS-468			Warning	No samples for collar				None taken
CS-469			Warning	No samples for collar				None taken
CS-470			Warning	No samples for collar				None taken
CS-471			Warning	No samples for collar				None taken
CS-472			Warning	No samples for collar				None taken
CS-473			Warning	No samples for collar				None taken
CS-474			Warning	No samples for collar				None taken
CS-475			Warning	No samples for collar				None taken
CS-476			Warning	No samples for collar				None taken
CS-477			Warning	No samples for collar				None taken
CS-478			Warning	No samples for collar				None taken
CS-479			Warning	No samples for collar				None taken
CS-480			Warning	No samples for collar				None taken
CS-485			Warning	No samples for collar				None taken
CS-486			Warning	No samples for collar				None taken
CS-487			Warning	No samples for collar				None taken
CS-488			Warning	No samples for collar				None taken
CS-489			Warning	No samples for collar				None taken
CS-490			Warning	No samples for collar				None taken
CS-491			Warning	No samples for collar				None taken
CS-492			Warning	No samples for collar				None taken
CS-493			Warning	No samples for collar				None taken
CSD-1			Warning	No samples for collar				None taken
CSD-11			Warning	No samples for collar				None taken
CSD-12			Warning	No samples for collar				None taken
CSD-13			Warning	No samples for collar				None taken
CSD-15			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSD-16			Warning	No samples for collar				None taken
CSD-17			Warning	No samples for collar				None taken
CSD-18			Warning	No samples for collar				None taken
CSD-19			Warning	No samples for collar				None taken
CSD-2			Warning	No samples for collar				None taken
CSD-20			Warning	No samples for collar				None taken
CSD-21			Warning	No samples for collar				None taken
CSD-22			Warning	No samples for collar				None taken
CSD-23			Warning	No samples for collar				None taken
CSD-24			Warning	No samples for collar				None taken
CSD-25			Warning	No samples for collar				None taken
CSD-26			Warning	No samples for collar				None taken
CSD-27			Warning	No samples for collar				None taken
CSD-28			Warning	No samples for collar				None taken
CSD-29			Warning	No samples for collar				None taken
CSD-3			Warning	No samples for collar				None taken
CSD-30			Warning	No samples for collar				None taken
CSD-31			Warning	No samples for collar				None taken
CSD-32			Warning	No samples for collar				None taken
CSD-33			Warning	No samples for collar				None taken
CSD-34			Warning	No samples for collar				None taken
CSD-35			Warning	No samples for collar				None taken
CSD-36			Warning	No samples for collar				None taken
CSD-37			Warning	No samples for collar				None taken
CSD-38			Warning	No samples for collar				None taken
CSD-39			Warning	No samples for collar				None taken
CSD-4			Warning	No samples for collar				None taken
CSD-40			Warning	No samples for collar				None taken
CSD-41			Warning	No samples for collar				None taken
CSD-42			Warning	No samples for collar				None taken
CSD-43			Warning	No samples for collar				None taken
CSD-43A			Warning	No samples for collar				None taken
CSD-44			Warning	No samples for collar				None taken
CSD-45			Warning	No samples for collar				None taken
CSD-46			Warning	No samples for collar				None taken
CSD-47			Warning	No samples for collar				None taken
CSD-48			Warning	No samples for collar				None taken
CSD-49			Warning	No samples for collar				None taken
CSD-5			Warning	No samples for collar				None taken
CSD-50			Warning	No samples for collar				None taken
CSD-51			Warning	No samples for collar				None taken
CSD-52			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSD-53			Warning	No samples for collar				None taken
CSD-54			Warning	No samples for collar				None taken
CSD-55			Warning	No samples for collar				None taken
CSD-56			Warning	No samples for collar				None taken
CSD-57			Warning	No samples for collar				None taken
CSD-58			Warning	No samples for collar				None taken
CSD-59			Warning	No samples for collar				None taken
CSD-6			Warning	No samples for collar				None taken
CSD-60			Warning	No samples for collar				None taken
CSD-61			Warning	No samples for collar				None taken
CSD-62			Warning	No samples for collar				None taken
CSD-63			Warning	No samples for collar				None taken
CSD-64			Warning	No samples for collar				None taken
CSD-65			Warning	No samples for collar				None taken
CSD-66			Warning	No samples for collar				None taken
CSD-67			Warning	No samples for collar				None taken
CSD-68			Warning	No samples for collar				None taken
CSD-69			Warning	No samples for collar				None taken
CSD-70			Warning	No samples for collar				None taken
CSD-71			Warning	No samples for collar				None taken
CSD-72			Warning	No samples for collar				None taken
CSD-73			Warning	No samples for collar				None taken
CSD-74			Warning	No samples for collar				None taken
CSD-75			Warning	No samples for collar				None taken
CSD-76			Warning	No samples for collar				None taken
CSD-8			Warning	No samples for collar				None taken
CSR-1			Warning	No samples for collar				None taken
CSR-10			Warning	No samples for collar				None taken
CSR-100			Warning	No samples for collar				None taken
CSR-100A			Warning	No samples for collar				None taken
CSR-101			Warning	No samples for collar				None taken
CSR-102			Warning	No samples for collar				None taken
CSR-104			Warning	No samples for collar				None taken
CSR-105			Warning	No samples for collar				None taken
CSR-11			Warning	No samples for collar				None taken
CSR-110			Warning	No samples for collar				None taken
CSR-118			Warning	No samples for collar				None taken
CSR-11A			Warning	No samples for collar				None taken
CSR-12			Warning	No samples for collar				None taken
CSR-13			Warning	No samples for collar				None taken
CSR-14			Warning	No samples for collar				None taken
CSR-142			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSR-143			Warning	No samples for collar				None taken
CSR-144			Warning	No samples for collar				None taken
CSR-145			Warning	No samples for collar				None taken
CSR-146			Warning	No samples for collar				None taken
CSR-147			Warning	No samples for collar				None taken
CSR-148			Warning	No samples for collar				None taken
CSR-15			Warning	No samples for collar				None taken
CSR-16			Warning	No samples for collar				None taken
CSR-17			Warning	No samples for collar				None taken
CSR-18			Warning	No samples for collar				None taken
CSR-19			Warning	No samples for collar				None taken
CSR-2			Warning	No samples for collar				None taken
CSR-20			Warning	No samples for collar				None taken
CSR-21			Warning	No samples for collar				None taken
CSR-22			Warning	No samples for collar				None taken
CSR-23			Warning	No samples for collar				None taken
CSR-24			Warning	No samples for collar				None taken
CSR-24A			Warning	No samples for collar				None taken
CSR-25			Warning	No samples for collar				None taken
CSR-26			Warning	No samples for collar				None taken
CSR-27			Warning	No samples for collar				None taken
CSR-28			Warning	No samples for collar				None taken
CSR-29			Warning	No samples for collar				None taken
CSR-3			Warning	No samples for collar				None taken
CSR-30			Warning	No samples for collar				None taken
CSR-31			Warning	No samples for collar				None taken
CSR-32			Warning	No samples for collar				None taken
CSR-33B			Warning	No samples for collar				None taken
CSR-34			Warning	No samples for collar				None taken
CSR-35			Warning	No samples for collar				None taken
CSR-36			Warning	No samples for collar				None taken
CSR-37			Warning	No samples for collar				None taken
CSR-38			Warning	No samples for collar				None taken
CSR-39			Warning	No samples for collar				None taken
CSR-4			Warning	No samples for collar				None taken
CSR-40			Warning	No samples for collar				None taken
CSR-41			Warning	No samples for collar				None taken
CSR-42			Warning	No samples for collar				None taken
CSR-43			Warning	No samples for collar				None taken
CSR-44			Warning	No samples for collar				None taken
CSR-47			Warning	No samples for collar				None taken
CSR-48			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSR-49			Warning	No samples for collar				None taken
CSR-5			Warning	No samples for collar				None taken
CSR-50			Warning	No samples for collar				None taken
CSR-51			Warning	No samples for collar				None taken
CSR-52			Warning	No samples for collar				None taken
CSR-53			Warning	No samples for collar				None taken
CSR-5A			Warning	No samples for collar				None taken
CSR-6			Warning	No samples for collar				None taken
CSR-60			Warning	No samples for collar				None taken
CSR-61			Warning	No samples for collar				None taken
CSR-62			Warning	No samples for collar				None taken
CSR-65			Warning	No samples for collar				None taken
CSR-66			Warning	No samples for collar				None taken
CSR-67			Warning	No samples for collar				None taken
CSR-68			Warning	No samples for collar				None taken
CSR-69			Warning	No samples for collar				None taken
CSR-7			Warning	No samples for collar				None taken
CSR-70			Warning	No samples for collar				None taken
CSR-71			Warning	No samples for collar				None taken
CSR-75A			Warning	No samples for collar				None taken
CSR-76			Warning	No samples for collar				None taken
CSR-77			Warning	No samples for collar				None taken
CSR-78A			Warning	No samples for collar				None taken
CSR-79			Warning	No samples for collar				None taken
CSR-8			Warning	No samples for collar				None taken
CSR-81			Warning	No samples for collar				None taken
CSR-82A			Warning	No samples for collar				None taken
CSR-83			Warning	No samples for collar				None taken
CSR-84			Warning	No samples for collar				None taken
CSR-85			Warning	No samples for collar				None taken
CSR-86			Warning	No samples for collar				None taken
CSR-87A			Warning	No samples for collar				None taken
CSR-88			Warning	No samples for collar				None taken
CSR-89			Warning	No samples for collar				None taken
CSR-9			Warning	No samples for collar				None taken
CSR-90			Warning	No samples for collar				None taken
CSR-90A			Warning	No samples for collar				None taken
CSR-91			Warning	No samples for collar				None taken
CSR-92			Warning	No samples for collar				None taken
CSR-93			Warning	No samples for collar				None taken
CSR-94			Warning	No samples for collar				None taken
CSR-95			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSR-96A			Warning	No samples for collar				None taken
CSR-97			Warning	No samples for collar				None taken
CSR-98			Warning	No samples for collar				None taken
CUDH-03-01			Warning	No samples for collar				None taken
CUDH-03-02			Warning	No samples for collar				None taken
CUDH-03-03			Warning	No samples for collar				None taken
CUDH-03-04			Warning	No samples for collar				None taken
CUDH-03-05			Warning	No samples for collar				None taken
CUDH-03-06			Warning	No samples for collar				None taken
CUDH-03-07			Warning	No samples for collar				None taken
CUDH-03-08			Warning	No samples for collar				None taken
CUDH-03-09			Warning	No samples for collar				None taken
CUDH-03-10			Warning	No samples for collar				None taken
CUDH-03-11			Warning	No samples for collar				None taken
CUDH-03-12			Warning	No samples for collar				None taken
CUDH-03-13			Warning	No samples for collar				None taken
CUDH-03-14			Warning	No samples for collar				None taken
CUDH-03-15			Warning	No samples for collar				None taken
CUDH-04-16			Warning	No samples for collar				None taken
CUDH-04-17			Warning	No samples for collar				None taken
CUDH-04-18			Warning	No samples for collar				None taken
CUDH-04-19			Warning	No samples for collar				None taken
CUDH-04-20			Warning	No samples for collar				None taken
CUDH-04-21			Warning	No samples for collar				None taken
CUDH-04-22			Warning	No samples for collar				None taken
CUDH-04-23			Warning	No samples for collar				None taken
CUDH-04-24			Warning	No samples for collar				None taken
CUDH-04-25			Warning	No samples for collar				None taken
CUDH-04-26			Warning	No samples for collar				None taken
CUDH-04-27			Warning	No samples for collar				None taken
CUDH-04-28			Warning	No samples for collar				None taken
CUDH-04-29			Warning	No samples for collar				None taken
CUDH-04-30			Warning	No samples for collar				None taken
CUDH-04-31			Warning	No samples for collar				None taken
CUDH-04-32			Warning	No samples for collar				None taken
DCU-1			Warning	No samples for collar				None taken
DCU-10			Warning	No samples for collar				None taken
DCU-11			Warning	No samples for collar				None taken
DCU-12			Warning	No samples for collar				None taken
DCU-13			Warning	No samples for collar				None taken
DCU-14			Warning	No samples for collar				None taken
DCU-15			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
DCU-16			Warning	No samples for collar				None taken
DCU-17			Warning	No samples for collar				None taken
DCU-2			Warning	No samples for collar				None taken
DCU-5			Warning	No samples for collar				None taken
DCU-6			Warning	No samples for collar				None taken
DCU-7			Warning	No samples for collar				None taken
DCU-8			Warning	No samples for collar				None taken
DCU-9			Warning	No samples for collar				None taken
DU5-76			Warning	No samples for collar				None taken
DU5-78			Warning	No samples for collar				None taken
DZ12-1			Warning	No samples for collar				None taken
DZ12-2			Warning	No samples for collar				None taken
DZ12-3			Warning	No samples for collar				None taken
DZ12-4			Warning	No samples for collar				None taken
DZ12-5			Warning	No samples for collar				None taken
DZ12-6			Warning	No samples for collar				None taken
DZ-3			Warning	No samples for collar				None taken
DZ-4			Warning	No samples for collar				None taken
H5-125			Warning	No samples for collar				None taken
H5-126			Warning	No samples for collar				None taken
H5-127			Warning	No samples for collar				None taken
H5-128			Warning	No samples for collar				None taken
H5-129			Warning	No samples for collar				None taken
H5-130			Warning	No samples for collar				None taken
H5-131			Warning	No samples for collar				None taken
H5-132			Warning	No samples for collar				None taken
H5-133			Warning	No samples for collar				None taken
H5-134			Warning	No samples for collar				None taken
H5-135			Warning	No samples for collar				None taken
H5-136			Warning	No samples for collar				None taken
H5-137			Warning	No samples for collar				None taken
H5-138			Warning	No samples for collar				None taken
H5-139			Warning	No samples for collar				None taken
H5-140			Warning	No samples for collar				None taken
H5-141			Warning	No samples for collar				None taken
H5-142			Warning	No samples for collar				None taken
H5-143			Warning	No samples for collar				None taken
H5-144			Warning	No samples for collar				None taken
H5-145			Warning	No samples for collar				None taken
H5-146			Warning	No samples for collar				None taken
H5-147			Warning	No samples for collar				None taken
H5-148			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H5-149			Warning	No samples for collar				None taken
H5-150			Warning	No samples for collar				None taken
H5-151			Warning	No samples for collar				None taken
H5-152			Warning	No samples for collar				None taken
H5-153			Warning	No samples for collar				None taken
H5-154			Warning	No samples for collar				None taken
H5-155			Warning	No samples for collar				None taken
H5-156			Warning	No samples for collar				None taken
H5-157			Warning	No samples for collar				None taken
H5-158			Warning	No samples for collar				None taken
H5-159			Warning	No samples for collar				None taken
H5-160			Warning	No samples for collar				None taken
H5-161			Warning	No samples for collar				None taken
H5-162			Warning	No samples for collar				None taken
H5-163			Warning	No samples for collar				None taken

Geotechnical Table

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CRD-04-09	425	425	Error	from depth >= to depth				Removed unnecessary interval (425-425)
CRD-04-11	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
CRD-04-12	425	425	Error	from depth >= to depth				Removed unnecessary interval (425-425)
CS-238	0	70	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	70	90	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	90	130	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	130	160	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	160	170	Error	Interval overlaps another interval	CS-238A	65	180	CS-238A ignored from database
CS-238	170	225	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	225	245	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-238	245	305	Error	Interval overlaps another interval	CS-238A	200	275	CS-238A ignored from database
CS-291	20	250	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
CS-291	250	265	Error	Interval overlaps another interval	CS-306	220	270	CS-291 ignored from database
F4-1	276	276	Error	from depth >= to depth				Removed unnecessary interval (276-276)
F4-3	173	173	Error	from depth >= to depth				Removed unnecessary interval (173-173)
F4-4	190	190	Error	from depth >= to depth				Removed unnecessary interval (190-190)
H4-15	125	125	Error	from depth >= to depth				Removed unnecessary interval (125-125)
H4-16	60	60	Error	from depth >= to depth				Removed unnecessary interval (60-60)
H4-17	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
H4-19	300	300	Error	from depth >= to depth				Removed unnecessary interval (300-300)
H4-21	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-21	400	400	Error	from depth >= to depth				Removed unnecessary interval (400-400)
H4-22	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-26	320	320	Error	from depth >= to depth				Removed unnecessary interval (320-320)
H4-29	5	5	Error	from depth >= to depth				Removed unnecessary interval (5-5)
H4-29	610	610	Error	from depth >= to depth				Removed unnecessary interval (610-610)
H4-29	728.5	732	Error	Interval overlaps another interval	H4-29	723.5	729	Correct interval 723.5 - 728.5
H4-29	791.5	795	Error	Interval overlaps another interval	H4-29	786.2	792	Correct interval 786.2-791.5
H4-29	916.5	920	Error	Interval overlaps another interval	H4-29	912	917	Correct interval 912-916.5

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
H4-29	919.5	925	Error	Interval overlaps another interval	H4-29	916.5	920	Correct interval 916.5-919.5
H4-29	924.8	930	Error	Interval overlaps another interval	H4-29	919.5	925	Correct interval 919.5-924.8
H4-29	944.6	950	Error	Interval overlaps another interval	H4-29	939.3	945	Correct interval 939.3-944.6
H4-29	949.6	952	Error	Interval overlaps another interval	H4-29	944.6	950	Correct interval944.6 - 949.6
H4-31	100	100	Error	from depth >= to depth				Removed unnecessary interval (100-100)
H4-32	822.5	828	Error	Interval overlaps another interval	H4-32	817.5	823	Correct interval 822.5-827.5
H4-32	827.5	833	Error	Interval overlaps another interval	H4-32	822.5	828	Correct interval 827.5-832.5
H4-32	832.5	838	Error	Interval overlaps another interval	H4-32	827.5	833	Correct interval 827.5-832.5
H4-32	962.5	968	Error	Interval overlaps another interval	H4-32	957	963	Correct interval 957-962.5
H4-32	967.5	973	Error	Interval overlaps another interval	H4-32	962.5	968	Correct interval 962.5-967.5
H4-32	972.5	978	Error	Interval overlaps another interval	H4-32	967.5	973	Correct interval 967.5-972.5
H4-32	977.5	983	Error	Interval overlaps another interval	H4-32	972.5	978	Correct interval 972.5-977.5
H4-39	450	450	Error	from depth >= to depth				Removed unnecessary interval (450-450)
H4-41	280	280	Error	from depth >= to depth				Removed unnecessary interval (280-280)
H4-44	600	601	Error	Interval overlaps another interval	H4-44	600	605	Removed 600-605
H4-44	601	666	Error	Interval overlaps another interval	H4-44	600	605	Removed 600-605
H4-44	605	610	Error	Interval overlaps another interval	H4-44	601	666	Removed 605-610
H4-44	610	615	Error	Interval overlaps another interval	H4-44	601	666	Removed 610-615
H4-44	615	620	Error	Interval overlaps another interval	H4-44	601	666	Removed 615-620
H4-44	620	625	Error	Interval overlaps another interval	H4-44	601	666	Removed 620-625
H4-44	625	630	Error	Interval overlaps another interval	H4-44	601	666	Removed 625-630
H4-44	630	635	Error	Interval overlaps another interval	H4-44	601	666	Removed 630-635
H4-44	635	640	Error	Interval overlaps another interval	H4-44	601	666	Removed 635-640
H4-44	640	645	Error	Interval overlaps another interval	H4-44	601	666	Removed 640-645
H4-44	645	650	Error	Interval overlaps another interval	H4-44	601	666	Removed 645-650
H4-44	650	655	Error	Interval overlaps another interval	H4-44	601	666	Removed 650-655
H4-44	655	660	Error	Interval overlaps another interval	H4-44	601	666	Removed 655-660
H4-48	245	245	Error	from depth >= to depth				Removed unnecessary interval (245-245)
H4-61	839	844	Error	To value exceeds max depth in collar table				Changed interval to 839-843
06CS-01			Warning	No samples for collar				None taken
06CS-02			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
06CS-03			Warning	No samples for collar				None taken
06CS-04			Warning	No samples for collar				None taken
06CS-05			Warning	No samples for collar				None taken
06CS-06			Warning	No samples for collar				None taken
06CS-07			Warning	No samples for collar				None taken
06CS-08			Warning	No samples for collar				None taken
06CS-09			Warning	No samples for collar				None taken
06CS-10			Warning	No samples for collar				None taken
06CS-11			Warning	No samples for collar				None taken
06CS-12			Warning	No samples for collar				None taken
06CS-13			Warning	No samples for collar				None taken
06CS-14			Warning	No samples for collar				None taken
06CS-15			Warning	No samples for collar				None taken
06CS-16			Warning	No samples for collar				None taken
06CS-17			Warning	No samples for collar				None taken
06CS-18			Warning	No samples for collar				None taken
06CS-19			Warning	No samples for collar				None taken
06CS-20			Warning	No samples for collar				None taken
06CS-21			Warning	No samples for collar				None taken
06CS-22			Warning	No samples for collar				None taken
06CS-23			Warning	No samples for collar				None taken
06CS-24			Warning	No samples for collar				None taken
06CS-25			Warning	No samples for collar				None taken
06CS-26			Warning	No samples for collar				None taken
06CS-27			Warning	No samples for collar				None taken
07CS-28			Warning	No samples for collar				None taken
07CS-29			Warning	No samples for collar				None taken
07CS-30			Warning	No samples for collar				None taken
07CS-31			Warning	No samples for collar				None taken
07CS-32			Warning	No samples for collar				None taken
07CS-33			Warning	No samples for collar				None taken
07CS-34			Warning	No samples for collar				None taken
07CS-35			Warning	No samples for collar				None taken
07CS-36			Warning	No samples for collar				None taken
07CS-37			Warning	No samples for collar				None taken
07CS-38			Warning	No samples for collar				None taken
07CS-39			Warning	No samples for collar				None taken
07CS-40			Warning	No samples for collar				None taken
07CS-41			Warning	No samples for collar				None taken
07CS-42			Warning	No samples for collar				None taken
07CS-43			Warning	No samples for collar				None taken
07CS-44			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
08CS-45			Warning	No samples for collar				None taken
08CS-46			Warning	No samples for collar				None taken
08CS-47			Warning	No samples for collar				None taken
08CS-48			Warning	No samples for collar				None taken
08CS-49A			Warning	No samples for collar				None taken
08CS-50			Warning	No samples for collar				None taken
08CS-51			Warning	No samples for collar				None taken
08CS-52			Warning	No samples for collar				None taken
08CS-53			Warning	No samples for collar				None taken
08CS-54			Warning	No samples for collar				None taken
08CS-55			Warning	No samples for collar				None taken
08CS-56			Warning	No samples for collar				None taken
08CS-57			Warning	No samples for collar				None taken
08CS-58			Warning	No samples for collar				None taken
08CS-59			Warning	No samples for collar				None taken
520-1			Warning	No samples for collar				None taken
520-10			Warning	No samples for collar				None taken
520-11			Warning	No samples for collar				None taken
520-12			Warning	No samples for collar				None taken
520-13			Warning	No samples for collar				None taken
520-14			Warning	No samples for collar				None taken
520-15			Warning	No samples for collar				None taken
520-16			Warning	No samples for collar				None taken
520-17			Warning	No samples for collar				None taken
520-2			Warning	No samples for collar				None taken
520-3			Warning	No samples for collar				None taken
520-4			Warning	No samples for collar				None taken
520-5			Warning	No samples for collar				None taken
520-6			Warning	No samples for collar				None taken
520-7			Warning	No samples for collar				None taken
520-8			Warning	No samples for collar				None taken
520-9			Warning	No samples for collar				None taken
650W-1			Warning	No samples for collar				None taken
650W-10			Warning	No samples for collar				None taken
650W-12			Warning	No samples for collar				None taken
650W-13			Warning	No samples for collar				None taken
650W-14			Warning	No samples for collar				None taken
650W-15			Warning	No samples for collar				None taken
650W-16			Warning	No samples for collar				None taken
650W-17			Warning	No samples for collar				None taken
650W-2			Warning	No samples for collar				None taken
650W-3			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
650W-4			Warning	No samples for collar				None taken
650W-5			Warning	No samples for collar				None taken
650W-6			Warning	No samples for collar				None taken
650W-8			Warning	No samples for collar				None taken
650W-9			Warning	No samples for collar				None taken
654-1			Warning	No samples for collar				None taken
654-2			Warning	No samples for collar				None taken
654-50			Warning	No samples for collar				None taken
654-51			Warning	No samples for collar				None taken
654-52			Warning	No samples for collar				None taken
654-53			Warning	No samples for collar				None taken
654-54			Warning	No samples for collar				None taken
654-55			Warning	No samples for collar				None taken
654-56			Warning	No samples for collar				None taken
654-57			Warning	No samples for collar				None taken
654-58			Warning	No samples for collar				None taken
654-59			Warning	No samples for collar				None taken
654-60			Warning	No samples for collar				None taken
654-61			Warning	No samples for collar				None taken
654cc-1			Warning	No samples for collar				None taken
654cc-2			Warning	No samples for collar				None taken
654cc-3			Warning	No samples for collar				None taken
690-1			Warning	No samples for collar				None taken
690-10			Warning	No samples for collar				None taken
690-11			Warning	No samples for collar				None taken
690-12			Warning	No samples for collar				None taken
690-13			Warning	No samples for collar				None taken
690-14			Warning	No samples for collar				None taken
690-15			Warning	No samples for collar				None taken
690-19			Warning	No samples for collar				None taken
690-2			Warning	No samples for collar				None taken
690-20			Warning	No samples for collar				None taken
690-21			Warning	No samples for collar				None taken
690-22			Warning	No samples for collar				None taken
690-23			Warning	No samples for collar				None taken
690-24			Warning	No samples for collar				None taken
690-25			Warning	No samples for collar				None taken
690-26			Warning	No samples for collar				None taken
690-28			Warning	No samples for collar				None taken
690-29			Warning	No samples for collar				None taken
690-3			Warning	No samples for collar				None taken
690-31			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
690-32			Warning	No samples for collar				None taken
690-33			Warning	No samples for collar				None taken
690-34			Warning	No samples for collar				None taken
690-35			Warning	No samples for collar				None taken
690-36			Warning	No samples for collar				None taken
690-38			Warning	No samples for collar				None taken
690-39			Warning	No samples for collar				None taken
690-40			Warning	No samples for collar				None taken
690-41			Warning	No samples for collar				None taken
690-42			Warning	No samples for collar				None taken
690-43			Warning	No samples for collar				None taken
690-44			Warning	No samples for collar				None taken
690-45			Warning	No samples for collar				None taken
690-46			Warning	No samples for collar				None taken
690-47			Warning	No samples for collar				None taken
690-48			Warning	No samples for collar				None taken
690-49			Warning	No samples for collar				None taken
690-50			Warning	No samples for collar				None taken
690-51			Warning	No samples for collar				None taken
690-7			Warning	No samples for collar				None taken
690-8			Warning	No samples for collar				None taken
726-1			Warning	No samples for collar				None taken
726-10			Warning	No samples for collar				None taken
726-11			Warning	No samples for collar				None taken
726-13			Warning	No samples for collar				None taken
726-14			Warning	No samples for collar				None taken
726-2			Warning	No samples for collar				None taken
726-3			Warning	No samples for collar				None taken
726-4			Warning	No samples for collar				None taken
726-5			Warning	No samples for collar				None taken
726-6			Warning	No samples for collar				None taken
726-7			Warning	No samples for collar				None taken
730-11			Warning	No samples for collar				None taken
730-13			Warning	No samples for collar				None taken
730-14			Warning	No samples for collar				None taken
730-15			Warning	No samples for collar				None taken
730-16			Warning	No samples for collar				None taken
730-17			Warning	No samples for collar				None taken
730-18			Warning	No samples for collar				None taken
730-19			Warning	No samples for collar				None taken
730-2			Warning	No samples for collar				None taken
730-20			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
730-21			Warning	No samples for collar				None taken
730-22			Warning	No samples for collar				None taken
730-23			Warning	No samples for collar				None taken
730-3			Warning	No samples for collar				None taken
730-4			Warning	No samples for collar				None taken
730-5			Warning	No samples for collar				None taken
730-7			Warning	No samples for collar				None taken
730-8			Warning	No samples for collar				None taken
730-9			Warning	No samples for collar				None taken
750-1			Warning	No samples for collar				None taken
750-10			Warning	No samples for collar				None taken
750-11			Warning	No samples for collar				None taken
750-12			Warning	No samples for collar				None taken
750-13			Warning	No samples for collar				None taken
750-14			Warning	No samples for collar				None taken
750-17			Warning	No samples for collar				None taken
750-18			Warning	No samples for collar				None taken
750-2			Warning	No samples for collar				None taken
750-20			Warning	No samples for collar				None taken
750-3			Warning	No samples for collar				None taken
750-4			Warning	No samples for collar				None taken
750-5			Warning	No samples for collar				None taken
750-6			Warning	No samples for collar				None taken
750-7			Warning	No samples for collar				None taken
750-8			Warning	No samples for collar				None taken
750-9			Warning	No samples for collar				None taken
810-10			Warning	No samples for collar				None taken
810-12			Warning	No samples for collar				None taken
810-13			Warning	No samples for collar				None taken
810-14			Warning	No samples for collar				None taken
810-15			Warning	No samples for collar				None taken
810-16			Warning	No samples for collar				None taken
810-16a			Warning	No samples for collar				None taken
810-17			Warning	No samples for collar				None taken
810-18			Warning	No samples for collar				None taken
810-19			Warning	No samples for collar				None taken
810-2			Warning	No samples for collar				None taken
810-20			Warning	No samples for collar				None taken
810-21			Warning	No samples for collar				None taken
810-3			Warning	No samples for collar				None taken
810-4			Warning	No samples for collar				None taken
810-8			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
810-9			Warning	No samples for collar				None taken
CDH-1			Warning	No samples for collar				None taken
CDH-10			Warning	No samples for collar				None taken
CDH-2			Warning	No samples for collar				None taken
CDH-3			Warning	No samples for collar				None taken
CDH-4			Warning	No samples for collar				None taken
CDH-5			Warning	No samples for collar				None taken
CDH-5A			Warning	No samples for collar				None taken
CDH-6			Warning	No samples for collar				None taken
CDH-7			Warning	No samples for collar				None taken
CDH-8			Warning	No samples for collar				None taken
CDH-9			Warning	No samples for collar				None taken
CRD-03-01			Warning	No samples for collar				None taken
CRD-03-02			Warning	No samples for collar				None taken
CRD-03-03			Warning	No samples for collar				None taken
CRD-03-04			Warning	No samples for collar				None taken
CRD-03-05			Warning	No samples for collar				None taken
CRD-03-06			Warning	No samples for collar				None taken
CRD-03-07			Warning	No samples for collar				None taken
CRD-03-08			Warning	No samples for collar				None taken
CRD-03-09			Warning	No samples for collar				None taken
CRD-03-10			Warning	No samples for collar				None taken
CRD-03-11			Warning	No samples for collar				None taken
CRD-03-12			Warning	No samples for collar				None taken
CRD-03-13			Warning	No samples for collar				None taken
CS-121			Warning	No samples for collar				None taken
CS-122			Warning	No samples for collar				None taken
CS-123			Warning	No samples for collar				None taken
CS-124			Warning	No samples for collar				None taken
CS-125			Warning	No samples for collar				None taken
CS-126			Warning	No samples for collar				None taken
CS-127			Warning	No samples for collar				None taken
CS-128			Warning	No samples for collar				None taken
CS-129			Warning	No samples for collar				None taken
CS-130			Warning	No samples for collar				None taken
CS-131			Warning	No samples for collar				None taken
CS-132			Warning	No samples for collar				None taken
CS-133A			Warning	No samples for collar				None taken
CS-134			Warning	No samples for collar				None taken
CS-135A			Warning	No samples for collar				None taken
CS-136			Warning	No samples for collar				None taken
CS-137			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CS-137A			Warning	No samples for collar				None taken
CS-138			Warning	No samples for collar				None taken
CS-139			Warning	No samples for collar				None taken
CS-140			Warning	No samples for collar				None taken
CS-141			Warning	No samples for collar				None taken
CS-166			Warning	No samples for collar				None taken
CS-170			Warning	No samples for collar				None taken
CS-171			Warning	No samples for collar				None taken
CS-176			Warning	No samples for collar				None taken
CS-177			Warning	No samples for collar				None taken
CS-234			Warning	No samples for collar				None taken
CS-263			Warning	No samples for collar				None taken
CS-265			Warning	No samples for collar				None taken
CS-266			Warning	No samples for collar				None taken
CS-276			Warning	No samples for collar				None taken
CS-278			Warning	No samples for collar				None taken
CS-289			Warning	No samples for collar				None taken
CS-293			Warning	No samples for collar				None taken
CS-301			Warning	No samples for collar				None taken
CS-412			Warning	No samples for collar				None taken
CS-415			Warning	No samples for collar				None taken
CS-416			Warning	No samples for collar				None taken
CS-419			Warning	No samples for collar				None taken
CS-420			Warning	No samples for collar				None taken
CS-421			Warning	No samples for collar				None taken
CS-426			Warning	No samples for collar				None taken
CS-427			Warning	No samples for collar				None taken
CS-428			Warning	No samples for collar				None taken
CS-431			Warning	No samples for collar				None taken
CS-432			Warning	No samples for collar				None taken
CS-433			Warning	No samples for collar				None taken
CS-434			Warning	No samples for collar				None taken
CS-434-A			Warning	No samples for collar				None taken
CS-435			Warning	No samples for collar				None taken
CS-436			Warning	No samples for collar				None taken
CS-437			Warning	No samples for collar				None taken
CS-438			Warning	No samples for collar				None taken
CS-439			Warning	No samples for collar				None taken
CS-440			Warning	No samples for collar				None taken
CS-441			Warning	No samples for collar				None taken
CS-442			Warning	No samples for collar				None taken
CS-443			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CS-444			Warning	No samples for collar				None taken
CS-452			Warning	No samples for collar				None taken
CS-455			Warning	No samples for collar				None taken
CS-456			Warning	No samples for collar				None taken
CS-457			Warning	No samples for collar				None taken
CS-458			Warning	No samples for collar				None taken
CS-459			Warning	No samples for collar				None taken
CS-460			Warning	No samples for collar				None taken
CS-461			Warning	No samples for collar				None taken
CS-462			Warning	No samples for collar				None taken
CS-463			Warning	No samples for collar				None taken
CS-464			Warning	No samples for collar				None taken
CS-465			Warning	No samples for collar				None taken
CS-466			Warning	No samples for collar				None taken
CS-467			Warning	No samples for collar				None taken
CS-468			Warning	No samples for collar				None taken
CS-469			Warning	No samples for collar				None taken
CS-470			Warning	No samples for collar				None taken
CS-471			Warning	No samples for collar				None taken
CS-472			Warning	No samples for collar				None taken
CS-473			Warning	No samples for collar				None taken
CS-474			Warning	No samples for collar				None taken
CS-475			Warning	No samples for collar				None taken
CS-476			Warning	No samples for collar				None taken
CS-477			Warning	No samples for collar				None taken
CS-478			Warning	No samples for collar				None taken
CS-479			Warning	No samples for collar				None taken
CS-480			Warning	No samples for collar				None taken
CS-485			Warning	No samples for collar				None taken
CS-486			Warning	No samples for collar				None taken
CS-487			Warning	No samples for collar				None taken
CS-488			Warning	No samples for collar				None taken
CS-489			Warning	No samples for collar				None taken
CS-490			Warning	No samples for collar				None taken
CS-491			Warning	No samples for collar				None taken
CS-492			Warning	No samples for collar				None taken
CS-493			Warning	No samples for collar				None taken
CSD-1			Warning	No samples for collar				None taken
CSD-11			Warning	No samples for collar				None taken
CSD-12			Warning	No samples for collar				None taken
CSD-13			Warning	No samples for collar				None taken
CSD-15			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CSD-16			Warning	No samples for collar				None taken
CSD-17			Warning	No samples for collar				None taken
CSD-18			Warning	No samples for collar				None taken
CSD-19			Warning	No samples for collar				None taken
CSD-2			Warning	No samples for collar				None taken
CSD-20			Warning	No samples for collar				None taken
CSD-21			Warning	No samples for collar				None taken
CSD-22			Warning	No samples for collar				None taken
CSD-23			Warning	No samples for collar				None taken
CSD-24			Warning	No samples for collar				None taken
CSD-25			Warning	No samples for collar				None taken
CSD-26			Warning	No samples for collar				None taken
CSD-27			Warning	No samples for collar				None taken
CSD-28			Warning	No samples for collar				None taken
CSD-29			Warning	No samples for collar				None taken
CSD-3			Warning	No samples for collar				None taken
CSD-30			Warning	No samples for collar				None taken
CSD-31			Warning	No samples for collar				None taken
CSD-32			Warning	No samples for collar				None taken
CSD-33			Warning	No samples for collar				None taken
CSD-34			Warning	No samples for collar				None taken
CSD-35			Warning	No samples for collar				None taken
CSD-36			Warning	No samples for collar				None taken
CSD-37			Warning	No samples for collar				None taken
CSD-38			Warning	No samples for collar				None taken
CSD-39			Warning	No samples for collar				None taken
CSD-4			Warning	No samples for collar				None taken
CSD-40			Warning	No samples for collar				None taken
CSD-41			Warning	No samples for collar				None taken
CSD-42			Warning	No samples for collar				None taken
CSD-43			Warning	No samples for collar				None taken
CSD-43A			Warning	No samples for collar				None taken
CSD-44			Warning	No samples for collar				None taken
CSD-45			Warning	No samples for collar				None taken
CSD-46			Warning	No samples for collar				None taken
CSD-47			Warning	No samples for collar				None taken
CSD-48			Warning	No samples for collar				None taken
CSD-49			Warning	No samples for collar				None taken
CSD-5			Warning	No samples for collar				None taken
CSD-50			Warning	No samples for collar				None taken
CSD-51			Warning	No samples for collar				None taken
CSD-52			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CSD-53			Warning	No samples for collar				None taken
CSD-54			Warning	No samples for collar				None taken
CSD-55			Warning	No samples for collar				None taken
CSD-56			Warning	No samples for collar				None taken
CSD-57			Warning	No samples for collar				None taken
CSD-58			Warning	No samples for collar				None taken
CSD-59			Warning	No samples for collar				None taken
CSD-6			Warning	No samples for collar				None taken
CSD-60			Warning	No samples for collar				None taken
CSD-61			Warning	No samples for collar				None taken
CSD-62			Warning	No samples for collar				None taken
CSD-63			Warning	No samples for collar				None taken
CSD-64			Warning	No samples for collar				None taken
CSD-65			Warning	No samples for collar				None taken
CSD-66			Warning	No samples for collar				None taken
CSD-67			Warning	No samples for collar				None taken
CSD-68			Warning	No samples for collar				None taken
CSD-69			Warning	No samples for collar				None taken
CSD-70			Warning	No samples for collar				None taken
CSD-71			Warning	No samples for collar				None taken
CSD-72			Warning	No samples for collar				None taken
CSD-73			Warning	No samples for collar				None taken
CSD-74			Warning	No samples for collar				None taken
CSD-75			Warning	No samples for collar				None taken
CSD-76			Warning	No samples for collar				None taken
CSD-8			Warning	No samples for collar				None taken
CSR-1			Warning	No samples for collar				None taken
CSR-10			Warning	No samples for collar				None taken
CSR-100			Warning	No samples for collar				None taken
CSR-100A			Warning	No samples for collar				None taken
CSR-101			Warning	No samples for collar				None taken
CSR-102			Warning	No samples for collar				None taken
CSR-104			Warning	No samples for collar				None taken
CSR-105			Warning	No samples for collar				None taken
CSR-11			Warning	No samples for collar				None taken
CSR-110			Warning	No samples for collar				None taken
CSR-118			Warning	No samples for collar				None taken
CSR-11A			Warning	No samples for collar				None taken
CSR-12			Warning	No samples for collar				None taken
CSR-13			Warning	No samples for collar				None taken
CSR-14			Warning	No samples for collar				None taken
CSR-142			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CSR-143			Warning	No samples for collar				None taken
CSR-144			Warning	No samples for collar				None taken
CSR-145			Warning	No samples for collar				None taken
CSR-146			Warning	No samples for collar				None taken
CSR-147			Warning	No samples for collar				None taken
CSR-148			Warning	No samples for collar				None taken
CSR-15			Warning	No samples for collar				None taken
CSR-16			Warning	No samples for collar				None taken
CSR-17			Warning	No samples for collar				None taken
CSR-18			Warning	No samples for collar				None taken
CSR-19			Warning	No samples for collar				None taken
CSR-2			Warning	No samples for collar				None taken
CSR-20			Warning	No samples for collar				None taken
CSR-21			Warning	No samples for collar				None taken
CSR-22			Warning	No samples for collar				None taken
CSR-23			Warning	No samples for collar				None taken
CSR-24			Warning	No samples for collar				None taken
CSR-24A			Warning	No samples for collar				None taken
CSR-25			Warning	No samples for collar				None taken
CSR-26			Warning	No samples for collar				None taken
CSR-27			Warning	No samples for collar				None taken
CSR-28			Warning	No samples for collar				None taken
CSR-29			Warning	No samples for collar				None taken
CSR-3			Warning	No samples for collar				None taken
CSR-30			Warning	No samples for collar				None taken
CSR-31			Warning	No samples for collar				None taken
CSR-32			Warning	No samples for collar				None taken
CSR-33B			Warning	No samples for collar				None taken
CSR-34			Warning	No samples for collar				None taken
CSR-35			Warning	No samples for collar				None taken
CSR-36			Warning	No samples for collar				None taken
CSR-37			Warning	No samples for collar				None taken
CSR-38			Warning	No samples for collar				None taken
CSR-39			Warning	No samples for collar				None taken
CSR-4			Warning	No samples for collar				None taken
CSR-40			Warning	No samples for collar				None taken
CSR-41			Warning	No samples for collar				None taken
CSR-42			Warning	No samples for collar				None taken
CSR-43			Warning	No samples for collar				None taken
CSR-44			Warning	No samples for collar				None taken
CSR-47			Warning	No samples for collar				None taken
CSR-48			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CSR-49			Warning	No samples for collar				None taken
CSR-5			Warning	No samples for collar				None taken
CSR-50			Warning	No samples for collar				None taken
CSR-51			Warning	No samples for collar				None taken
CSR-52			Warning	No samples for collar				None taken
CSR-53			Warning	No samples for collar				None taken
CSR-5A			Warning	No samples for collar				None taken
CSR-6			Warning	No samples for collar				None taken
CSR-60			Warning	No samples for collar				None taken
CSR-61			Warning	No samples for collar				None taken
CSR-62			Warning	No samples for collar				None taken
CSR-65			Warning	No samples for collar				None taken
CSR-66			Warning	No samples for collar				None taken
CSR-67			Warning	No samples for collar				None taken
CSR-68			Warning	No samples for collar				None taken
CSR-69			Warning	No samples for collar				None taken
CSR-7			Warning	No samples for collar				None taken
CSR-70			Warning	No samples for collar				None taken
CSR-71			Warning	No samples for collar				None taken
CSR-75A			Warning	No samples for collar				None taken
CSR-76			Warning	No samples for collar				None taken
CSR-77			Warning	No samples for collar				None taken
CSR-78A			Warning	No samples for collar				None taken
CSR-79			Warning	No samples for collar				None taken
CSR-8			Warning	No samples for collar				None taken
CSR-81			Warning	No samples for collar				None taken
CSR-82A			Warning	No samples for collar				None taken
CSR-83			Warning	No samples for collar				None taken
CSR-84			Warning	No samples for collar				None taken
CSR-85			Warning	No samples for collar				None taken
CSR-86			Warning	No samples for collar				None taken
CSR-87A			Warning	No samples for collar				None taken
CSR-88			Warning	No samples for collar				None taken
CSR-89			Warning	No samples for collar				None taken
CSR-9			Warning	No samples for collar				None taken
CSR-90			Warning	No samples for collar				None taken
CSR-90A			Warning	No samples for collar				None taken
CSR-91			Warning	No samples for collar				None taken
CSR-92			Warning	No samples for collar				None taken
CSR-93			Warning	No samples for collar				None taken
CSR-94			Warning	No samples for collar				None taken
CSR-95			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
CSR-96A			Warning	No samples for collar				None taken
CSR-97			Warning	No samples for collar				None taken
CSR-98			Warning	No samples for collar				None taken
CUDH-03-01			Warning	No samples for collar				None taken
CUDH-03-02			Warning	No samples for collar				None taken
CUDH-03-03			Warning	No samples for collar				None taken
CUDH-03-04			Warning	No samples for collar				None taken
CUDH-03-05			Warning	No samples for collar				None taken
CUDH-03-06			Warning	No samples for collar				None taken
CUDH-03-07			Warning	No samples for collar				None taken
CUDH-03-08			Warning	No samples for collar				None taken
CUDH-03-09			Warning	No samples for collar				None taken
CUDH-03-10			Warning	No samples for collar				None taken
CUDH-03-11			Warning	No samples for collar				None taken
CUDH-03-12			Warning	No samples for collar				None taken
CUDH-03-13			Warning	No samples for collar				None taken
CUDH-03-14			Warning	No samples for collar				None taken
CUDH-03-15			Warning	No samples for collar				None taken
CUDH-04-16			Warning	No samples for collar				None taken
CUDH-04-17			Warning	No samples for collar				None taken
CUDH-04-18			Warning	No samples for collar				None taken
CUDH-04-19			Warning	No samples for collar				None taken
CUDH-04-20			Warning	No samples for collar				None taken
CUDH-04-21			Warning	No samples for collar				None taken
CUDH-04-22			Warning	No samples for collar				None taken
CUDH-04-23			Warning	No samples for collar				None taken
CUDH-04-24			Warning	No samples for collar				None taken
CUDH-04-25			Warning	No samples for collar				None taken
CUDH-04-26			Warning	No samples for collar				None taken
CUDH-04-27			Warning	No samples for collar				None taken
CUDH-04-28			Warning	No samples for collar				None taken
CUDH-04-29			Warning	No samples for collar				None taken
CUDH-04-30			Warning	No samples for collar				None taken
CUDH-04-31			Warning	No samples for collar				None taken
CUDH-04-32			Warning	No samples for collar				None taken
DCU-1			Warning	No samples for collar				None taken
DCU-10			Warning	No samples for collar				None taken
DCU-11			Warning	No samples for collar				None taken
DCU-12			Warning	No samples for collar				None taken
DCU-13			Warning	No samples for collar				None taken
DCU-14			Warning	No samples for collar				None taken
DCU-15			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
DCU-16			Warning	No samples for collar				None taken
DCU-17			Warning	No samples for collar				None taken
DCU-2			Warning	No samples for collar				None taken
DCU-5			Warning	No samples for collar				None taken
DCU-6			Warning	No samples for collar				None taken
DCU-7			Warning	No samples for collar				None taken
DCU-8			Warning	No samples for collar				None taken
DCU-9			Warning	No samples for collar				None taken
DU5-76			Warning	No samples for collar				None taken
DU5-78			Warning	No samples for collar				None taken
DZ12-1			Warning	No samples for collar				None taken
DZ12-2			Warning	No samples for collar				None taken
DZ12-3			Warning	No samples for collar				None taken
DZ12-4			Warning	No samples for collar				None taken
DZ12-5			Warning	No samples for collar				None taken
DZ12-6			Warning	No samples for collar				None taken
DZ-3			Warning	No samples for collar				None taken
DZ-4			Warning	No samples for collar				None taken
H5-125			Warning	No samples for collar				None taken
H5-126			Warning	No samples for collar				None taken
H5-127			Warning	No samples for collar				None taken
H5-128			Warning	No samples for collar				None taken
H5-129			Warning	No samples for collar				None taken
H5-130			Warning	No samples for collar				None taken
H5-131			Warning	No samples for collar				None taken
H5-132			Warning	No samples for collar				None taken
H5-133			Warning	No samples for collar				None taken
H5-134			Warning	No samples for collar				None taken
H5-135			Warning	No samples for collar				None taken
H5-136			Warning	No samples for collar				None taken
H5-137			Warning	No samples for collar				None taken
H5-138			Warning	No samples for collar				None taken
H5-139			Warning	No samples for collar				None taken
H5-140			Warning	No samples for collar				None taken
H5-141			Warning	No samples for collar				None taken
H5-142			Warning	No samples for collar				None taken
H5-143			Warning	No samples for collar				None taken
H5-144			Warning	No samples for collar				None taken
H5-145			Warning	No samples for collar				None taken
H5-146			Warning	No samples for collar				None taken
H5-147			Warning	No samples for collar				None taken
H5-148			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting To	Conflicting From	Action
H5-149			Warning	No samples for collar				None taken
H5-150			Warning	No samples for collar				None taken
H5-151			Warning	No samples for collar				None taken
H5-152			Warning	No samples for collar				None taken
H5-153			Warning	No samples for collar				None taken
H5-154			Warning	No samples for collar				None taken
H5-155			Warning	No samples for collar				None taken
H5-156			Warning	No samples for collar				None taken
H5-157			Warning	No samples for collar				None taken
H5-158			Warning	No samples for collar				None taken
H5-159			Warning	No samples for collar				None taken
H5-160			Warning	No samples for collar				None taken
H5-161			Warning	No samples for collar				None taken
H5-162			Warning	No samples for collar				None taken
H5-163			Warning	No samples for collar				None taken

Density Table

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
06CS-01			Warning	No samples for collar				None taken
06CS-02			Warning	No samples for collar				None taken
06CS-03			Warning	No samples for collar				None taken
06CS-04			Warning	No samples for collar				None taken
06CS-05			Warning	No samples for collar				None taken
06CS-06			Warning	No samples for collar				None taken
06CS-07			Warning	No samples for collar				None taken
06CS-08			Warning	No samples for collar				None taken
06CS-09			Warning	No samples for collar				None taken
06CS-10			Warning	No samples for collar				None taken
06CS-11			Warning	No samples for collar				None taken
06CS-12			Warning	No samples for collar				None taken
06CS-13			Warning	No samples for collar				None taken
06CS-14			Warning	No samples for collar				None taken
06CS-15			Warning	No samples for collar				None taken
06CS-16			Warning	No samples for collar				None taken
06CS-17			Warning	No samples for collar				None taken
06CS-18			Warning	No samples for collar				None taken
06CS-19			Warning	No samples for collar				None taken
06CS-20			Warning	No samples for collar				None taken
06CS-21			Warning	No samples for collar				None taken
06CS-22			Warning	No samples for collar				None taken
06CS-23			Warning	No samples for collar				None taken
06CS-24			Warning	No samples for collar				None taken
06CS-25			Warning	No samples for collar				None taken
06CS-26			Warning	No samples for collar				None taken
06CS-27			Warning	No samples for collar				None taken
07CS-28			Warning	No samples for collar				None taken
07CS-29			Warning	No samples for collar				None taken
07CS-30			Warning	No samples for collar				None taken
07CS-31			Warning	No samples for collar				None taken
07CS-32			Warning	No samples for collar				None taken
07CS-33			Warning	No samples for collar				None taken
07CS-34			Warning	No samples for collar				None taken
07CS-35			Warning	No samples for collar				None taken
07CS-36			Warning	No samples for collar				None taken
07CS-37			Warning	No samples for collar				None taken
07CS-38			Warning	No samples for collar				None taken
07CS-39			Warning	No samples for collar				None taken
07CS-40			Warning	No samples for collar				None taken
07CS-41			Warning	No samples for collar				None taken
07CS-42			Warning	No samples for collar				None taken
07CS-43			Warning	No samples for collar				None taken
07CS-44			Warning	No samples for collar				None taken
08CS-45			Warning	No samples for collar				None taken
08CS-46			Warning	No samples for collar				None taken
08CS-47			Warning	No samples for collar				None taken
08CS-48			Warning	No samples for collar				None taken
08CS-49A			Warning	No samples for collar				None taken
08CS-50			Warning	No samples for collar				None taken
08CS-51			Warning	No samples for collar				None taken
08CS-52			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
08CS-53			Warning	No samples for collar				None taken
08CS-54			Warning	No samples for collar				None taken
08CS-55			Warning	No samples for collar				None taken
08CS-56			Warning	No samples for collar				None taken
08CS-57			Warning	No samples for collar				None taken
08CS-58			Warning	No samples for collar				None taken
08CS-59			Warning	No samples for collar				None taken
520-1			Warning	No samples for collar				None taken
520-10			Warning	No samples for collar				None taken
520-11			Warning	No samples for collar				None taken
520-12			Warning	No samples for collar				None taken
520-13			Warning	No samples for collar				None taken
520-14			Warning	No samples for collar				None taken
520-15			Warning	No samples for collar				None taken
520-16			Warning	No samples for collar				None taken
520-17			Warning	No samples for collar				None taken
520-2			Warning	No samples for collar				None taken
520-3			Warning	No samples for collar				None taken
520-4			Warning	No samples for collar				None taken
520-5			Warning	No samples for collar				None taken
520-6			Warning	No samples for collar				None taken
520-7			Warning	No samples for collar				None taken
520-8			Warning	No samples for collar				None taken
520-9			Warning	No samples for collar				None taken
650W-1			Warning	No samples for collar				None taken
650W-10			Warning	No samples for collar				None taken
650W-12			Warning	No samples for collar				None taken
650W-13			Warning	No samples for collar				None taken
650W-14			Warning	No samples for collar				None taken
650W-15			Warning	No samples for collar				None taken
650W-16			Warning	No samples for collar				None taken
650W-17			Warning	No samples for collar				None taken
650W-2			Warning	No samples for collar				None taken
650W-3			Warning	No samples for collar				None taken
650W-4			Warning	No samples for collar				None taken
650W-5			Warning	No samples for collar				None taken
650W-6			Warning	No samples for collar				None taken
650W-8			Warning	No samples for collar				None taken
650W-9			Warning	No samples for collar				None taken
654-1			Warning	No samples for collar				None taken
654-2			Warning	No samples for collar				None taken
654-50			Warning	No samples for collar				None taken
654-51			Warning	No samples for collar				None taken
654-52			Warning	No samples for collar				None taken
654-53			Warning	No samples for collar				None taken
654-54			Warning	No samples for collar				None taken
654-55			Warning	No samples for collar				None taken
654-56			Warning	No samples for collar				None taken
654-57			Warning	No samples for collar				None taken
654-58			Warning	No samples for collar				None taken
654-59			Warning	No samples for collar				None taken
654-60			Warning	No samples for collar				None taken
654-61			Warning	No samples for collar				None taken
654cc-1			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
654cc-2			Warning	No samples for collar				None taken
654cc-3			Warning	No samples for collar				None taken
690-1			Warning	No samples for collar				None taken
690-10			Warning	No samples for collar				None taken
690-11			Warning	No samples for collar				None taken
690-12			Warning	No samples for collar				None taken
690-13			Warning	No samples for collar				None taken
690-14			Warning	No samples for collar				None taken
690-15			Warning	No samples for collar				None taken
690-19			Warning	No samples for collar				None taken
690-2			Warning	No samples for collar				None taken
690-20			Warning	No samples for collar				None taken
690-21			Warning	No samples for collar				None taken
690-22			Warning	No samples for collar				None taken
690-23			Warning	No samples for collar				None taken
690-24			Warning	No samples for collar				None taken
690-25			Warning	No samples for collar				None taken
690-26			Warning	No samples for collar				None taken
690-28			Warning	No samples for collar				None taken
690-29			Warning	No samples for collar				None taken
690-3			Warning	No samples for collar				None taken
690-31			Warning	No samples for collar				None taken
690-32			Warning	No samples for collar				None taken
690-33			Warning	No samples for collar				None taken
690-34			Warning	No samples for collar				None taken
690-35			Warning	No samples for collar				None taken
690-36			Warning	No samples for collar				None taken
690-38			Warning	No samples for collar				None taken
690-39			Warning	No samples for collar				None taken
690-40			Warning	No samples for collar				None taken
690-41			Warning	No samples for collar				None taken
690-42			Warning	No samples for collar				None taken
690-43			Warning	No samples for collar				None taken
690-44			Warning	No samples for collar				None taken
690-45			Warning	No samples for collar				None taken
690-46			Warning	No samples for collar				None taken
690-47			Warning	No samples for collar				None taken
690-48			Warning	No samples for collar				None taken
690-49			Warning	No samples for collar				None taken
690-50			Warning	No samples for collar				None taken
690-51			Warning	No samples for collar				None taken
690-7			Warning	No samples for collar				None taken
690-8			Warning	No samples for collar				None taken
726-1			Warning	No samples for collar				None taken
726-10			Warning	No samples for collar				None taken
726-11			Warning	No samples for collar				None taken
726-13			Warning	No samples for collar				None taken
726-14			Warning	No samples for collar				None taken
726-2			Warning	No samples for collar				None taken
726-3			Warning	No samples for collar				None taken
726-4			Warning	No samples for collar				None taken
726-5			Warning	No samples for collar				None taken
726-6			Warning	No samples for collar				None taken
726-7			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
730-11			Warning	No samples for collar				None taken
730-13			Warning	No samples for collar				None taken
730-14			Warning	No samples for collar				None taken
730-15			Warning	No samples for collar				None taken
730-16			Warning	No samples for collar				None taken
730-17			Warning	No samples for collar				None taken
730-18			Warning	No samples for collar				None taken
730-19			Warning	No samples for collar				None taken
730-2			Warning	No samples for collar				None taken
730-20			Warning	No samples for collar				None taken
730-21			Warning	No samples for collar				None taken
730-22			Warning	No samples for collar				None taken
730-23			Warning	No samples for collar				None taken
730-3			Warning	No samples for collar				None taken
730-4			Warning	No samples for collar				None taken
730-5			Warning	No samples for collar				None taken
730-7			Warning	No samples for collar				None taken
730-8			Warning	No samples for collar				None taken
730-9			Warning	No samples for collar				None taken
750-1			Warning	No samples for collar				None taken
750-10			Warning	No samples for collar				None taken
750-11			Warning	No samples for collar				None taken
750-12			Warning	No samples for collar				None taken
750-13			Warning	No samples for collar				None taken
750-14			Warning	No samples for collar				None taken
750-17			Warning	No samples for collar				None taken
750-18			Warning	No samples for collar				None taken
750-2			Warning	No samples for collar				None taken
750-20			Warning	No samples for collar				None taken
750-3			Warning	No samples for collar				None taken
750-4			Warning	No samples for collar				None taken
750-5			Warning	No samples for collar				None taken
750-6			Warning	No samples for collar				None taken
750-7			Warning	No samples for collar				None taken
750-8			Warning	No samples for collar				None taken
750-9			Warning	No samples for collar				None taken
810-10			Warning	No samples for collar				None taken
810-12			Warning	No samples for collar				None taken
810-13			Warning	No samples for collar				None taken
810-14			Warning	No samples for collar				None taken
810-15			Warning	No samples for collar				None taken
810-16			Warning	No samples for collar				None taken
810-16a			Warning	No samples for collar				None taken
810-17			Warning	No samples for collar				None taken
810-18			Warning	No samples for collar				None taken
810-19			Warning	No samples for collar				None taken
810-2			Warning	No samples for collar				None taken
810-20			Warning	No samples for collar				None taken
810-21			Warning	No samples for collar				None taken
810-3			Warning	No samples for collar				None taken
810-4			Warning	No samples for collar				None taken
810-8			Warning	No samples for collar				None taken
810-9			Warning	No samples for collar				None taken
A00-1			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
A00-10			Warning	No samples for collar				None taken
A00-11			Warning	No samples for collar				None taken
A00-2			Warning	No samples for collar				None taken
A00-3			Warning	No samples for collar				None taken
A00-4			Warning	No samples for collar				None taken
A00-5			Warning	No samples for collar				None taken
A00-6			Warning	No samples for collar				None taken
A00-7			Warning	No samples for collar				None taken
A00-8			Warning	No samples for collar				None taken
A00-9			Warning	No samples for collar				None taken
A98-1			Warning	No samples for collar				None taken
A98-10			Warning	No samples for collar				None taken
A98-11			Warning	No samples for collar				None taken
A98-12			Warning	No samples for collar				None taken
A98-13			Warning	No samples for collar				None taken
A98-14			Warning	No samples for collar				None taken
A98-15			Warning	No samples for collar				None taken
A98-2			Warning	No samples for collar				None taken
A98-3			Warning	No samples for collar				None taken
A98-4			Warning	No samples for collar				None taken
A98-5			Warning	No samples for collar				None taken
A98-6			Warning	No samples for collar				None taken
A98-7			Warning	No samples for collar				None taken
A98-8			Warning	No samples for collar				None taken
A98-9			Warning	No samples for collar				None taken
C95-01			Warning	No samples for collar				None taken
C95-02			Warning	No samples for collar				None taken
C95-03			Warning	No samples for collar				None taken
C95-04			Warning	No samples for collar				None taken
C95-05			Warning	No samples for collar				None taken
C95-06			Warning	No samples for collar				None taken
C95-07			Warning	No samples for collar				None taken
C95-08			Warning	No samples for collar				None taken
C95-09			Warning	No samples for collar				None taken
C95-10			Warning	No samples for collar				None taken
C95-11			Warning	No samples for collar				None taken
C95-12			Warning	No samples for collar				None taken
C95-13			Warning	No samples for collar				None taken
C96-14			Warning	No samples for collar				None taken
C96-15			Warning	No samples for collar				None taken
C96-16			Warning	No samples for collar				None taken
C96-17			Warning	No samples for collar				None taken
C96-18			Warning	No samples for collar				None taken
C96-19			Warning	No samples for collar				None taken
C97-20			Warning	No samples for collar				None taken
C97-21			Warning	No samples for collar				None taken
C97-22			Warning	No samples for collar				None taken
C97-23			Warning	No samples for collar				None taken
C97-24			Warning	No samples for collar				None taken
C97-25			Warning	No samples for collar				None taken
C97-26			Warning	No samples for collar				None taken
C97-27			Warning	No samples for collar				None taken
C97-28			Warning	No samples for collar				None taken
C97-29			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
C97-30			Warning	No samples for collar				None taken
C97-31			Warning	No samples for collar				None taken
C97-32			Warning	No samples for collar				None taken
C97-33			Warning	No samples for collar				None taken
C97-34			Warning	No samples for collar				None taken
CDH-1			Warning	No samples for collar				None taken
CDH-10			Warning	No samples for collar				None taken
CDH-2			Warning	No samples for collar				None taken
CDH-3			Warning	No samples for collar				None taken
CDH-4			Warning	No samples for collar				None taken
CDH-5			Warning	No samples for collar				None taken
CDH-5A			Warning	No samples for collar				None taken
CDH-6			Warning	No samples for collar				None taken
CDH-7			Warning	No samples for collar				None taken
CDH-8			Warning	No samples for collar				None taken
CDH-9			Warning	No samples for collar				None taken
CR-380			Warning	No samples for collar				None taken
CR-381			Warning	No samples for collar				None taken
CR-382			Warning	No samples for collar				None taken
CRD-03-01			Warning	No samples for collar				None taken
CRD-03-02			Warning	No samples for collar				None taken
CRD-03-03			Warning	No samples for collar				None taken
CRD-03-04			Warning	No samples for collar				None taken
CRD-03-05			Warning	No samples for collar				None taken
CRD-03-06			Warning	No samples for collar				None taken
CRD-03-07			Warning	No samples for collar				None taken
CRD-03-08			Warning	No samples for collar				None taken
CRD-03-09			Warning	No samples for collar				None taken
CRD-03-10			Warning	No samples for collar				None taken
CRD-03-11			Warning	No samples for collar				None taken
CRD-03-12			Warning	No samples for collar				None taken
CRD-03-13			Warning	No samples for collar				None taken
CRD-04-01			Warning	No samples for collar				None taken
CRD-04-02			Warning	No samples for collar				None taken
CRD-04-03			Warning	No samples for collar				None taken
CRD-04-04			Warning	No samples for collar				None taken
CRD-04-05			Warning	No samples for collar				None taken
CRD-04-06			Warning	No samples for collar				None taken
CRD-04-07			Warning	No samples for collar				None taken
CRD-04-08			Warning	No samples for collar				None taken
CRD-04-09			Warning	No samples for collar				None taken
CRD-04-10			Warning	No samples for collar				None taken
CRD-04-11			Warning	No samples for collar				None taken
CRD-04-12			Warning	No samples for collar				None taken
CRD-04-13			Warning	No samples for collar				None taken
CS-103			Warning	No samples for collar				None taken
CS-106			Warning	No samples for collar				None taken
CS-107			Warning	No samples for collar				None taken
CS-108			Warning	No samples for collar				None taken
CS-109			Warning	No samples for collar				None taken
CS-111			Warning	No samples for collar				None taken
CS-112			Warning	No samples for collar				None taken
CS-113			Warning	No samples for collar				None taken
CS-115			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-116			Warning	No samples for collar				None taken
CS-117			Warning	No samples for collar				None taken
CS-119A			Warning	No samples for collar				None taken
CS-120			Warning	No samples for collar				None taken
CS-121			Warning	No samples for collar				None taken
CS-122			Warning	No samples for collar				None taken
CS-123			Warning	No samples for collar				None taken
CS-124			Warning	No samples for collar				None taken
CS-125			Warning	No samples for collar				None taken
CS-126			Warning	No samples for collar				None taken
CS-127			Warning	No samples for collar				None taken
CS-128			Warning	No samples for collar				None taken
CS-129			Warning	No samples for collar				None taken
CS-130			Warning	No samples for collar				None taken
CS-131			Warning	No samples for collar				None taken
CS-132			Warning	No samples for collar				None taken
CS-133A			Warning	No samples for collar				None taken
CS-134			Warning	No samples for collar				None taken
CS-135A			Warning	No samples for collar				None taken
CS-136			Warning	No samples for collar				None taken
CS-137			Warning	No samples for collar				None taken
CS-137A			Warning	No samples for collar				None taken
CS-138			Warning	No samples for collar				None taken
CS-139			Warning	No samples for collar				None taken
CS-140			Warning	No samples for collar				None taken
CS-141			Warning	No samples for collar				None taken
CS-151			Warning	No samples for collar				None taken
CS-152			Warning	No samples for collar				None taken
CS-153			Warning	No samples for collar				None taken
CS-154			Warning	No samples for collar				None taken
CS-155			Warning	No samples for collar				None taken
CS-156			Warning	No samples for collar				None taken
CS-157			Warning	No samples for collar				None taken
CS-158			Warning	No samples for collar				None taken
CS-159			Warning	No samples for collar				None taken
CS-160			Warning	No samples for collar				None taken
CS-161			Warning	No samples for collar				None taken
CS-162			Warning	No samples for collar				None taken
CS-163			Warning	No samples for collar				None taken
CS-164			Warning	No samples for collar				None taken
CS-165			Warning	No samples for collar				None taken
CS-166			Warning	No samples for collar				None taken
CS-167			Warning	No samples for collar				None taken
CS-168			Warning	No samples for collar				None taken
CS-169			Warning	No samples for collar				None taken
CS-170			Warning	No samples for collar				None taken
CS-171			Warning	No samples for collar				None taken
CS-172			Warning	No samples for collar				None taken
CS-173			Warning	No samples for collar				None taken
CS-174			Warning	No samples for collar				None taken
CS-175			Warning	No samples for collar				None taken
CS-176			Warning	No samples for collar				None taken
CS-177			Warning	No samples for collar				None taken
CS-178			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-179			Warning	No samples for collar				None taken
CS-180			Warning	No samples for collar				None taken
CS-181			Warning	No samples for collar				None taken
CS-182			Warning	No samples for collar				None taken
CS-183			Warning	No samples for collar				None taken
CS-184			Warning	No samples for collar				None taken
CS-185			Warning	No samples for collar				None taken
CS-186			Warning	No samples for collar				None taken
CS-187			Warning	No samples for collar				None taken
CS-188			Warning	No samples for collar				None taken
CS-189			Warning	No samples for collar				None taken
CS-190			Warning	No samples for collar				None taken
CS-191			Warning	No samples for collar				None taken
CS-192			Warning	No samples for collar				None taken
CS-193			Warning	No samples for collar				None taken
CS-194			Warning	No samples for collar				None taken
CS-195			Warning	No samples for collar				None taken
CS-196			Warning	No samples for collar				None taken
CS-197			Warning	No samples for collar				None taken
CS-198			Warning	No samples for collar				None taken
CS-199			Warning	No samples for collar				None taken
CS-200			Warning	No samples for collar				None taken
CS-201			Warning	No samples for collar				None taken
CS-202			Warning	No samples for collar				None taken
CS-203			Warning	No samples for collar				None taken
CS-204			Warning	No samples for collar				None taken
CS-205			Warning	No samples for collar				None taken
CS-206			Warning	No samples for collar				None taken
CS-207			Warning	No samples for collar				None taken
CS-208			Warning	No samples for collar				None taken
CS-209			Warning	No samples for collar				None taken
CS-210			Warning	No samples for collar				None taken
CS-211			Warning	No samples for collar				None taken
CS-212			Warning	No samples for collar				None taken
CS-213			Warning	No samples for collar				None taken
CS-214			Warning	No samples for collar				None taken
CS-215			Warning	No samples for collar				None taken
CS-216			Warning	No samples for collar				None taken
CS-217			Warning	No samples for collar				None taken
CS-218			Warning	No samples for collar				None taken
CS-219			Warning	No samples for collar				None taken
CS-220			Warning	No samples for collar				None taken
CS-221			Warning	No samples for collar				None taken
CS-222			Warning	No samples for collar				None taken
CS-223			Warning	No samples for collar				None taken
CS-224			Warning	No samples for collar				None taken
CS-225			Warning	No samples for collar				None taken
CS-226			Warning	No samples for collar				None taken
CS-227			Warning	No samples for collar				None taken
CS-228			Warning	No samples for collar				None taken
CS-229			Warning	No samples for collar				None taken
CS-230			Warning	No samples for collar				None taken
CS-231			Warning	No samples for collar				None taken
CS-232			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-233			Warning	No samples for collar				None taken
CS-234			Warning	No samples for collar				None taken
CS-235			Warning	No samples for collar				None taken
CS-236A			Warning	No samples for collar				None taken
CS-237			Warning	No samples for collar				None taken
CS-238			Warning	No samples for collar				None taken
CS-238A			Warning	No samples for collar				None taken
CS-239			Warning	No samples for collar				None taken
CS-240			Warning	No samples for collar				None taken
CS-241			Warning	No samples for collar				None taken
CS-242			Warning	No samples for collar				None taken
CS-243			Warning	No samples for collar				None taken
CS-244			Warning	No samples for collar				None taken
CS-245			Warning	No samples for collar				None taken
CS-246			Warning	No samples for collar				None taken
CS-247			Warning	No samples for collar				None taken
CS-248			Warning	No samples for collar				None taken
CS-249			Warning	No samples for collar				None taken
CS-250			Warning	No samples for collar				None taken
CS-251			Warning	No samples for collar				None taken
CS-252			Warning	No samples for collar				None taken
CS-253			Warning	No samples for collar				None taken
CS-254			Warning	No samples for collar				None taken
CS-255			Warning	No samples for collar				None taken
CS-256			Warning	No samples for collar				None taken
CS-257			Warning	No samples for collar				None taken
CS-258			Warning	No samples for collar				None taken
CS-259			Warning	No samples for collar				None taken
CS-260			Warning	No samples for collar				None taken
CS-261			Warning	No samples for collar				None taken
CS-262			Warning	No samples for collar				None taken
CS-263			Warning	No samples for collar				None taken
CS-264			Warning	No samples for collar				None taken
CS-265			Warning	No samples for collar				None taken
CS-266			Warning	No samples for collar				None taken
CS-267			Warning	No samples for collar				None taken
CS-268			Warning	No samples for collar				None taken
CS-269			Warning	No samples for collar				None taken
CS-270			Warning	No samples for collar				None taken
CS-271			Warning	No samples for collar				None taken
CS-273			Warning	No samples for collar				None taken
CS-274			Warning	No samples for collar				None taken
CS-275			Warning	No samples for collar				None taken
CS-276			Warning	No samples for collar				None taken
CS-277			Warning	No samples for collar				None taken
CS-278			Warning	No samples for collar				None taken
CS-279			Warning	No samples for collar				None taken
CS-280			Warning	No samples for collar				None taken
CS-281			Warning	No samples for collar				None taken
CS-282			Warning	No samples for collar				None taken
CS-283			Warning	No samples for collar				None taken
CS-284			Warning	No samples for collar				None taken
CS-285			Warning	No samples for collar				None taken
CS-286			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-287			Warning	No samples for collar				None taken
CS-288			Warning	No samples for collar				None taken
CS-289			Warning	No samples for collar				None taken
CS-290			Warning	No samples for collar				None taken
CS-291			Warning	No samples for collar				None taken
CS-292			Warning	No samples for collar				None taken
CS-293			Warning	No samples for collar				None taken
CS-294			Warning	No samples for collar				None taken
CS-295			Warning	No samples for collar				None taken
CS-296			Warning	No samples for collar				None taken
CS-297			Warning	No samples for collar				None taken
CS-298			Warning	No samples for collar				None taken
CS-299			Warning	No samples for collar				None taken
CS-300			Warning	No samples for collar				None taken
CS-301			Warning	No samples for collar				None taken
CS-302			Warning	No samples for collar				None taken
CS-303			Warning	No samples for collar				None taken
CS-304			Warning	No samples for collar				None taken
CS-305			Warning	No samples for collar				None taken
CS-306			Warning	No samples for collar				None taken
CS-307			Warning	No samples for collar				None taken
CS-308			Warning	No samples for collar				None taken
CS-309			Warning	No samples for collar				None taken
CS-310			Warning	No samples for collar				None taken
CS-311			Warning	No samples for collar				None taken
CS-312			Warning	No samples for collar				None taken
CS-313			Warning	No samples for collar				None taken
CS-314			Warning	No samples for collar				None taken
CS-315			Warning	No samples for collar				None taken
CS-316			Warning	No samples for collar				None taken
CS-317			Warning	No samples for collar				None taken
CS-318			Warning	No samples for collar				None taken
CS-319			Warning	No samples for collar				None taken
CS-320			Warning	No samples for collar				None taken
CS-321			Warning	No samples for collar				None taken
CS-322			Warning	No samples for collar				None taken
CS-323			Warning	No samples for collar				None taken
CS-324			Warning	No samples for collar				None taken
CS-325			Warning	No samples for collar				None taken
CS-326			Warning	No samples for collar				None taken
CS-327			Warning	No samples for collar				None taken
CS-328			Warning	No samples for collar				None taken
CS-329			Warning	No samples for collar				None taken
CS-330			Warning	No samples for collar				None taken
CS-331			Warning	No samples for collar				None taken
CS-332			Warning	No samples for collar				None taken
CS-333			Warning	No samples for collar				None taken
CS-334			Warning	No samples for collar				None taken
CS-335			Warning	No samples for collar				None taken
CS-336			Warning	No samples for collar				None taken
CS-337			Warning	No samples for collar				None taken
CS-338			Warning	No samples for collar				None taken
CS-339			Warning	No samples for collar				None taken
CS-340			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-341			Warning	No samples for collar				None taken
CS-342			Warning	No samples for collar				None taken
CS-343			Warning	No samples for collar				None taken
CS-344			Warning	No samples for collar				None taken
CS-345			Warning	No samples for collar				None taken
CS-346			Warning	No samples for collar				None taken
CS-347			Warning	No samples for collar				None taken
CS-348			Warning	No samples for collar				None taken
CS-349			Warning	No samples for collar				None taken
CS-350			Warning	No samples for collar				None taken
CS-351			Warning	No samples for collar				None taken
CS-352			Warning	No samples for collar				None taken
CS-353			Warning	No samples for collar				None taken
CS-354			Warning	No samples for collar				None taken
CS-355			Warning	No samples for collar				None taken
CS-356			Warning	No samples for collar				None taken
CS-357			Warning	No samples for collar				None taken
CS-358			Warning	No samples for collar				None taken
CS-359			Warning	No samples for collar				None taken
CS-360			Warning	No samples for collar				None taken
CS-361			Warning	No samples for collar				None taken
CS-362			Warning	No samples for collar				None taken
CS-363			Warning	No samples for collar				None taken
CS-364			Warning	No samples for collar				None taken
CS-365			Warning	No samples for collar				None taken
CS-366			Warning	No samples for collar				None taken
CS-367			Warning	No samples for collar				None taken
CS-368			Warning	No samples for collar				None taken
CS-369			Warning	No samples for collar				None taken
CS-370			Warning	No samples for collar				None taken
CS-371			Warning	No samples for collar				None taken
CS-372			Warning	No samples for collar				None taken
CS-373			Warning	No samples for collar				None taken
CS-374			Warning	No samples for collar				None taken
CS-375			Warning	No samples for collar				None taken
CS-376			Warning	No samples for collar				None taken
CS-377			Warning	No samples for collar				None taken
CS-378			Warning	No samples for collar				None taken
CS-379			Warning	No samples for collar				None taken
CS-383			Warning	No samples for collar				None taken
CS-384			Warning	No samples for collar				None taken
CS-385			Warning	No samples for collar				None taken
CS-386			Warning	No samples for collar				None taken
CS-387			Warning	No samples for collar				None taken
CS-388			Warning	No samples for collar				None taken
CS-389			Warning	No samples for collar				None taken
CS-390			Warning	No samples for collar				None taken
CS-391			Warning	No samples for collar				None taken
CS-392			Warning	No samples for collar				None taken
CS-393			Warning	No samples for collar				None taken
CS-394			Warning	No samples for collar				None taken
CS-395			Warning	No samples for collar				None taken
CS-396			Warning	No samples for collar				None taken
CS-397			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-398			Warning	No samples for collar				None taken
CS-399			Warning	No samples for collar				None taken
CS-400			Warning	No samples for collar				None taken
CS-401			Warning	No samples for collar				None taken
CS-402			Warning	No samples for collar				None taken
CS-403			Warning	No samples for collar				None taken
CS-404			Warning	No samples for collar				None taken
CS-405			Warning	No samples for collar				None taken
CS-406			Warning	No samples for collar				None taken
CS-407			Warning	No samples for collar				None taken
CS-408			Warning	No samples for collar				None taken
CS-409			Warning	No samples for collar				None taken
CS-410			Warning	No samples for collar				None taken
CS-411			Warning	No samples for collar				None taken
CS-412			Warning	No samples for collar				None taken
CS-413			Warning	No samples for collar				None taken
CS-414			Warning	No samples for collar				None taken
CS-415			Warning	No samples for collar				None taken
CS-416			Warning	No samples for collar				None taken
CS-417			Warning	No samples for collar				None taken
CS-418			Warning	No samples for collar				None taken
CS-419			Warning	No samples for collar				None taken
CS-420			Warning	No samples for collar				None taken
CS-421			Warning	No samples for collar				None taken
CS-422			Warning	No samples for collar				None taken
CS-423			Warning	No samples for collar				None taken
CS-424			Warning	No samples for collar				None taken
CS-425			Warning	No samples for collar				None taken
CS-426			Warning	No samples for collar				None taken
CS-427			Warning	No samples for collar				None taken
CS-428			Warning	No samples for collar				None taken
CS-429			Warning	No samples for collar				None taken
CS-430			Warning	No samples for collar				None taken
CS-431			Warning	No samples for collar				None taken
CS-432			Warning	No samples for collar				None taken
CS-433			Warning	No samples for collar				None taken
CS-434			Warning	No samples for collar				None taken
CS-434-A			Warning	No samples for collar				None taken
CS-435			Warning	No samples for collar				None taken
CS-436			Warning	No samples for collar				None taken
CS-437			Warning	No samples for collar				None taken
CS-438			Warning	No samples for collar				None taken
CS-439			Warning	No samples for collar				None taken
CS-440			Warning	No samples for collar				None taken
CS-441			Warning	No samples for collar				None taken
CS-442			Warning	No samples for collar				None taken
CS-443			Warning	No samples for collar				None taken
CS-444			Warning	No samples for collar				None taken
CS-445			Warning	No samples for collar				None taken
CS-446			Warning	No samples for collar				None taken
CS-447			Warning	No samples for collar				None taken
CS-448			Warning	No samples for collar				None taken
CS-449			Warning	No samples for collar				None taken
CS-45			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-450			Warning	No samples for collar				None taken
CS-451			Warning	No samples for collar				None taken
CS-452			Warning	No samples for collar				None taken
CS-453			Warning	No samples for collar				None taken
CS-454			Warning	No samples for collar				None taken
CS-455			Warning	No samples for collar				None taken
CS-456			Warning	No samples for collar				None taken
CS-457			Warning	No samples for collar				None taken
CS-458			Warning	No samples for collar				None taken
CS-459			Warning	No samples for collar				None taken
CS-46			Warning	No samples for collar				None taken
CS-460			Warning	No samples for collar				None taken
CS-461			Warning	No samples for collar				None taken
CS-462			Warning	No samples for collar				None taken
CS-463			Warning	No samples for collar				None taken
CS-464			Warning	No samples for collar				None taken
CS-465			Warning	No samples for collar				None taken
CS-466			Warning	No samples for collar				None taken
CS-467			Warning	No samples for collar				None taken
CS-468			Warning	No samples for collar				None taken
CS-469			Warning	No samples for collar				None taken
CS-470			Warning	No samples for collar				None taken
CS-471			Warning	No samples for collar				None taken
CS-472			Warning	No samples for collar				None taken
CS-473			Warning	No samples for collar				None taken
CS-474			Warning	No samples for collar				None taken
CS-475			Warning	No samples for collar				None taken
CS-476			Warning	No samples for collar				None taken
CS-477			Warning	No samples for collar				None taken
CS-478			Warning	No samples for collar				None taken
CS-479			Warning	No samples for collar				None taken
CS-480			Warning	No samples for collar				None taken
CS-481			Warning	No samples for collar				None taken
CS-482			Warning	No samples for collar				None taken
CS-483			Warning	No samples for collar				None taken
CS-484			Warning	No samples for collar				None taken
CS-485			Warning	No samples for collar				None taken
CS-486			Warning	No samples for collar				None taken
CS-487			Warning	No samples for collar				None taken
CS-488			Warning	No samples for collar				None taken
CS-489			Warning	No samples for collar				None taken
CS-490			Warning	No samples for collar				None taken
CS-491			Warning	No samples for collar				None taken
CS-492			Warning	No samples for collar				None taken
CS-493			Warning	No samples for collar				None taken
CS-494			Warning	No samples for collar				None taken
CS-495			Warning	No samples for collar				None taken
CS-496			Warning	No samples for collar				None taken
CS-55			Warning	No samples for collar				None taken
CS-56			Warning	No samples for collar				None taken
CS-57			Warning	No samples for collar				None taken
CS-58			Warning	No samples for collar				None taken
CS-59			Warning	No samples for collar				None taken
CS-62			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CS-64			Warning	No samples for collar				None taken
CS-72			Warning	No samples for collar				None taken
CS-73			Warning	No samples for collar				None taken
CS-74			Warning	No samples for collar				None taken
CS-80			Warning	No samples for collar				None taken
CS-99			Warning	No samples for collar				None taken
CSD-1			Warning	No samples for collar				None taken
CSD-10			Warning	No samples for collar				None taken
CSD-11			Warning	No samples for collar				None taken
CSD-12			Warning	No samples for collar				None taken
CSD-13			Warning	No samples for collar				None taken
CSD-15			Warning	No samples for collar				None taken
CSD-16			Warning	No samples for collar				None taken
CSD-17			Warning	No samples for collar				None taken
CSD-18			Warning	No samples for collar				None taken
CSD-19			Warning	No samples for collar				None taken
CSD-2			Warning	No samples for collar				None taken
CSD-20			Warning	No samples for collar				None taken
CSD-21			Warning	No samples for collar				None taken
CSD-22			Warning	No samples for collar				None taken
CSD-23			Warning	No samples for collar				None taken
CSD-24			Warning	No samples for collar				None taken
CSD-25			Warning	No samples for collar				None taken
CSD-26			Warning	No samples for collar				None taken
CSD-27			Warning	No samples for collar				None taken
CSD-28			Warning	No samples for collar				None taken
CSD-29			Warning	No samples for collar				None taken
CSD-3			Warning	No samples for collar				None taken
CSD-30			Warning	No samples for collar				None taken
CSD-31			Warning	No samples for collar				None taken
CSD-32			Warning	No samples for collar				None taken
CSD-33			Warning	No samples for collar				None taken
CSD-34			Warning	No samples for collar				None taken
CSD-35			Warning	No samples for collar				None taken
CSD-36			Warning	No samples for collar				None taken
CSD-37			Warning	No samples for collar				None taken
CSD-38			Warning	No samples for collar				None taken
CSD-39			Warning	No samples for collar				None taken
CSD-4			Warning	No samples for collar				None taken
CSD-40			Warning	No samples for collar				None taken
CSD-41			Warning	No samples for collar				None taken
CSD-42			Warning	No samples for collar				None taken
CSD-43			Warning	No samples for collar				None taken
CSD-43A			Warning	No samples for collar				None taken
CSD-44			Warning	No samples for collar				None taken
CSD-45			Warning	No samples for collar				None taken
CSD-46			Warning	No samples for collar				None taken
CSD-47			Warning	No samples for collar				None taken
CSD-48			Warning	No samples for collar				None taken
CSD-49			Warning	No samples for collar				None taken
CSD-5			Warning	No samples for collar				None taken
CSD-50			Warning	No samples for collar				None taken
CSD-51			Warning	No samples for collar				None taken
CSD-52			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSD-53			Warning	No samples for collar				None taken
CSD-54			Warning	No samples for collar				None taken
CSD-55			Warning	No samples for collar				None taken
CSD-56			Warning	No samples for collar				None taken
CSD-57			Warning	No samples for collar				None taken
CSD-58			Warning	No samples for collar				None taken
CSD-59			Warning	No samples for collar				None taken
CSD-6			Warning	No samples for collar				None taken
CSD-60			Warning	No samples for collar				None taken
CSD-61			Warning	No samples for collar				None taken
CSD-62			Warning	No samples for collar				None taken
CSD-63			Warning	No samples for collar				None taken
CSD-64			Warning	No samples for collar				None taken
CSD-65			Warning	No samples for collar				None taken
CSD-66			Warning	No samples for collar				None taken
CSD-67			Warning	No samples for collar				None taken
CSD-68			Warning	No samples for collar				None taken
CSD-69			Warning	No samples for collar				None taken
CSD-7			Warning	No samples for collar				None taken
CSD-70			Warning	No samples for collar				None taken
CSD-71			Warning	No samples for collar				None taken
CSD-72			Warning	No samples for collar				None taken
CSD-73			Warning	No samples for collar				None taken
CSD-74			Warning	No samples for collar				None taken
CSD-75			Warning	No samples for collar				None taken
CSD-76			Warning	No samples for collar				None taken
CSD-8			Warning	No samples for collar				None taken
CSD-9			Warning	No samples for collar				None taken
CSR-1			Warning	No samples for collar				None taken
CSR-10			Warning	No samples for collar				None taken
CSR-100			Warning	No samples for collar				None taken
CSR-100A			Warning	No samples for collar				None taken
CSR-101			Warning	No samples for collar				None taken
CSR-102			Warning	No samples for collar				None taken
CSR-104			Warning	No samples for collar				None taken
CSR-105			Warning	No samples for collar				None taken
CSR-11			Warning	No samples for collar				None taken
CSR-110			Warning	No samples for collar				None taken
CSR-114			Warning	No samples for collar				None taken
CSR-118			Warning	No samples for collar				None taken
CSR-11A			Warning	No samples for collar				None taken
CSR-12			Warning	No samples for collar				None taken
CSR-13			Warning	No samples for collar				None taken
CSR-14			Warning	No samples for collar				None taken
CSR-142			Warning	No samples for collar				None taken
CSR-143			Warning	No samples for collar				None taken
CSR-144			Warning	No samples for collar				None taken
CSR-145			Warning	No samples for collar				None taken
CSR-146			Warning	No samples for collar				None taken
CSR-147			Warning	No samples for collar				None taken
CSR-148			Warning	No samples for collar				None taken
CSR-15			Warning	No samples for collar				None taken
CSR-16			Warning	No samples for collar				None taken
CSR-17			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSR-18			Warning	No samples for collar				None taken
CSR-19			Warning	No samples for collar				None taken
CSR-2			Warning	No samples for collar				None taken
CSR-20			Warning	No samples for collar				None taken
CSR-21			Warning	No samples for collar				None taken
CSR-22			Warning	No samples for collar				None taken
CSR-23			Warning	No samples for collar				None taken
CSR-24			Warning	No samples for collar				None taken
CSR-24A			Warning	No samples for collar				None taken
CSR-25			Warning	No samples for collar				None taken
CSR-26			Warning	No samples for collar				None taken
CSR-27			Warning	No samples for collar				None taken
CSR-28			Warning	No samples for collar				None taken
CSR-29			Warning	No samples for collar				None taken
CSR-3			Warning	No samples for collar				None taken
CSR-30			Warning	No samples for collar				None taken
CSR-31			Warning	No samples for collar				None taken
CSR-32			Warning	No samples for collar				None taken
CSR-33B			Warning	No samples for collar				None taken
CSR-34			Warning	No samples for collar				None taken
CSR-35			Warning	No samples for collar				None taken
CSR-36			Warning	No samples for collar				None taken
CSR-37			Warning	No samples for collar				None taken
CSR-38			Warning	No samples for collar				None taken
CSR-39			Warning	No samples for collar				None taken
CSR-4			Warning	No samples for collar				None taken
CSR-40			Warning	No samples for collar				None taken
CSR-41			Warning	No samples for collar				None taken
CSR-42			Warning	No samples for collar				None taken
CSR-43			Warning	No samples for collar				None taken
CSR-44			Warning	No samples for collar				None taken
CSR-47			Warning	No samples for collar				None taken
CSR-48			Warning	No samples for collar				None taken
CSR-49			Warning	No samples for collar				None taken
CSR-5			Warning	No samples for collar				None taken
CSR-50			Warning	No samples for collar				None taken
CSR-51			Warning	No samples for collar				None taken
CSR-52			Warning	No samples for collar				None taken
CSR-53			Warning	No samples for collar				None taken
CSR-54			Warning	No samples for collar				None taken
CSR-5A			Warning	No samples for collar				None taken
CSR-6			Warning	No samples for collar				None taken
CSR-60			Warning	No samples for collar				None taken
CSR-61			Warning	No samples for collar				None taken
CSR-62			Warning	No samples for collar				None taken
CSR-63			Warning	No samples for collar				None taken
CSR-65			Warning	No samples for collar				None taken
CSR-66			Warning	No samples for collar				None taken
CSR-67			Warning	No samples for collar				None taken
CSR-68			Warning	No samples for collar				None taken
CSR-69			Warning	No samples for collar				None taken
CSR-7			Warning	No samples for collar				None taken
CSR-70			Warning	No samples for collar				None taken
CSR-71			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CSR-75A			Warning	No samples for collar				None taken
CSR-76			Warning	No samples for collar				None taken
CSR-77			Warning	No samples for collar				None taken
CSR-78A			Warning	No samples for collar				None taken
CSR-79			Warning	No samples for collar				None taken
CSR-8			Warning	No samples for collar				None taken
CSR-81			Warning	No samples for collar				None taken
CSR-82A			Warning	No samples for collar				None taken
CSR-83			Warning	No samples for collar				None taken
CSR-84			Warning	No samples for collar				None taken
CSR-85			Warning	No samples for collar				None taken
CSR-86			Warning	No samples for collar				None taken
CSR-87A			Warning	No samples for collar				None taken
CSR-88			Warning	No samples for collar				None taken
CSR-89			Warning	No samples for collar				None taken
CSR-9			Warning	No samples for collar				None taken
CSR-90			Warning	No samples for collar				None taken
CSR-90A			Warning	No samples for collar				None taken
CSR-91			Warning	No samples for collar				None taken
CSR-92			Warning	No samples for collar				None taken
CSR-93			Warning	No samples for collar				None taken
CSR-94			Warning	No samples for collar				None taken
CSR-95			Warning	No samples for collar				None taken
CSR-96A			Warning	No samples for collar				None taken
CSR-97			Warning	No samples for collar				None taken
CSR-98			Warning	No samples for collar				None taken
CUDH-03-01			Warning	No samples for collar				None taken
CUDH-03-02			Warning	No samples for collar				None taken
CUDH-03-03			Warning	No samples for collar				None taken
CUDH-03-04			Warning	No samples for collar				None taken
CUDH-03-05			Warning	No samples for collar				None taken
CUDH-03-06			Warning	No samples for collar				None taken
CUDH-03-07			Warning	No samples for collar				None taken
CUDH-03-08			Warning	No samples for collar				None taken
CUDH-03-09			Warning	No samples for collar				None taken
CUDH-03-10			Warning	No samples for collar				None taken
CUDH-03-11			Warning	No samples for collar				None taken
CUDH-03-12			Warning	No samples for collar				None taken
CUDH-03-13			Warning	No samples for collar				None taken
CUDH-03-14			Warning	No samples for collar				None taken
CUDH-03-15			Warning	No samples for collar				None taken
CUDH-04-16			Warning	No samples for collar				None taken
CUDH-04-17			Warning	No samples for collar				None taken
CUDH-04-18			Warning	No samples for collar				None taken
CUDH-04-19			Warning	No samples for collar				None taken
CUDH-04-20			Warning	No samples for collar				None taken
CUDH-04-21			Warning	No samples for collar				None taken
CUDH-04-22			Warning	No samples for collar				None taken
CUDH-04-23			Warning	No samples for collar				None taken
CUDH-04-24			Warning	No samples for collar				None taken
CUDH-04-25			Warning	No samples for collar				None taken
CUDH-04-26			Warning	No samples for collar				None taken
CUDH-04-27			Warning	No samples for collar				None taken
CUDH-04-28			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
CUDH-04-29			Warning	No samples for collar				None taken
CUDH-04-30			Warning	No samples for collar				None taken
CUDH-04-31			Warning	No samples for collar				None taken
CUDH-04-32			Warning	No samples for collar				None taken
DCU-1			Warning	No samples for collar				None taken
DCU-10			Warning	No samples for collar				None taken
DCU-11			Warning	No samples for collar				None taken
DCU-12			Warning	No samples for collar				None taken
DCU-13			Warning	No samples for collar				None taken
DCU-14			Warning	No samples for collar				None taken
DCU-15			Warning	No samples for collar				None taken
DCU-16			Warning	No samples for collar				None taken
DCU-17			Warning	No samples for collar				None taken
DCU-2			Warning	No samples for collar				None taken
DCU-3			Warning	No samples for collar				None taken
DCU-4			Warning	No samples for collar				None taken
DCU-5			Warning	No samples for collar				None taken
DCU-6			Warning	No samples for collar				None taken
DCU-7			Warning	No samples for collar				None taken
DCU-8			Warning	No samples for collar				None taken
DCU-9			Warning	No samples for collar				None taken
DU4-33			Warning	No samples for collar				None taken
DU4-34			Warning	No samples for collar				None taken
DU4-35			Warning	No samples for collar				None taken
DU4-36			Warning	No samples for collar				None taken
DU4-37			Warning	No samples for collar				None taken
DU4-38			Warning	No samples for collar				None taken
DU4-40			Warning	No samples for collar				None taken
DU4-41			Warning	No samples for collar				None taken
DU4-42			Warning	No samples for collar				None taken
DU4-43			Warning	No samples for collar				None taken
DU4-44			Warning	No samples for collar				None taken
DU4-45			Warning	No samples for collar				None taken
DU4-46			Warning	No samples for collar				None taken
DU4-47			Warning	No samples for collar				None taken
DU4-48			Warning	No samples for collar				None taken
DU4-49			Warning	No samples for collar				None taken
DU4-50			Warning	No samples for collar				None taken
DU4-51			Warning	No samples for collar				None taken
DU4-52			Warning	No samples for collar				None taken
DU4-53			Warning	No samples for collar				None taken
DU4-54			Warning	No samples for collar				None taken
DU4-55			Warning	No samples for collar				None taken
DU5-57			Warning	No samples for collar				None taken
DU5-58			Warning	No samples for collar				None taken
DU5-59			Warning	No samples for collar				None taken
DU5-60			Warning	No samples for collar				None taken
DU5-61			Warning	No samples for collar				None taken
DU5-62			Warning	No samples for collar				None taken
DU5-63			Warning	No samples for collar				None taken
DU5-64			Warning	No samples for collar				None taken
DU5-65			Warning	No samples for collar				None taken
DU5-66			Warning	No samples for collar				None taken
DU5-67			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
DU5-68			Warning	No samples for collar				None taken
DU5-69			Warning	No samples for collar				None taken
DU5-70			Warning	No samples for collar				None taken
DU5-71			Warning	No samples for collar				None taken
DU5-72			Warning	No samples for collar				None taken
DU5-73			Warning	No samples for collar				None taken
DU5-74			Warning	No samples for collar				None taken
DU5-75			Warning	No samples for collar				None taken
DU5-76			Warning	No samples for collar				None taken
DU5-78			Warning	No samples for collar				None taken
DZ12-1			Warning	No samples for collar				None taken
DZ12-2			Warning	No samples for collar				None taken
DZ12-3			Warning	No samples for collar				None taken
DZ12-4			Warning	No samples for collar				None taken
DZ12-5			Warning	No samples for collar				None taken
DZ12-6			Warning	No samples for collar				None taken
DZ-3			Warning	No samples for collar				None taken
DZ-4			Warning	No samples for collar				None taken
F4-1			Warning	No samples for collar				None taken
F4-2			Warning	No samples for collar				None taken
F4-3			Warning	No samples for collar				None taken
F4-4			Warning	No samples for collar				None taken
F4-5			Warning	No samples for collar				None taken
F4-6			Warning	No samples for collar				None taken
F4-7			Warning	No samples for collar				None taken
F4-8			Warning	No samples for collar				None taken
F4-9			Warning	No samples for collar				None taken
H4-14			Warning	No samples for collar				None taken
H4-15			Warning	No samples for collar				None taken
H4-16			Warning	No samples for collar				None taken
H4-17			Warning	No samples for collar				None taken
H4-18			Warning	No samples for collar				None taken
H4-19			Warning	No samples for collar				None taken
H4-20			Warning	No samples for collar				None taken
H4-21			Warning	No samples for collar				None taken
H4-22			Warning	No samples for collar				None taken
H4-23			Warning	No samples for collar				None taken
H4-24			Warning	No samples for collar				None taken
H4-25			Warning	No samples for collar				None taken
H4-26			Warning	No samples for collar				None taken
H4-27			Warning	No samples for collar				None taken
H4-28			Warning	No samples for collar				None taken
H4-29			Warning	No samples for collar				None taken
H4-30			Warning	No samples for collar				None taken
H4-31			Warning	No samples for collar				None taken
H4-32			Warning	No samples for collar				None taken
H4-33			Warning	No samples for collar				None taken
H4-34			Warning	No samples for collar				None taken
H4-35			Warning	No samples for collar				None taken
H4-36			Warning	No samples for collar				None taken
H4-37			Warning	No samples for collar				None taken
H4-38			Warning	No samples for collar				None taken
H4-39			Warning	No samples for collar				None taken
H4-40			Warning	No samples for collar				None taken

Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H4-41			Warning	No samples for collar				None taken
H4-42			Warning	No samples for collar				None taken
H4-43			Warning	No samples for collar				None taken
H4-44			Warning	No samples for collar				None taken
H4-45			Warning	No samples for collar				None taken
H4-46			Warning	No samples for collar				None taken
H4-47			Warning	No samples for collar				None taken
H4-48			Warning	No samples for collar				None taken
H4-49			Warning	No samples for collar				None taken
H4-50			Warning	No samples for collar				None taken
H4-51			Warning	No samples for collar				None taken
H4-52			Warning	No samples for collar				None taken
H4-53			Warning	No samples for collar				None taken
H4-54			Warning	No samples for collar				None taken
H4-55			Warning	No samples for collar				None taken
H4-56			Warning	No samples for collar				None taken
H4-57			Warning	No samples for collar				None taken
H4-58			Warning	No samples for collar				None taken
H4-59			Warning	No samples for collar				None taken
H4-60			Warning	No samples for collar				None taken
H4-61			Warning	No samples for collar				None taken
H4-63			Warning	No samples for collar				None taken
H4-64			Warning	No samples for collar				None taken
H4-65			Warning	No samples for collar				None taken
H4-66			Warning	No samples for collar				None taken
H4-67			Warning	No samples for collar				None taken
H4-68			Warning	No samples for collar				None taken
H4-69			Warning	No samples for collar				None taken
H4-70			Warning	No samples for collar				None taken
H4-71			Warning	No samples for collar				None taken
H4-72			Warning	No samples for collar				None taken
H4-73			Warning	No samples for collar				None taken
H4-74			Warning	No samples for collar				None taken
H4-75			Warning	No samples for collar				None taken
H4-76			Warning	No samples for collar				None taken
H4-77			Warning	No samples for collar				None taken
H4-78			Warning	No samples for collar				None taken
H4-79			Warning	No samples for collar				None taken
H4-80			Warning	No samples for collar				None taken
H4-81			Warning	No samples for collar				None taken
H4-82			Warning	No samples for collar				None taken
H4-83			Warning	No samples for collar				None taken
H4-84			Warning	No samples for collar				None taken
H4-85			Warning	No samples for collar				None taken
H4-86			Warning	No samples for collar				None taken
H5-101			Warning	No samples for collar				None taken
H5-103			Warning	No samples for collar				None taken
H5-104			Warning	No samples for collar				None taken
H5-105			Warning	No samples for collar				None taken
H5-106			Warning	No samples for collar				None taken
H5-107			Warning	No samples for collar				None taken
H5-108			Warning	No samples for collar				None taken
H5-109			Warning	No samples for collar				None taken
H5-110			Warning	No samples for collar				None taken

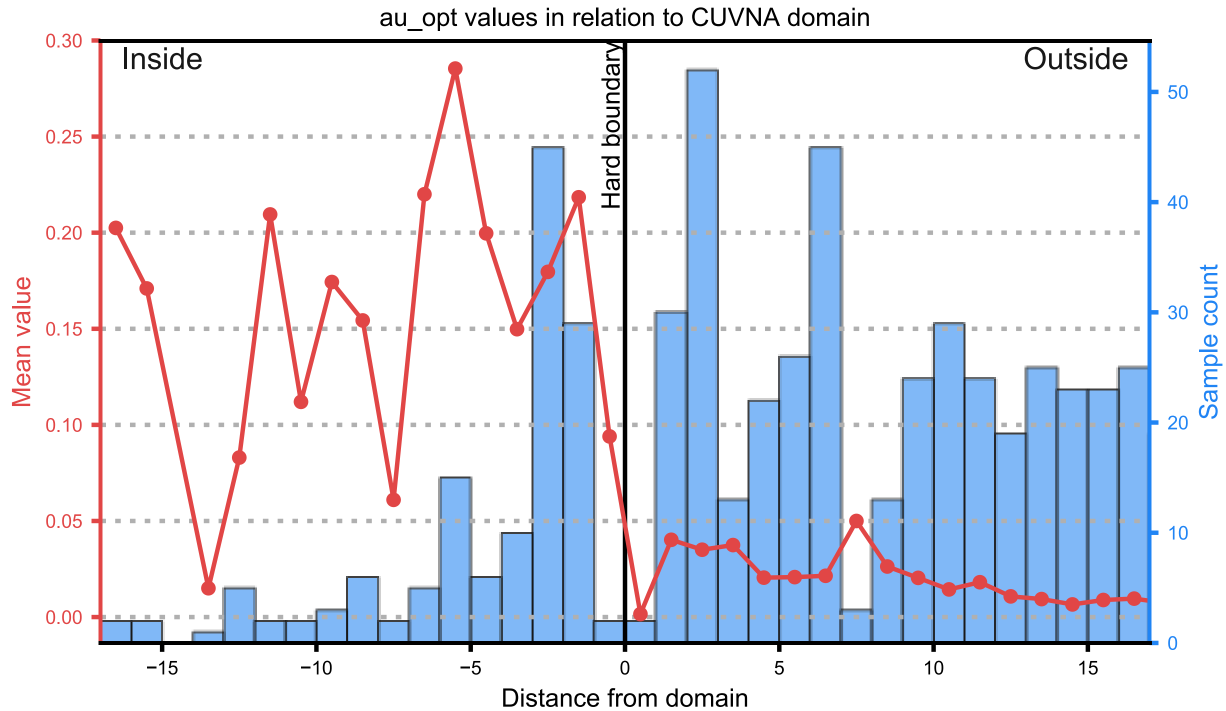
Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H5-111			Warning	No samples for collar				None taken
H5-112			Warning	No samples for collar				None taken
H5-113			Warning	No samples for collar				None taken
H5-114			Warning	No samples for collar				None taken
H5-115			Warning	No samples for collar				None taken
H5-116			Warning	No samples for collar				None taken
H5-117			Warning	No samples for collar				None taken
H5-118			Warning	No samples for collar				None taken
H5-119			Warning	No samples for collar				None taken
H5-120			Warning	No samples for collar				None taken
H5-121			Warning	No samples for collar				None taken
H5-122			Warning	No samples for collar				None taken
H5-123			Warning	No samples for collar				None taken
H5-124			Warning	No samples for collar				None taken
H5-125			Warning	No samples for collar				None taken
H5-126			Warning	No samples for collar				None taken
H5-127			Warning	No samples for collar				None taken
H5-128			Warning	No samples for collar				None taken
H5-129			Warning	No samples for collar				None taken
H5-130			Warning	No samples for collar				None taken
H5-131			Warning	No samples for collar				None taken
H5-132			Warning	No samples for collar				None taken
H5-133			Warning	No samples for collar				None taken
H5-134			Warning	No samples for collar				None taken
H5-135			Warning	No samples for collar				None taken
H5-136			Warning	No samples for collar				None taken
H5-137			Warning	No samples for collar				None taken
H5-138			Warning	No samples for collar				None taken
H5-139			Warning	No samples for collar				None taken
H5-140			Warning	No samples for collar				None taken
H5-141			Warning	No samples for collar				None taken
H5-142			Warning	No samples for collar				None taken
H5-143			Warning	No samples for collar				None taken
H5-144			Warning	No samples for collar				None taken
H5-145			Warning	No samples for collar				None taken
H5-146			Warning	No samples for collar				None taken
H5-147			Warning	No samples for collar				None taken
H5-148			Warning	No samples for collar				None taken
H5-149			Warning	No samples for collar				None taken
H5-150			Warning	No samples for collar				None taken
H5-151			Warning	No samples for collar				None taken
H5-152			Warning	No samples for collar				None taken
H5-153			Warning	No samples for collar				None taken
H5-154			Warning	No samples for collar				None taken
H5-155			Warning	No samples for collar				None taken
H5-156			Warning	No samples for collar				None taken
H5-157			Warning	No samples for collar				None taken
H5-158			Warning	No samples for collar				None taken
H5-159			Warning	No samples for collar				None taken
H5-160			Warning	No samples for collar				None taken
H5-161			Warning	No samples for collar				None taken
H5-162			Warning	No samples for collar				None taken
H5-163			Warning	No samples for collar				None taken
H5-87			Warning	No samples for collar				None taken

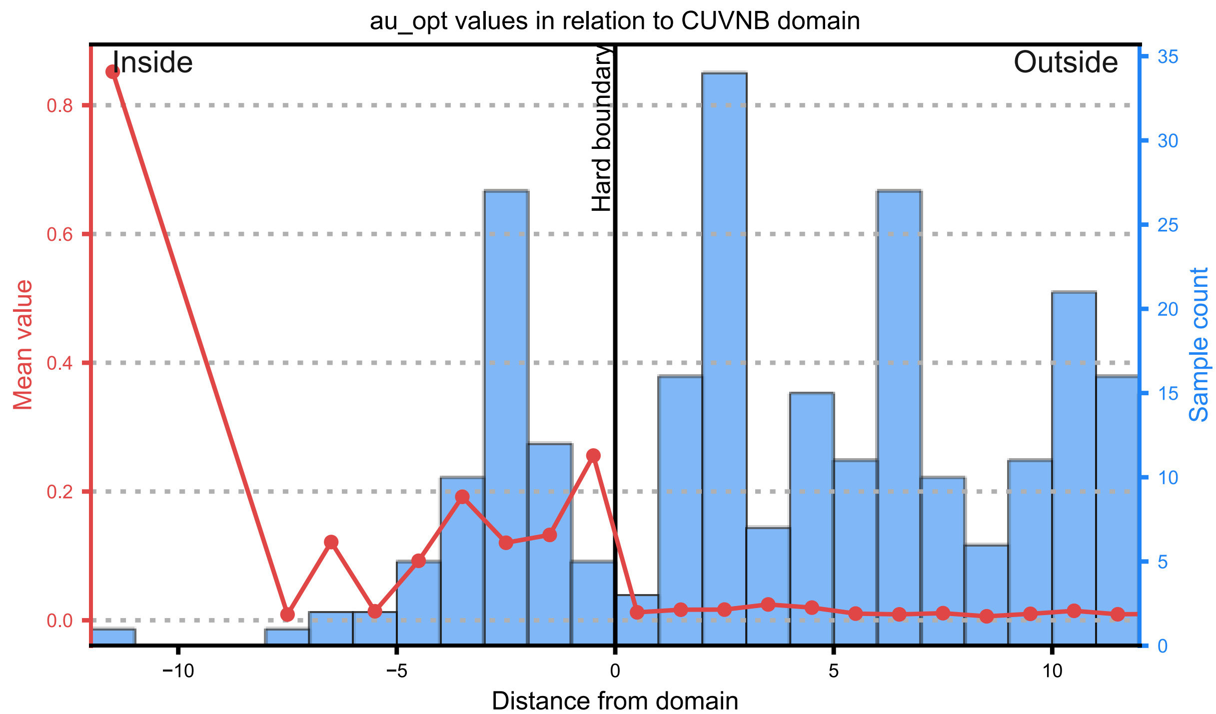
Hole ID	From	To	Type	Error	Conflicting Hole ID	Conflicting From	Conflicting To	Action
H5-88			Warning	No samples for collar				None taken
H5-89			Warning	No samples for collar				None taken
H5-90			Warning	No samples for collar				None taken
H5-91			Warning	No samples for collar				None taken
H5-92			Warning	No samples for collar				None taken
H5-93			Warning	No samples for collar				None taken
H5-94			Warning	No samples for collar				None taken
H5-95			Warning	No samples for collar				None taken
H5-96			Warning	No samples for collar				None taken
H5-97			Warning	No samples for collar				None taken
H5-98			Warning	No samples for collar				None taken
H5-99			Warning	No samples for collar				None taken
KER-15-01			Warning	No samples for collar				None taken
KER-15-02			Warning	No samples for collar				None taken
KER-15-03			Warning	No samples for collar				None taken
KER-15-04			Warning	No samples for collar				None taken

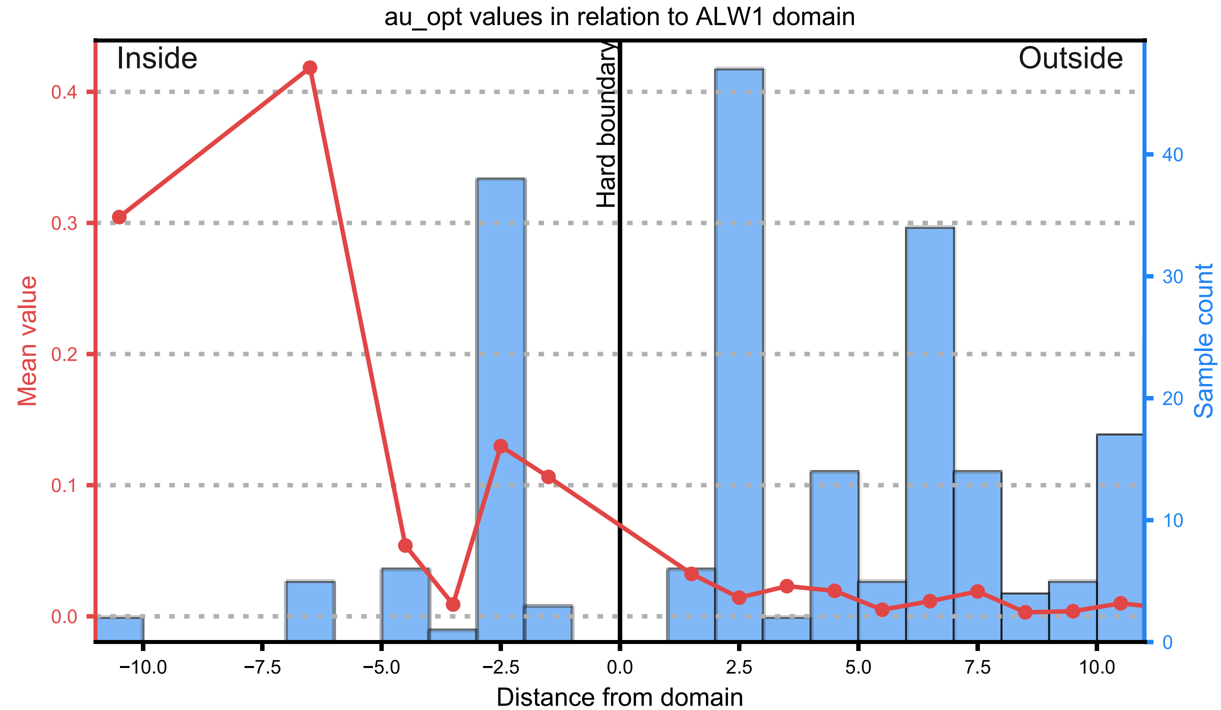
APPENDIX D

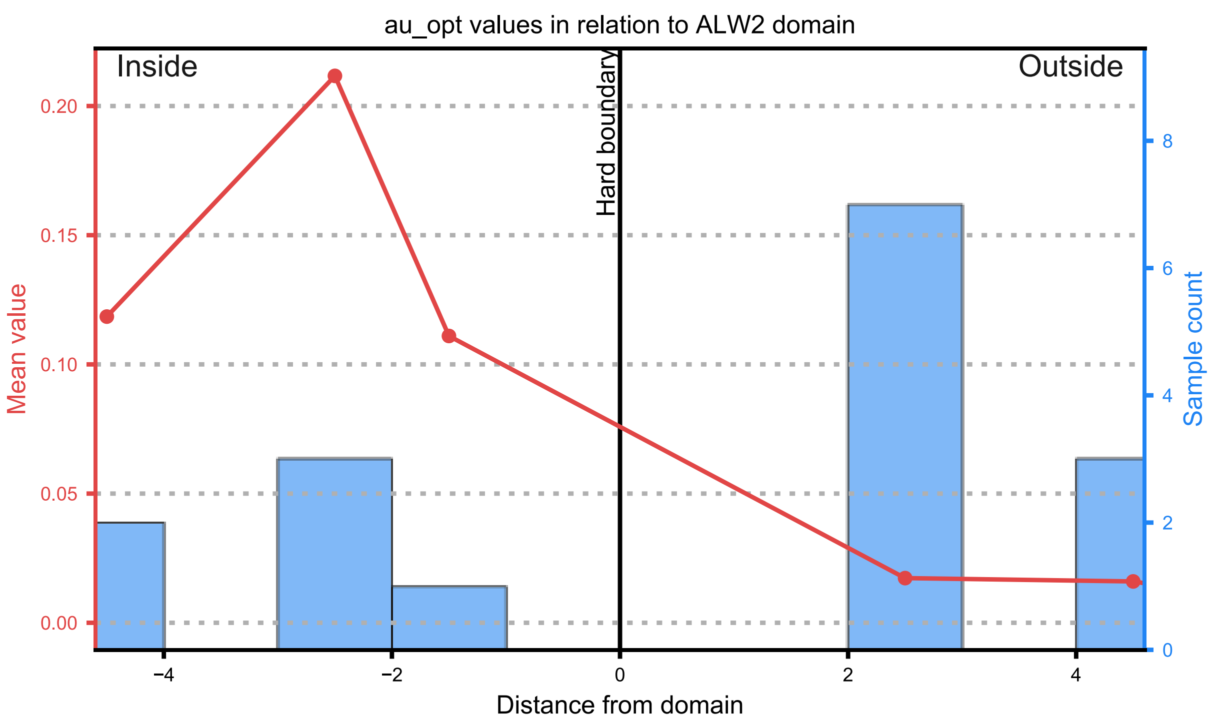
Contact Plots by Domain

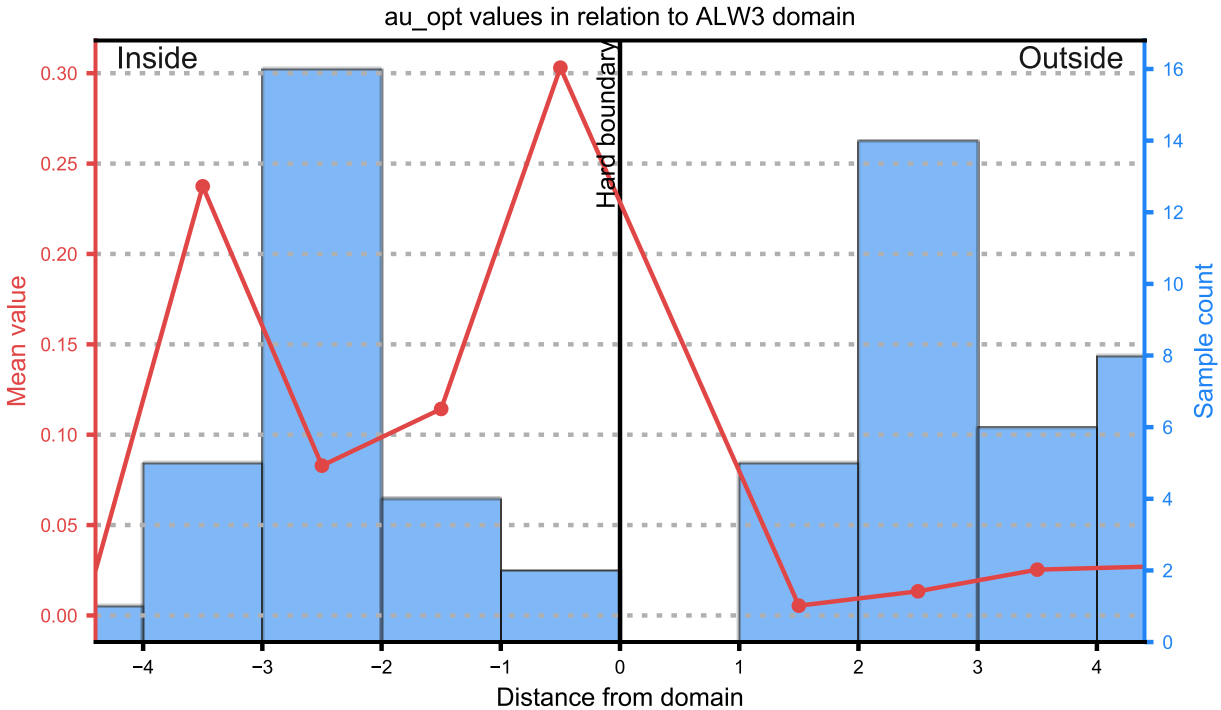
A/B Zones Domains

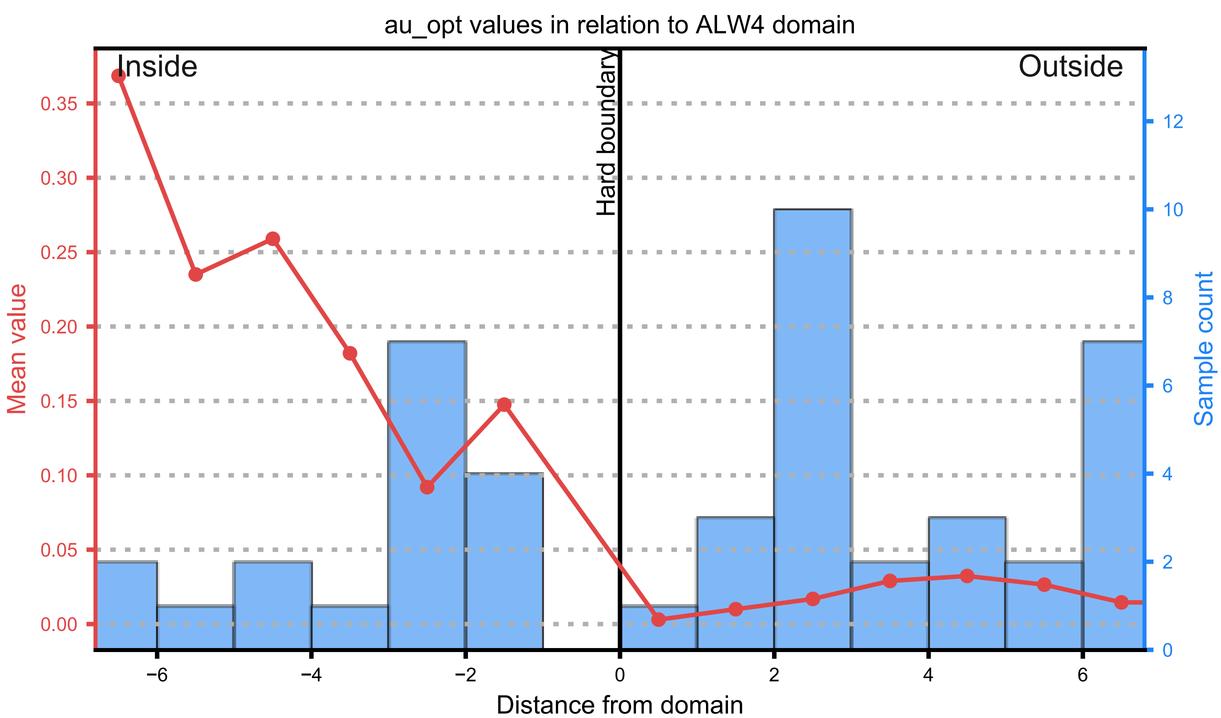


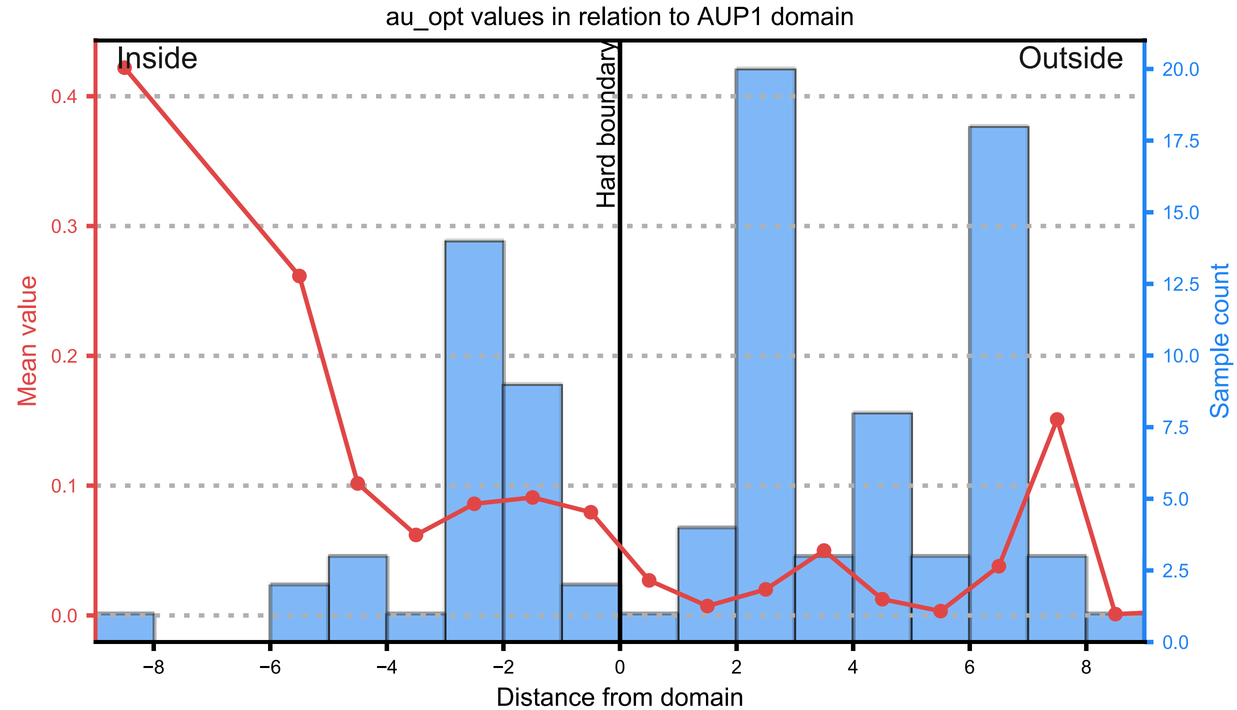


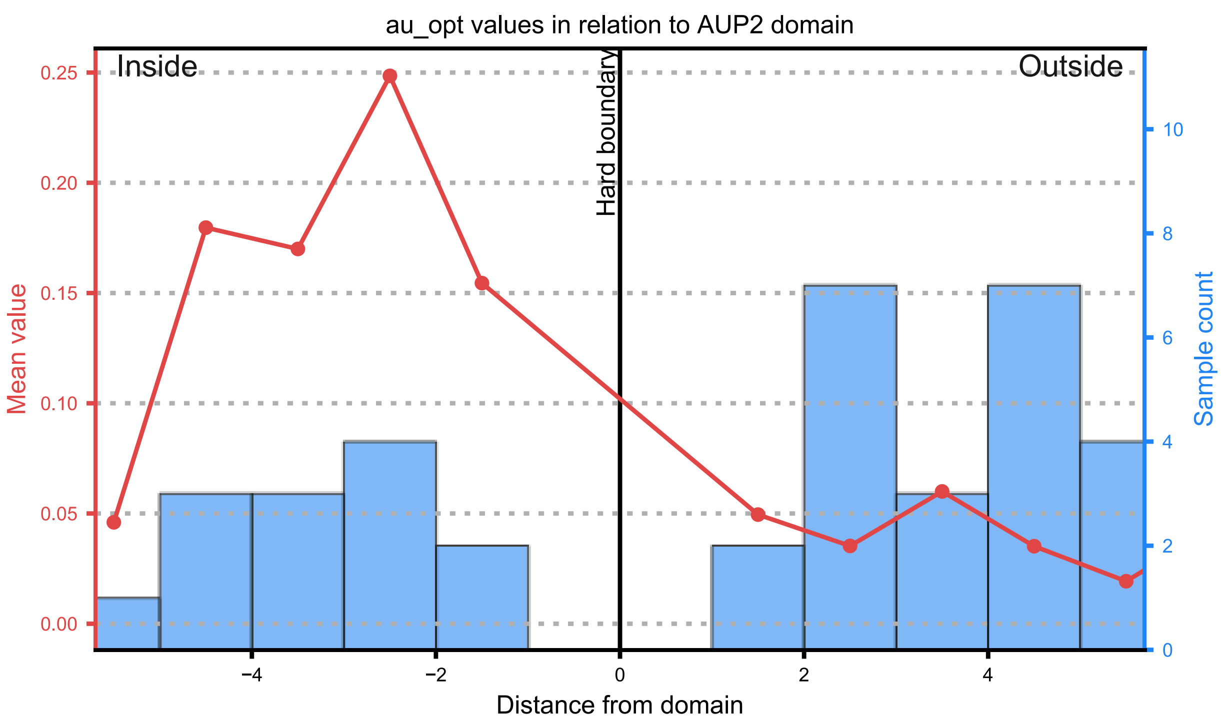

au_opt values in relation to ALW1 domain
Inside
Outside
Hard boundary
Mean value
Sample count
0.0
0.1
0.2
0.3
0.4
0
10
20
30
40
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
Distance from domain

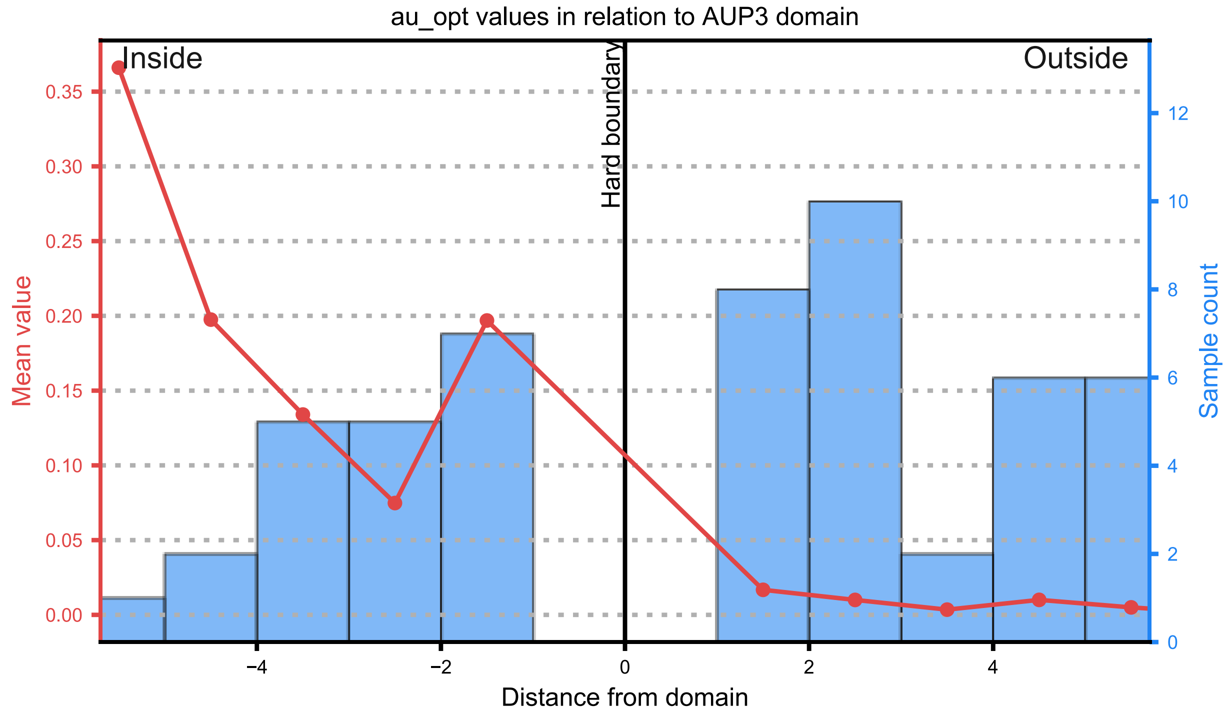

au_opt values in relation to ALW2 domain
Inside
Outside
Hard boundary
Mean value
Sample count
0.00
0.05
0.10
0.15
0.20
0
2
4
6
8
−4
−2
0
2
4
Distance from domain

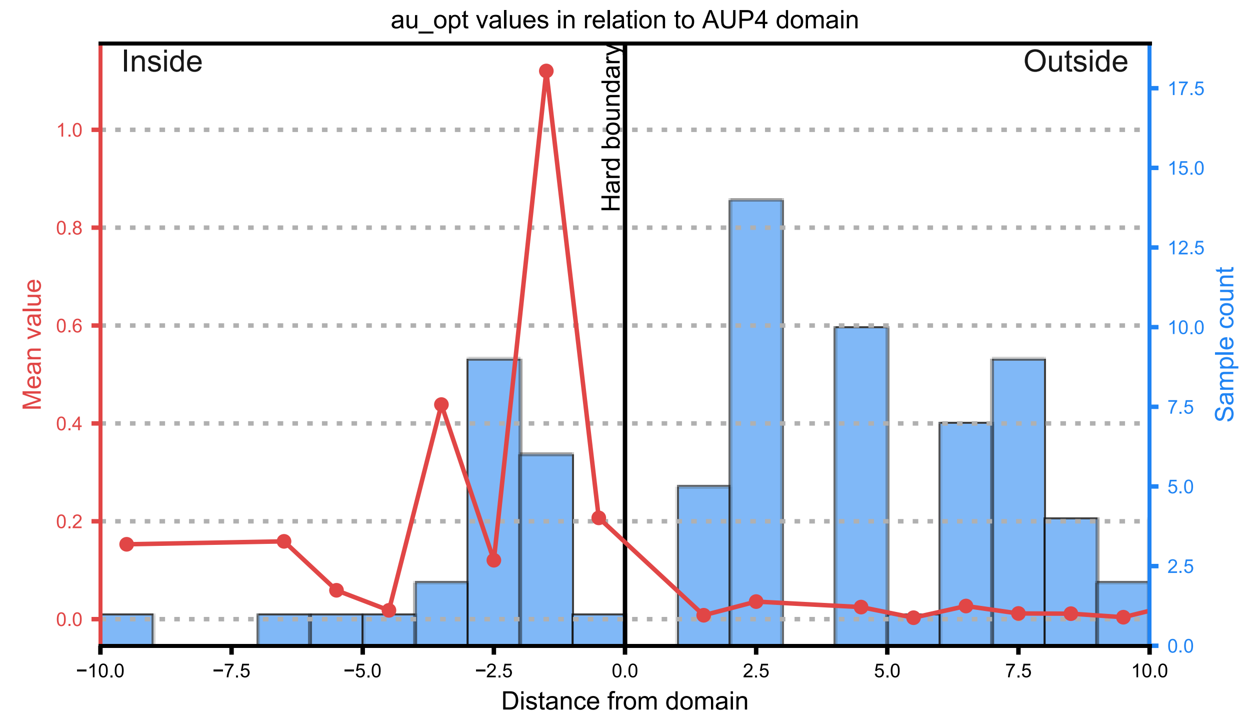

au_opt values in relation to ALW3 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.30
0.25
0.20
0.15
0.10
0.05
0.00
16
14
12
10
8
6
4
2
0
−4
−3
−2
−1
0
1
2
3
4


au_opt values in relation to ALW4 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
12
10
8
6
4
2
0
−6
−4
−2
0
2
4
6

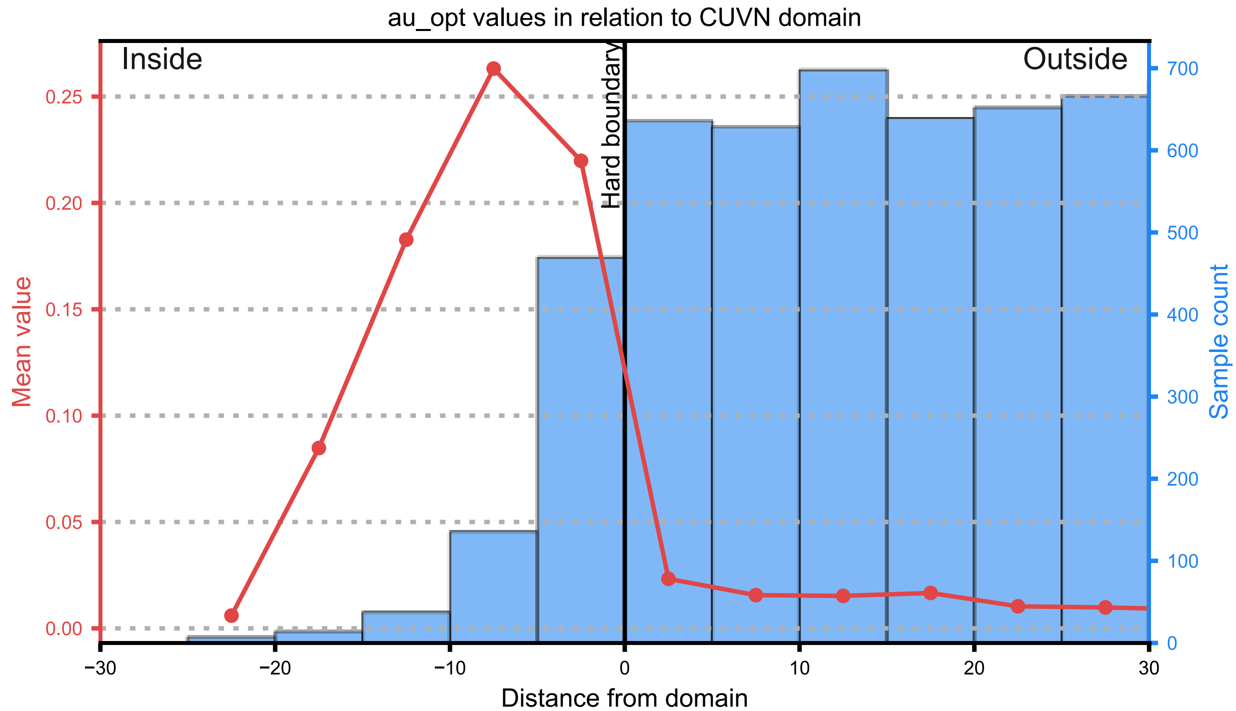

au_opt values in relation to AUP1 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.1
0.2
0.3
0.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
−8
−6
−4
−2
0
2
4
6
8

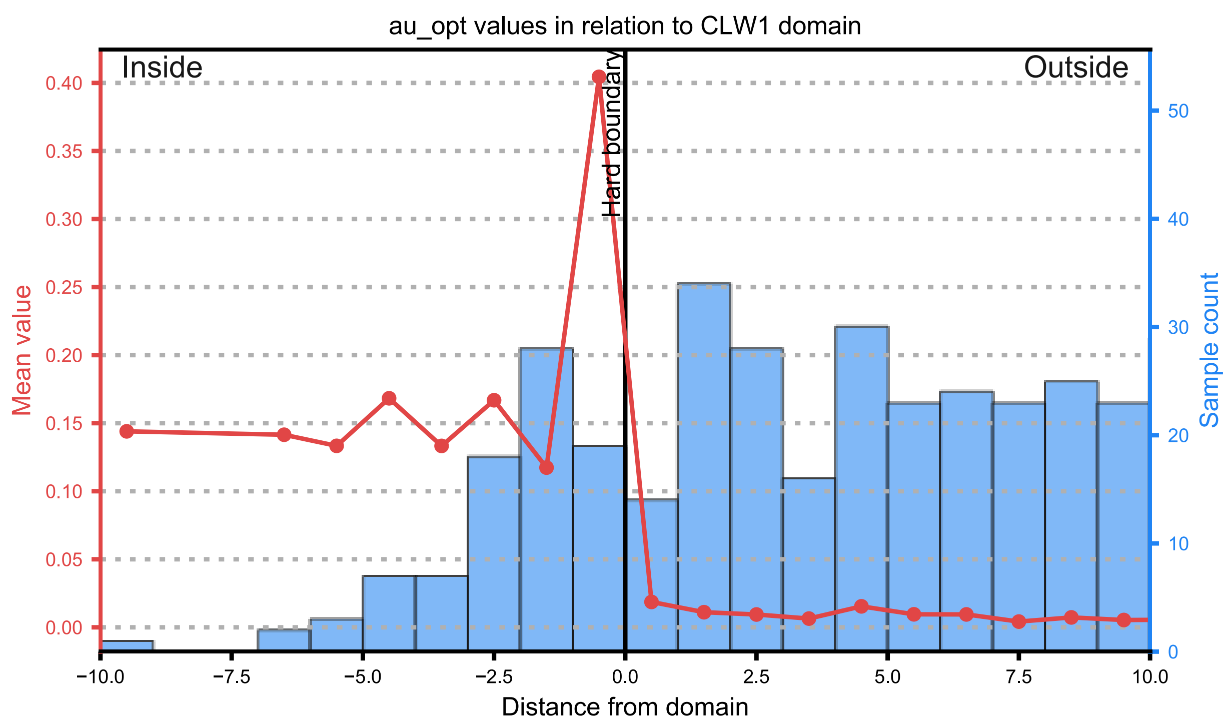

au_opt values in relation to AUP2 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.00
0.05
0.10
0.15
0.20
0.25
0
2
4
6
8
10
−4
−2
0
2
4


au_opt values in relation to AUP3 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain

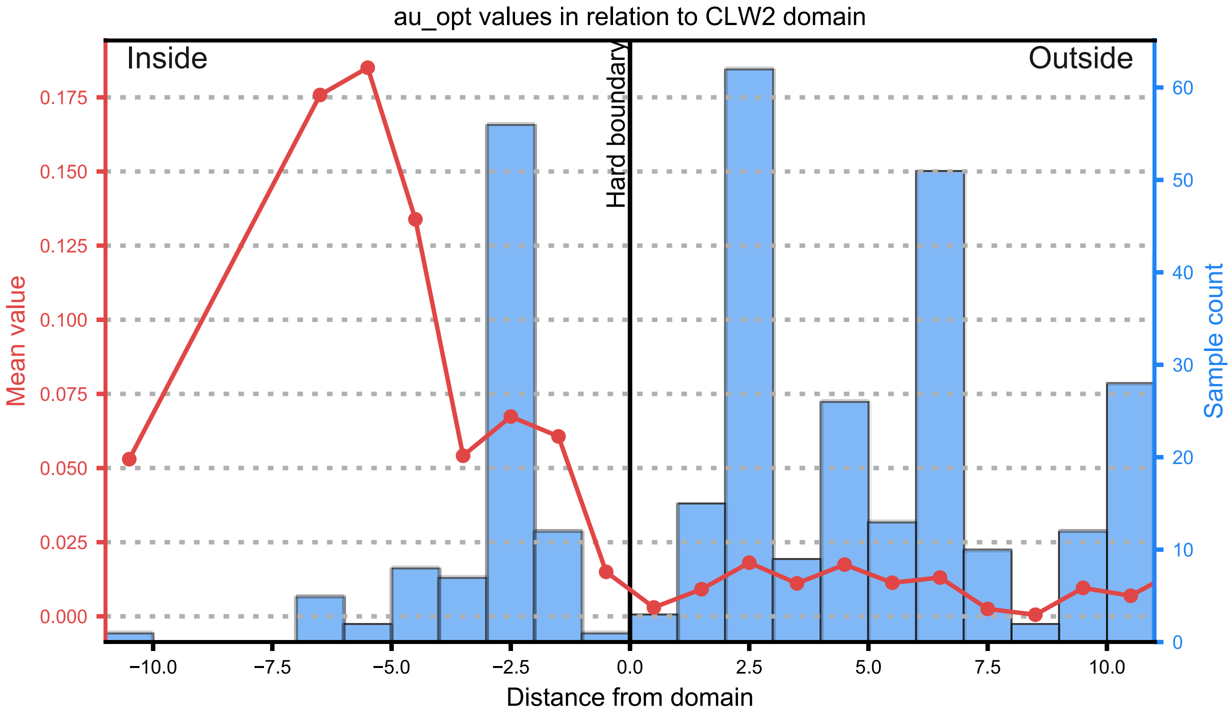

au_opt values in relation to AUP4 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain

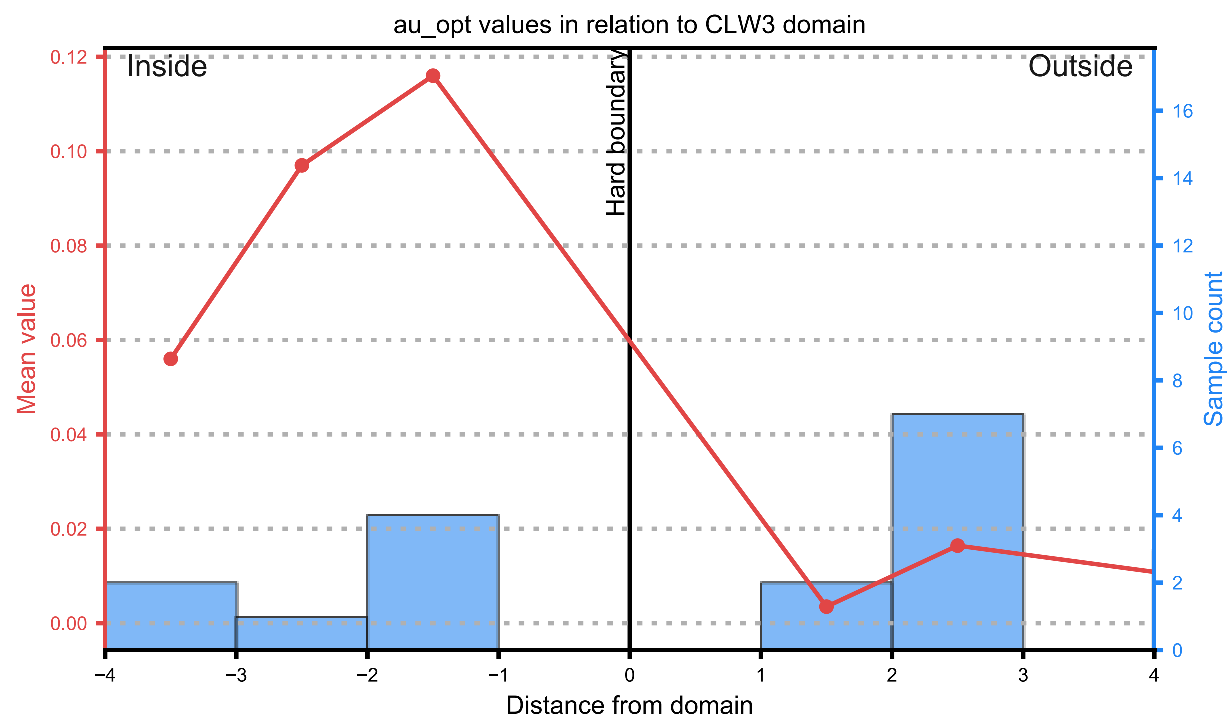
C Zone Domains

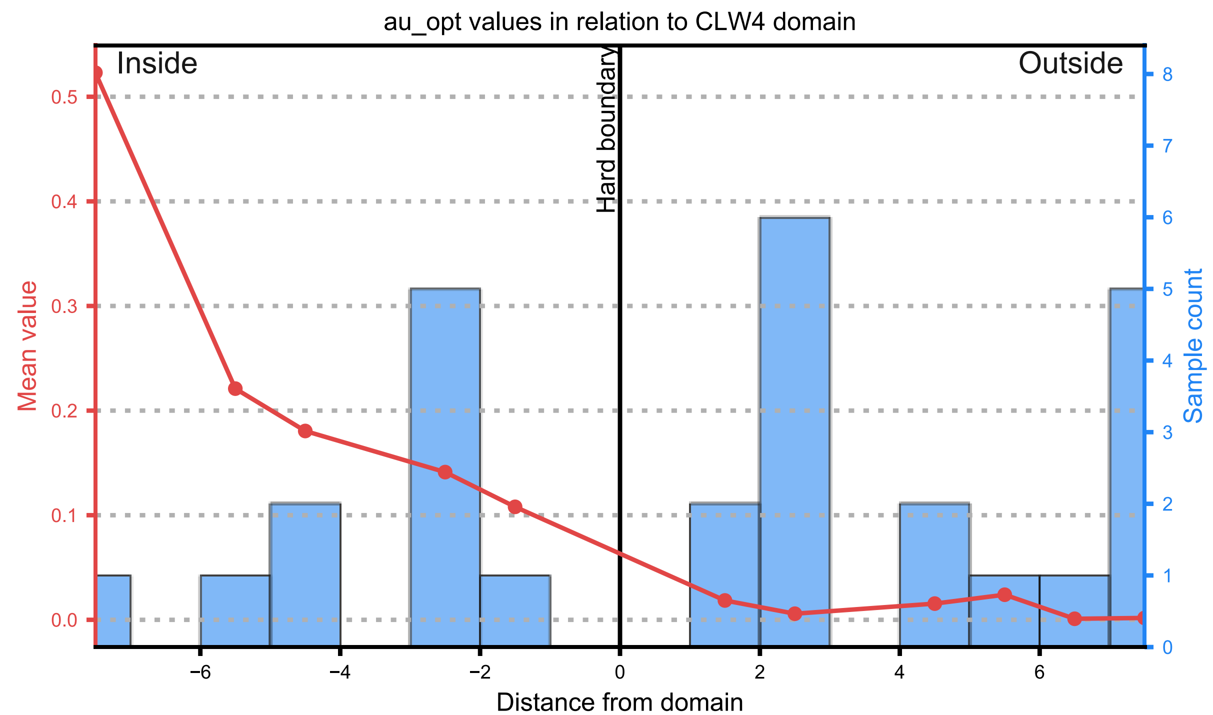


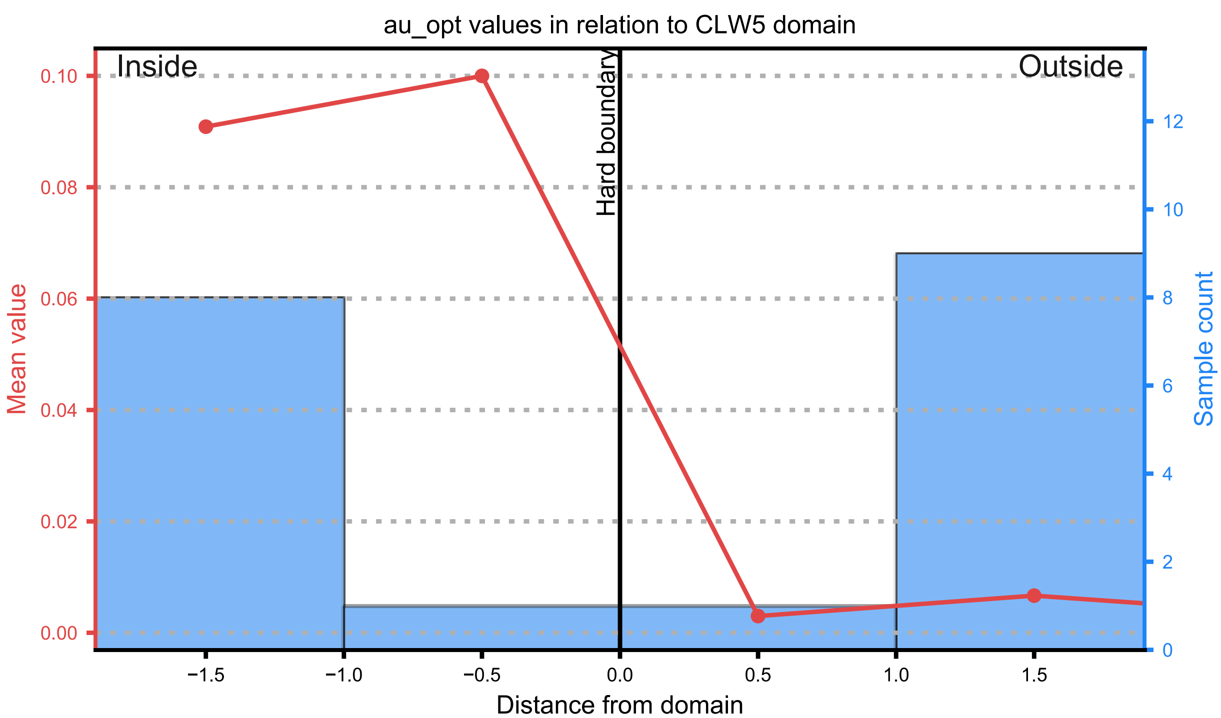


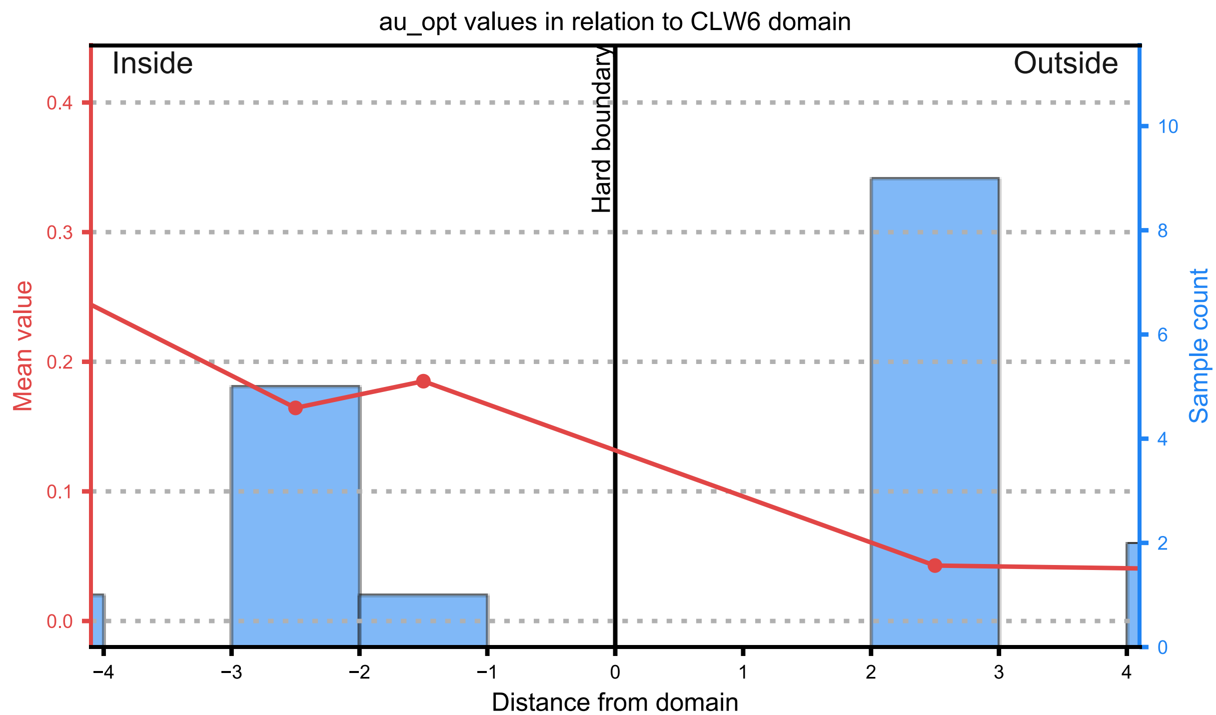
Hard Rock Consulting, LLC

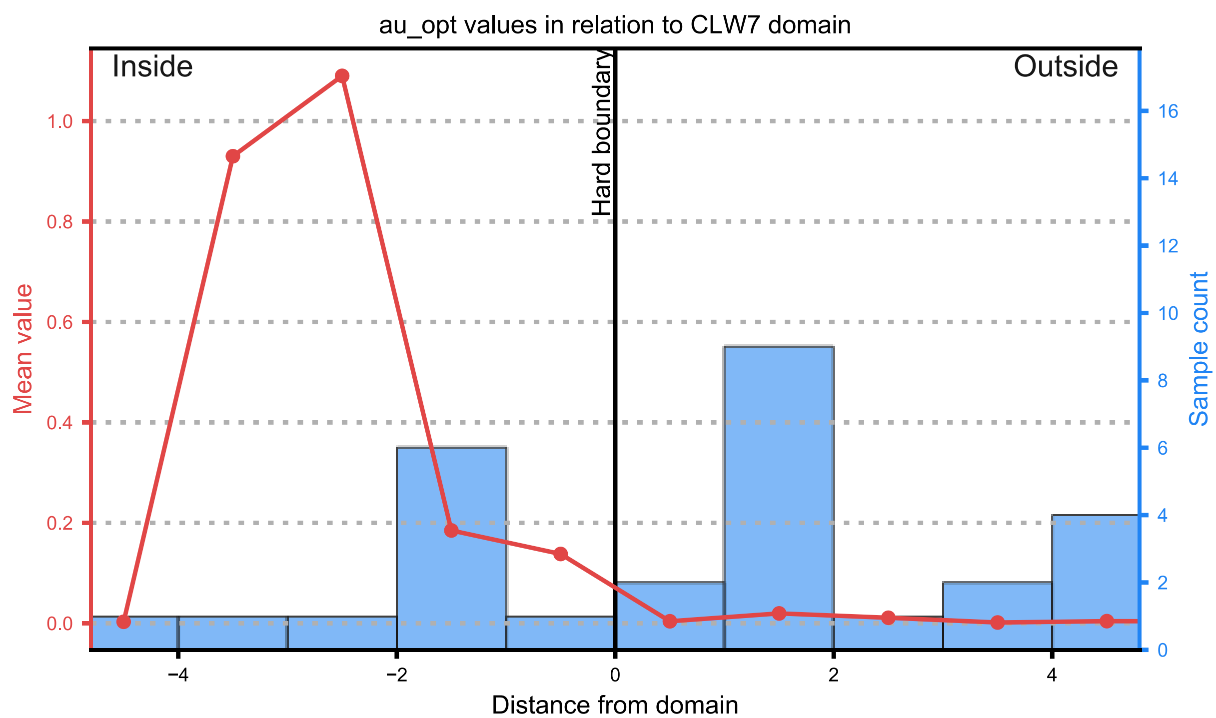

au_opt values in relation to CLW2 domain
Inside
Outside
Hard boundary
Mean value
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
Sample count
60
50
40
30
20
10
0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
Distance from domain

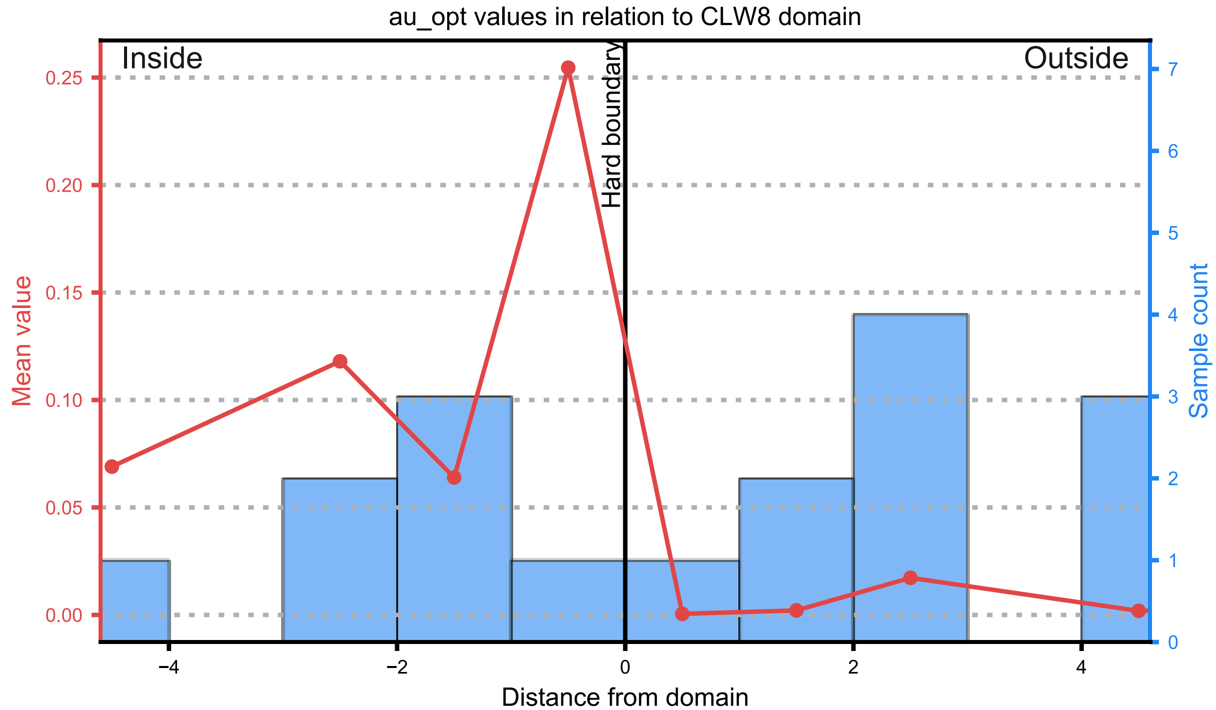

au_opt values in relation to CLW3 domain
Inside
Outside
Hard boundary
Mean value
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Sample count
16
14
12
10
8
6
4
2
0
−4
−3
−2
−1
0
1
2
3
4
Distance from domain

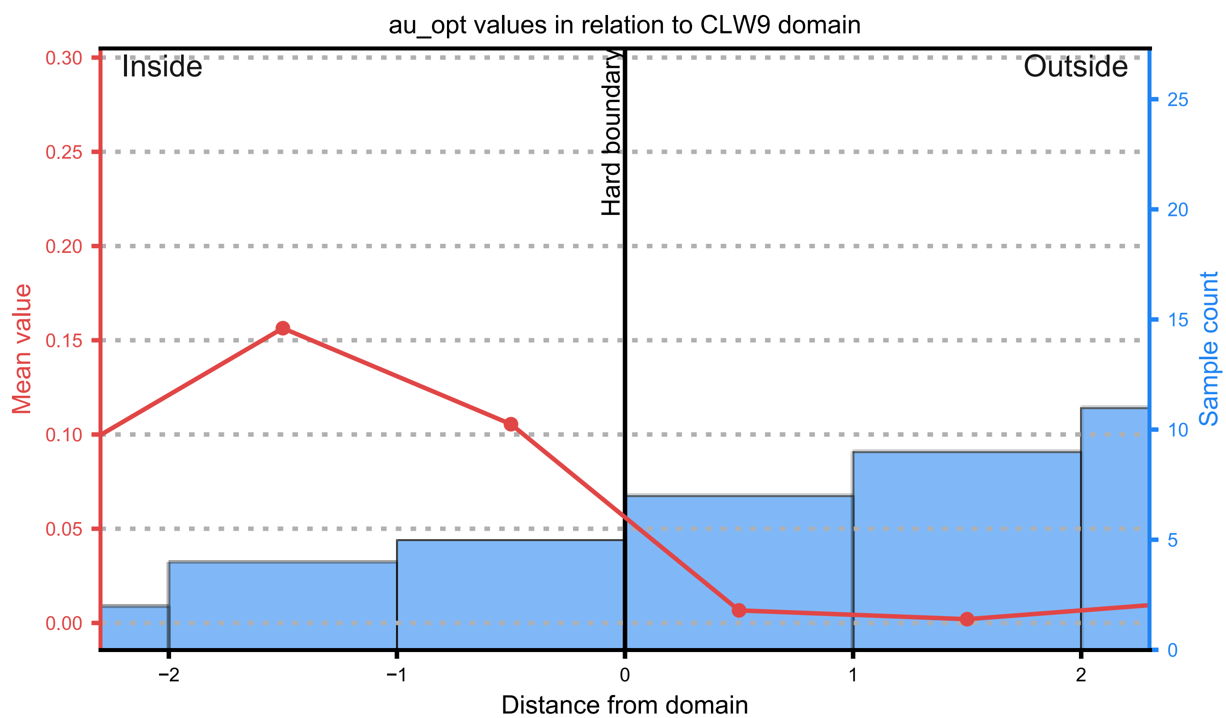

au_opt values in relation to CLW4 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.5
0.4
0.3
0.2
0.1
0.0
8
7
6
5
4
3
2
1
0
−6
−4
−2
0
2
4
6

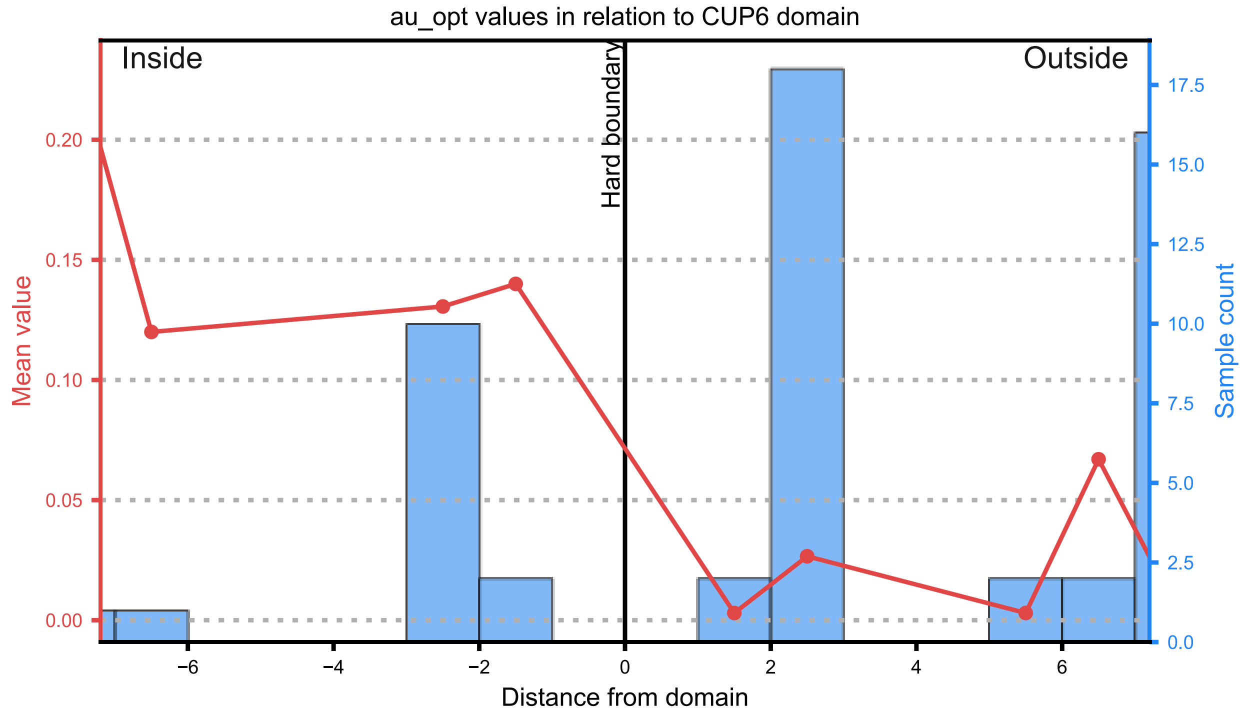

au_opt values in relation to CLW5 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.10
0.08
0.06
0.04
0.02
0.00
12
10
8
6
4
2
0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5


au_opt values in relation to CLW6 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.1
0.2
0.3
0.4
0
2
4
6
8
10
−4
−3
−2
−1
0
1
2
3
4

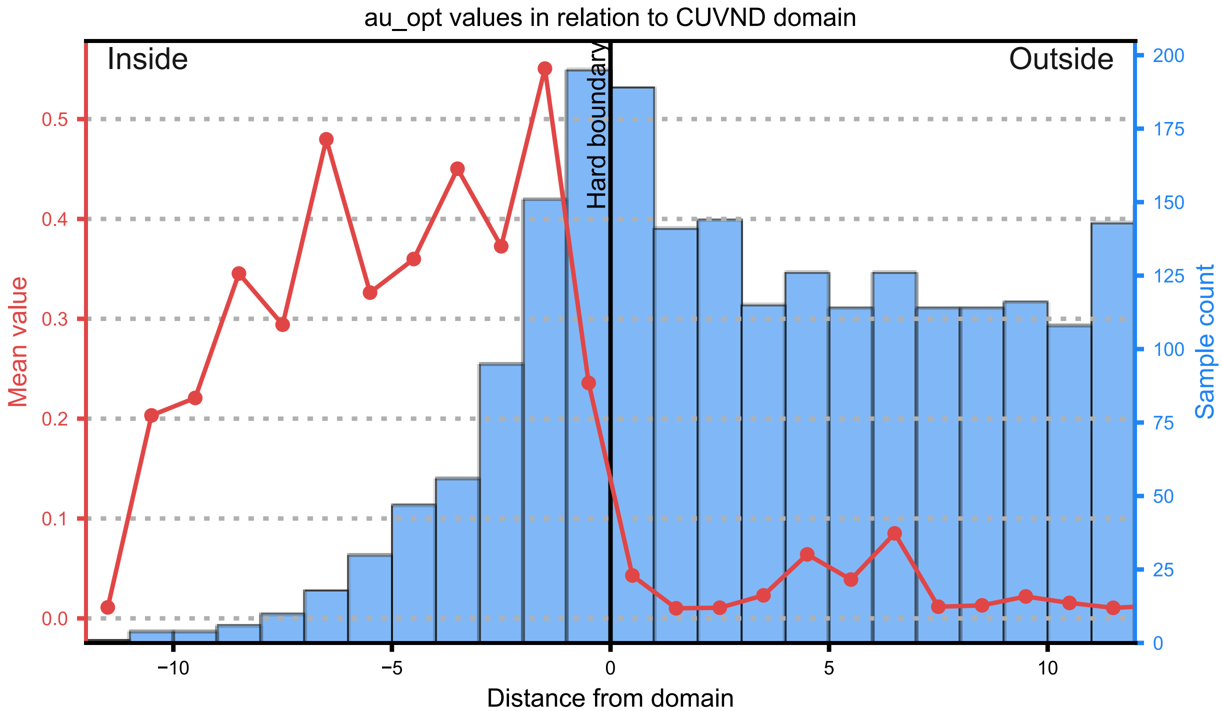

au_opt values in relation to CLW7 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
−4
−2
0
2
4

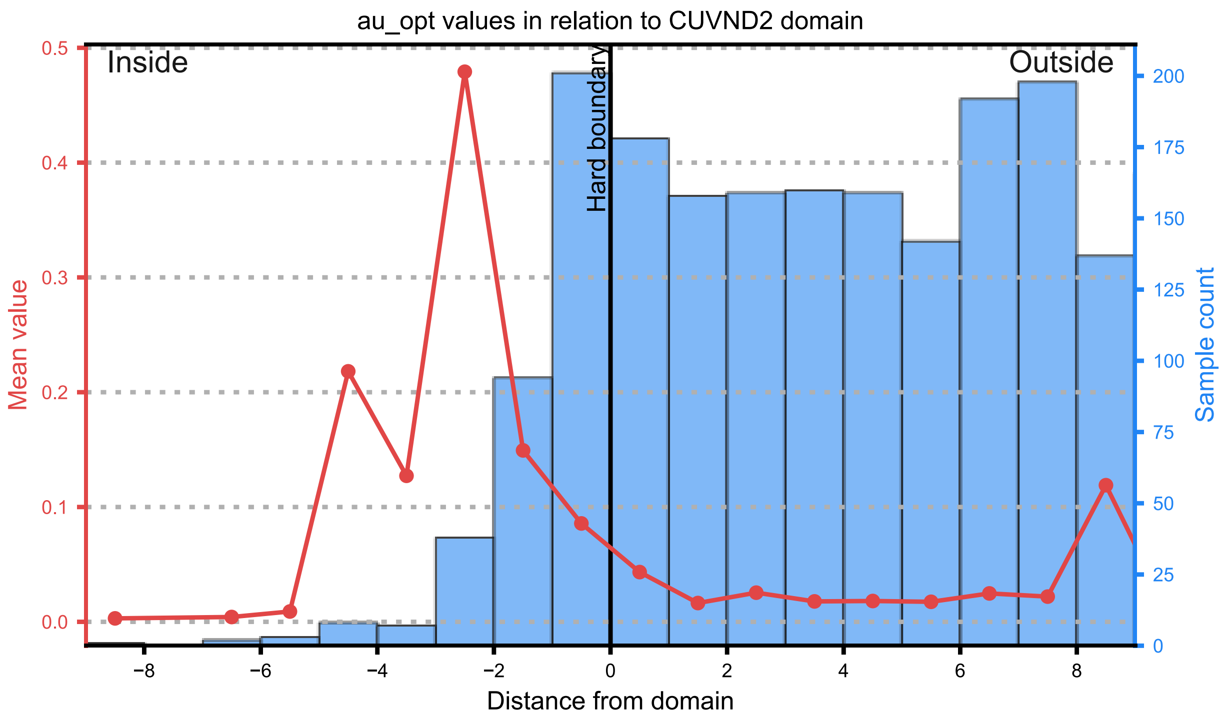

au_opt values in relation to CLW8 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.25
0.20
0.15
0.10
0.05
0.00
7
6
5
4
3
2
1
0
−4
−2
0
2
4

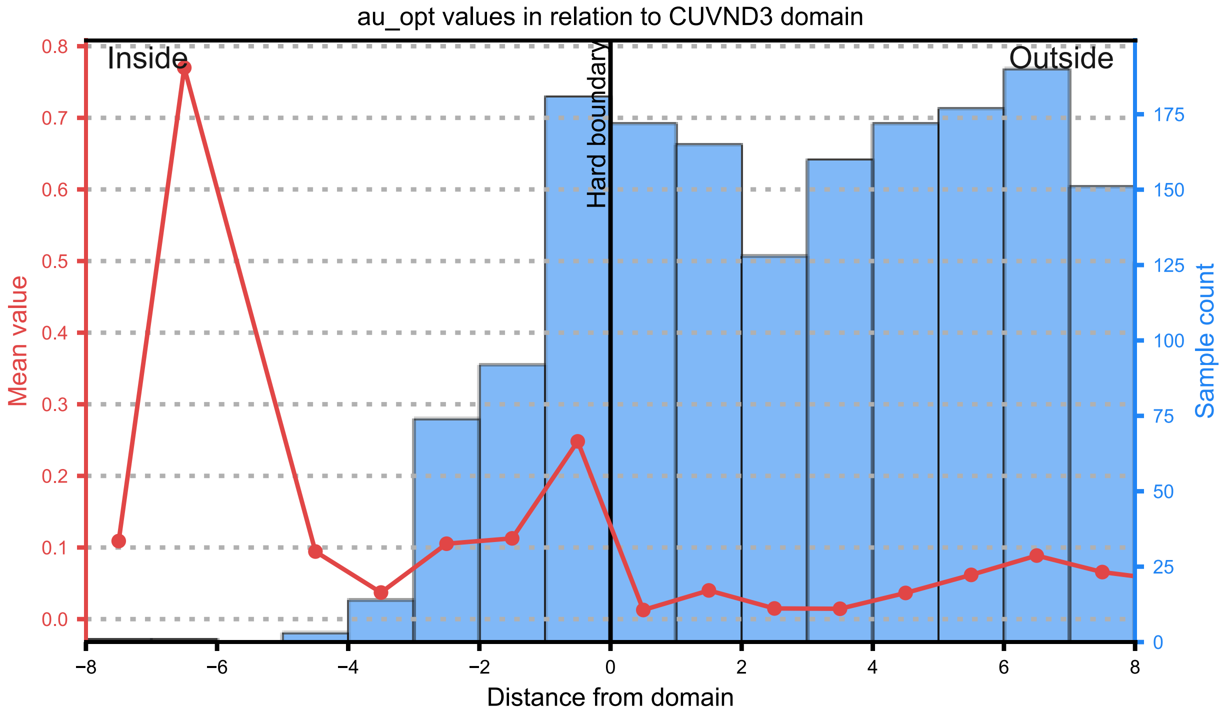

au_opt values in relation to CLW9 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.30
0.25
0.20
0.15
0.10
0.05
0.00
25
20
15
10
5
0
−2
−1
0
1
2

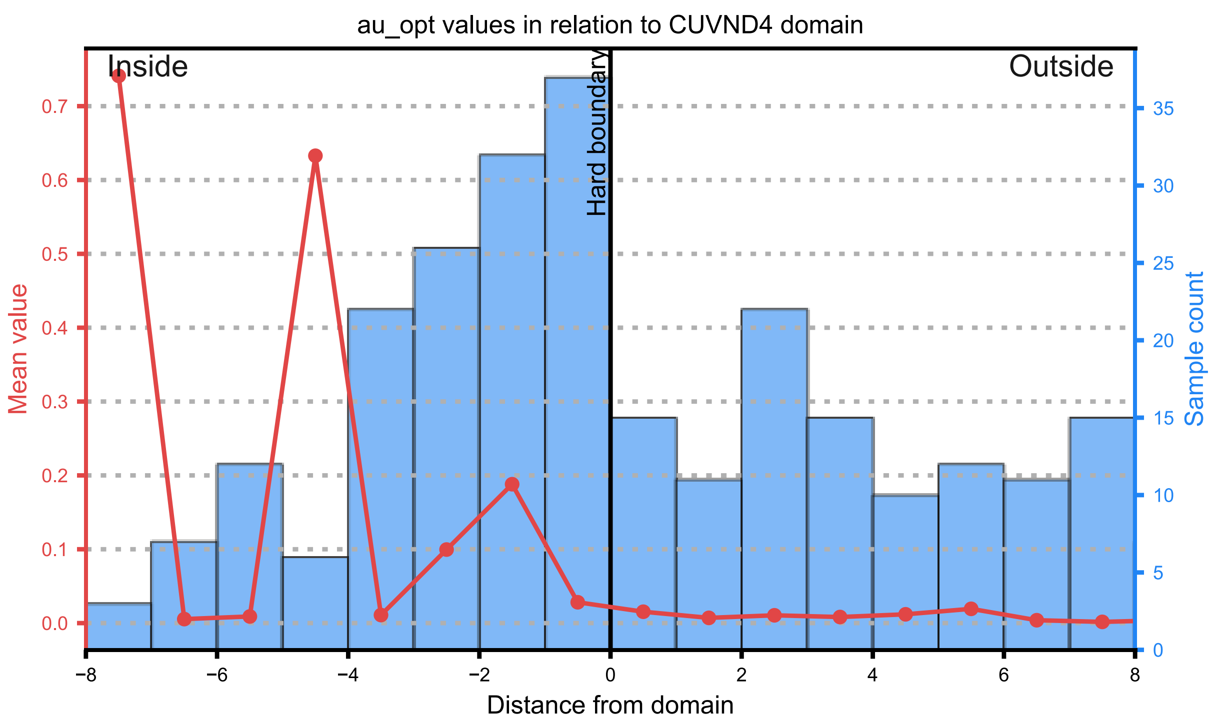

au_opt values in relation to CUP6 domain
Inside
Outside
Hard boundary
Mean value
0.00
0.05
0.10
0.15
0.20
Sample count
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
−6
−4
−2
0
2
4
6
Distance from domain

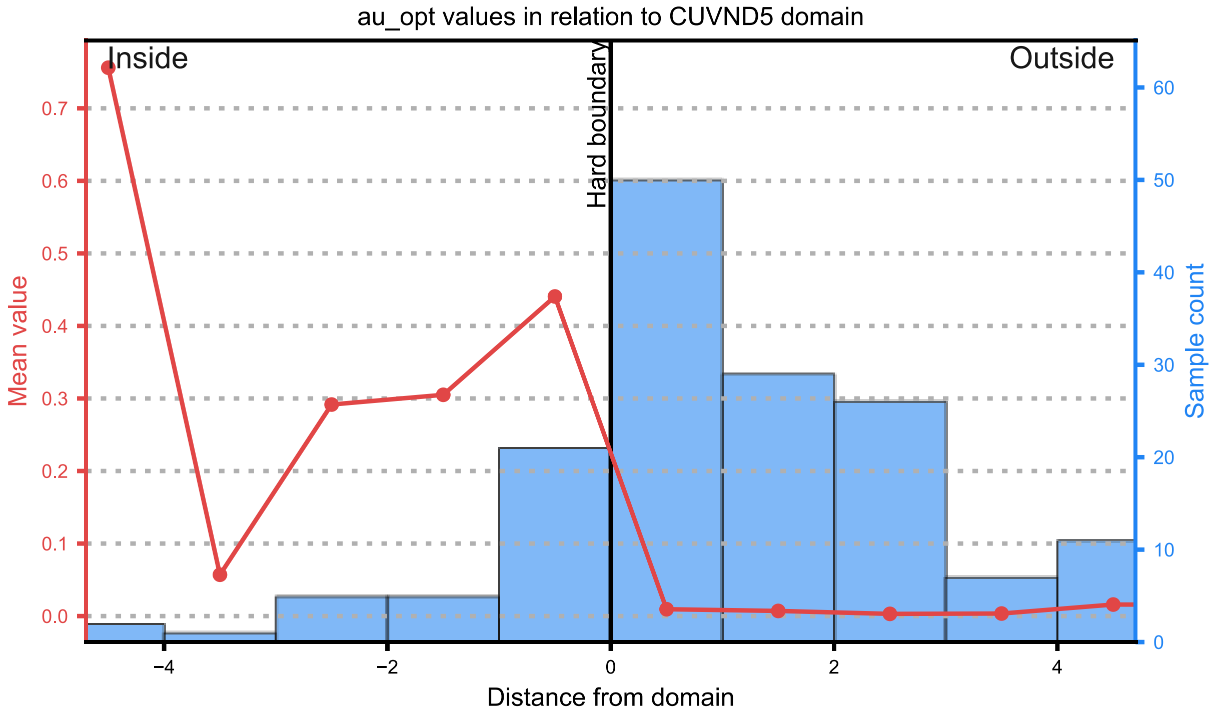
D Zone Domains



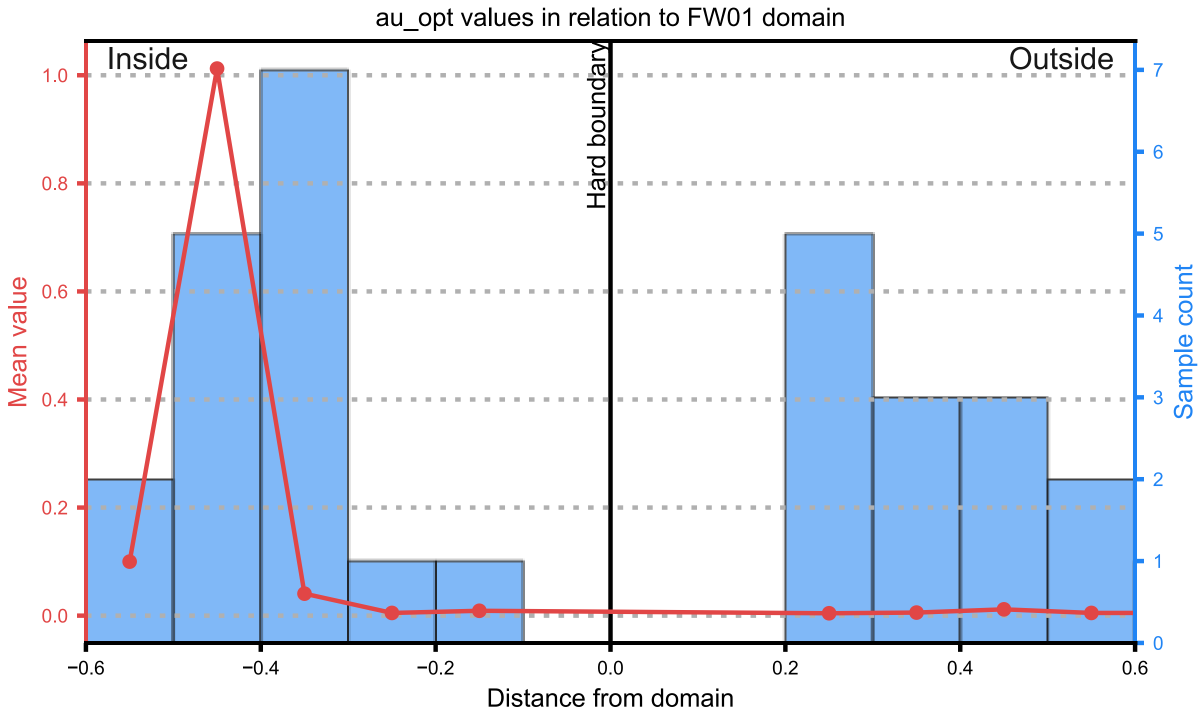


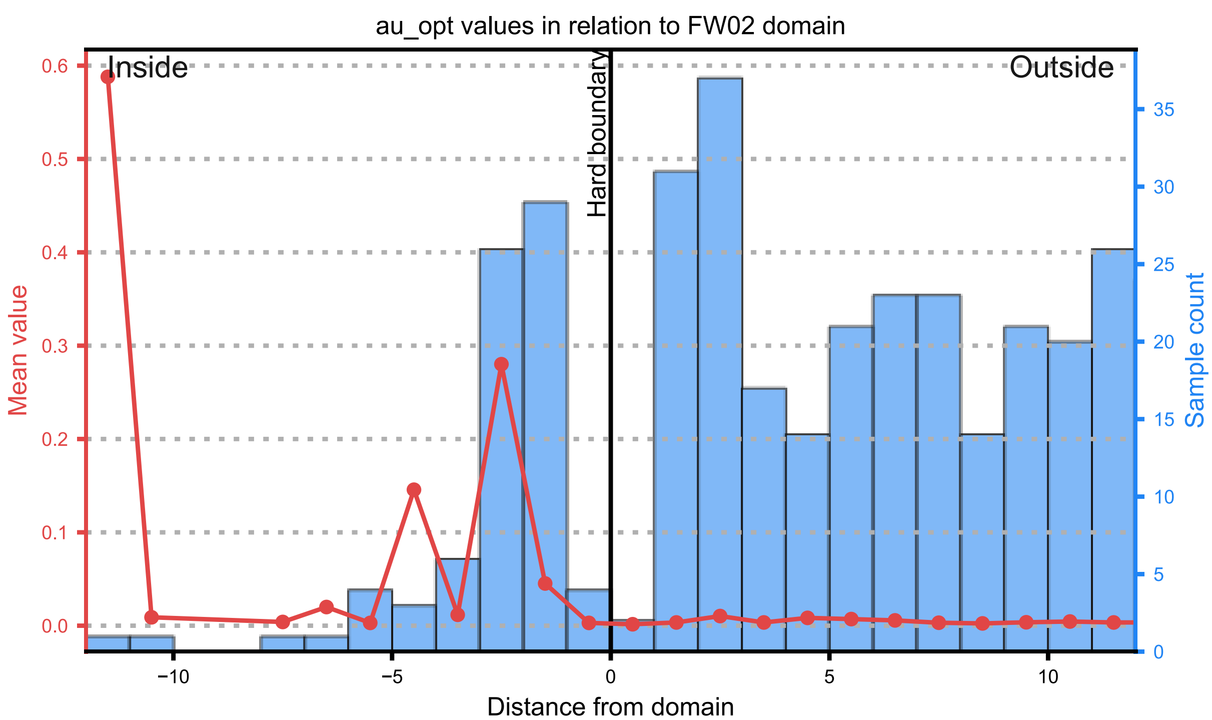

au_opt values in relation to CUVND3 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
25
50
75
100
125
150
175
−8
−6
−4
−2
0
2
4
6
8

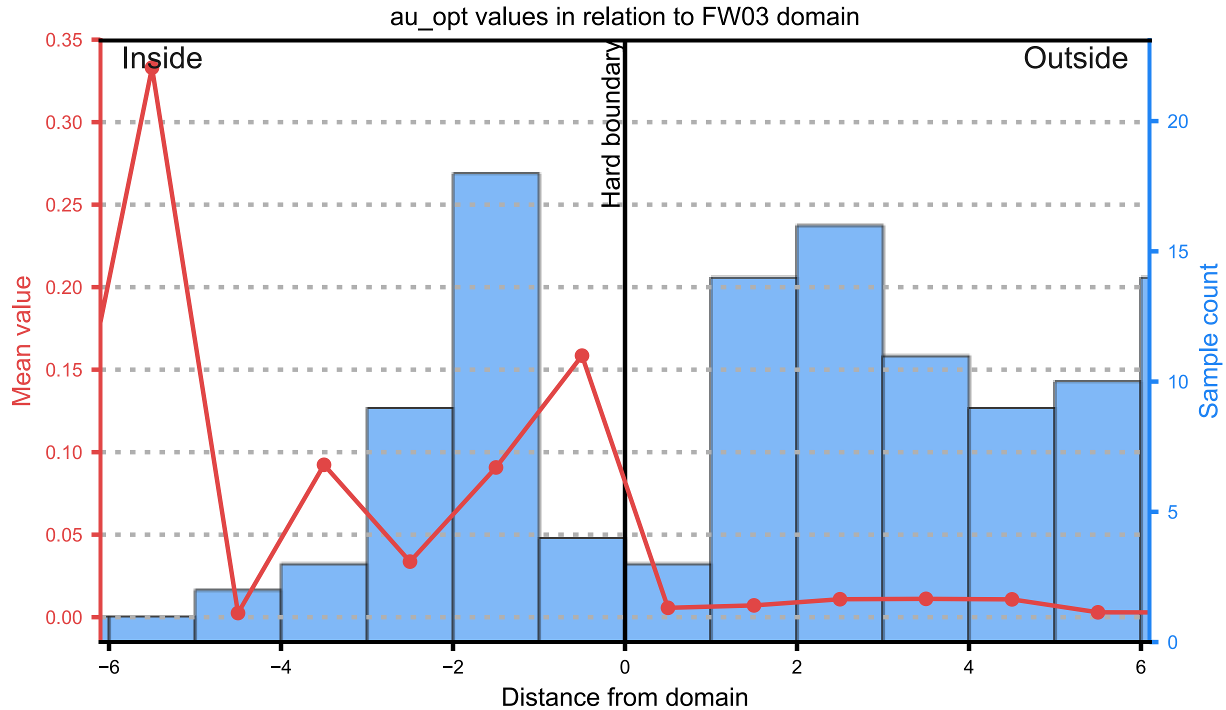

au_opt values in relation to CUVND4 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
5
10
15
20
25
30
35
−8
−6
−4
−2
0
2
4
6
8

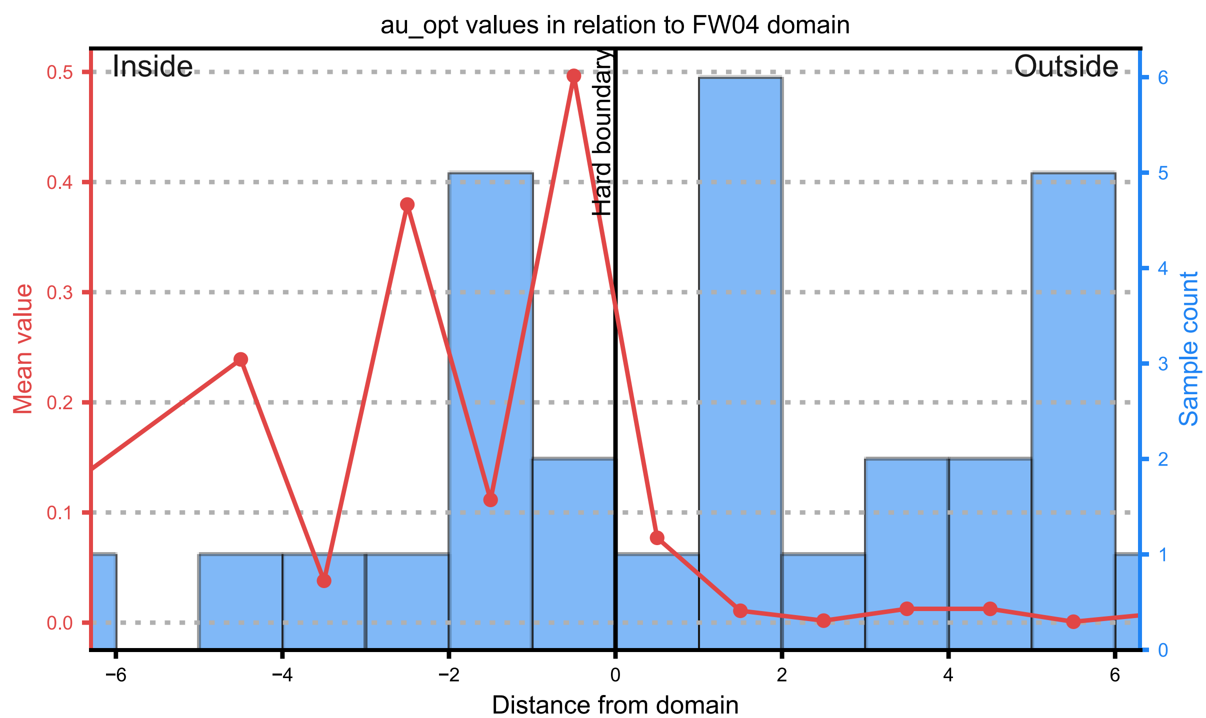

au_opt values in relation to CUVND5 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
10
20
30
40
50
60
−4
−2
0
2
4

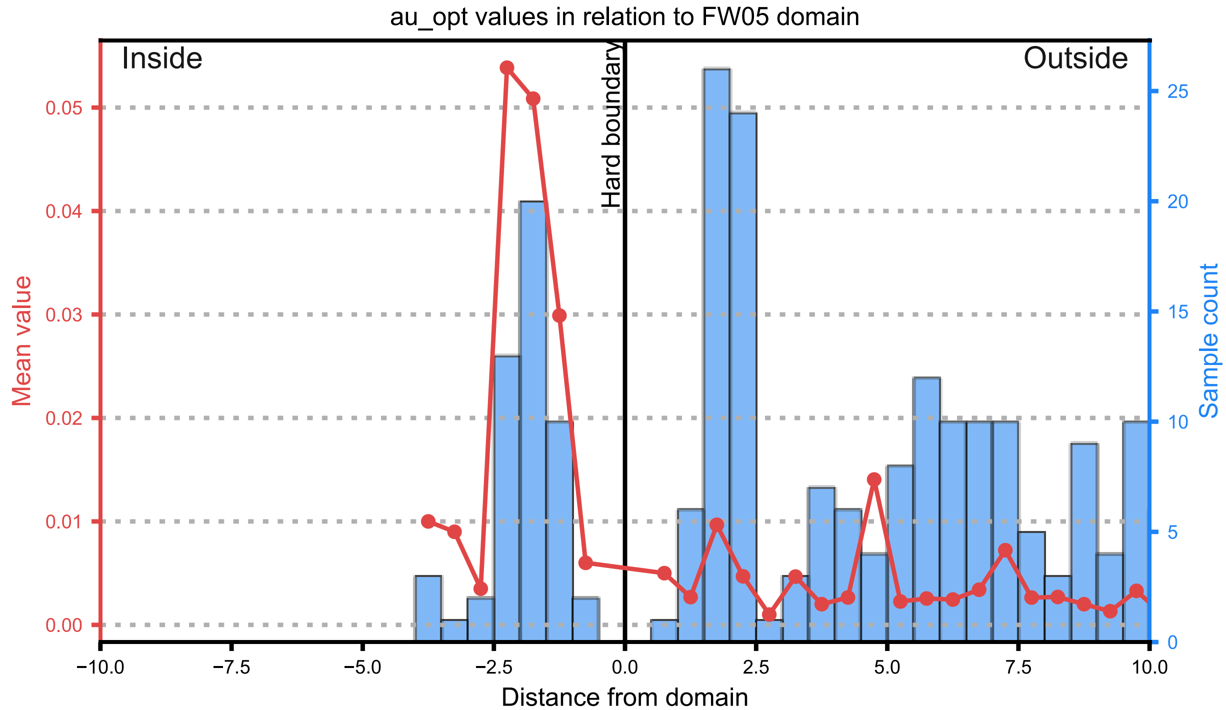
Footwall Zone Domains

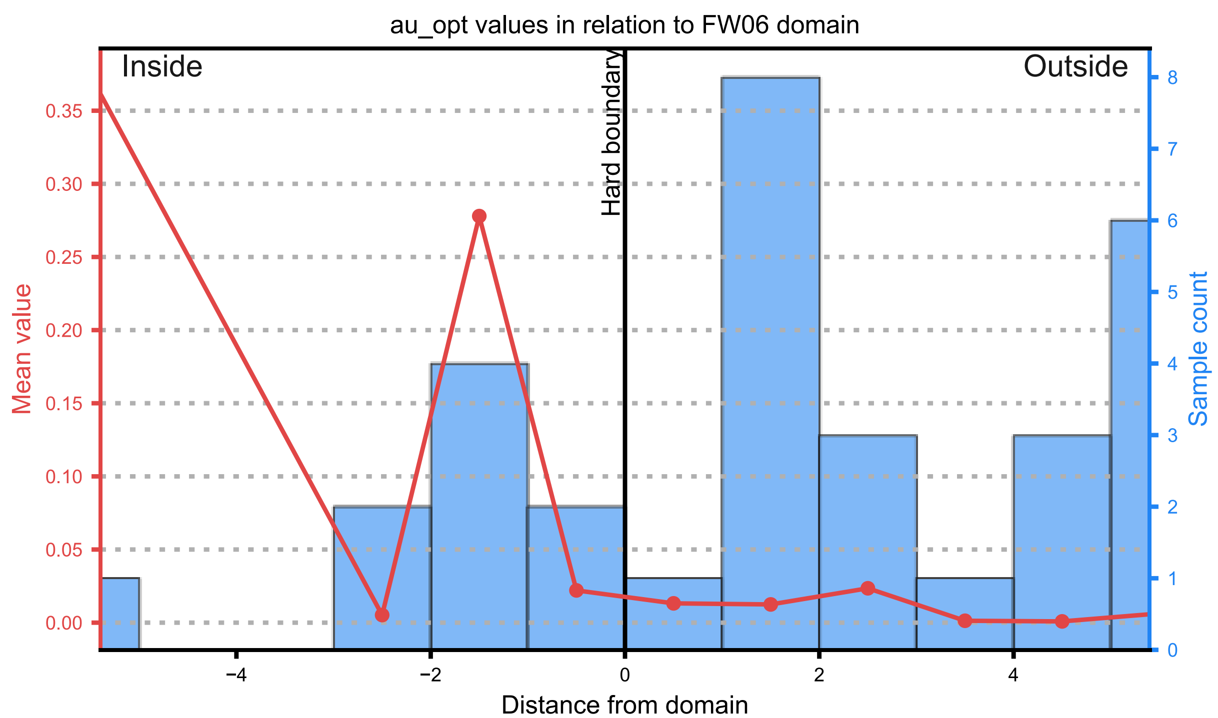




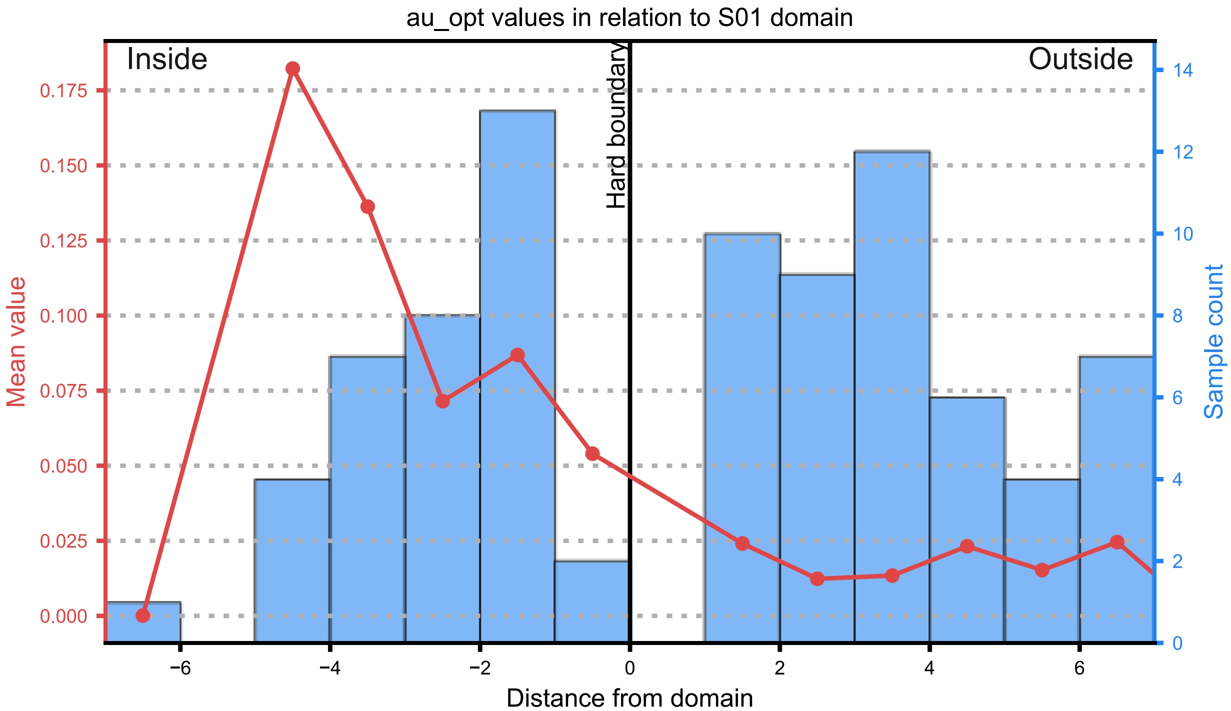

au_opt values in relation to FW03 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
20
15
10
5
0
−6
−4
−2
0
2
4
6

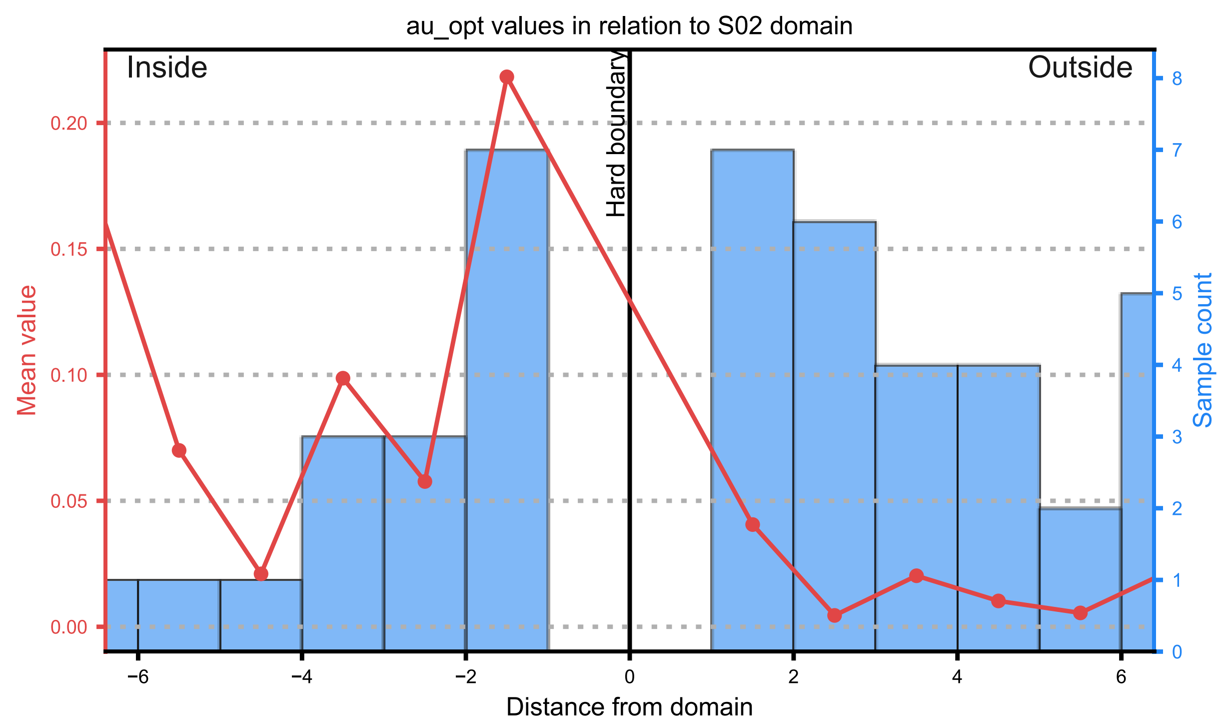

au_opt values in relation to FW04 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.5
0.4
0.3
0.2
0.1
0.0
6
5
4
3
2
1
0
−6
−4
−2
0
2
4
6

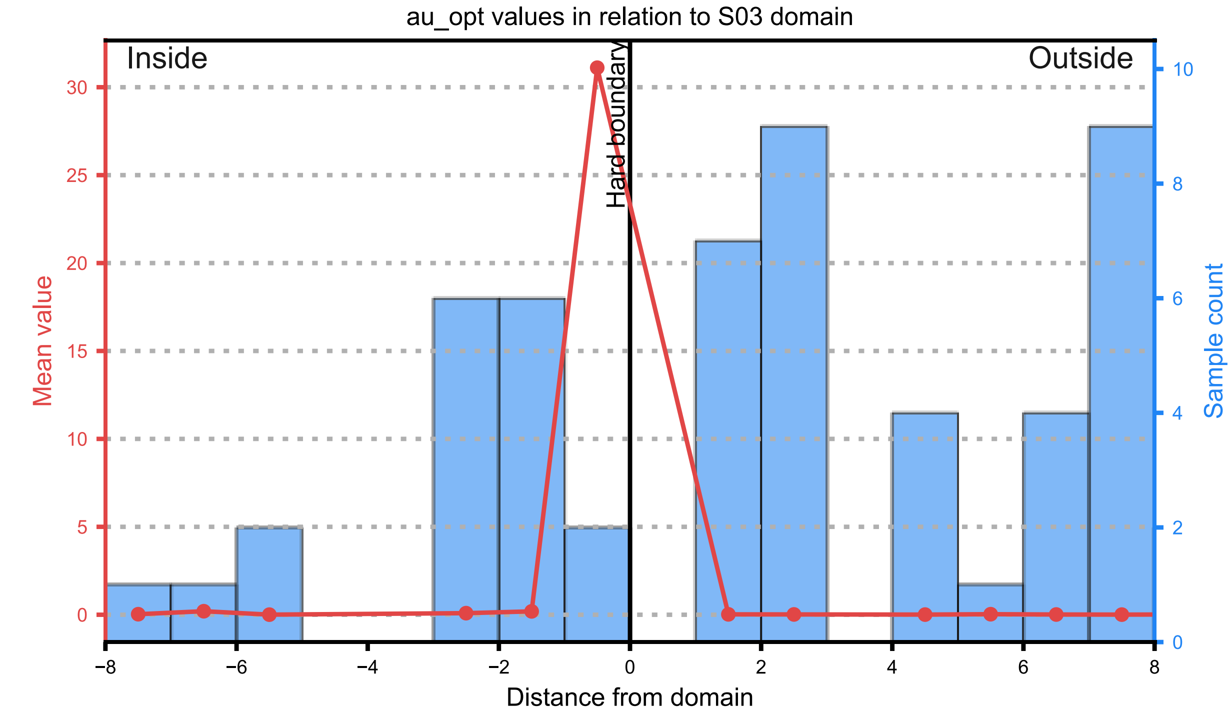

au_opt values in relation to FW05 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.00
0.01
0.02
0.03
0.04
0.05
0
5
10
15
20
25
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0

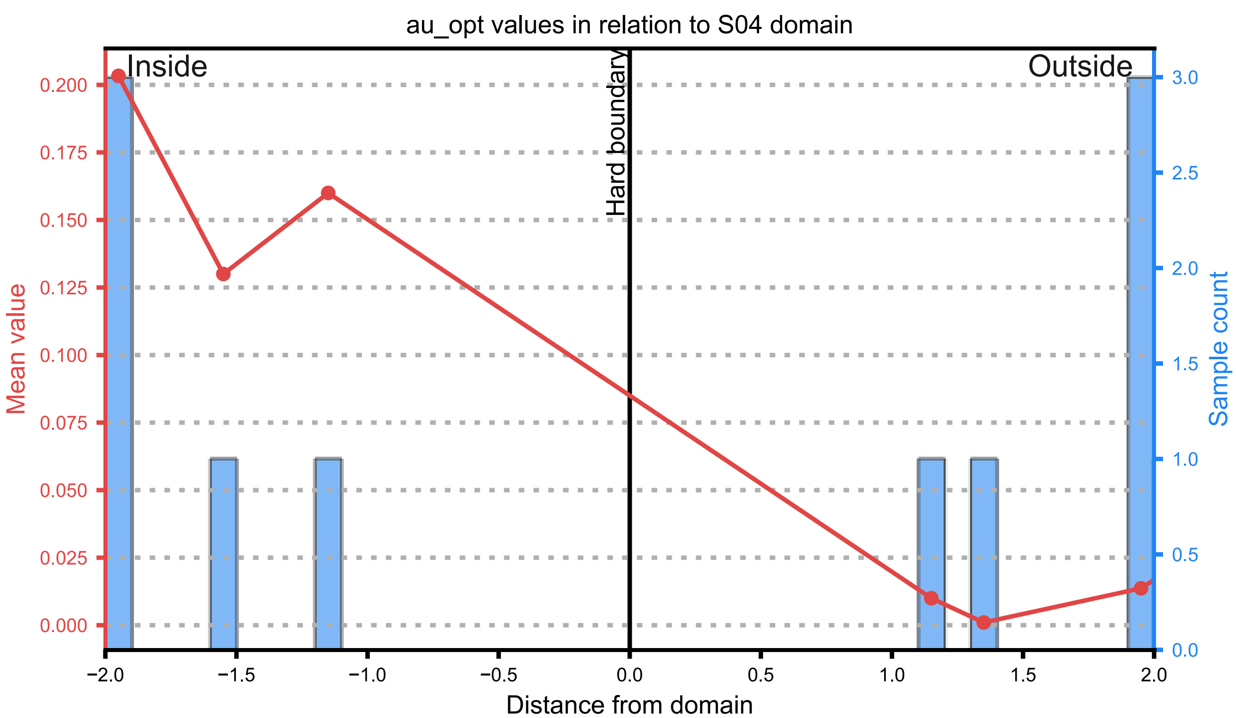

au_opt values in relation to FW06 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0
1
2
3
4
5
6
7
8
−4
−2
0
2
4

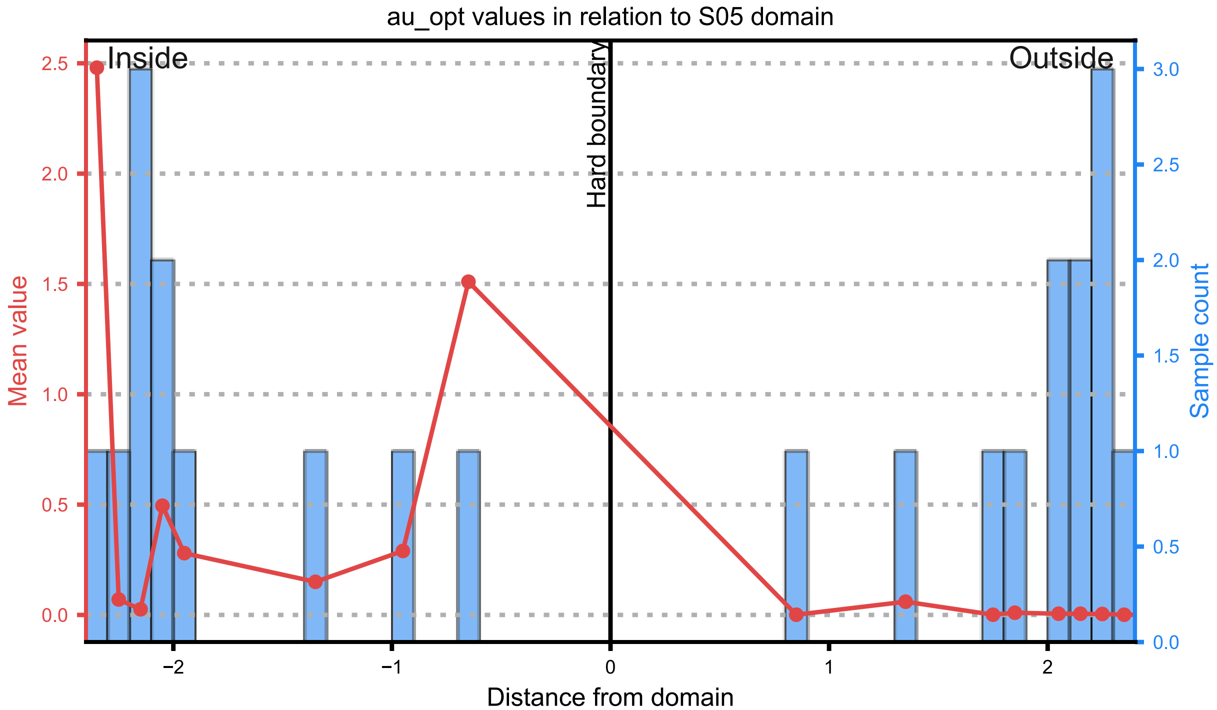
South Zone Domains



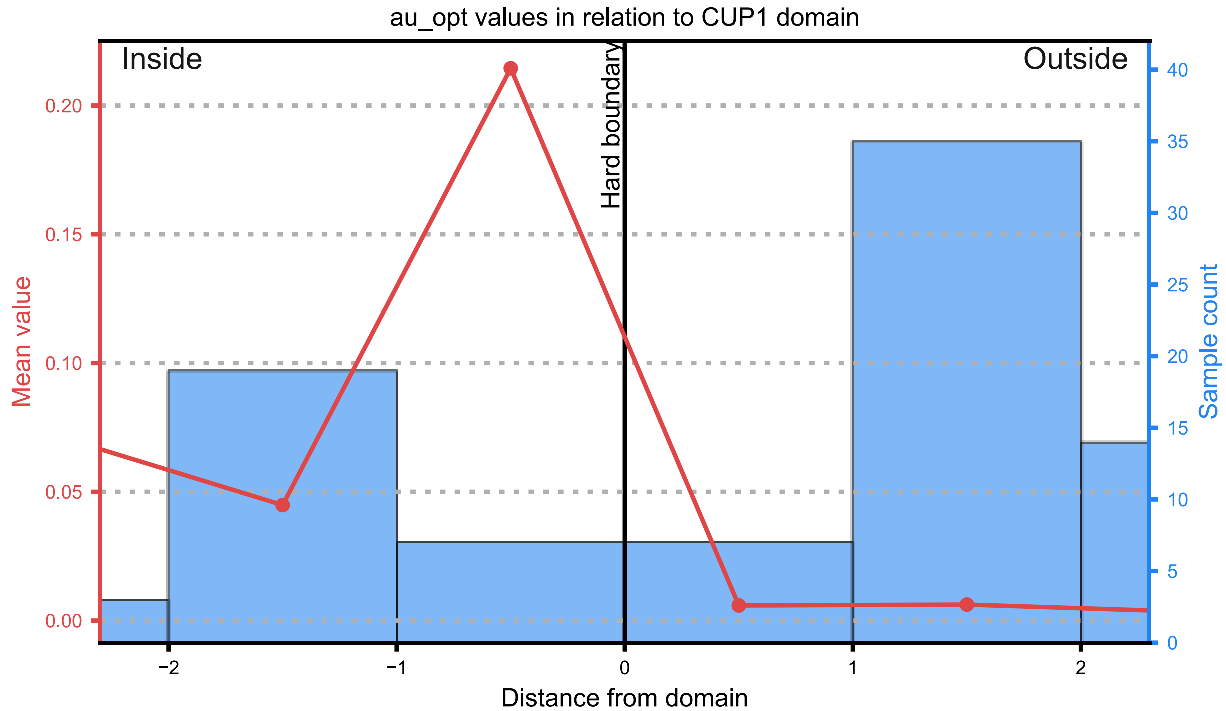


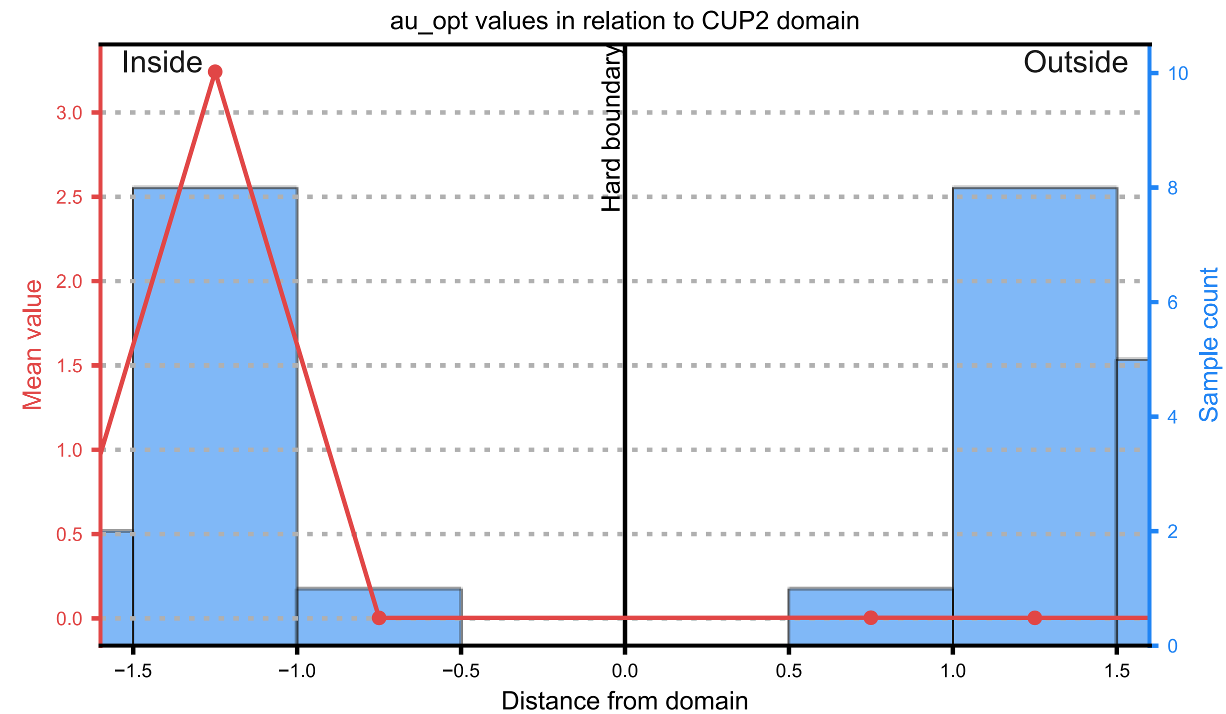

au_opt values in relation to S03 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
30
25
20
15
10
5
0
10
8
6
4
2
0
−8
−6
−4
−2
0
2
4
6
8

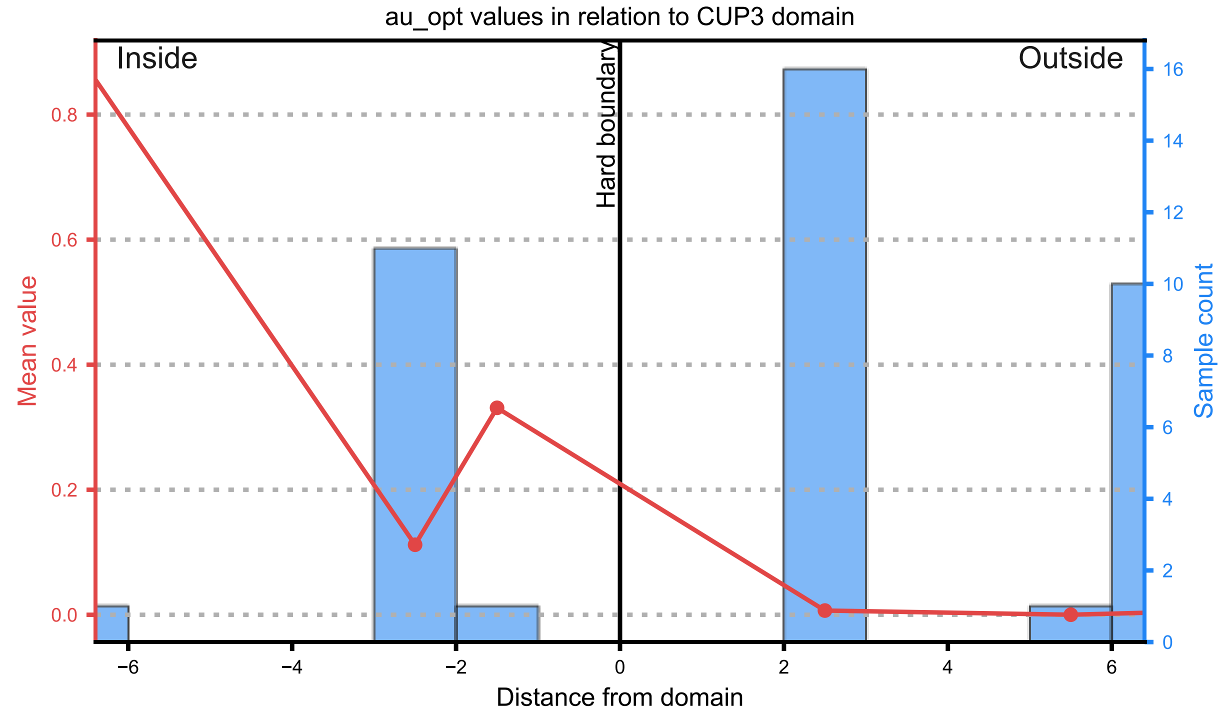

au_opt values in relation to S04 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0

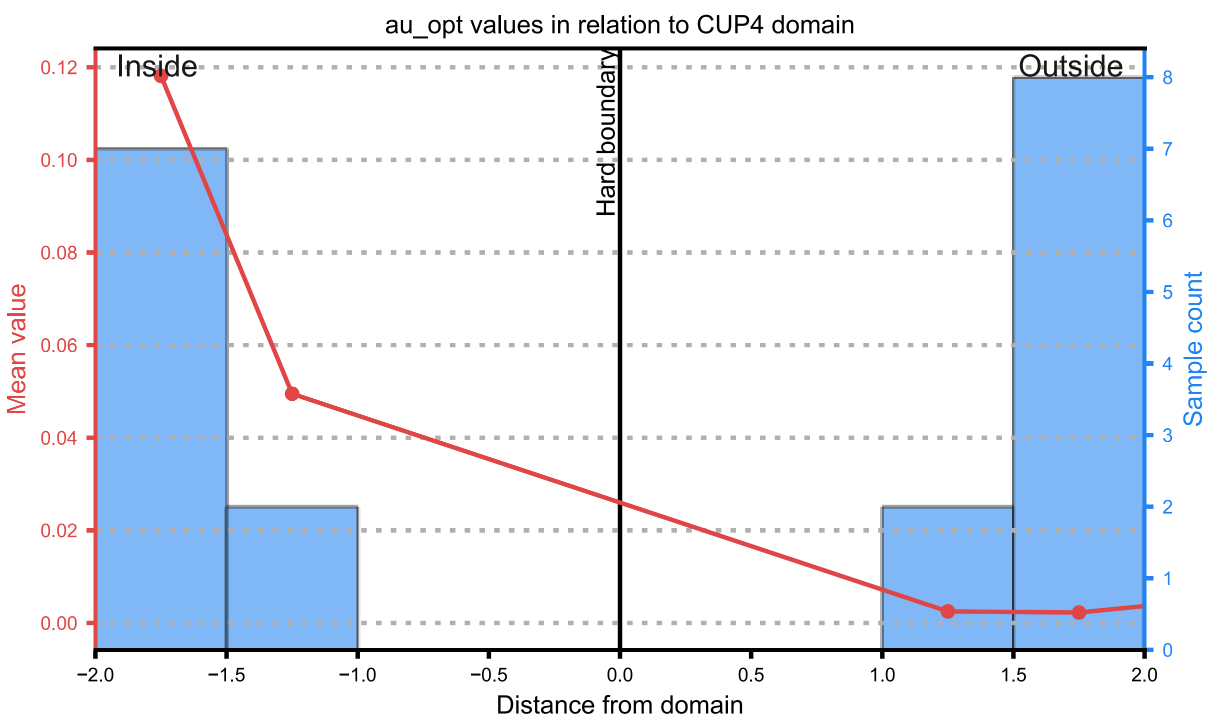

au_opt values in relation to S05 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
2.5
2.0
1.5
1.0
0.5
0.0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−2
−1
0
1
2

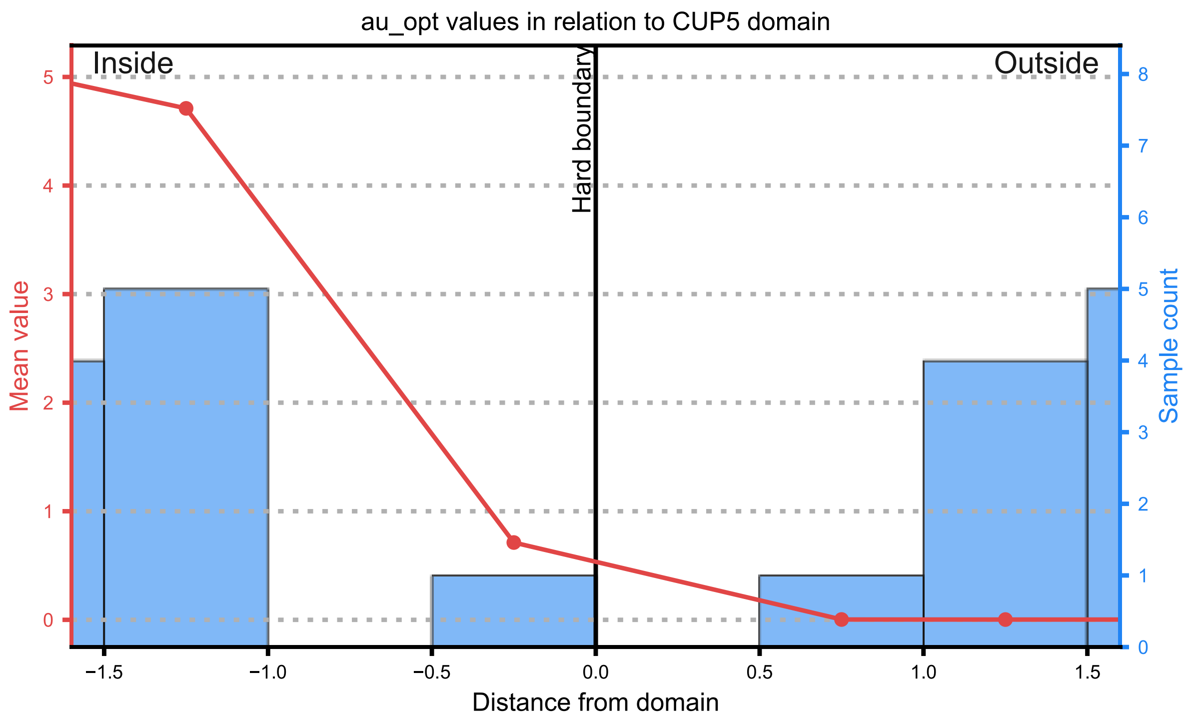
Upper Fracture Zones






au_opt values in relation to CUP3 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.0
0.2
0.4
0.6
0.8
0
2
4
6
8
10
12
14
16
−6
−4
−2
0
2
4
6

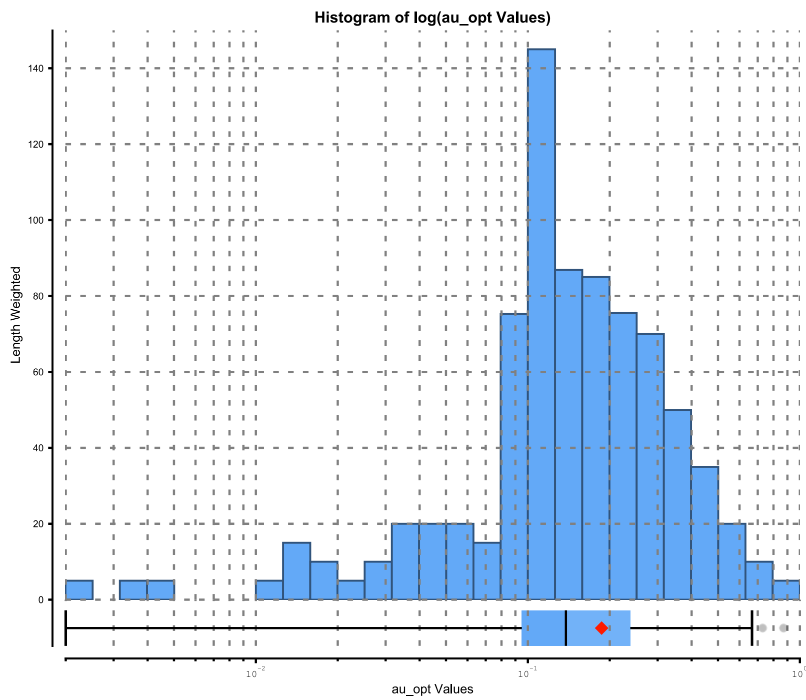

au_opt values in relation to CUP4 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0
1
2
3
4
5
6
7
8
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0

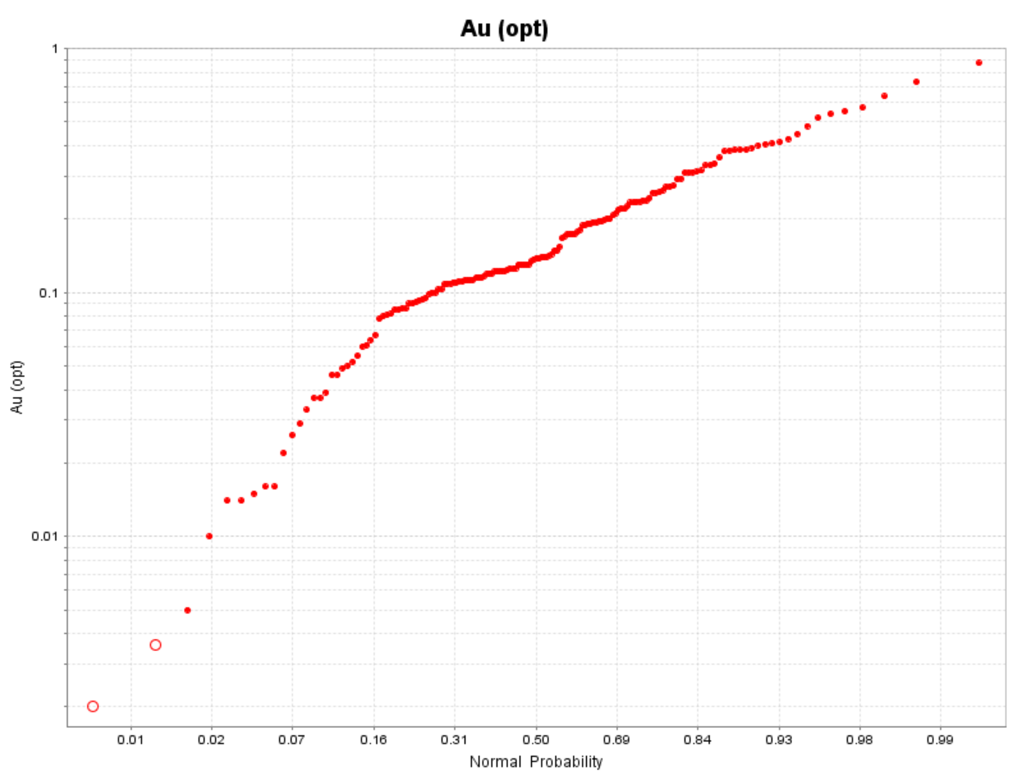

au_opt values in relation to CUP5 domain
Inside
Outside
Hard boundary
Mean value
Sample count
Distance from domain
5
4
3
2
1
0
8
7
6
5
4
3
2
1
0
−1.5
−1.0
−0.5
0.0
0.5
1.0
1.5

APPENDIX E

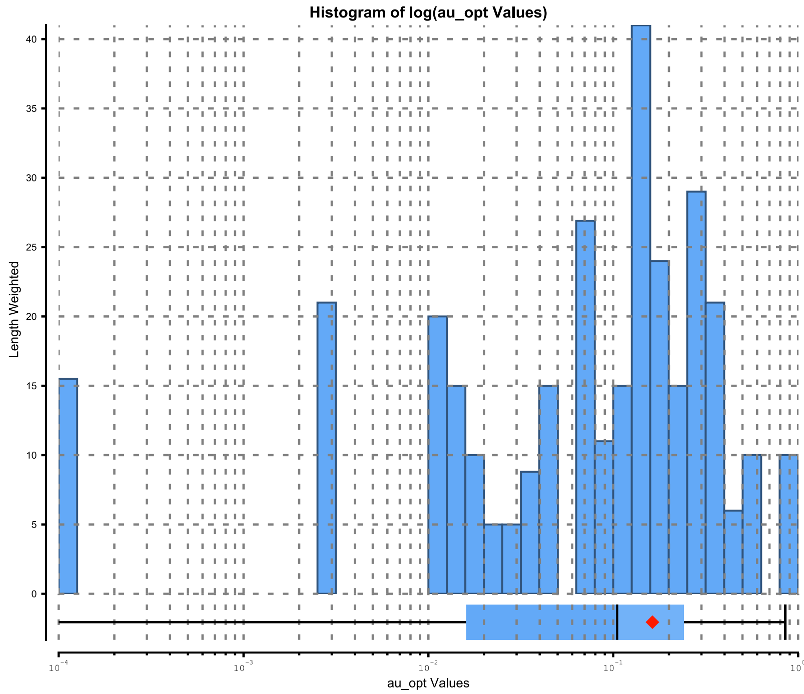
Histograms and Log Probability Plots

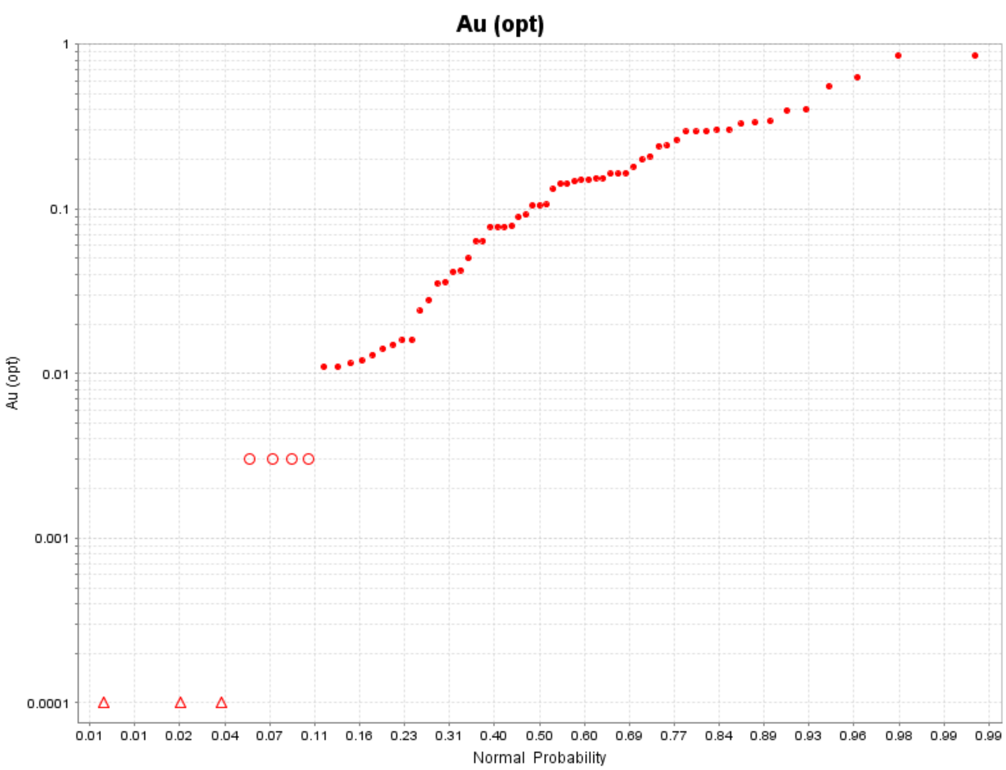
CUVNA


Histogram of log(au_opt Values)
Length Weighted
140
120
100
80
60
40
20
0
10^{-2}
10^{-1}
10^{0}
au_opt Values

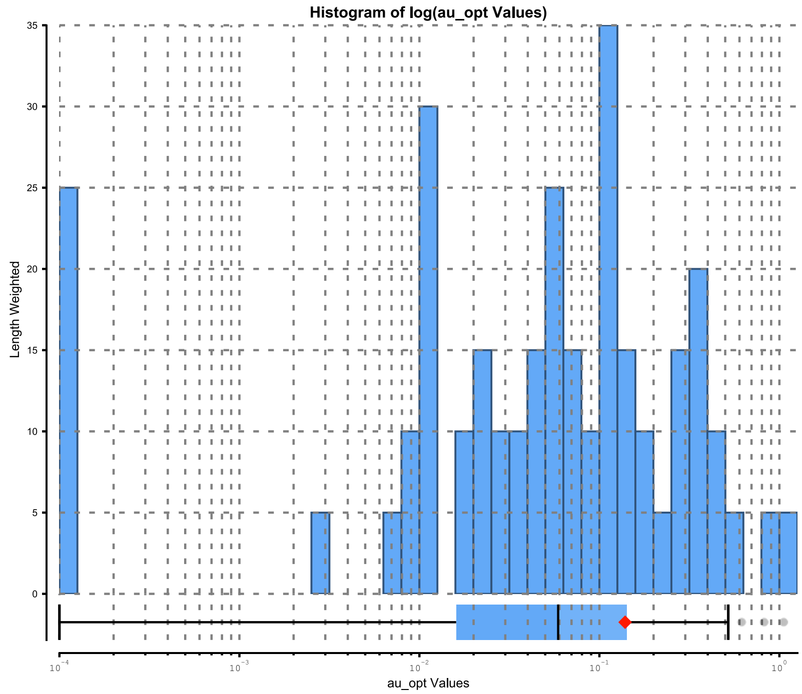

Au (opt)
1
0.1
0.01
Au (opt)
0.01
0.02
0.07
0.16
0.31
0.50
0.69
0.84
0.93
0.98
0.99
Normal Probability

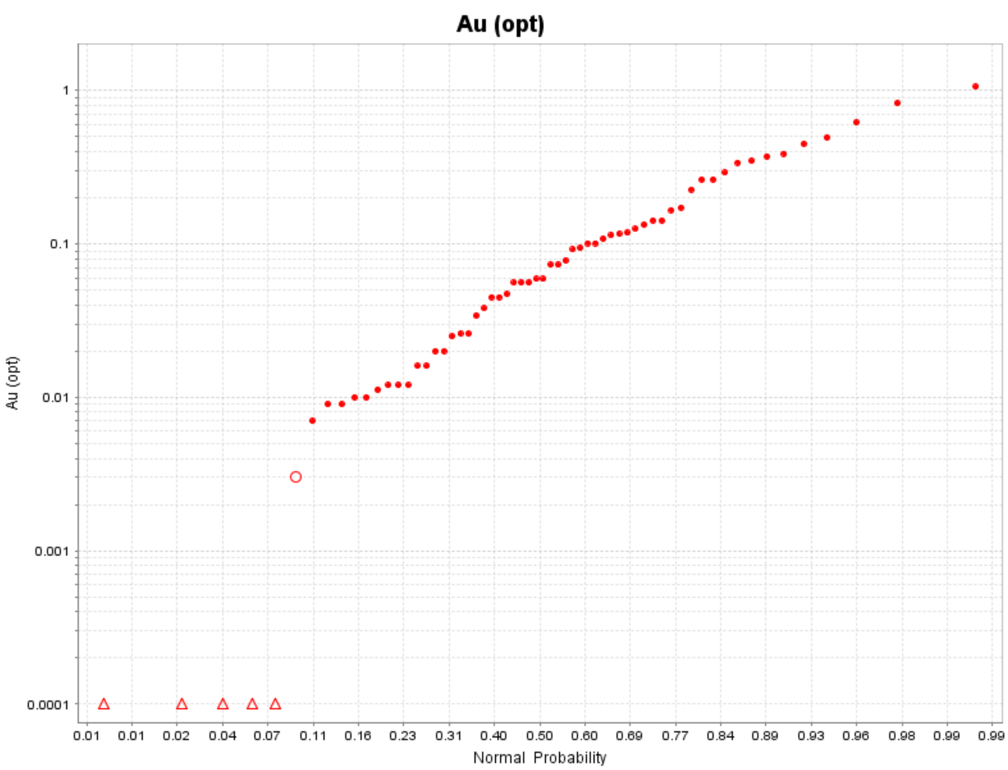
CUVNB


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

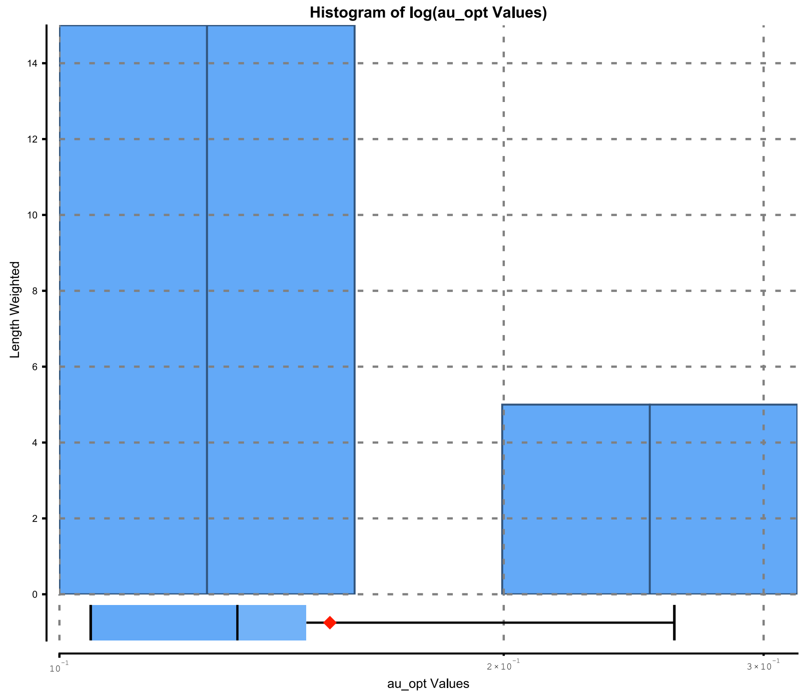

Au (opt)
Au (opt)
Normal Probability

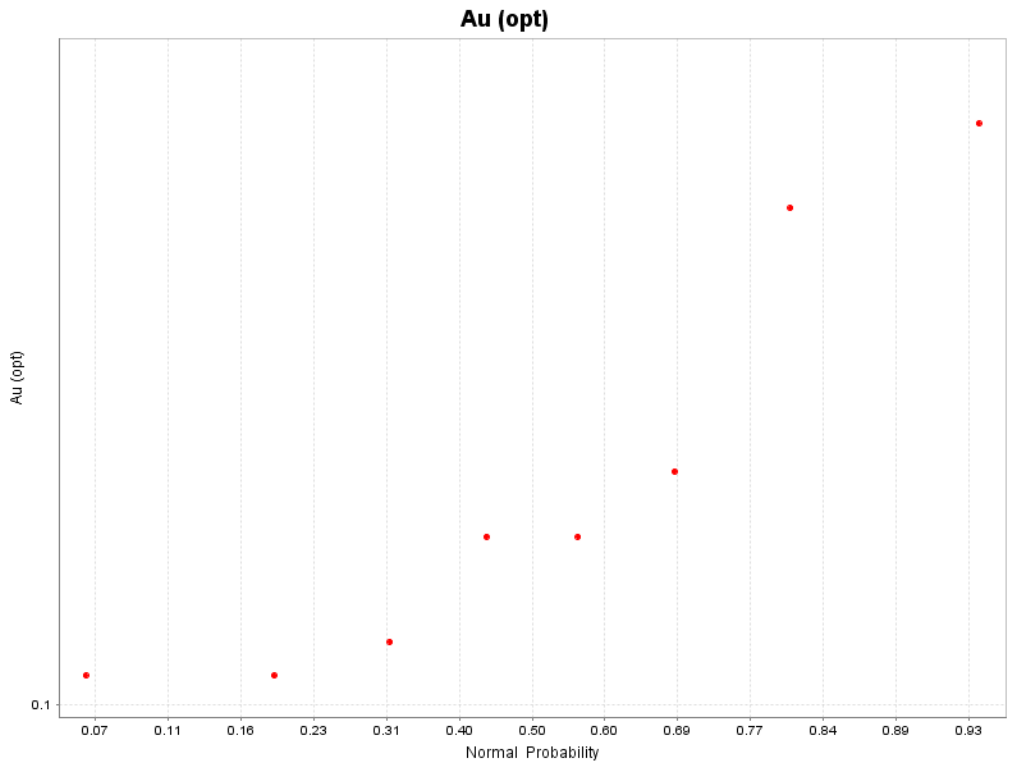
ALW1


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

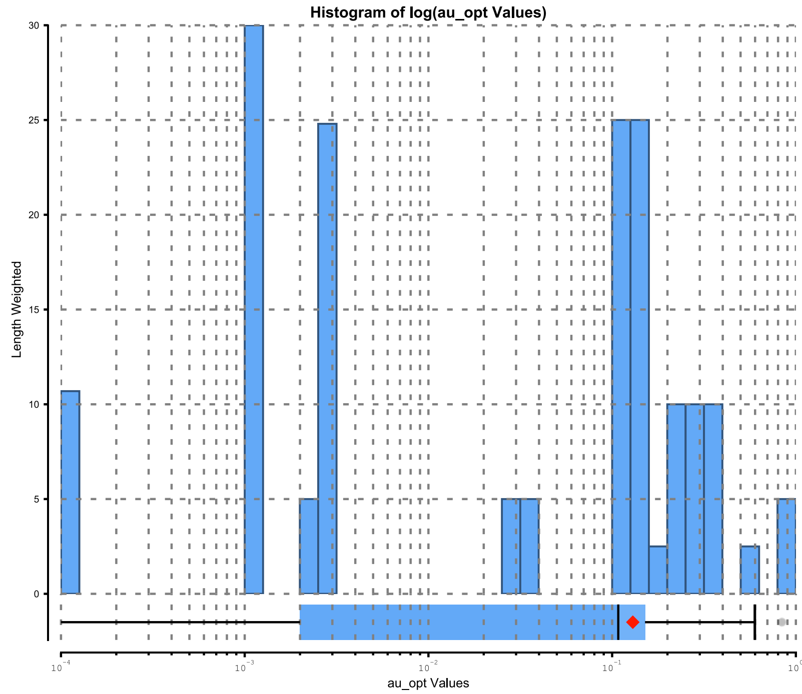

Au (opt)
Au (opt)
Normal Probability

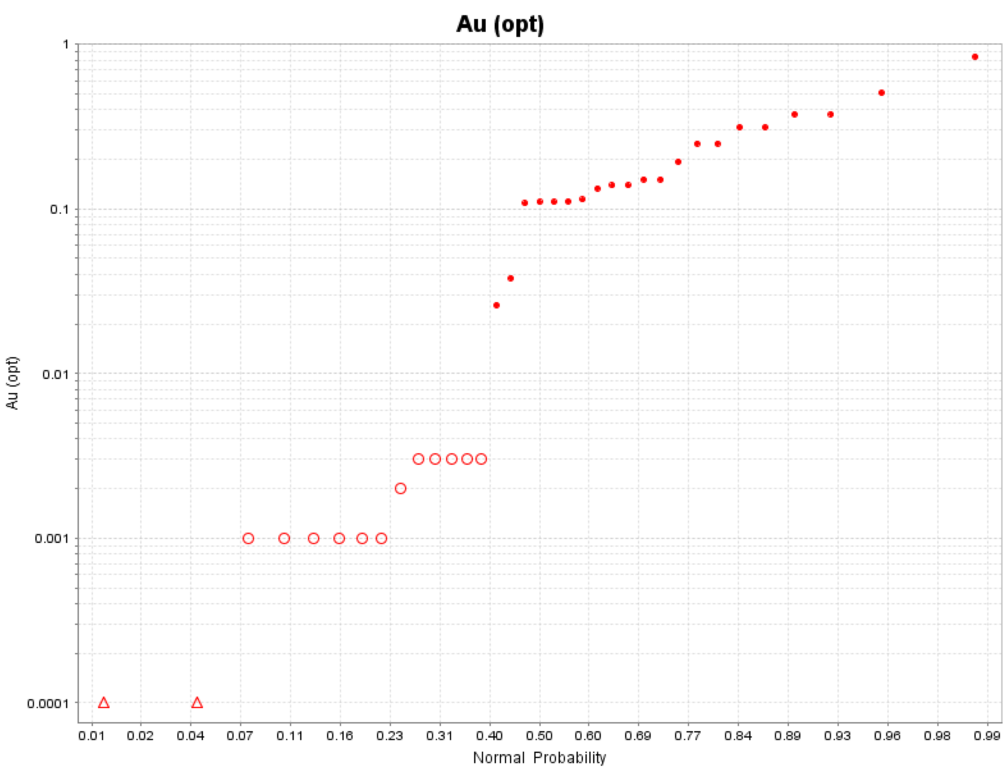
ALW2


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
12
14
au_opt Values

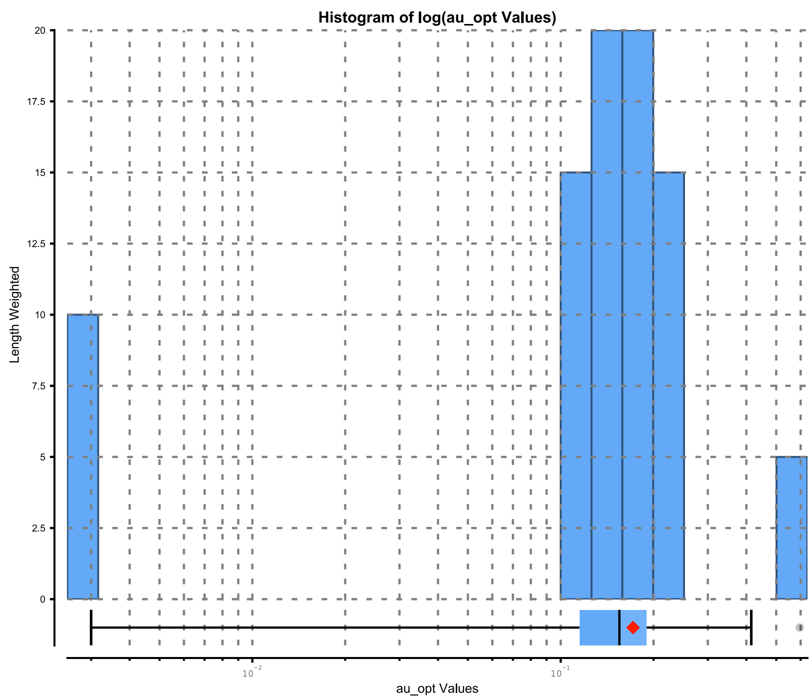

Au (opt)
Au (opt)
0.1
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

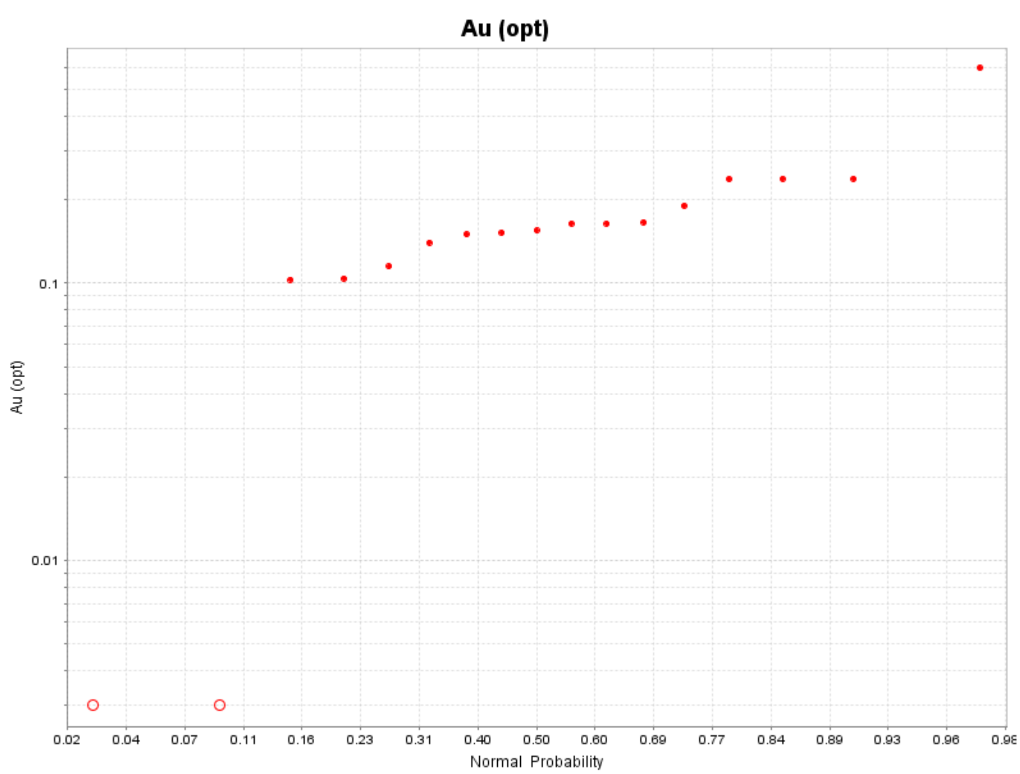
ALW3


Histogram of log(au_opt Values)
Length Weighted
au_opt Values
30
25
20
15
10
5
0


Au (opt)
Au (opt)
1
0.1
0.01
0.001
0.0001
0.01 0.02 0.04 0.07 0.11 0.16 0.23 0.31 0.40 0.50 0.60 0.69 0.77 0.84 0.89 0.93 0.96 0.98 0.99
Normal Probability

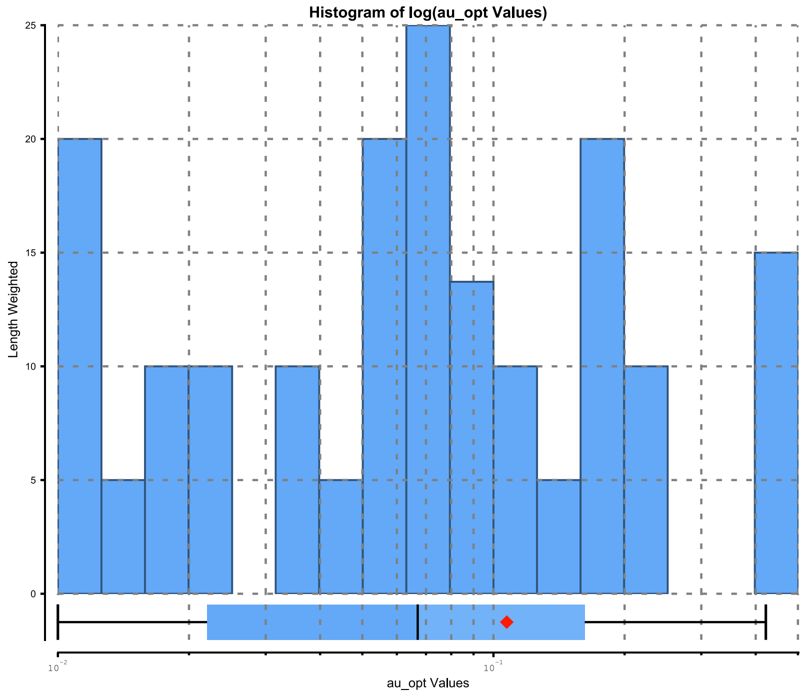
ALW4

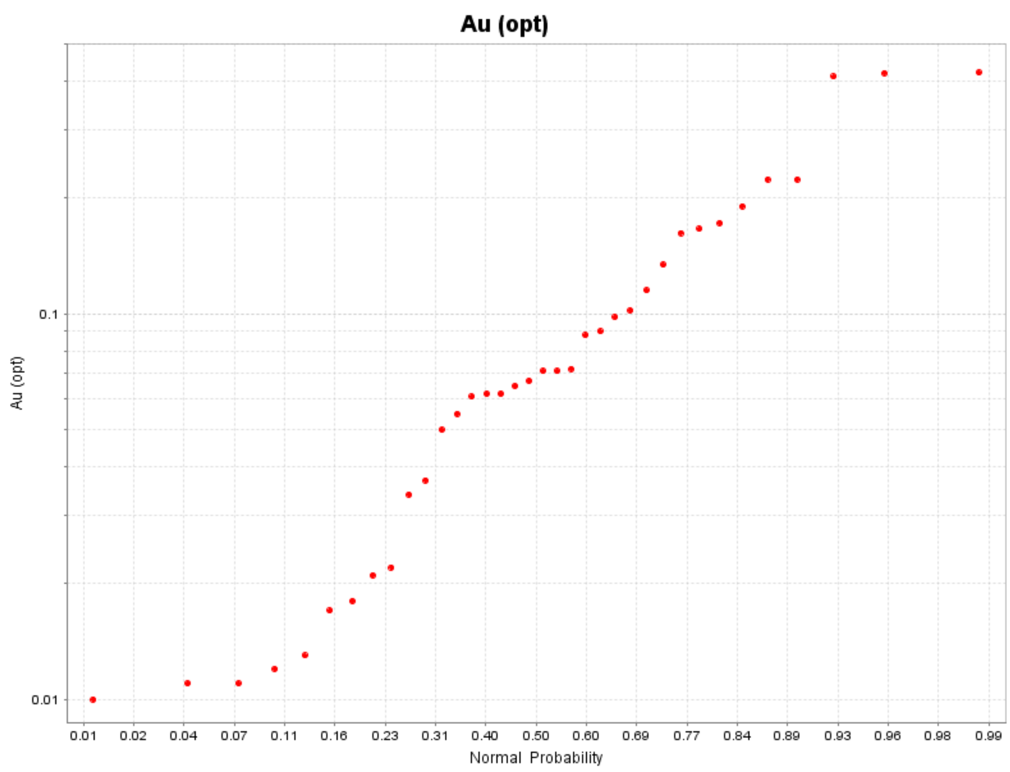




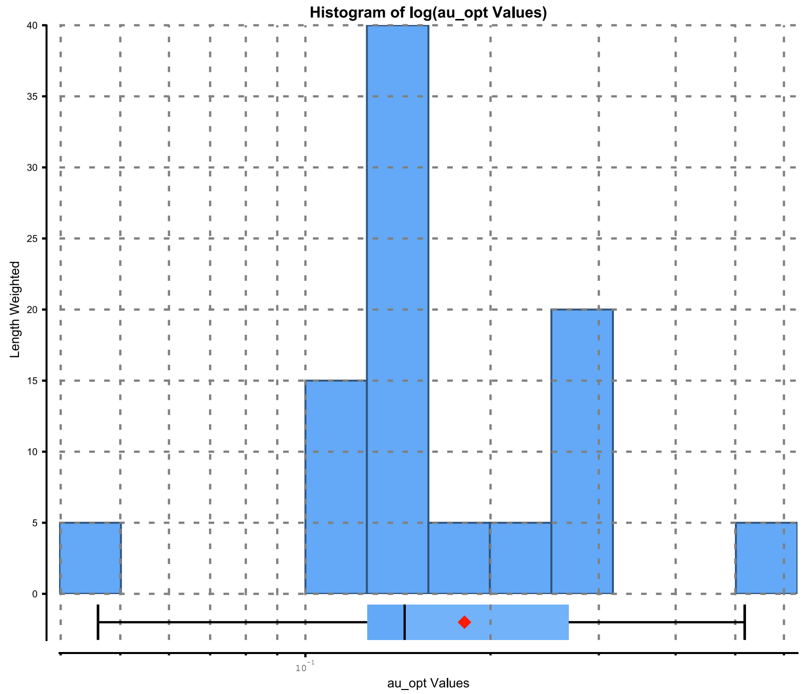
Hard Rock Consulting, LLC

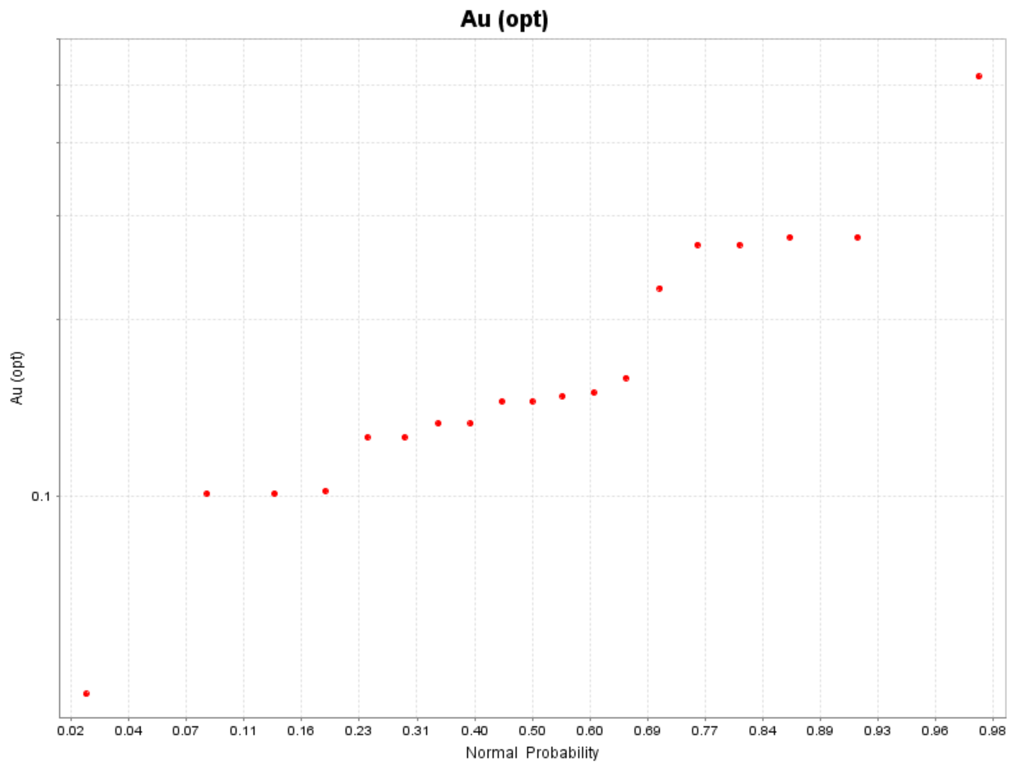
AUP1


Histogram of log(au_opt Values)
Length Weighted
25
20
15
10
5
0
10^{-2}
10^{-1}
au_opt Values

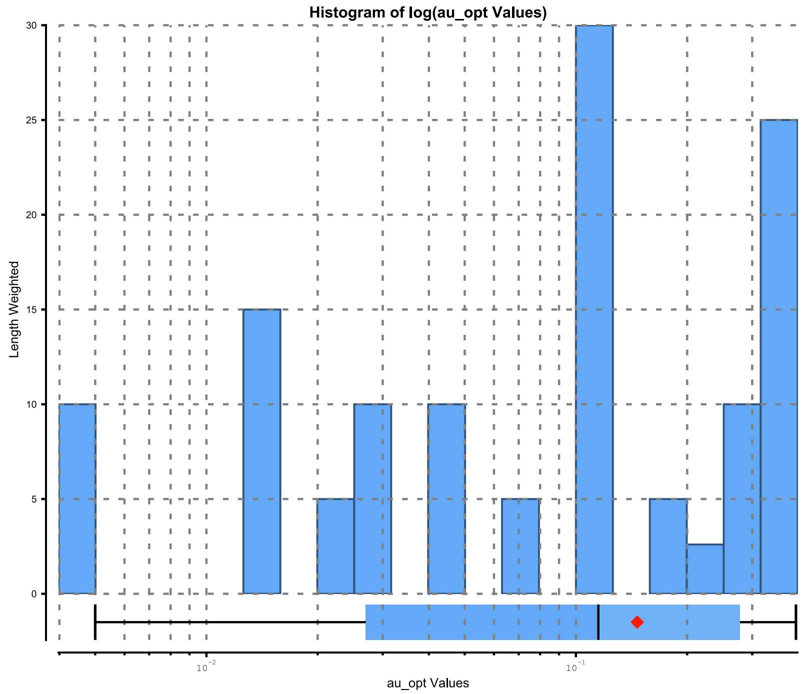

Au (opt)
Au (opt)
0.1
0.01
0.01
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
0.99
Normal Probability

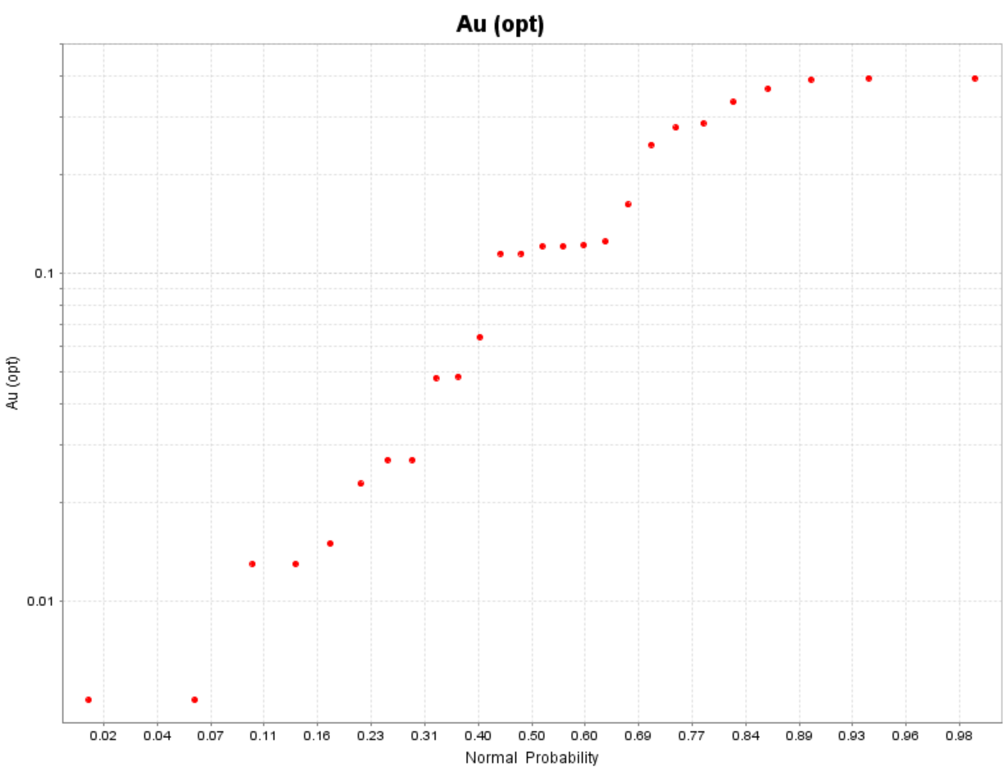
AUP2


Histogram of log(au_opt Values)
Length Weighted
0
5
10
15
20
25
30
35
40
10^{-1}
au_opt Values

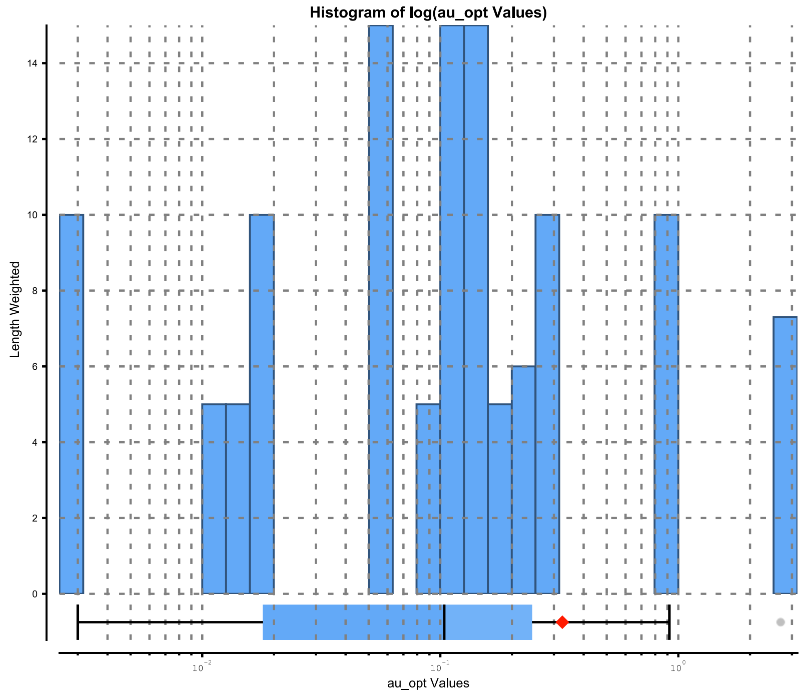

Au (opt)
Au (opt)
0.1
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
Normal Probability

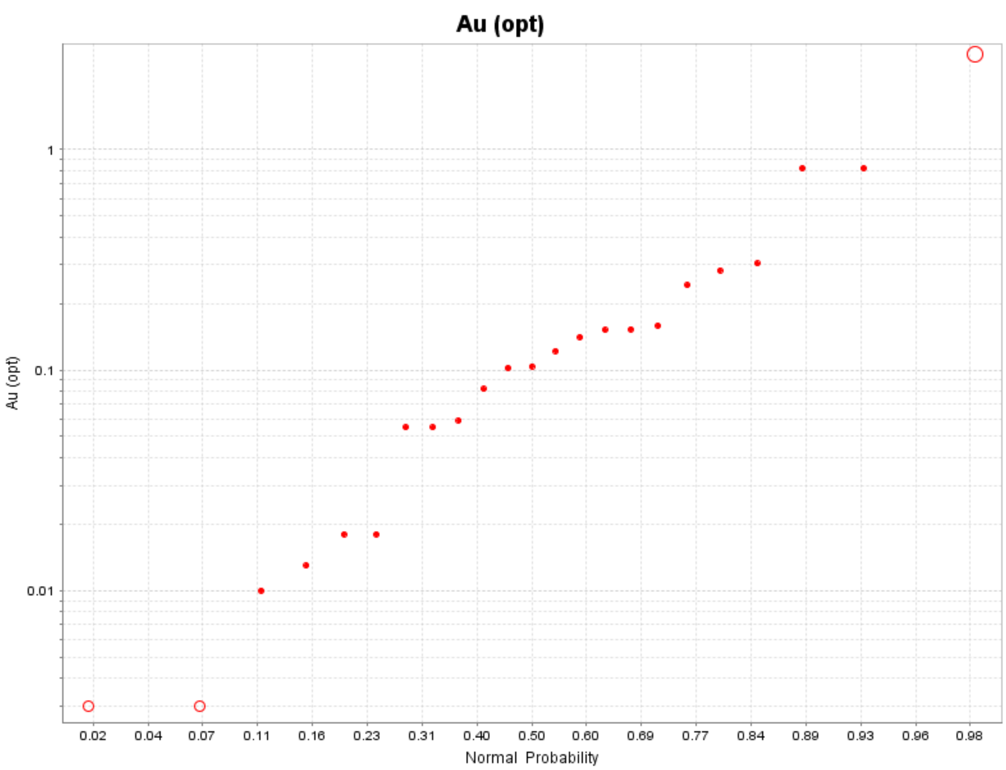
AUP3


Histogram of log(au_opt Values)
Length Weighted
au_opt Values
30
25
20
15
10
5
0

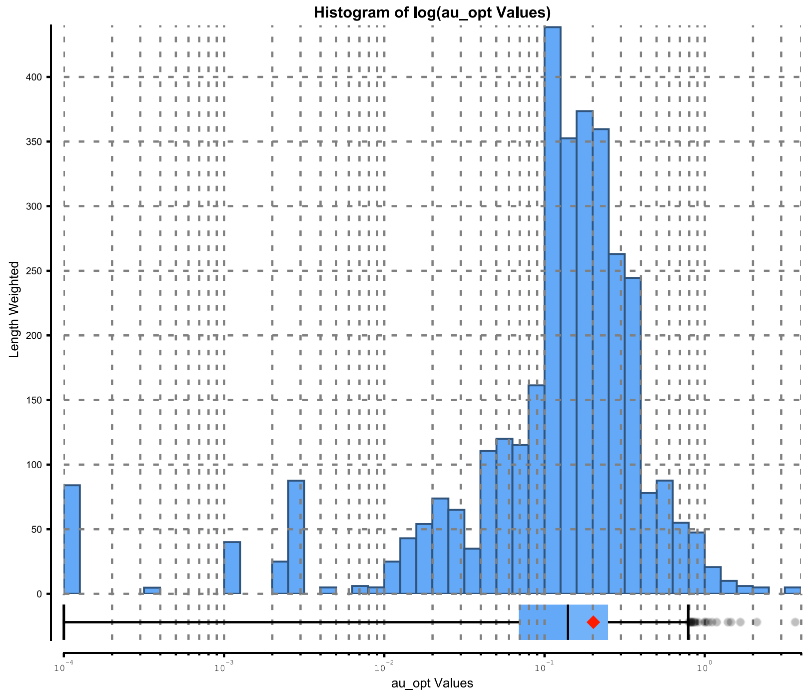

Au (opt)
Au (opt)
0.1
0.01
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
Normal Probability

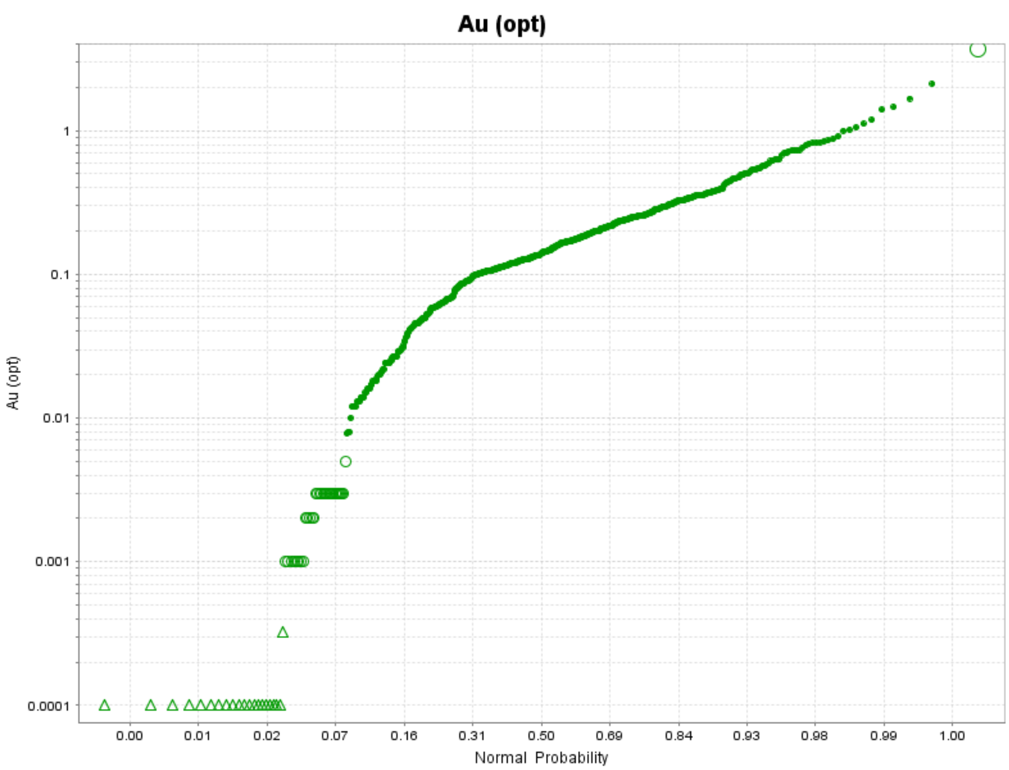
AUP4


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
12
14
au_opt Values

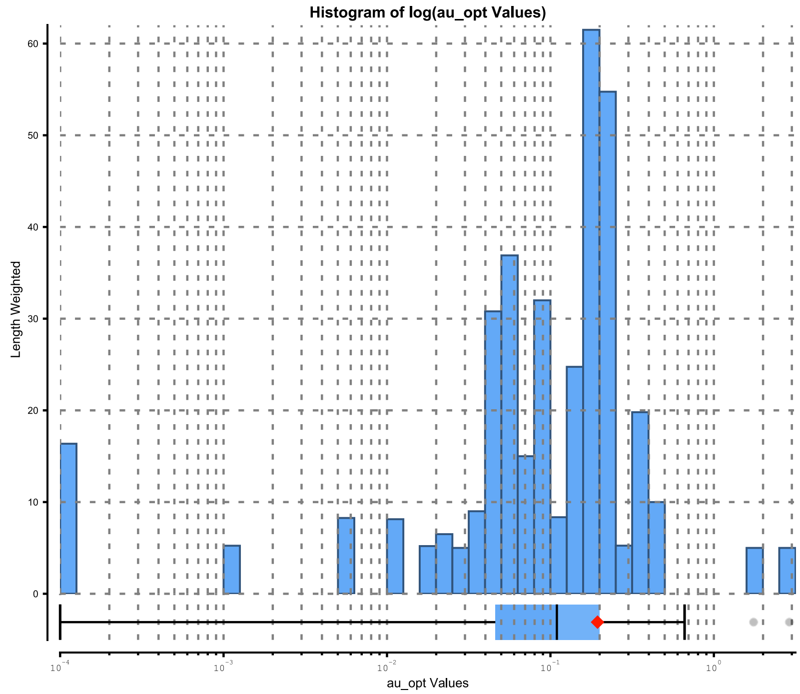

Au (opt)
Au (opt)
1
0.1
0.01
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
Normal Probability

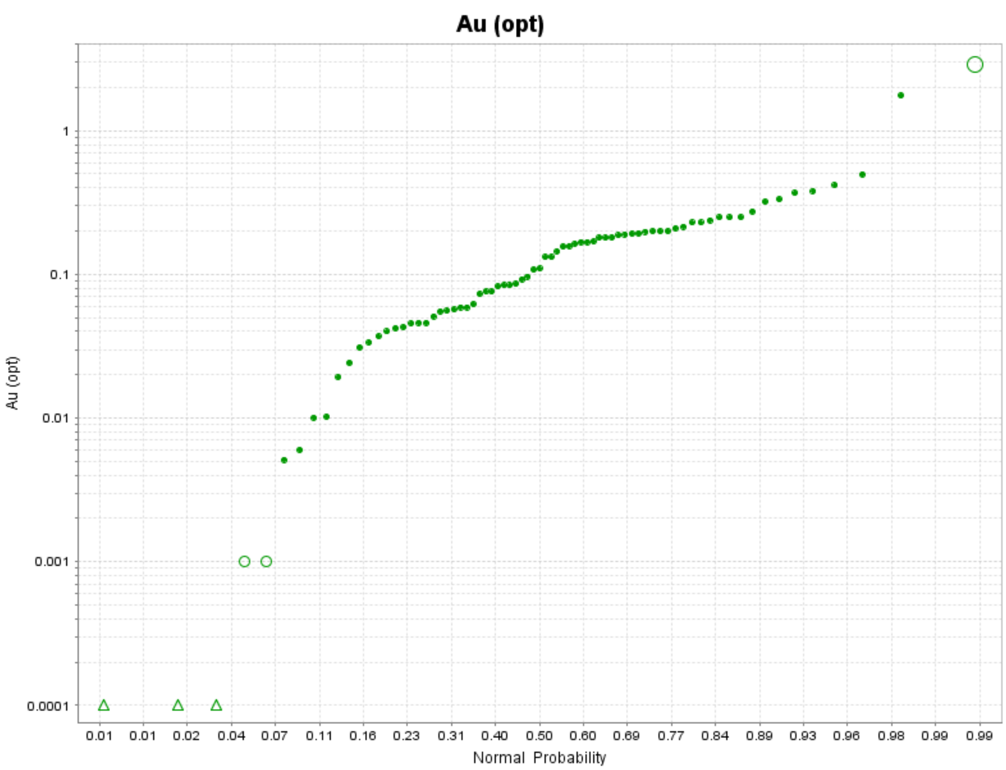
CUVN


Histogram of log(au_opt Values)
Length Weighted
400
350
300
250
200
150
100
50
0
au_opt Values

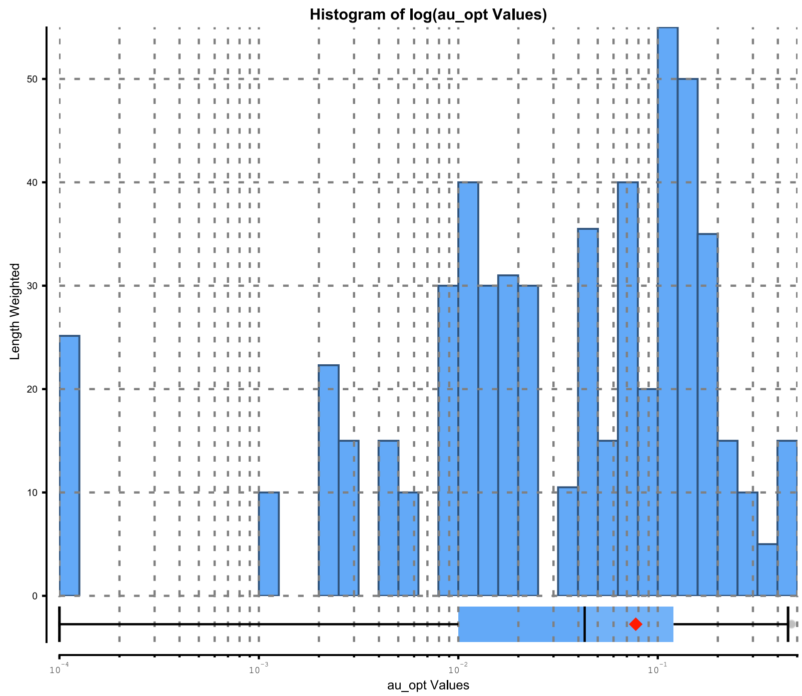

Au (opt)
Au (opt)
1
0.1
0.01
0.001
0.0001
0.00
0.01
0.02
0.07
0.16
0.31
0.50
0.69
0.84
0.93
0.98
0.99
1.00
Normal Probability

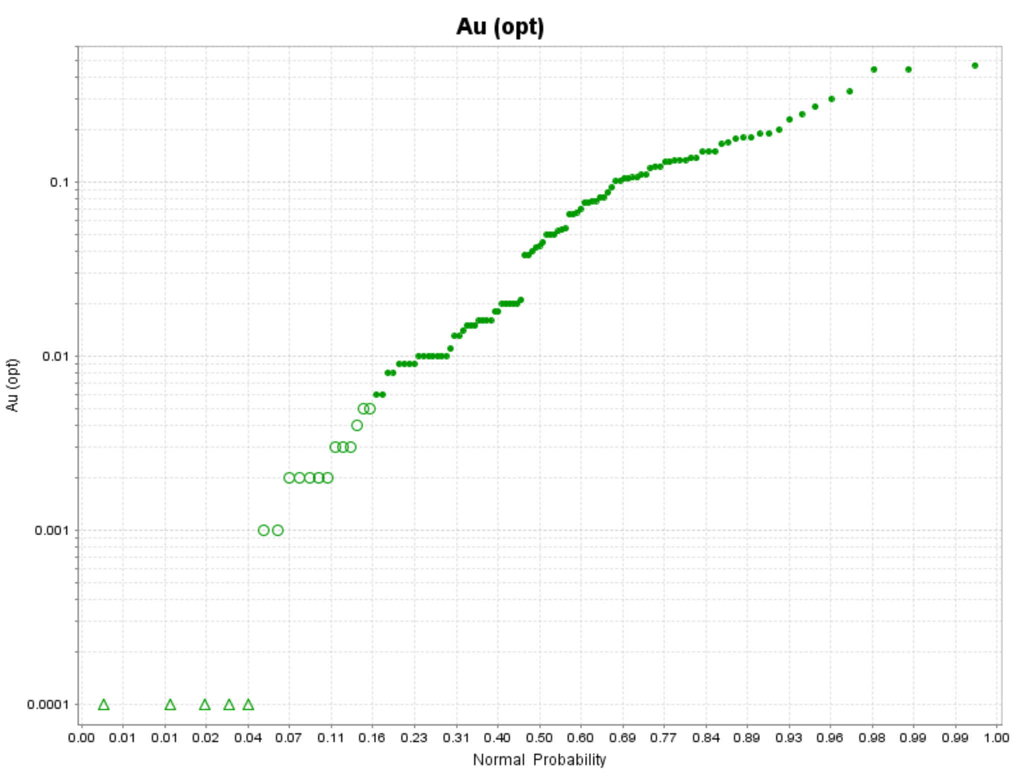
CLW1


Histogram of log(au_opt Values)
Length Weighted
0
10
20
30
40
50
60
au_opt Values

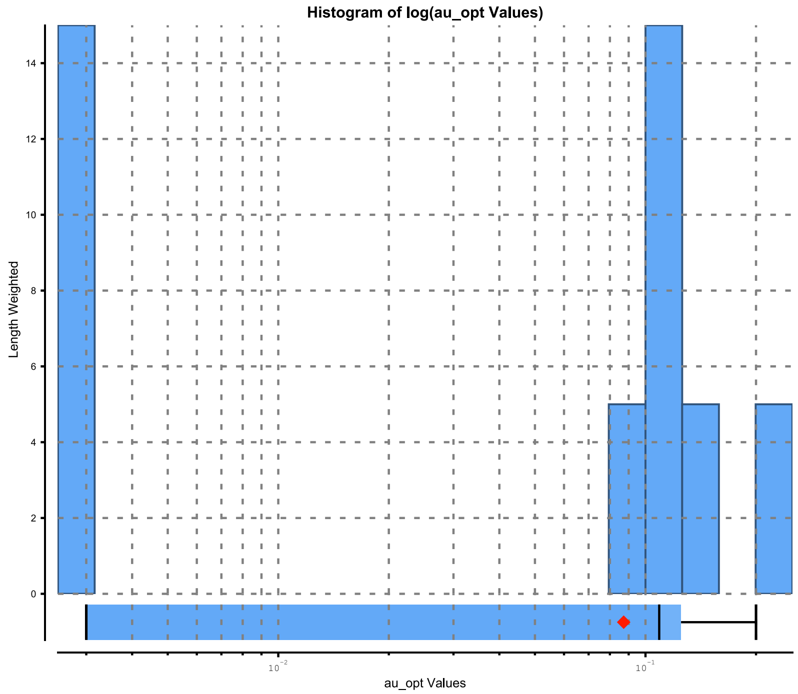

Au (opt)
Au (opt)
0.0001
0.001
0.01
0.1
1
0.01 0.01 0.02 0.04 0.07 0.11 0.16 0.23 0.31 0.40 0.50 0.60 0.69 0.77 0.84 0.89 0.93 0.96 0.98 0.99 0.99
Normal Probability

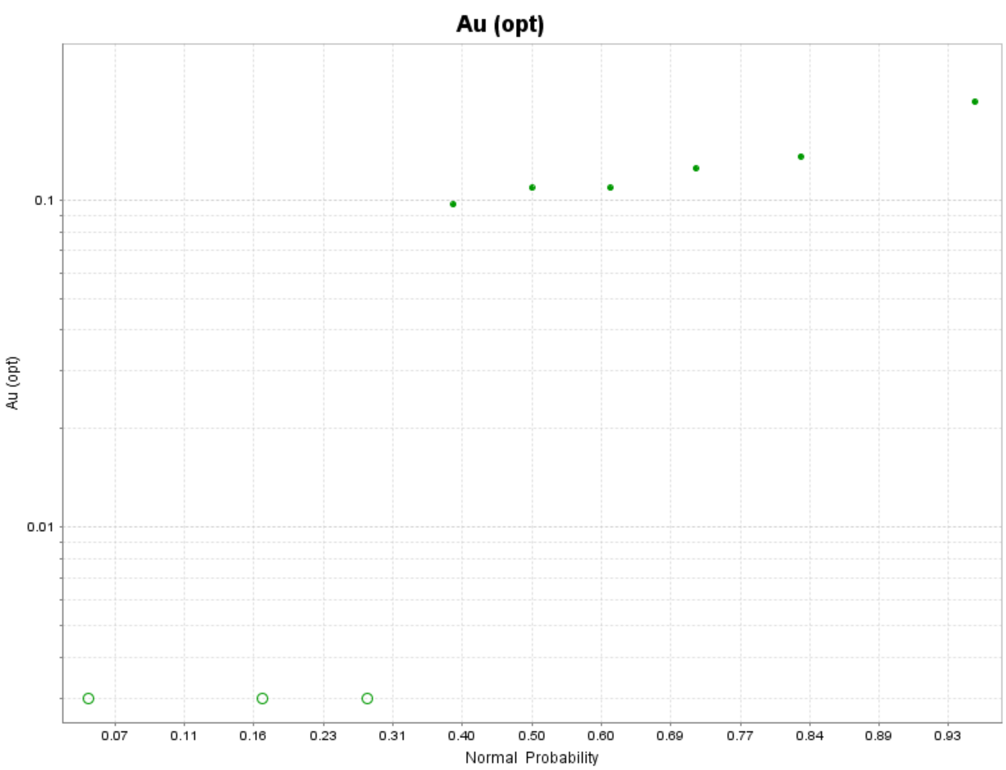
CLW2


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

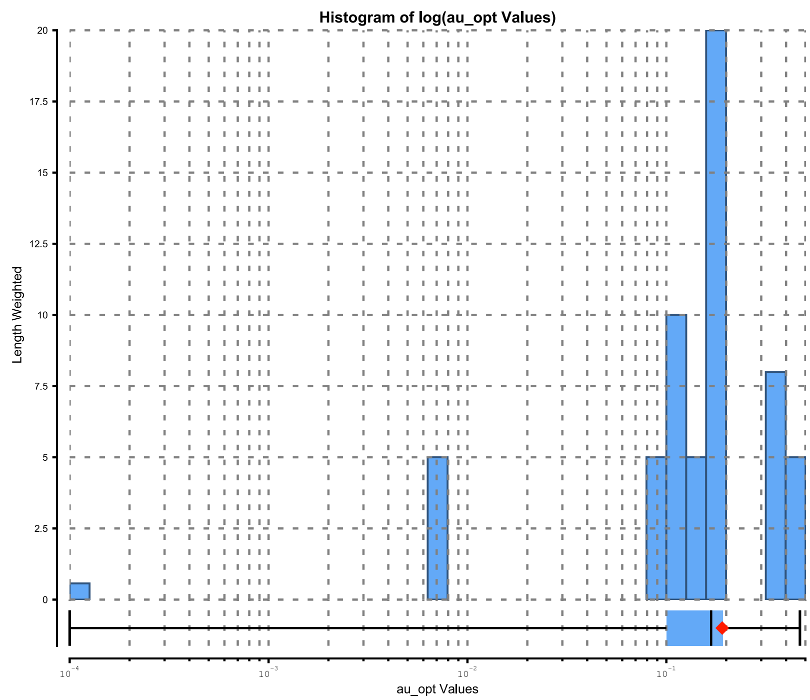

Au (opt)
Au (opt)
Normal Probability

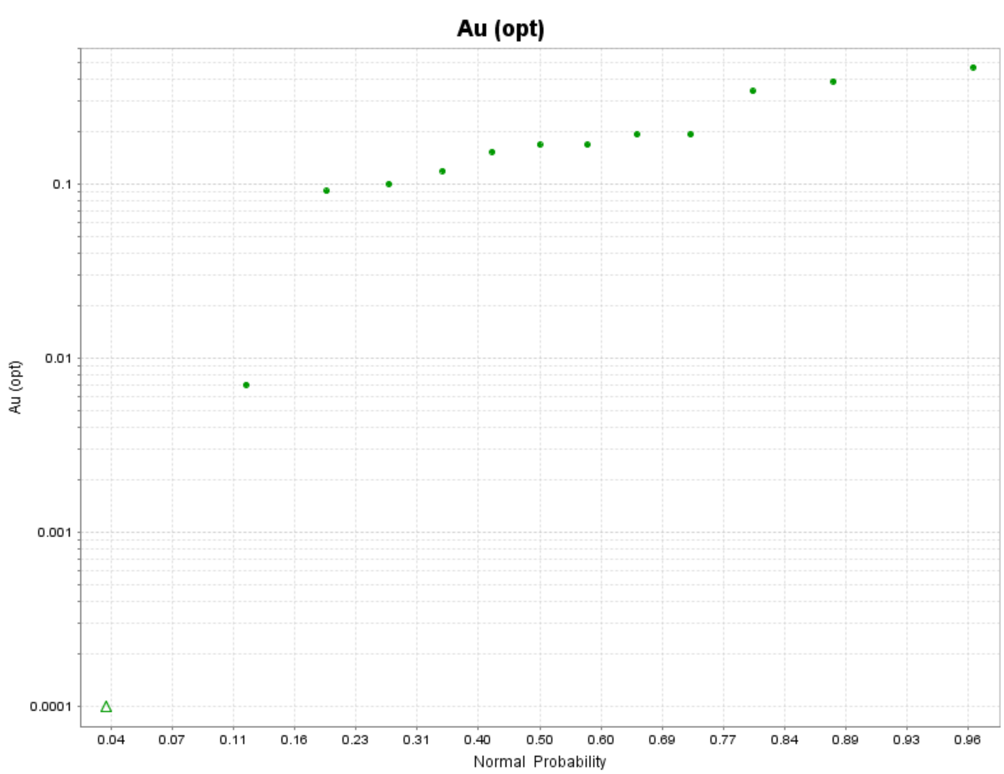
CLW3


Histogram of log(au_opt Values)
Length Weighted
14
12
10
8
6
4
2
0
10^-2
10^-1
au_opt Values

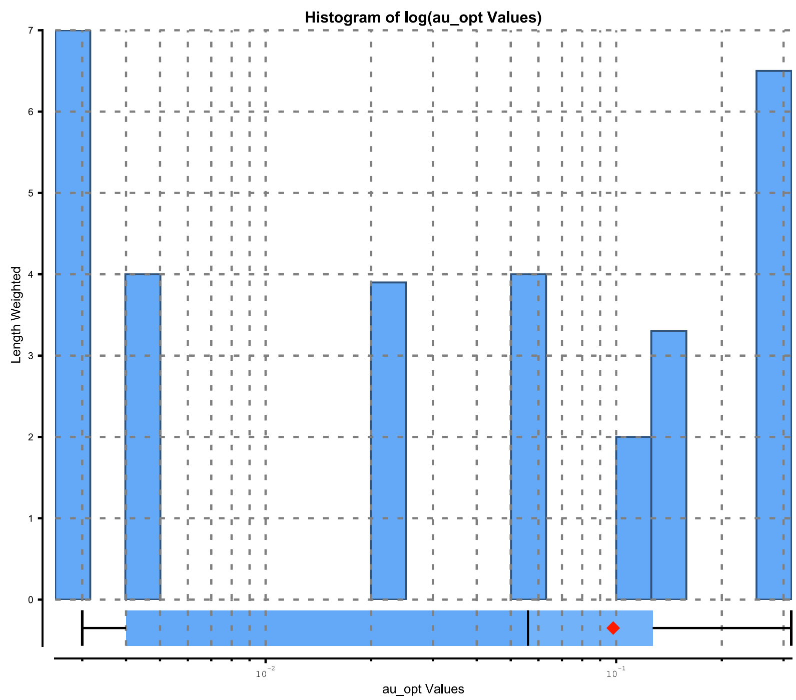

Au (opt)
Au (opt)
0.1
0.01
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

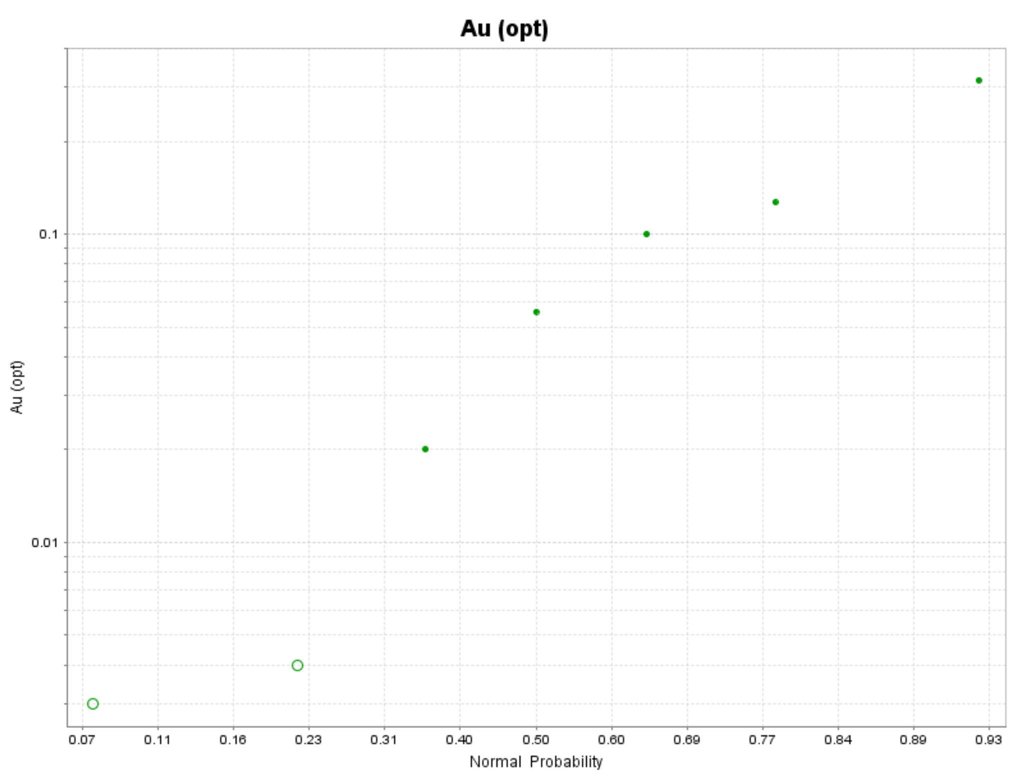
CLW4


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

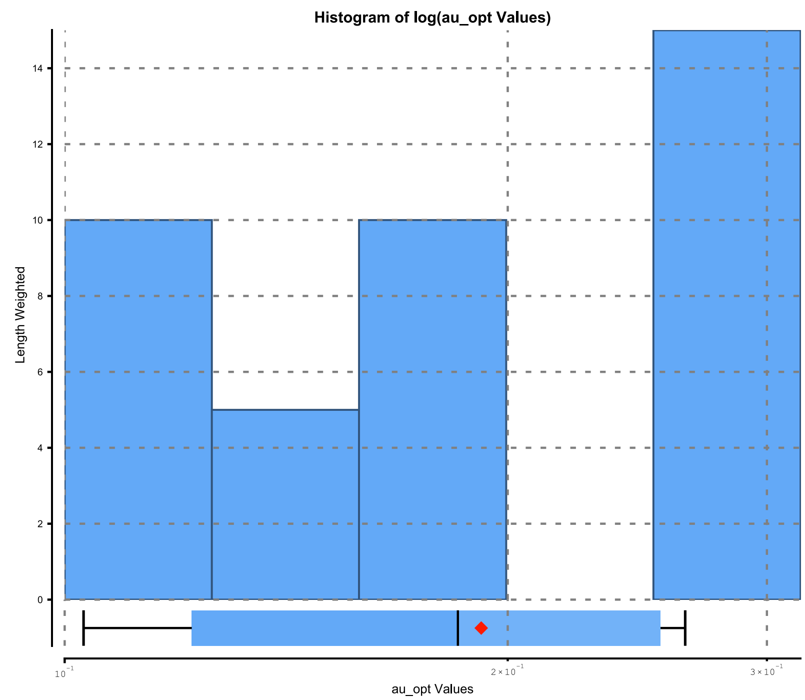

Au (opt)
Au (opt)
Normal Probability

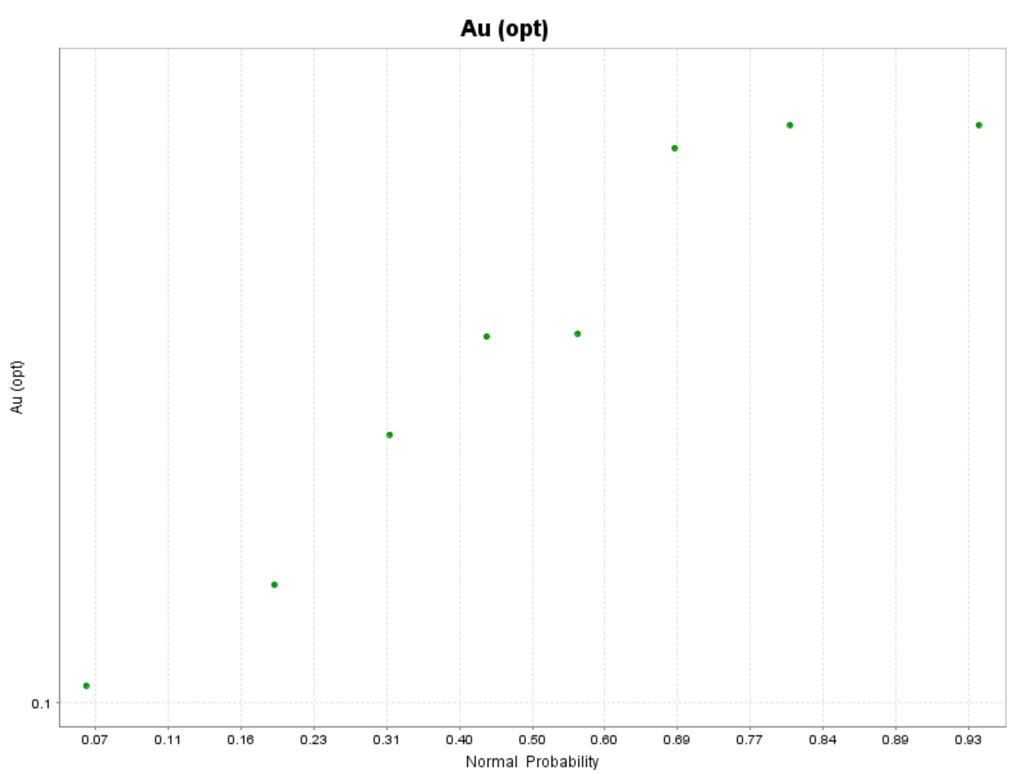
CLW5


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

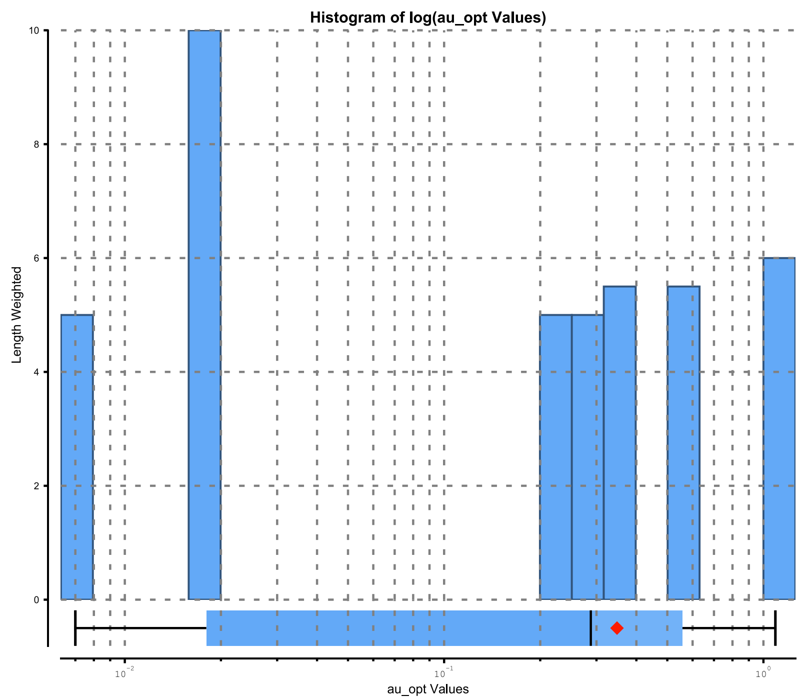

Au (opt)
Au (opt)
Normal Probability
0.1
0.01
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93

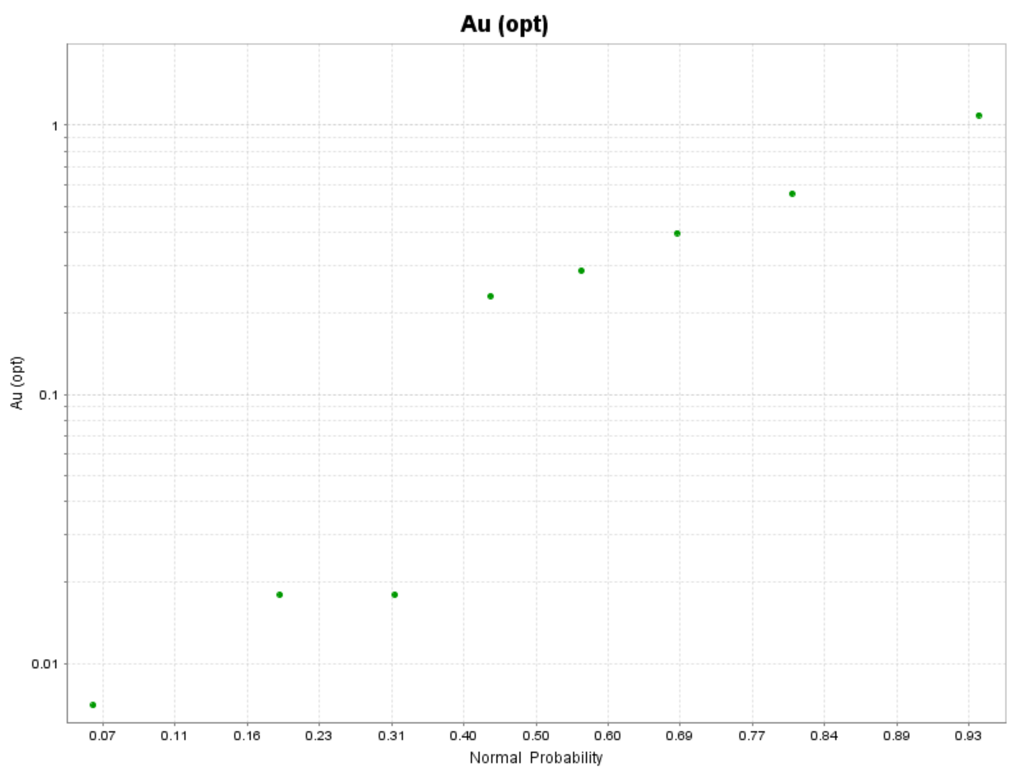
CLW6


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
12
14
10⁻¹
2×10⁻¹
3×10⁻¹
au_opt Values

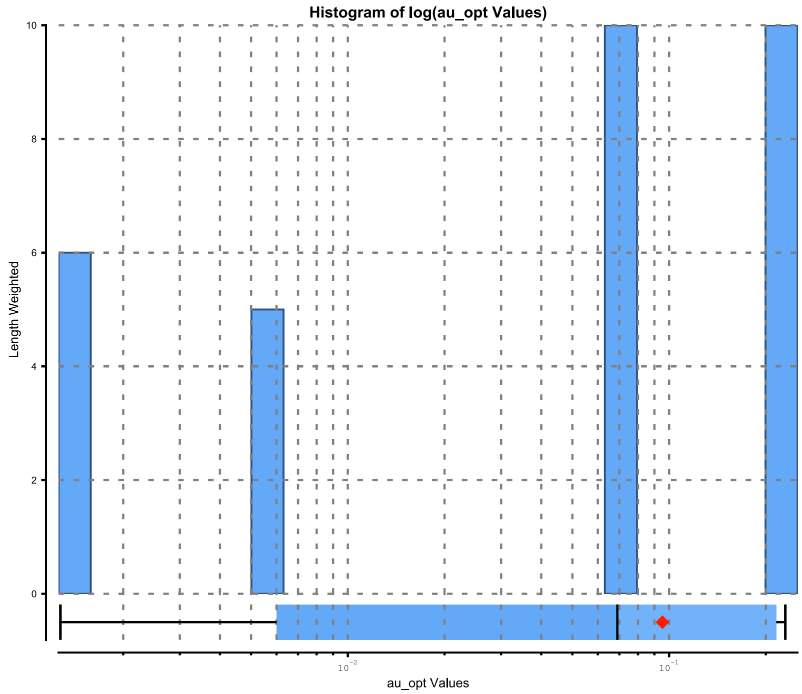

Au (opt)
Au (opt)
0.1
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

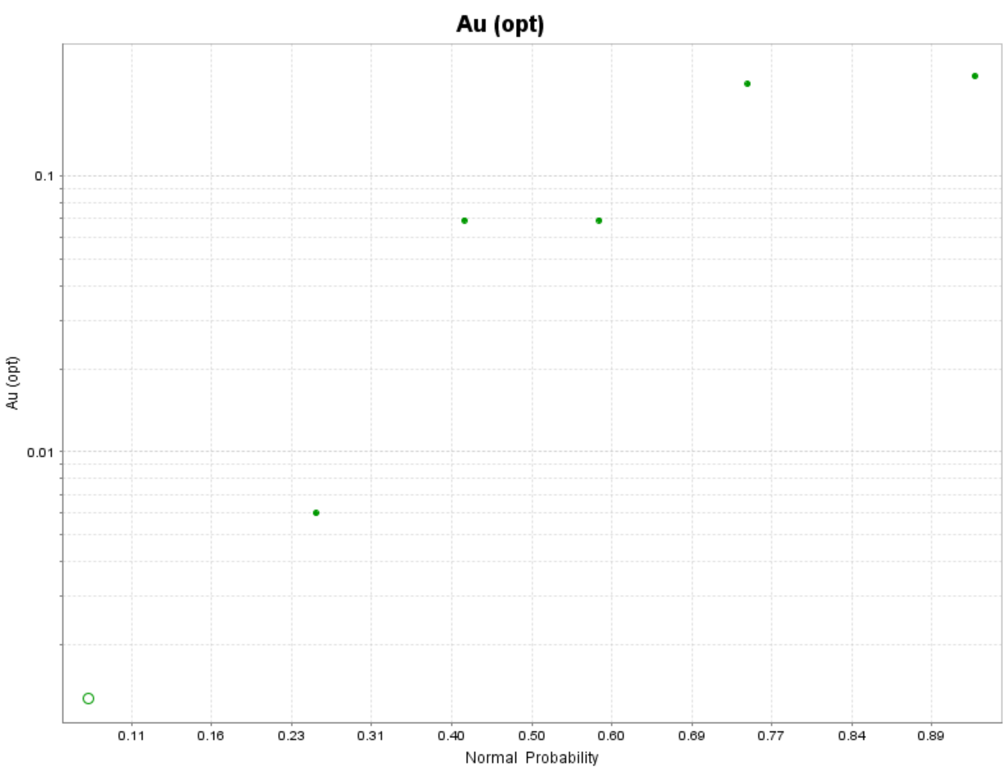
CLW7


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
au_opt Values

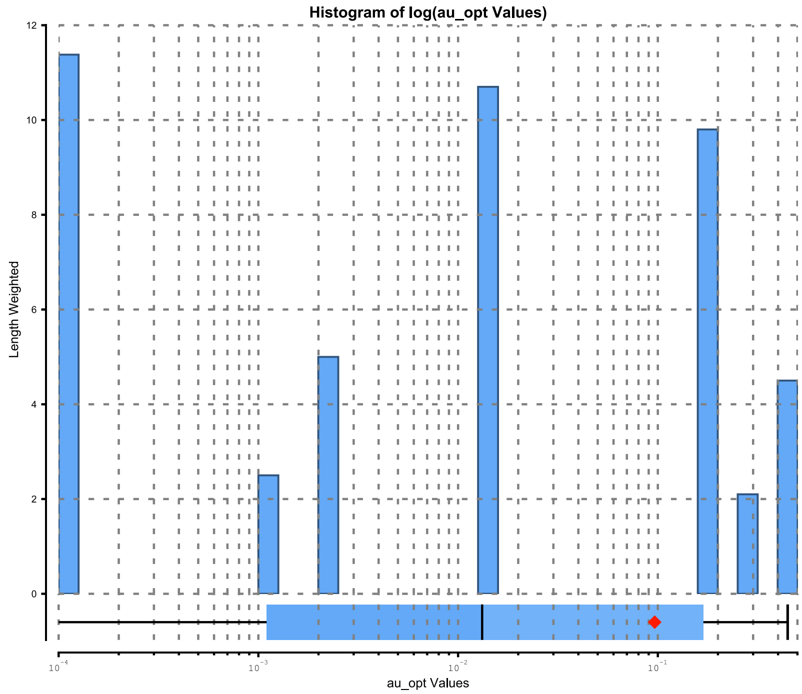

Au (opt)
Au (opt)
1
0.1
0.01
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

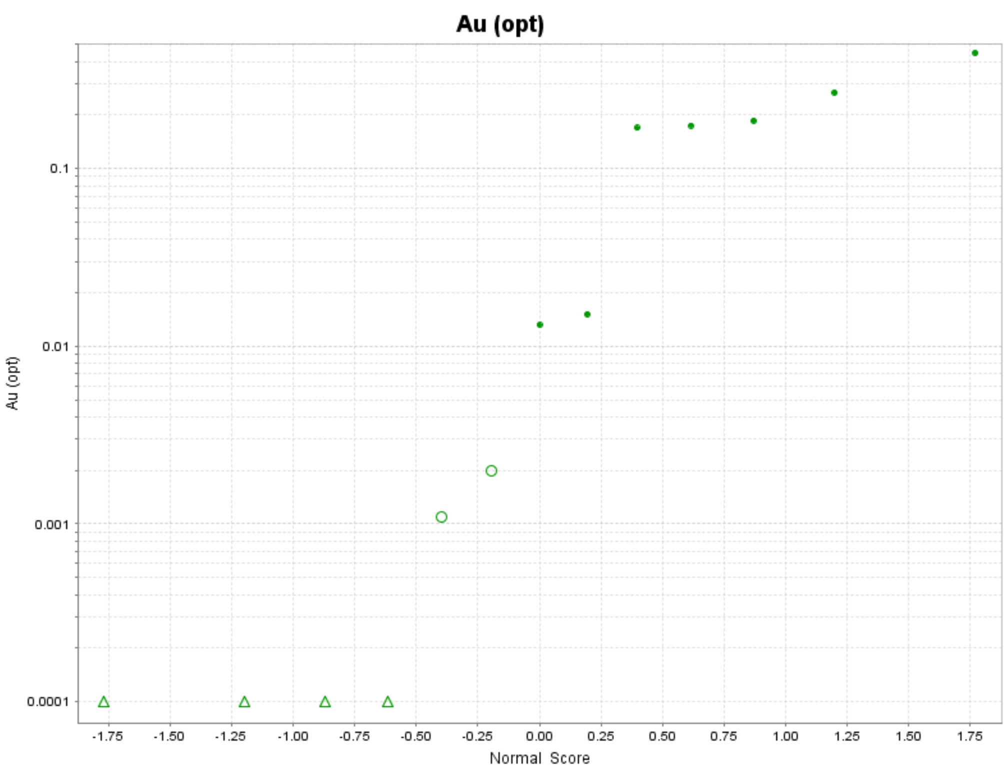
CLW8


Histogram of log(au_opt Values)
Length Weighted
10
8
6
4
2
0
10⁻²
10⁻¹
au_opt Values

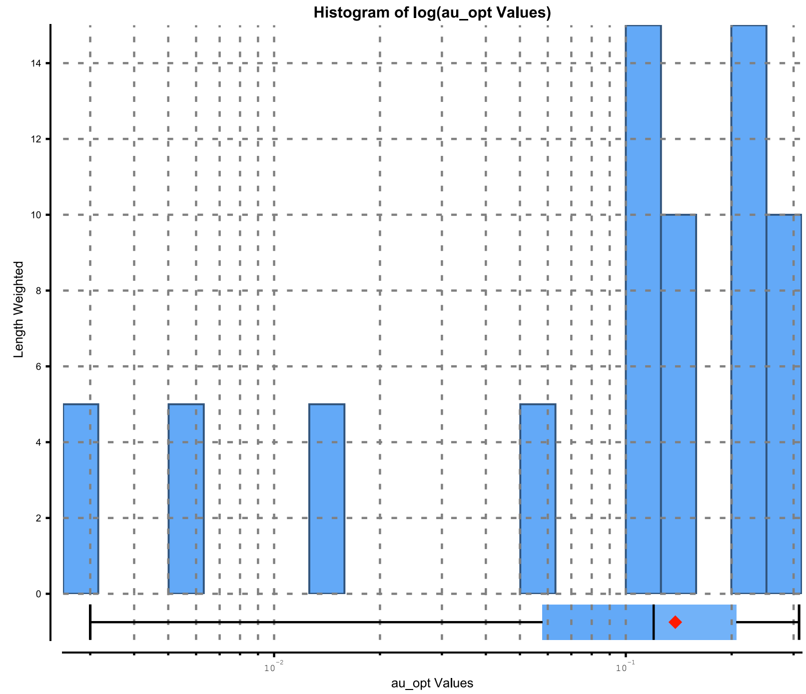

Au (opt)
Au (opt)
0.1
0.01
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
Normal Probability

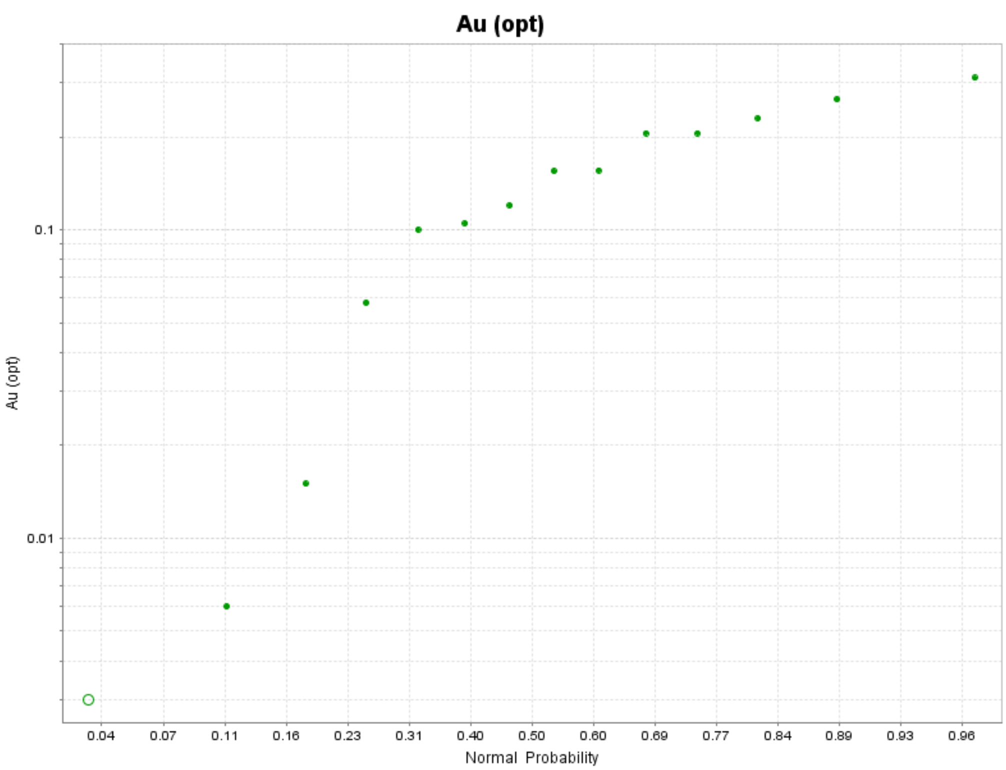
CLW9


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

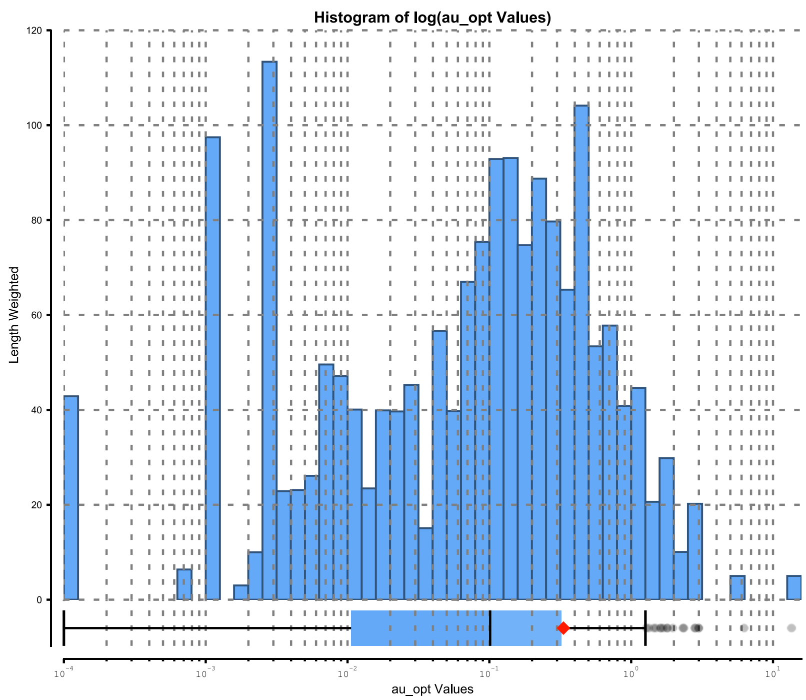

Au (opt)
Au (opt)
Normal Score

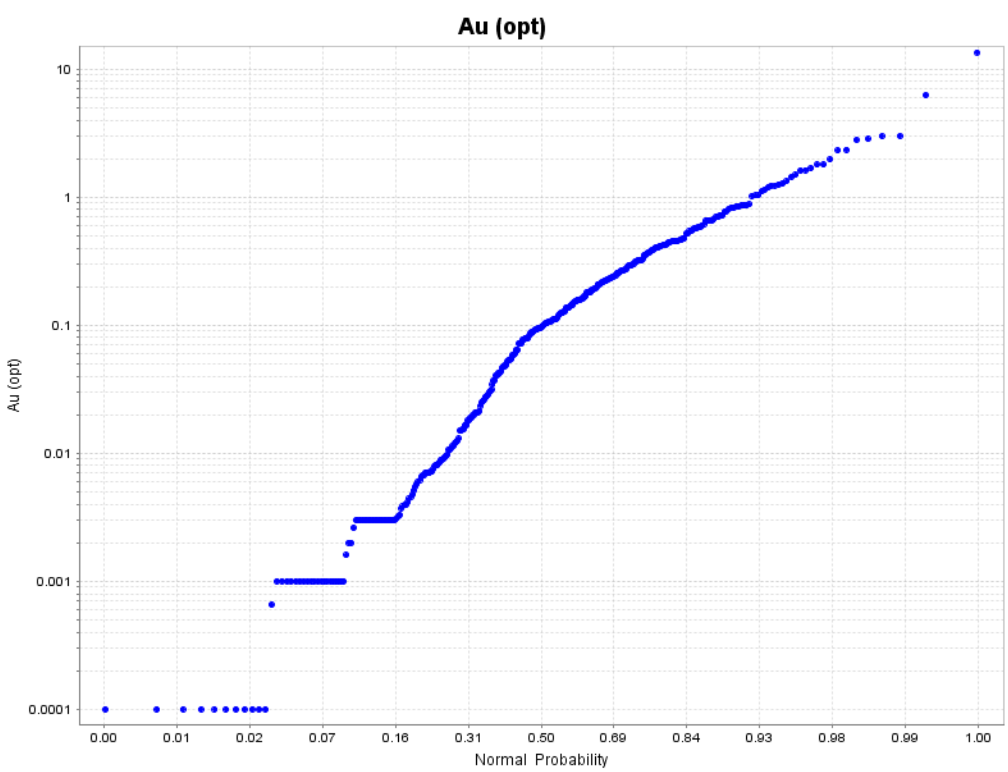
CUP6


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
12
14
au_opt Values

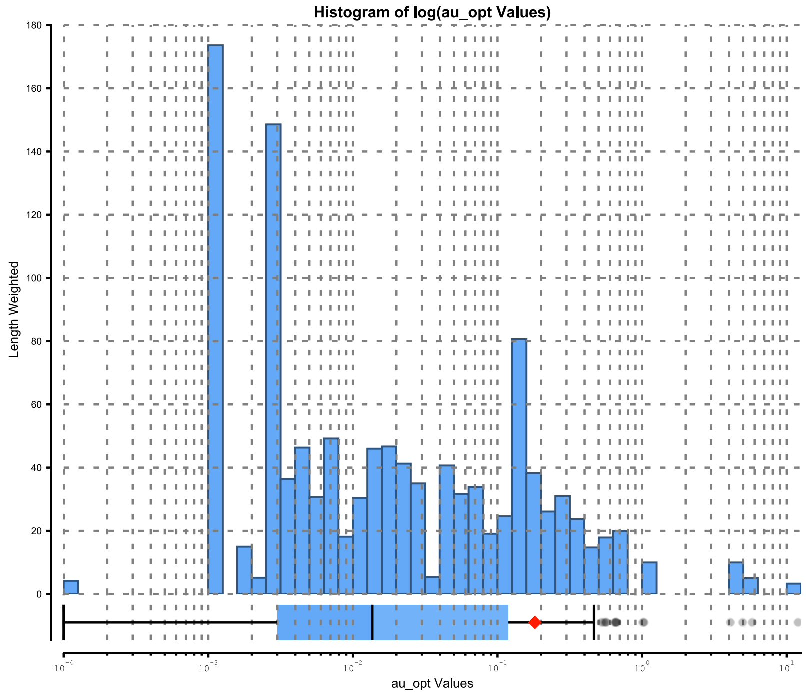

Au (opt)
Au (opt)
0.1
0.01
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
Normal Probability

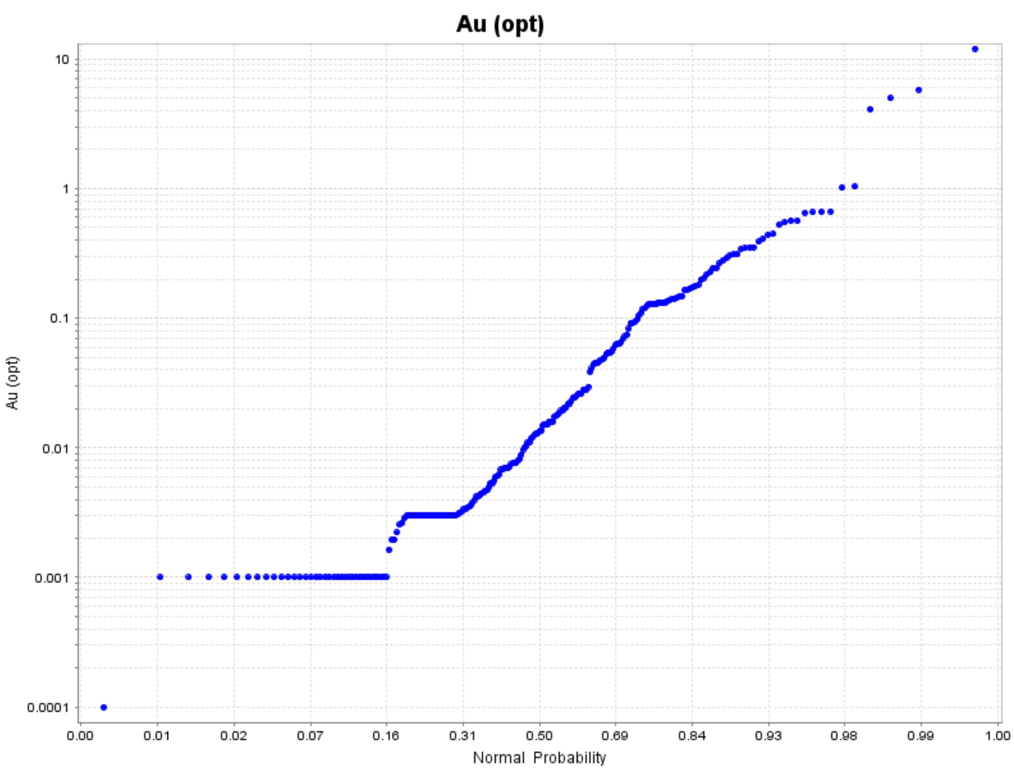
CUVND


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

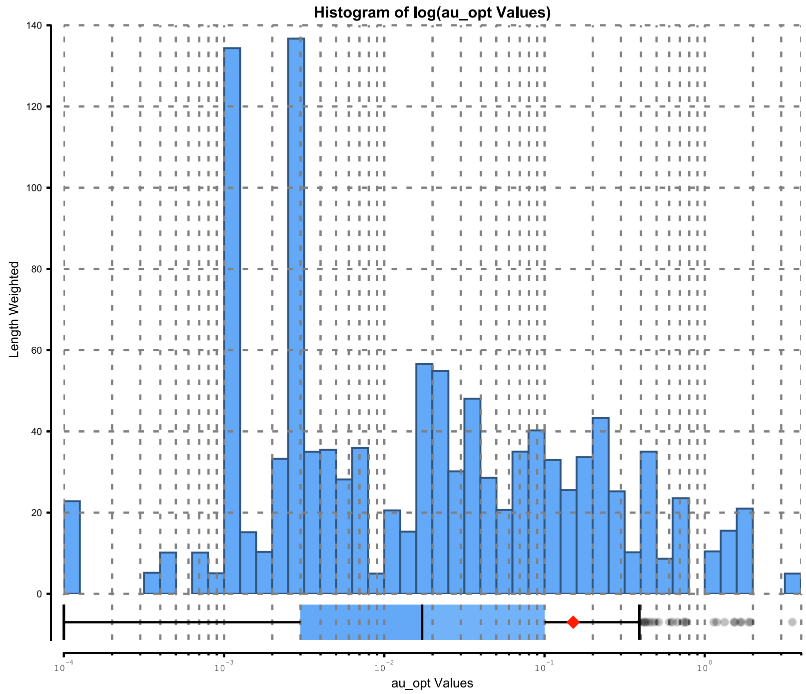

Au (opt)
Au (opt)
Normal Probability

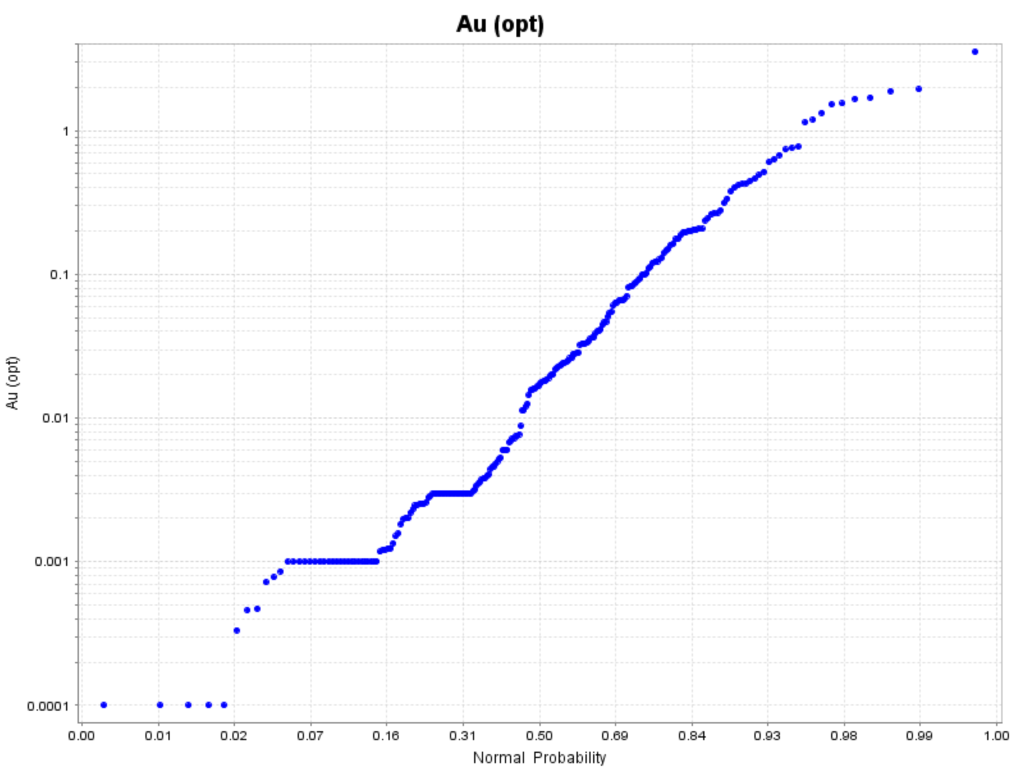
CUVND2


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

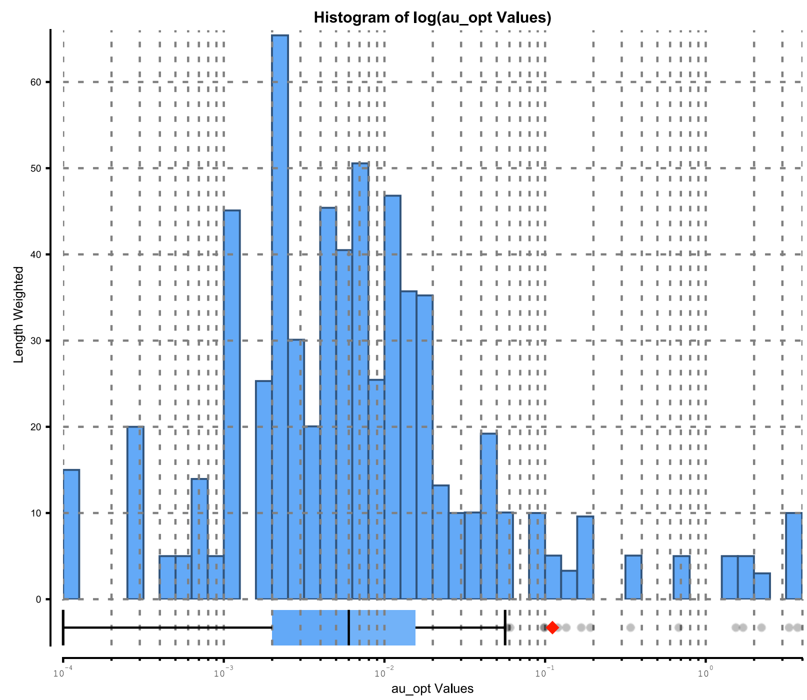

Au (opt)
Normal Probability

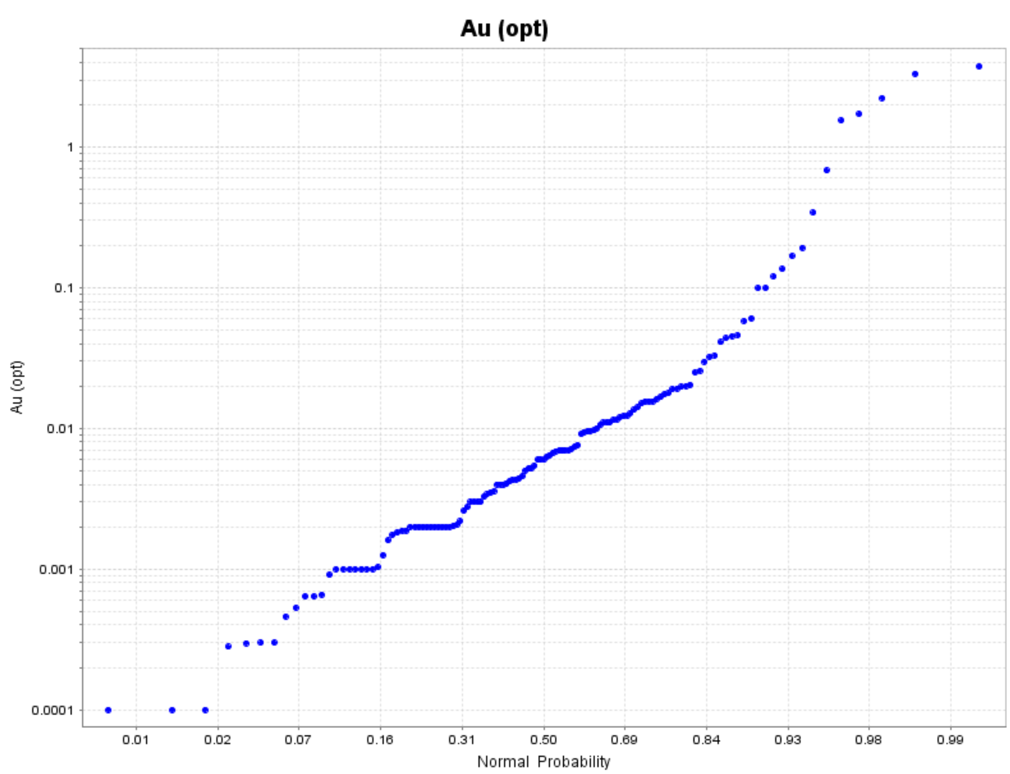
CUVND3


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

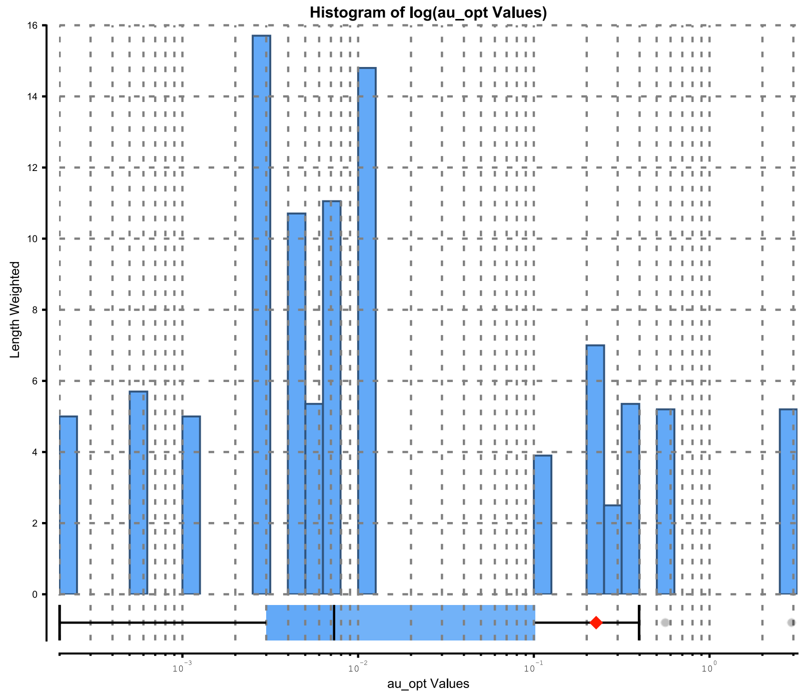

Au (opt)
Au (opt)
Normal Probability

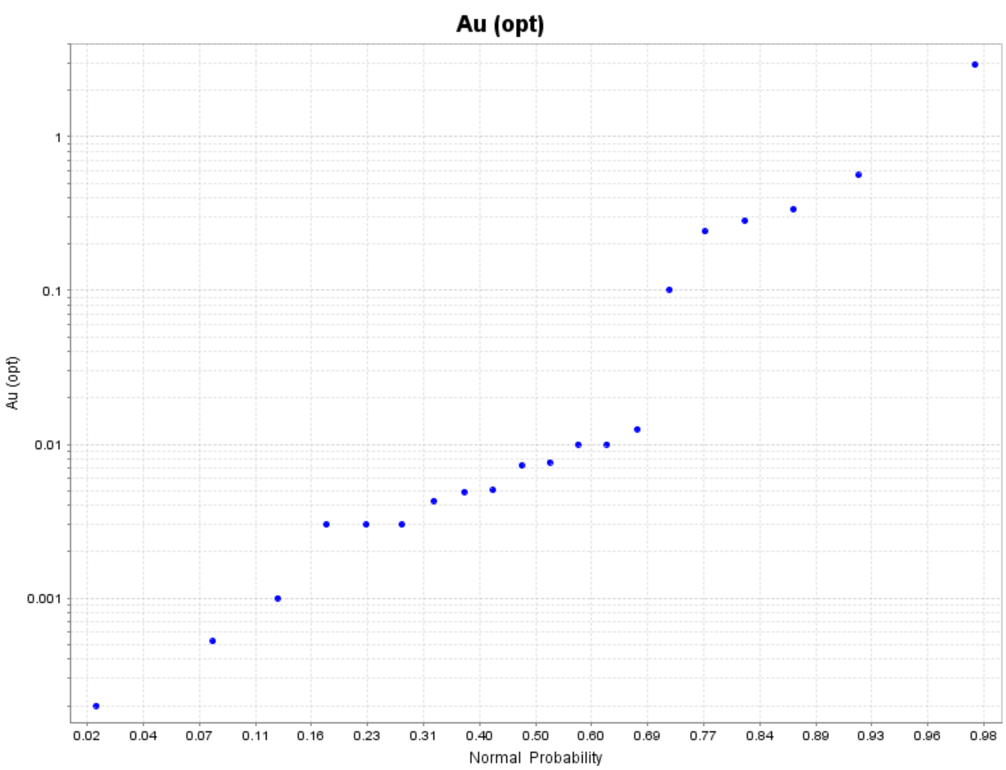
CUVND4


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

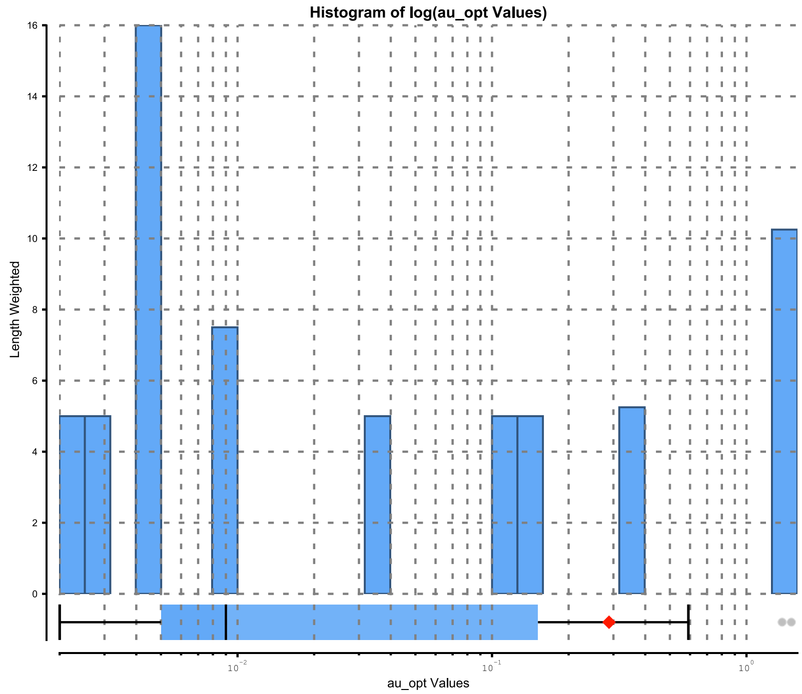

Au (opt)
Au (opt)
Normal Probability

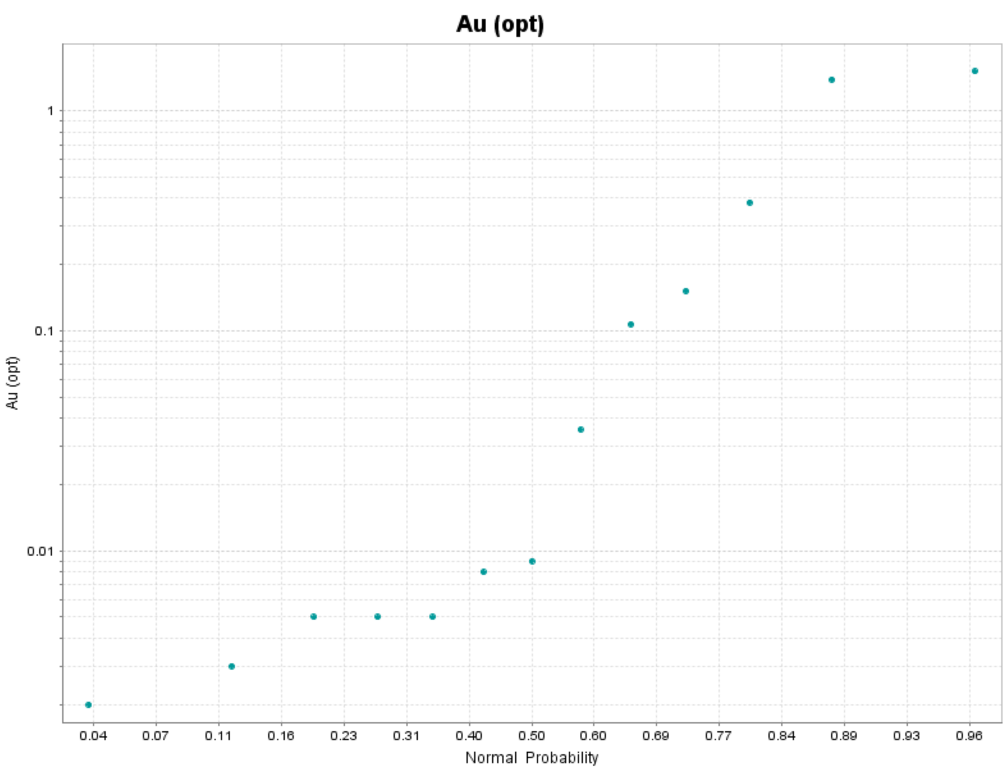
CUVND5


Histogram of log(au_opt Values)
Length Weighted
au_opt Values


Au (opt)
Au (opt)
Normal Probability

FW01





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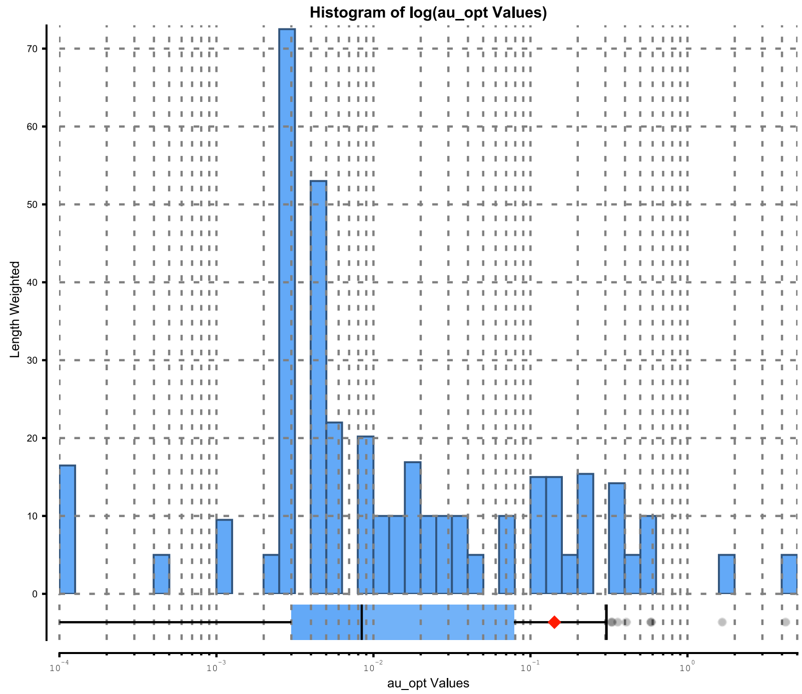
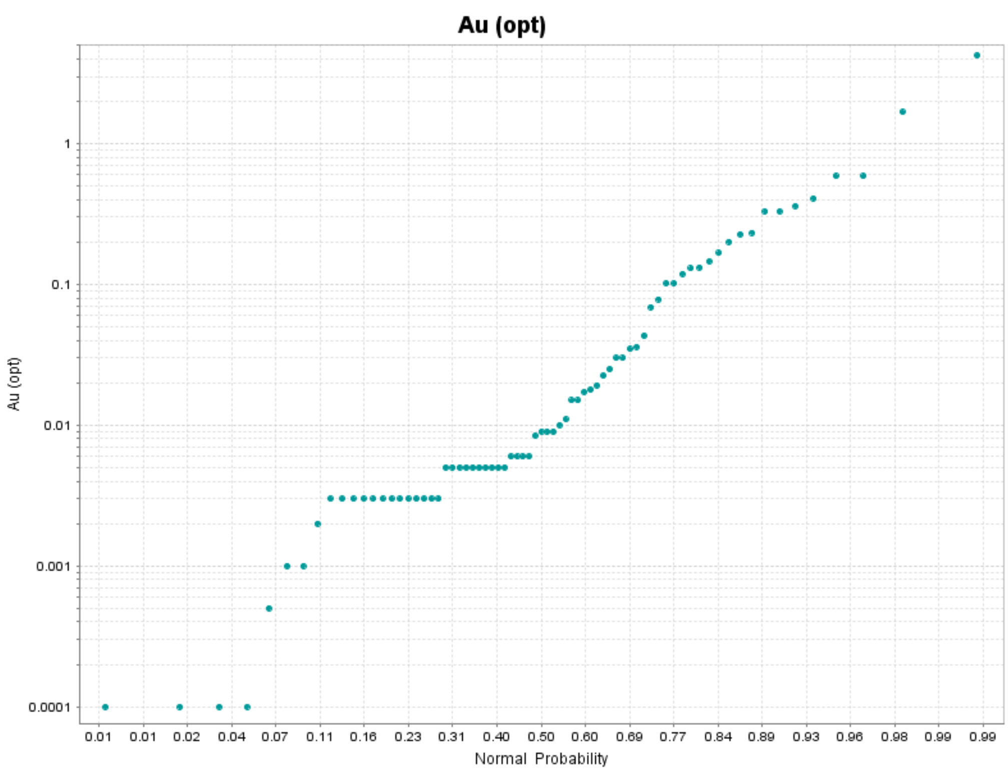
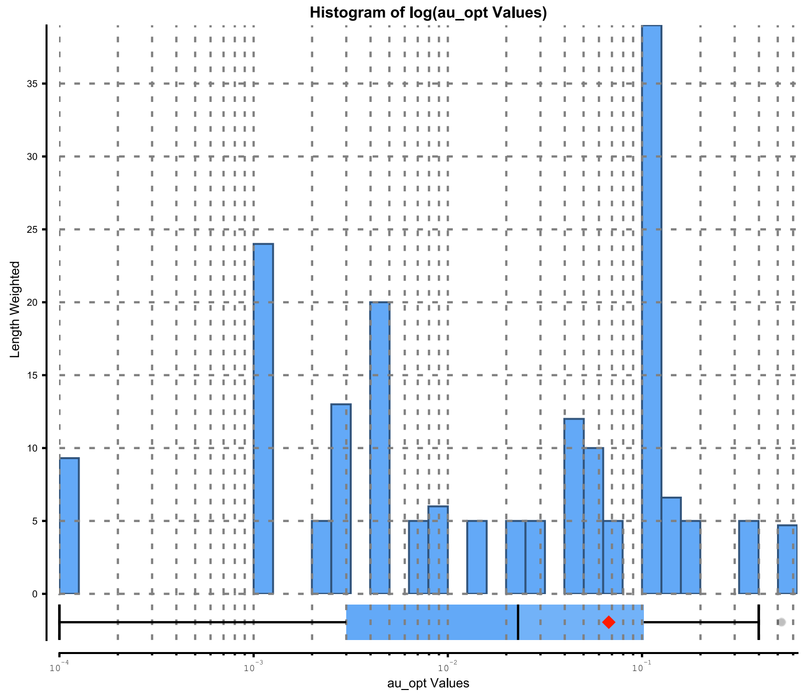
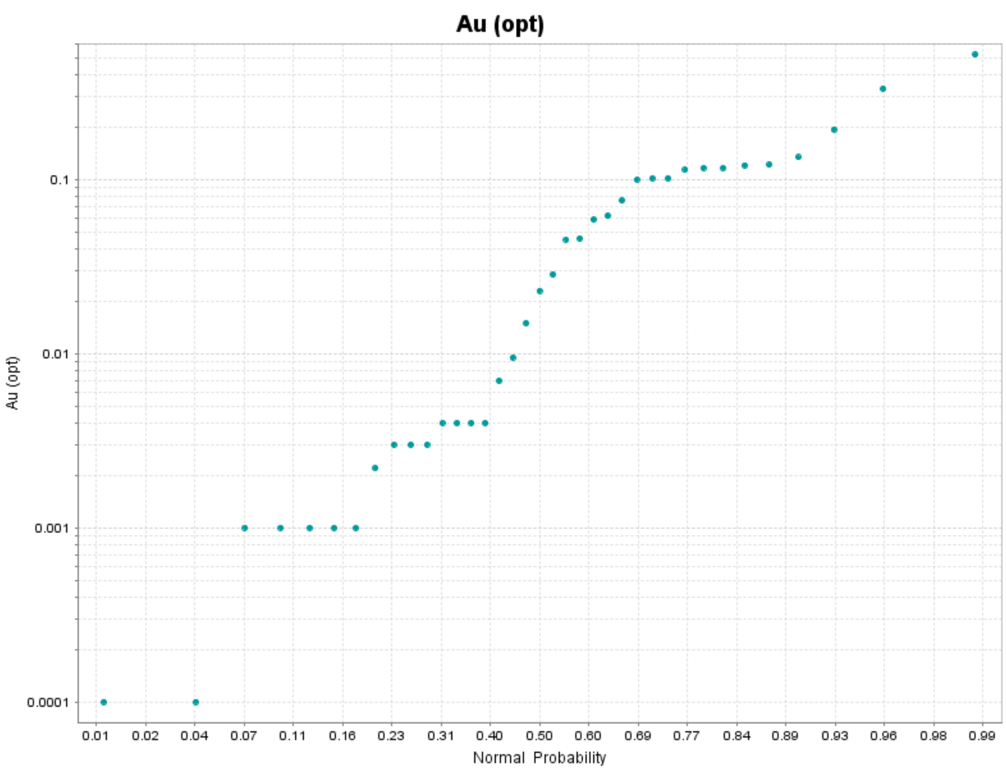
FW02


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

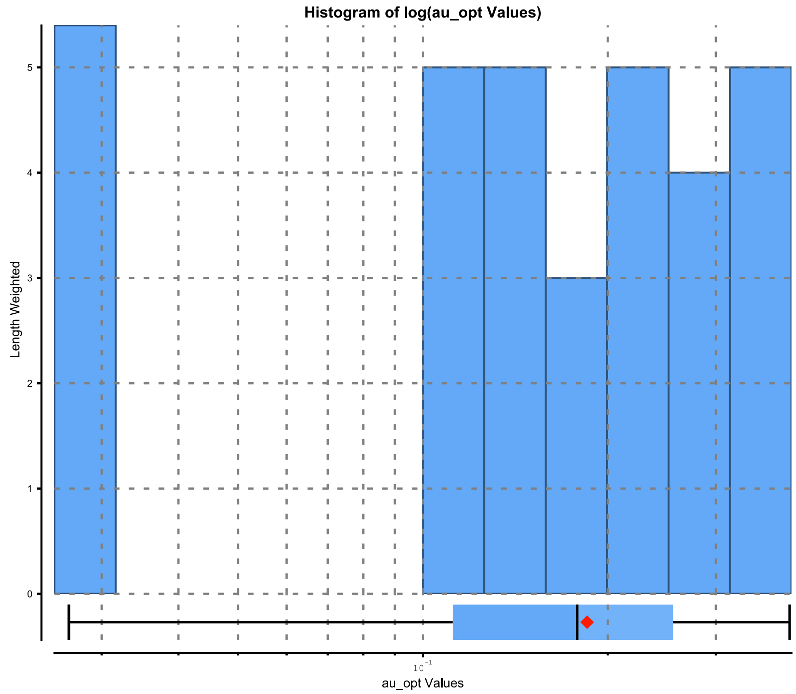

Au (opt)
Au (opt)
Normal Probability

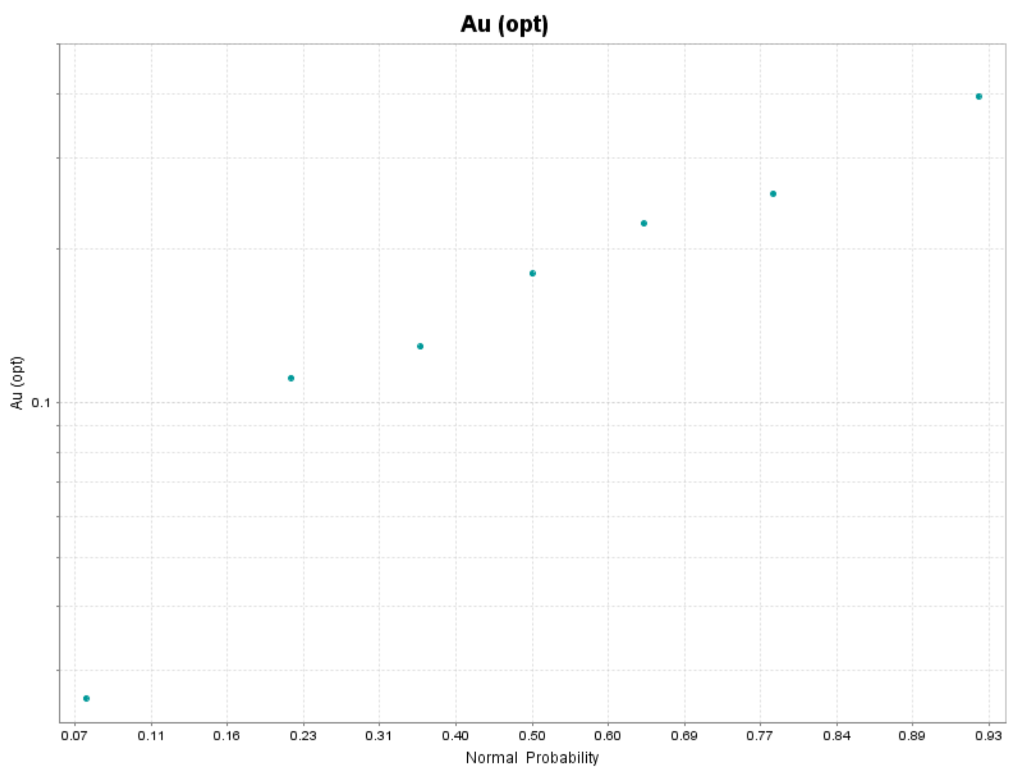
FW03


Histogram of log(au_opt Values)
Length Weighted
0
5
10
15
20
25
30
35
au_opt Values

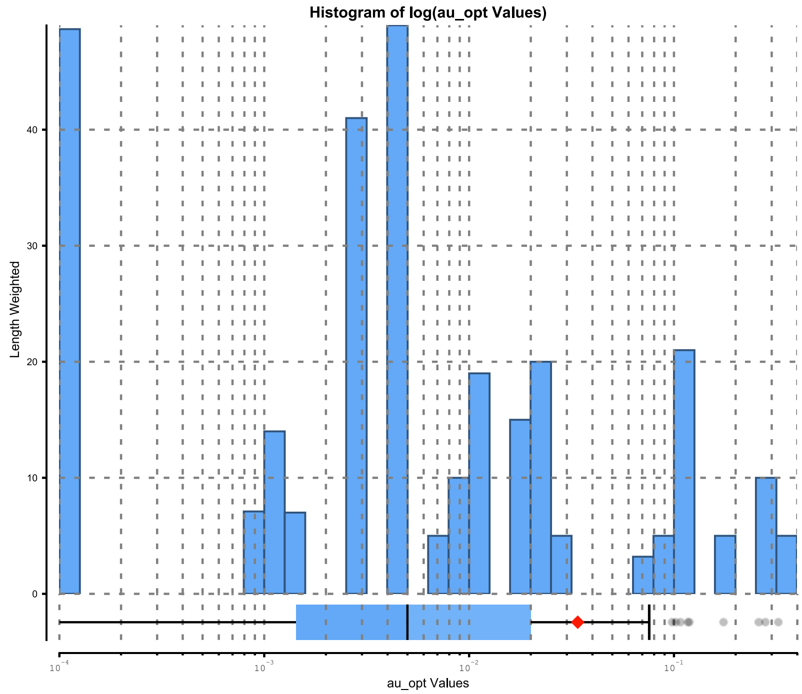

Au (opt)
Au (opt)
0.0001
0.001
0.01
0.1
0.01
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
0.99
Normal Probability

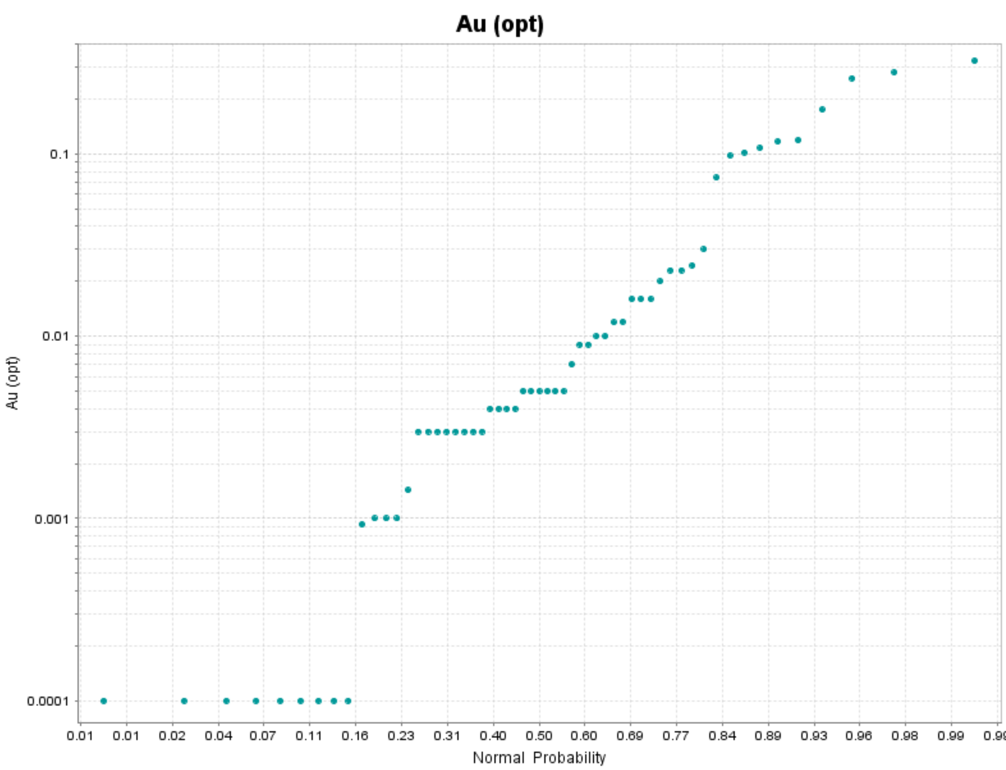
FW04


Histogram of log(au_opt Values)
Length Weighted
0
1
2
3
4
5
10⁻¹
au_opt Values

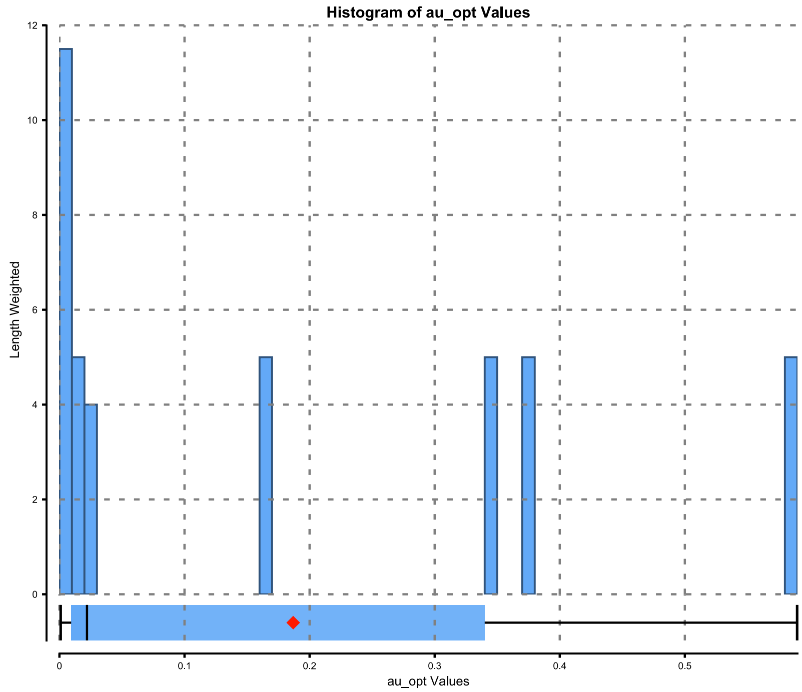

Au (opt)
Au (opt)
0.1
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

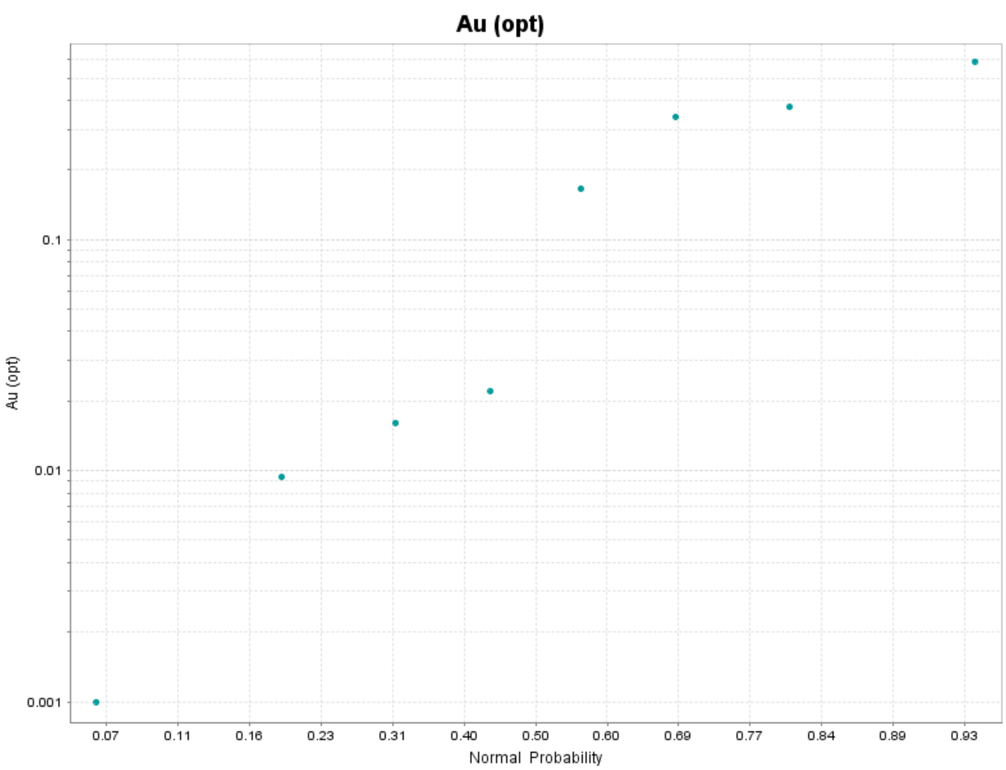
FW05


Histogram of log(au_opt Values)
Length Weighted
0
10
20
30
40
au_opt Values

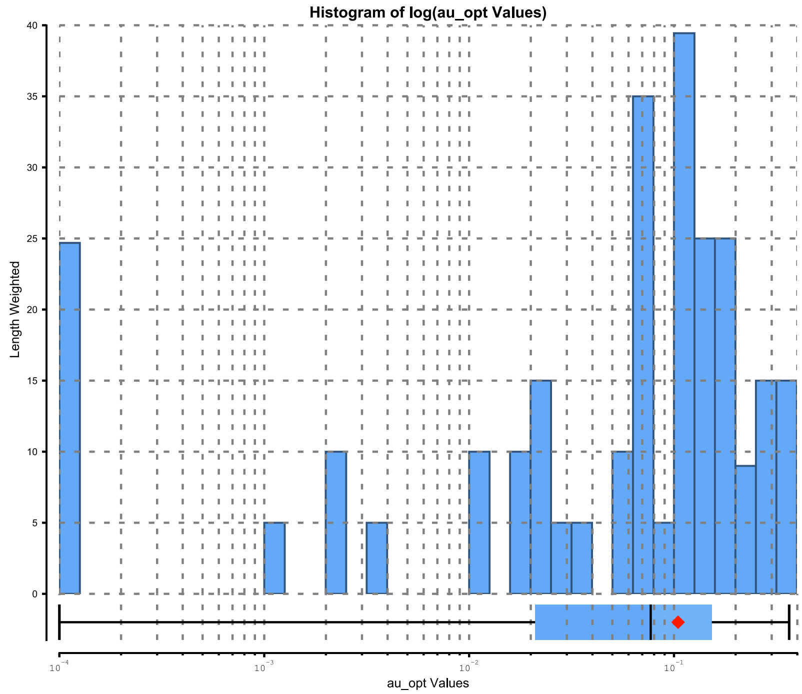

Au (opt)
Au (opt)
0.1
0.01
0.001
0.0001
0.01 0.01 0.02 0.04 0.07 0.11 0.16 0.23 0.31 0.40 0.50 0.60 0.69 0.77 0.84 0.89 0.93 0.96 0.98 0.99 0.99
Normal Probability

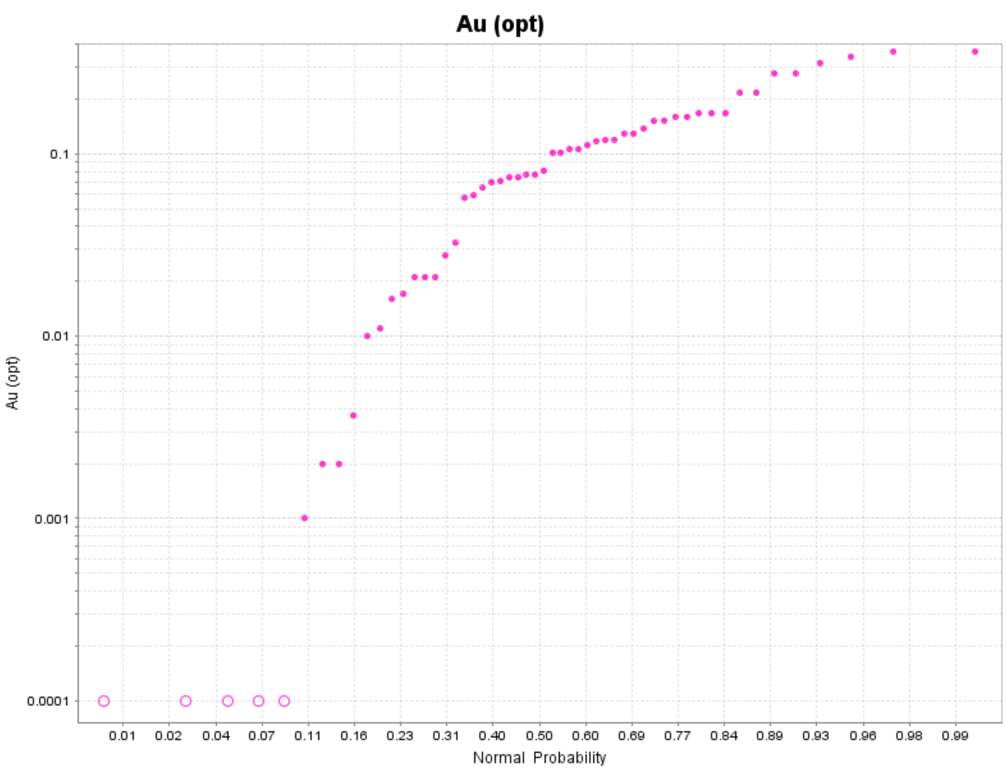
FW06


Histogram of au_opt Values
Length Weighted
au_opt Values
0
2
4
6
8
10
12
0
0.1
0.2
0.3
0.4
0.5

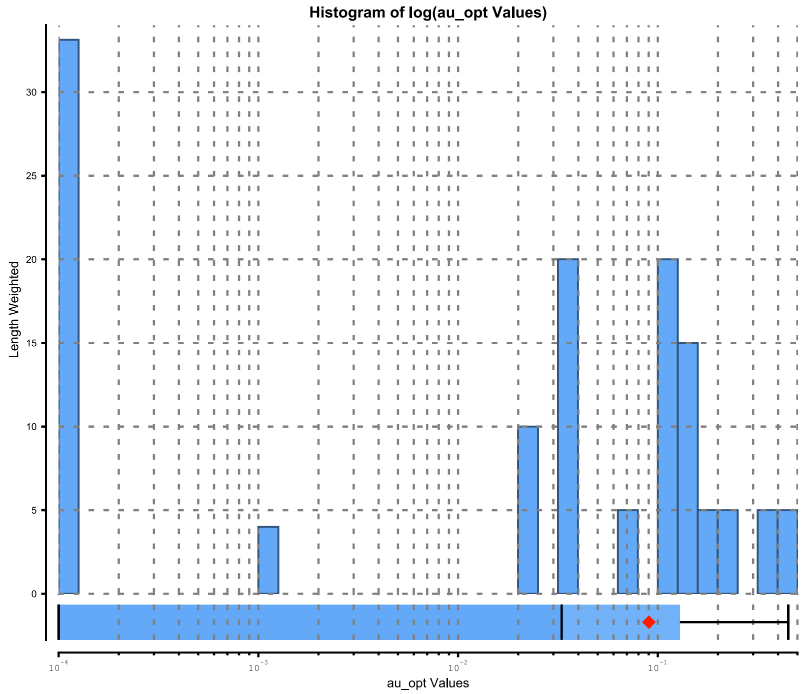

Au (opt)
Au (opt)
0.1
0.01
0.001
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

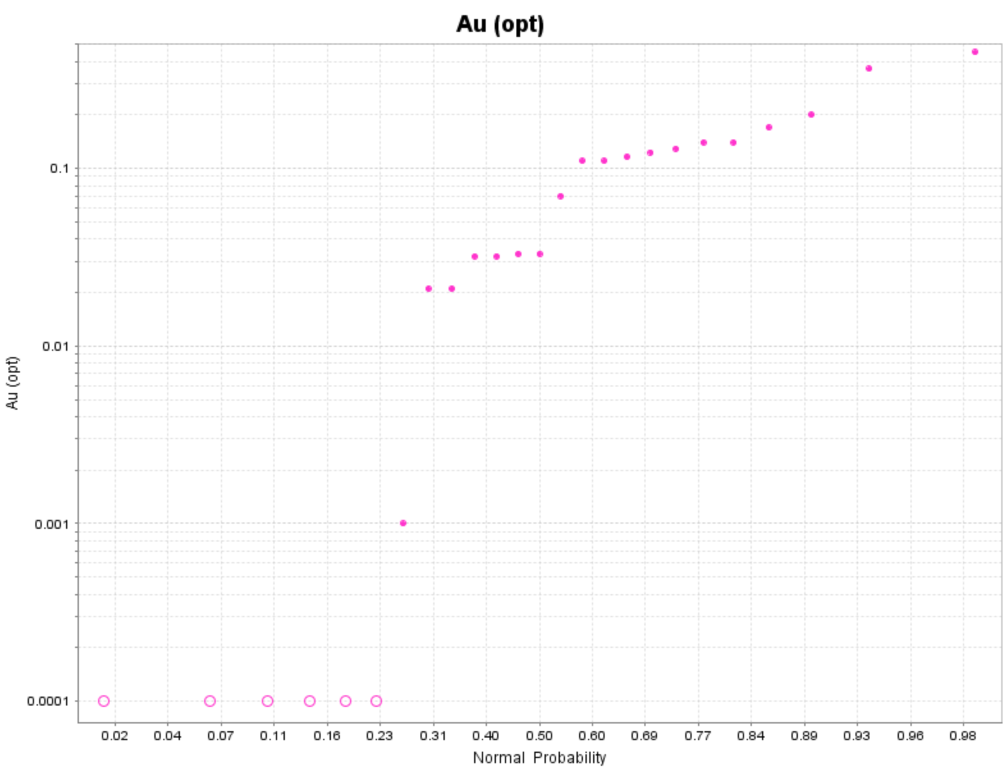
S01


Histogram of log(au_opt Values)
Length Weighted
au_opt Values
0
5
10
15
20
25
30
35
40

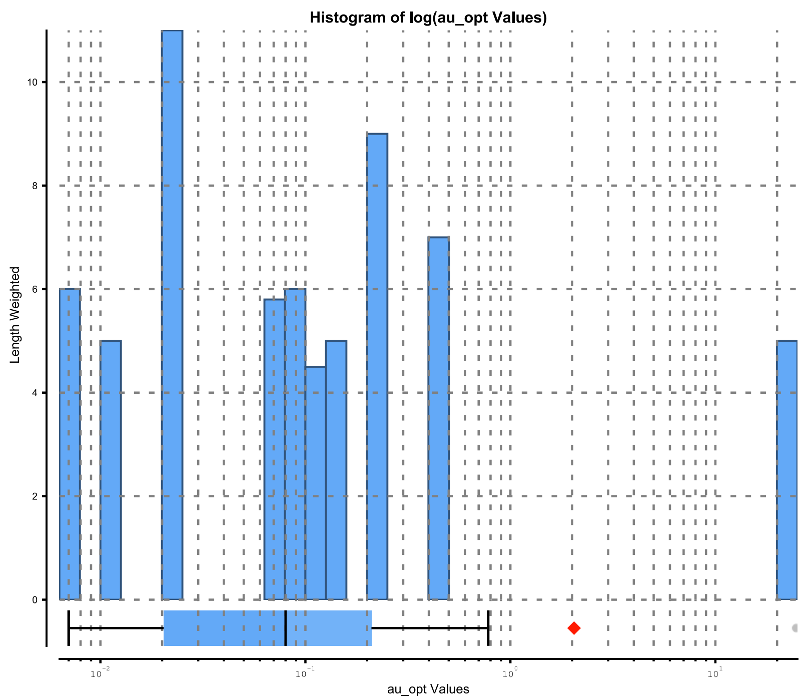

Au (opt)
Au (opt)
Normal Probability
0.1
0.01
0.001
0.0001
0.01 0.02 0.04 0.07 0.11 0.16 0.23 0.31 0.40 0.50 0.60 0.69 0.77 0.84 0.89 0.93 0.96 0.98 0.99

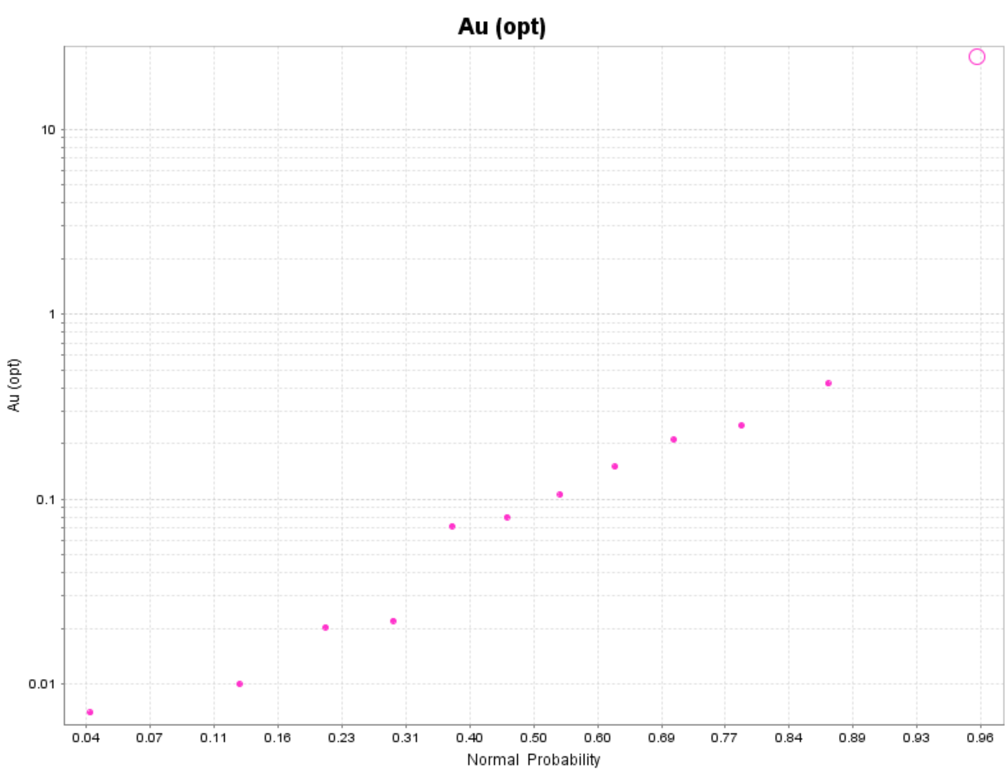
S02


Histogram of log(au_opt Values)
Length Weighted
30
25
20
15
10
5
0
au_opt Values

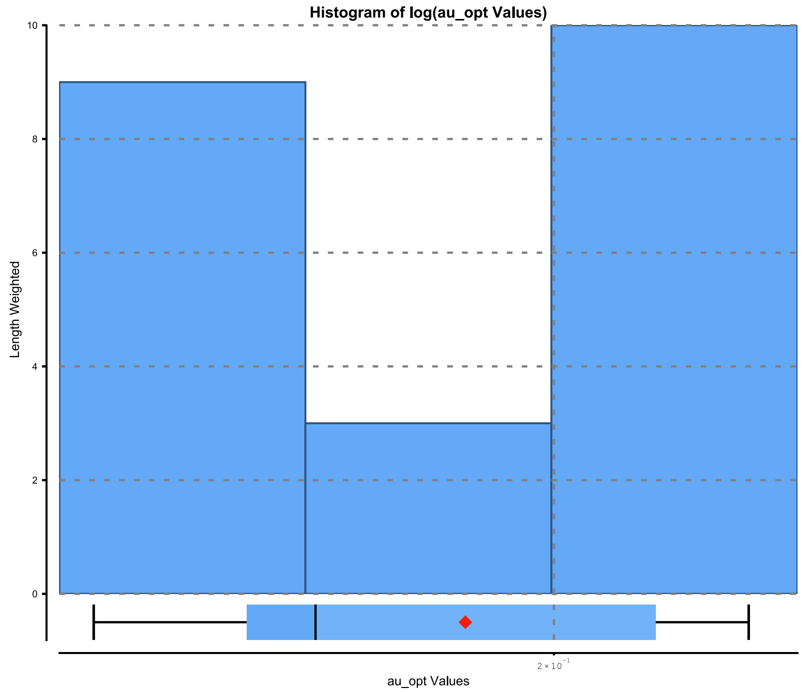

Au (opt)
Au (opt)
0.1
0.01
0.001
0.0001
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
Normal Probability

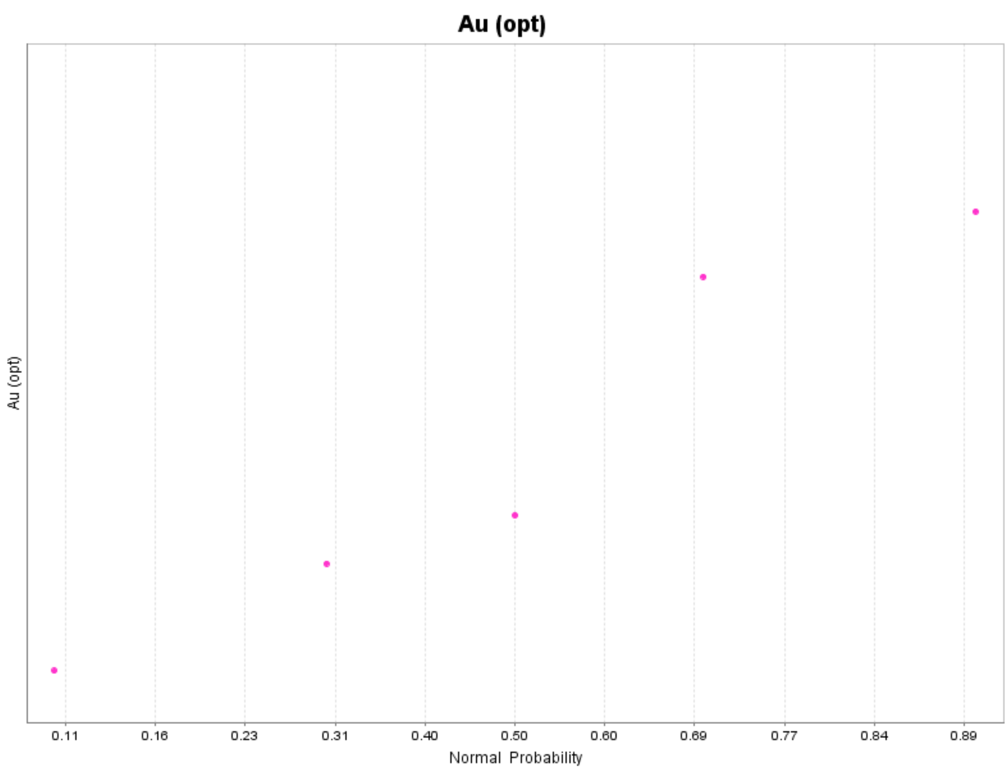
S03


Histogram of log(au_opt Values)
Length Weighted
10
8
6
4
2
0
au_opt Values

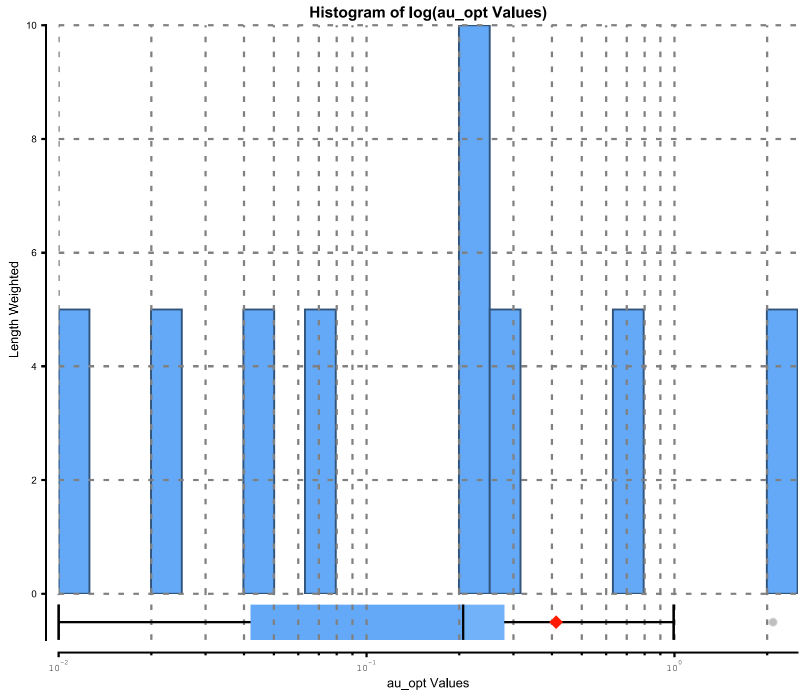

Au (opt)
Au (opt)
10
1
0.1
0.01
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
Normal Probability

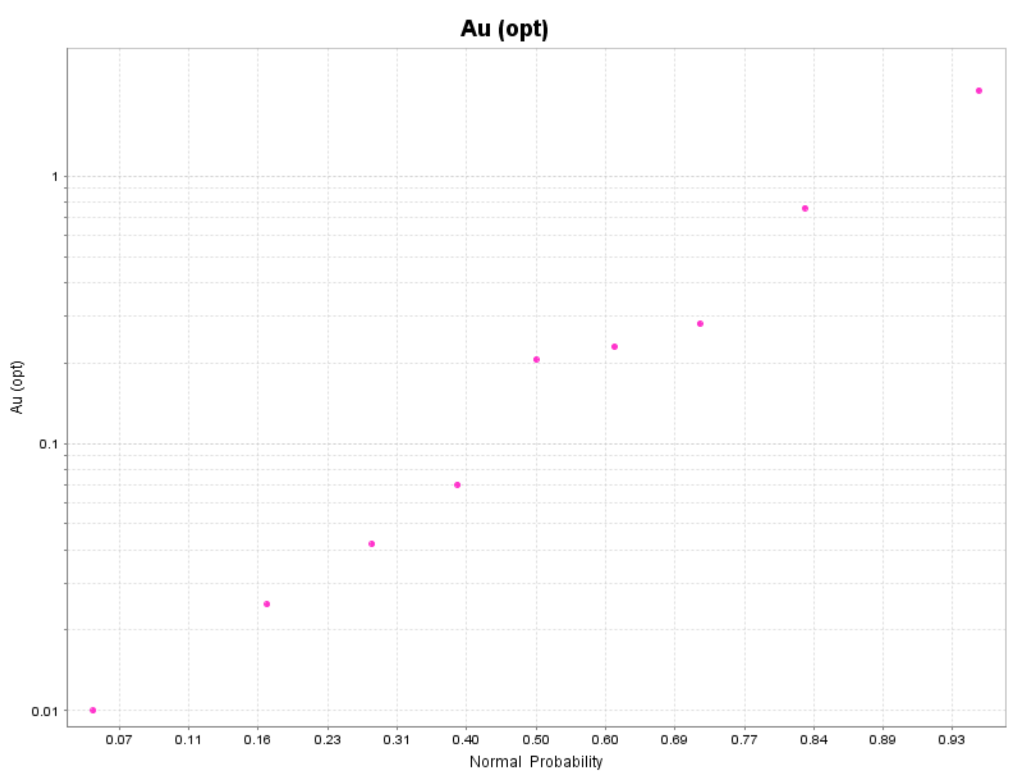
S04


Histogram of log(au_opt Values)
Length Weighted
10
8
6
4
2
0
2×10⁻¹
au_opt Values

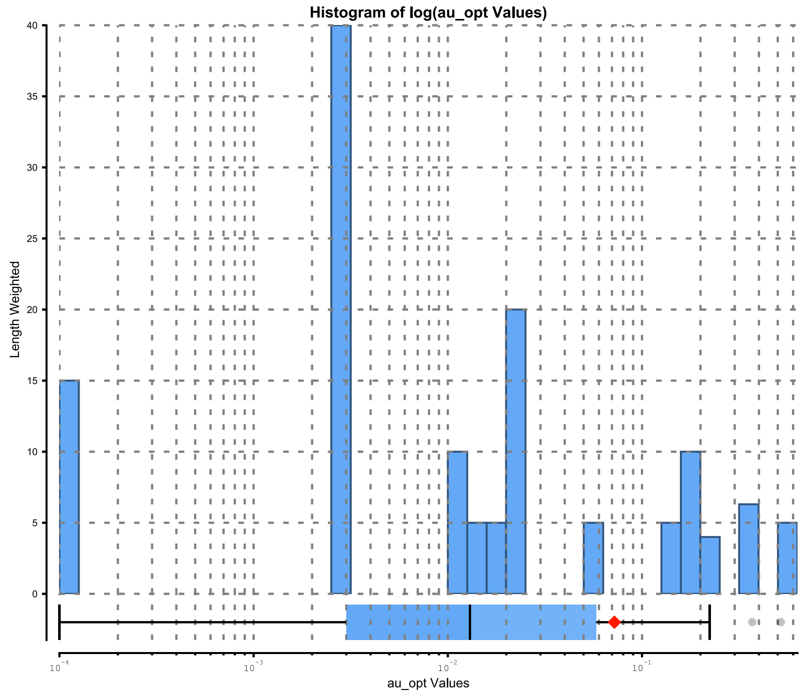

Au (opt)
Au (opt)
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
Normal Probability

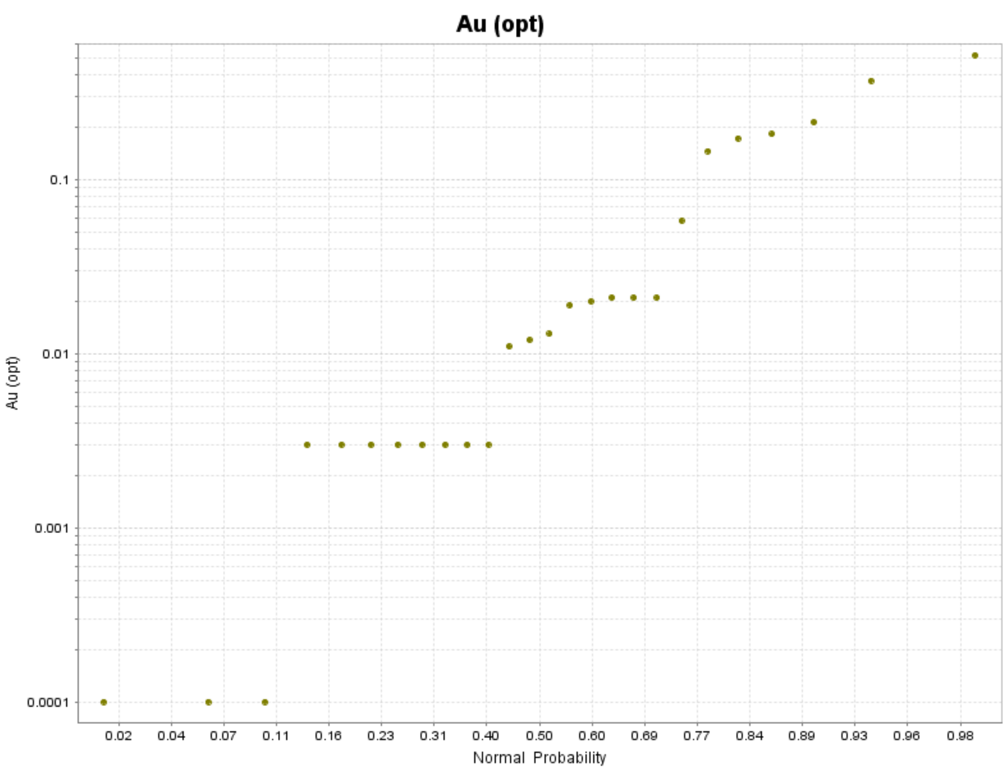
S05


Histogram of log(au_opt Values)
Length Weighted
10
8
6
4
2
0
au_opt Values

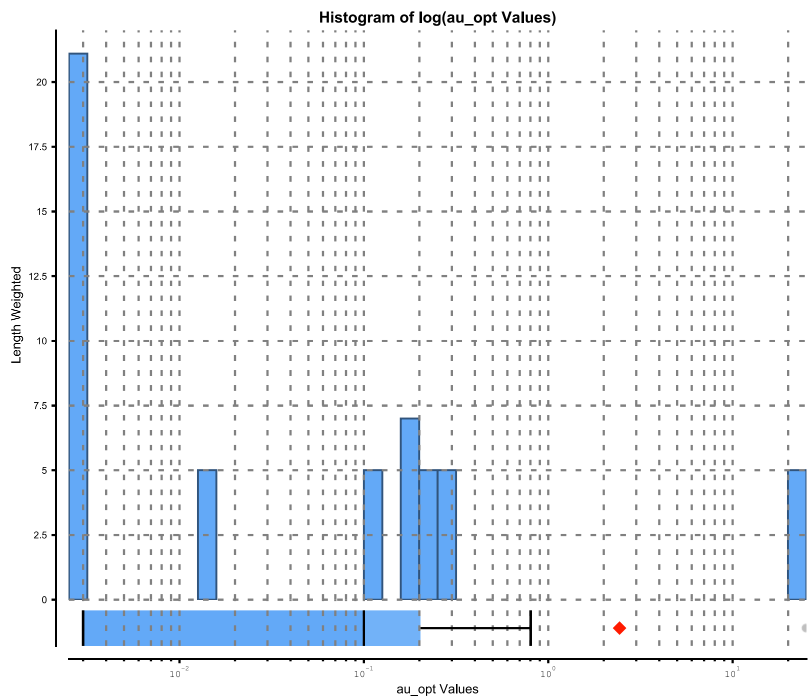

Au (opt)
Au (opt)
1
0.1
0.01
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

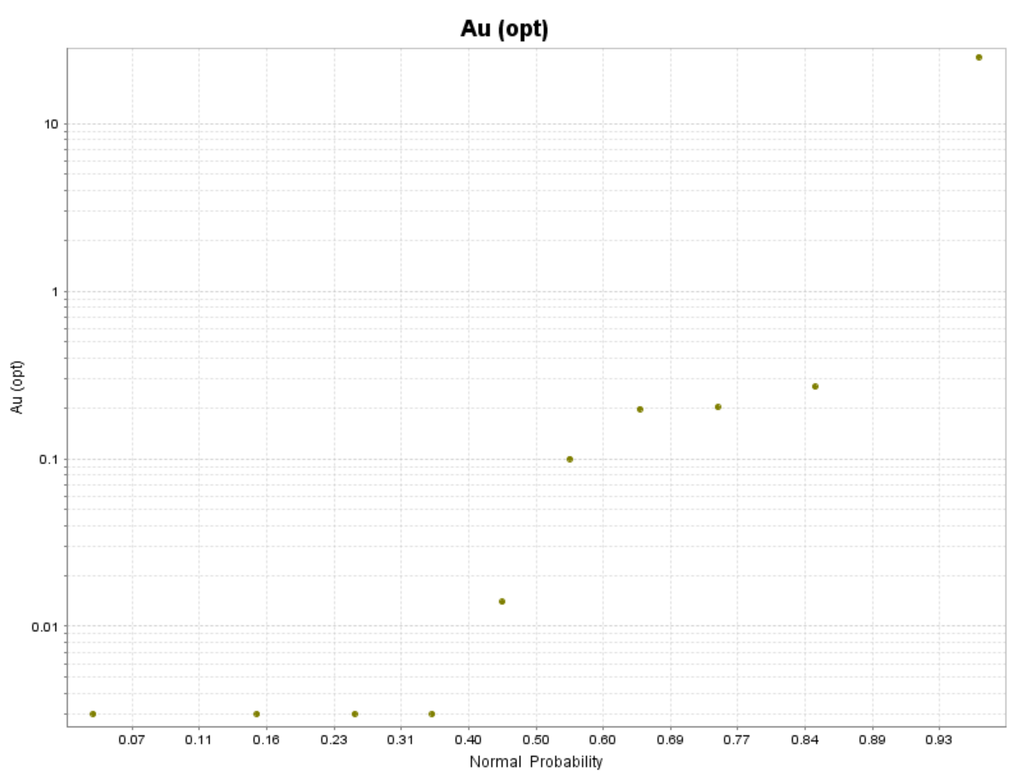
CUP1


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

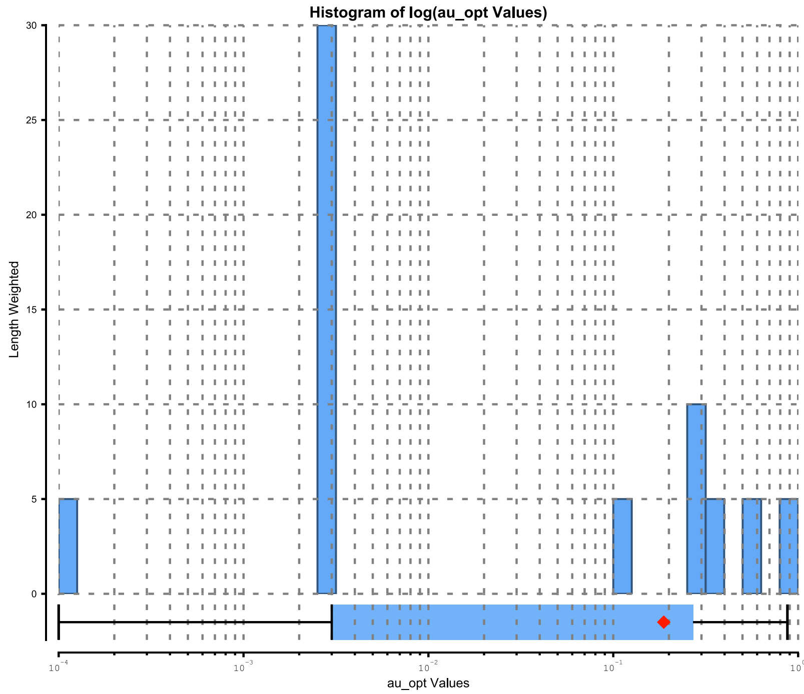

Au (opt)
Au (opt)
0.1
0.01
0.001
0.0001
0.02
0.04
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
0.96
0.98
Normal Probability

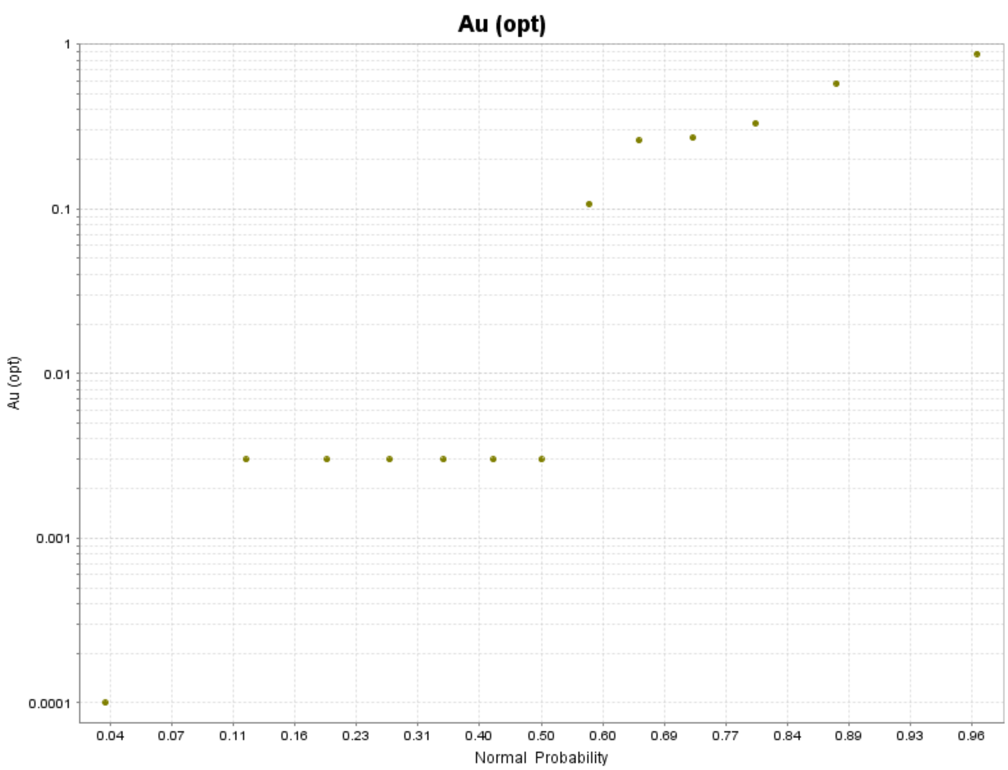
CUP2


Histogram of log(au_opt Values)
Length Weighted
20
17.5
15
12.5
10
7.5
5
2.5
0
au_opt Values

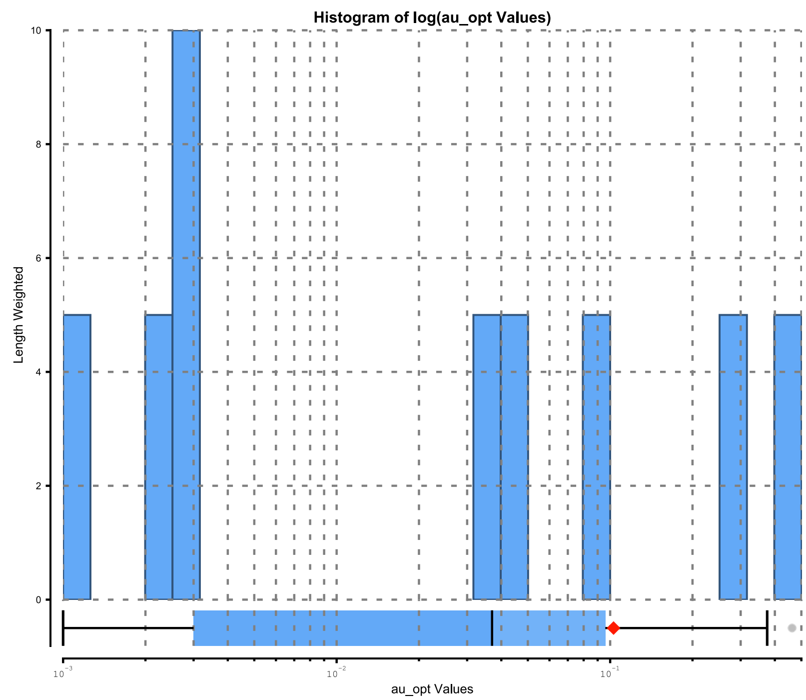

Au (opt)
Au (opt)
10
1
0.1
0.01
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

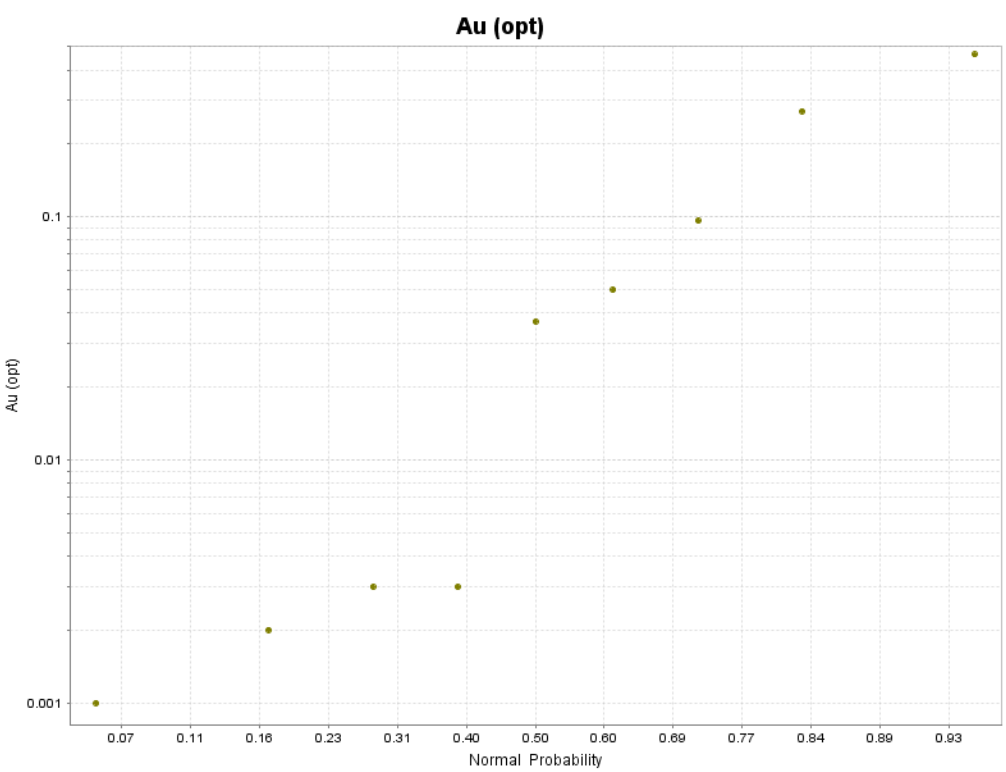
CUP3


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

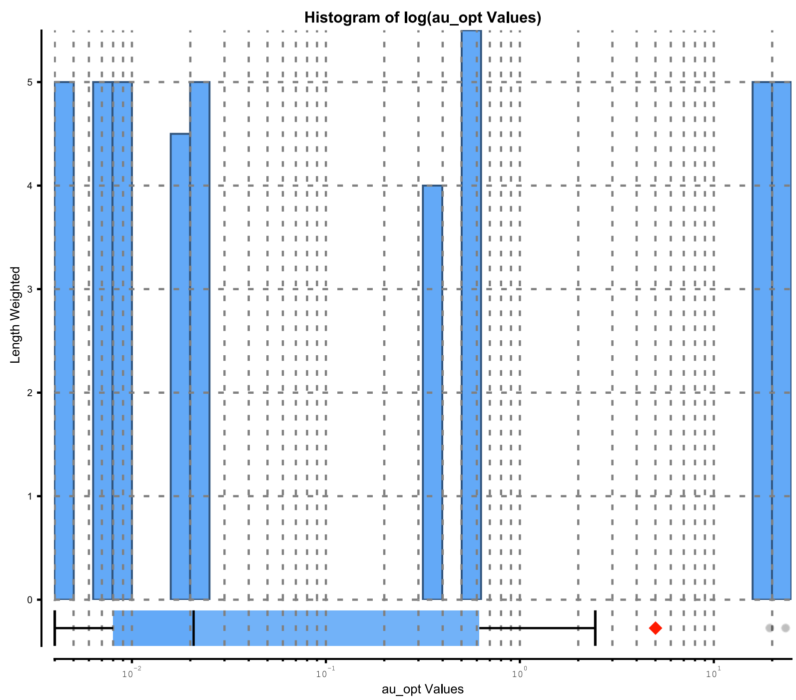

Au (opt)
Au (opt)
Normal Probability

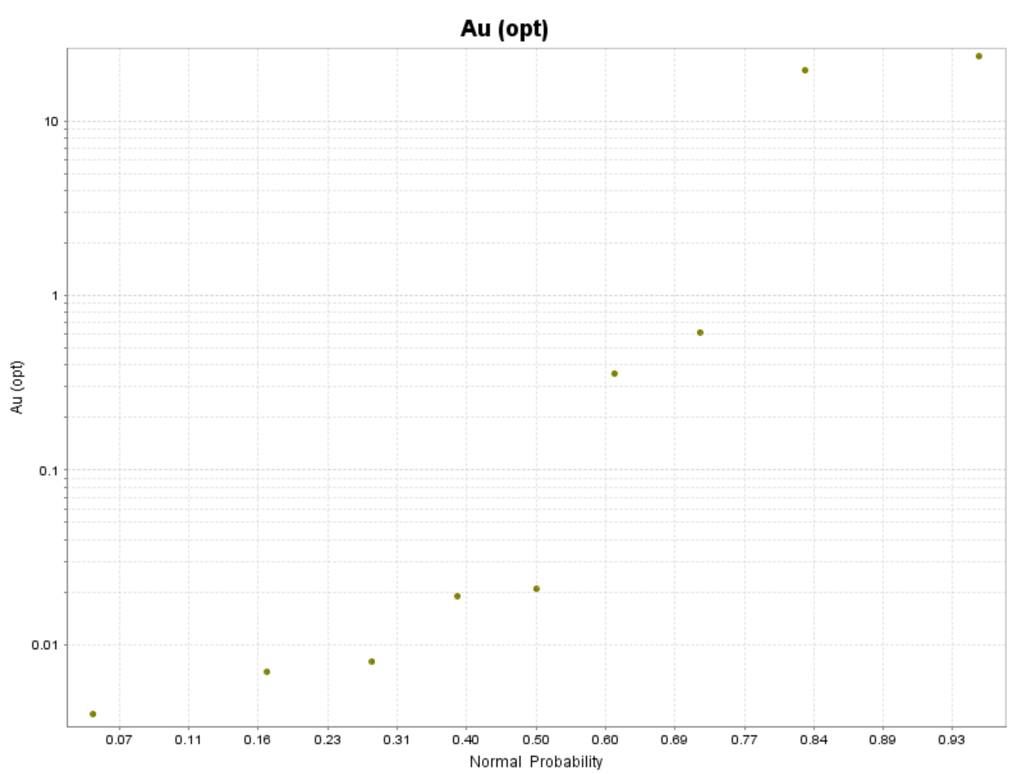
CUP4


Histogram of log(au_opt Values)
Length Weighted
0
2
4
6
8
10
au_opt Values


Au (opt)
Au (opt)
0.1
0.01
0.001
0.07
0.11
0.16
0.23
0.31
0.40
0.50
0.60
0.69
0.77
0.84
0.89
0.93
Normal Probability

CUP5


Histogram of log(au_opt Values)
Length Weighted
au_opt Values

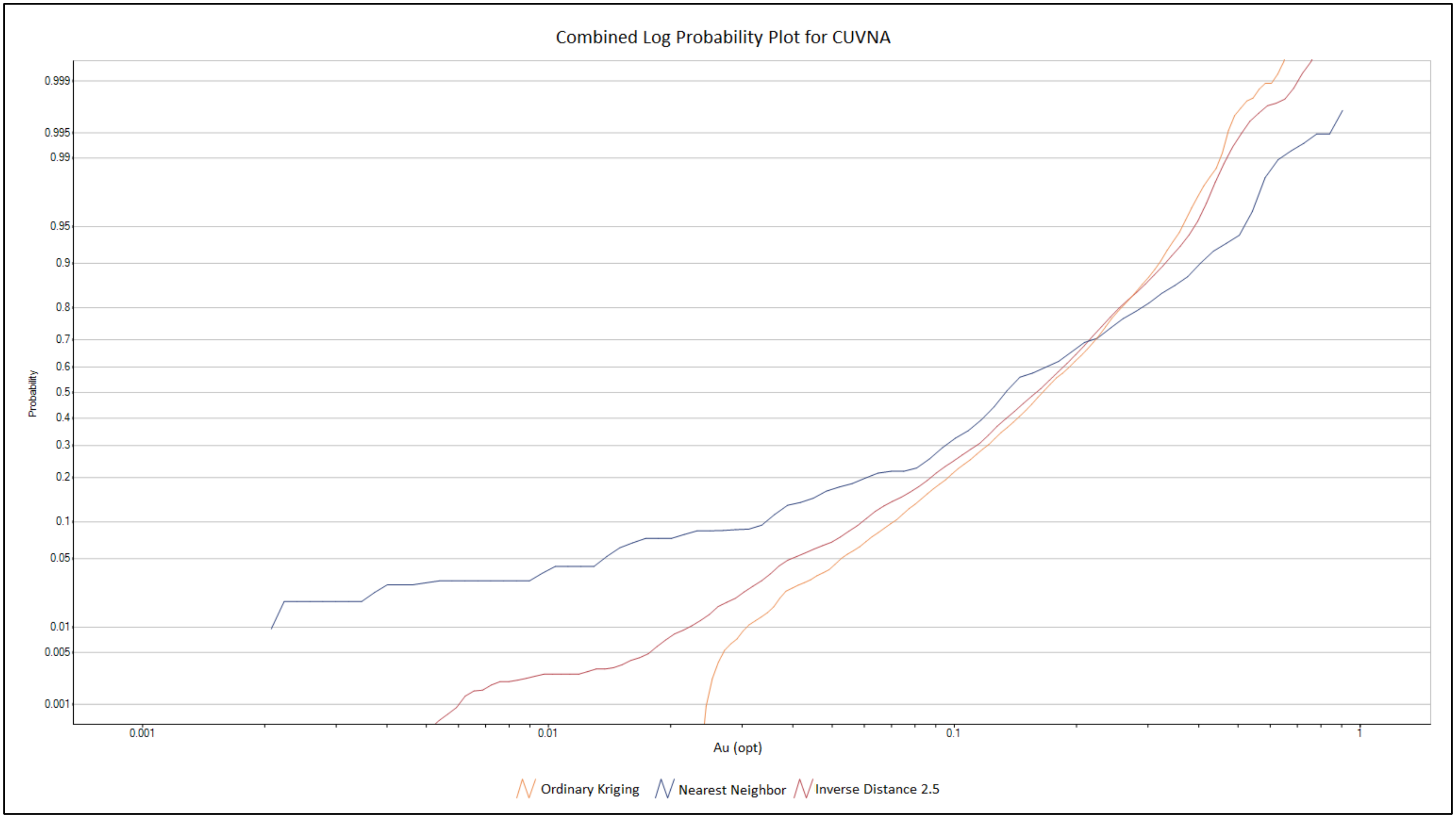

Au (opt)
Au (opt)
Normal Probability

APPENDIX F

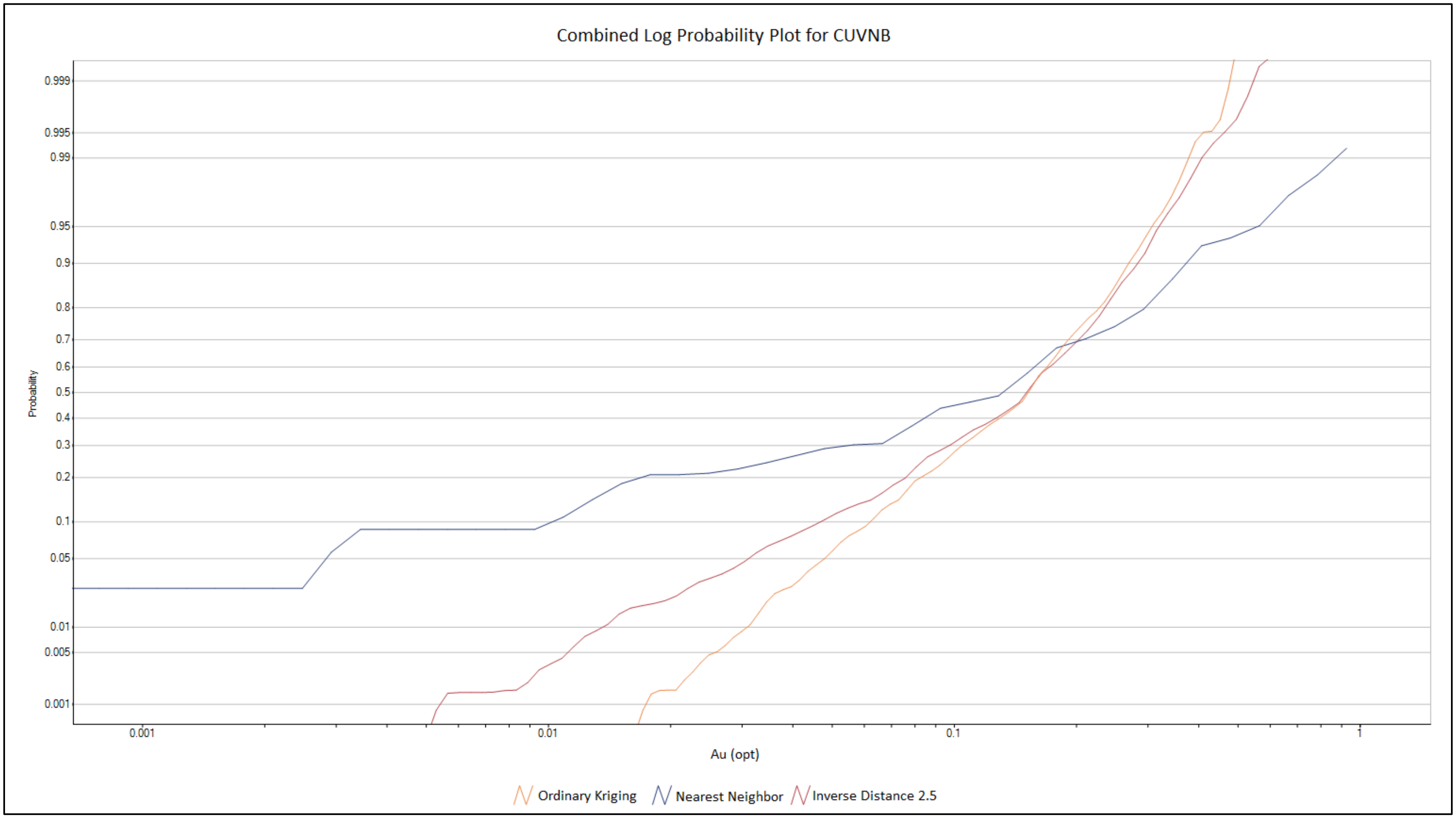
Combined Log Probability Plots by Domain

A/B Zone

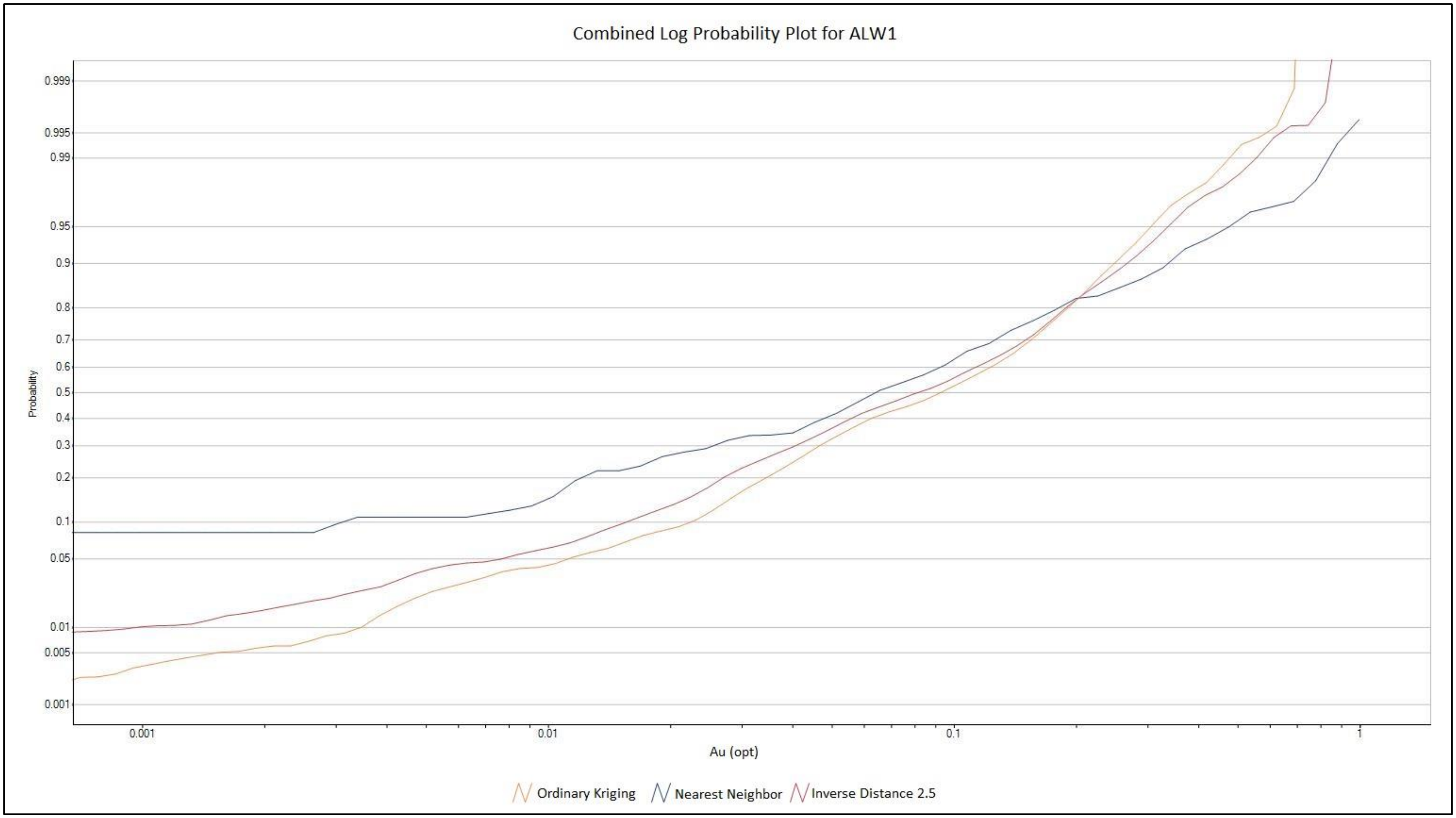
Domain CUVNA



Domain CUVNB



Domain ALW1



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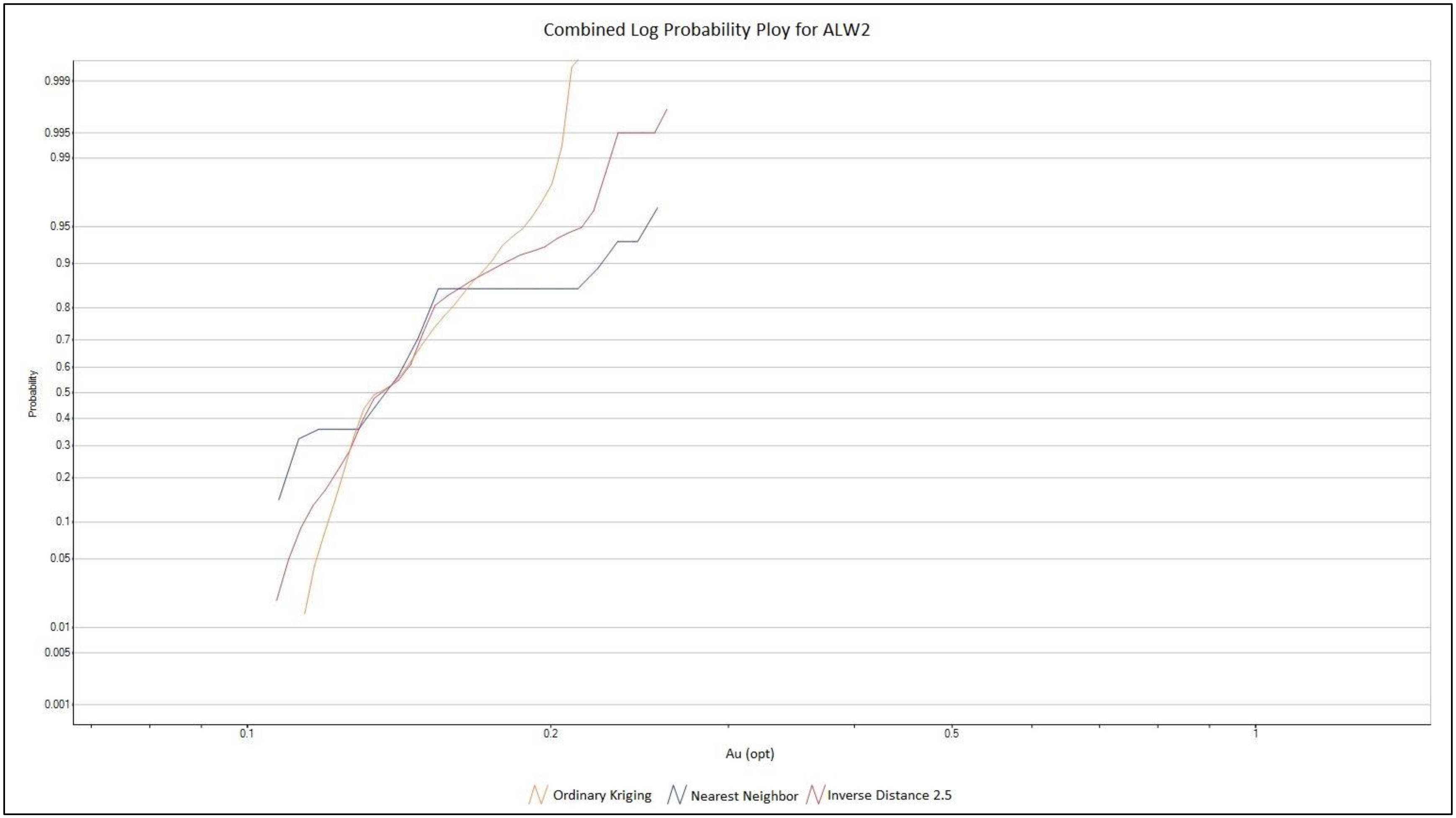
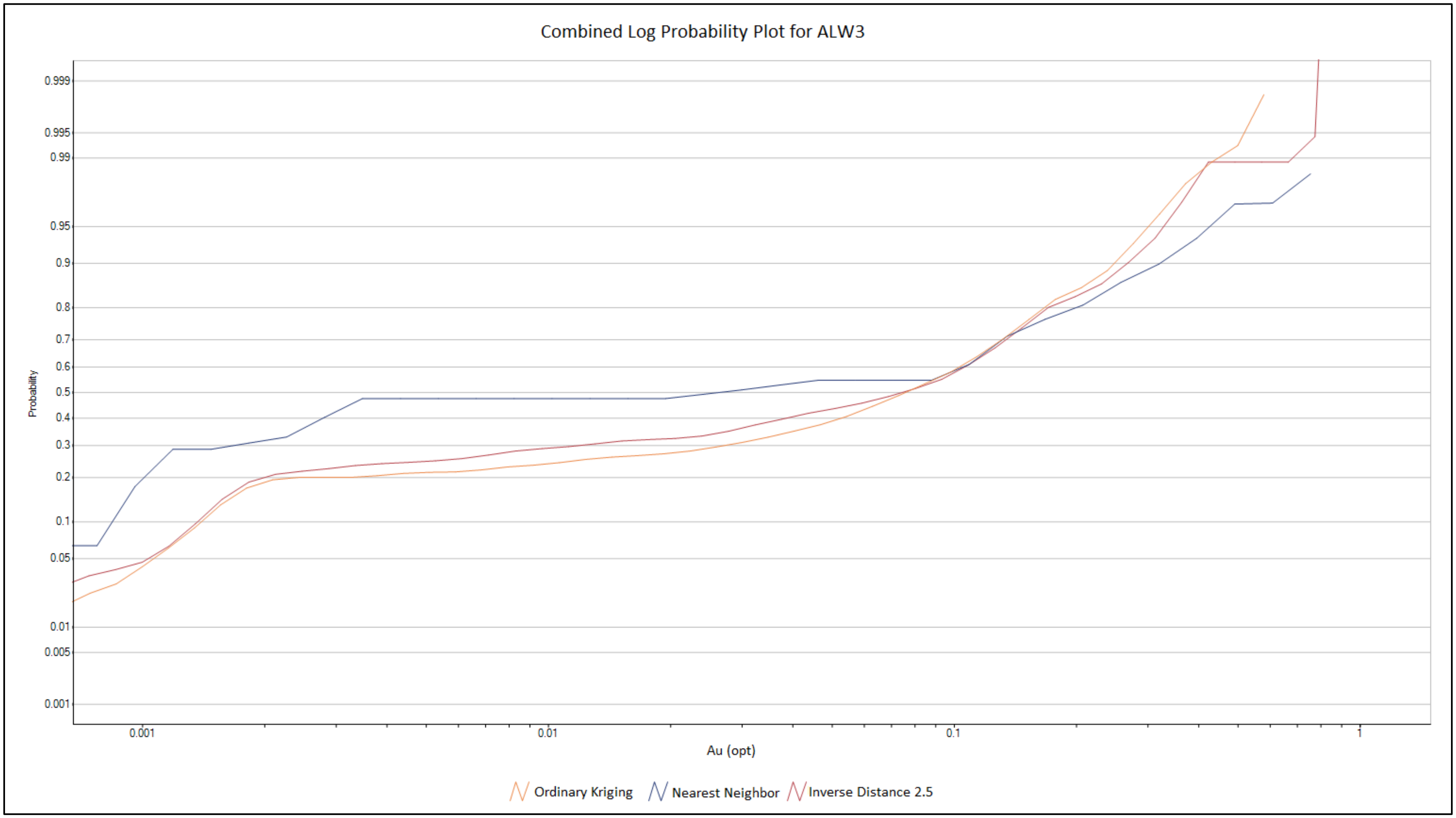
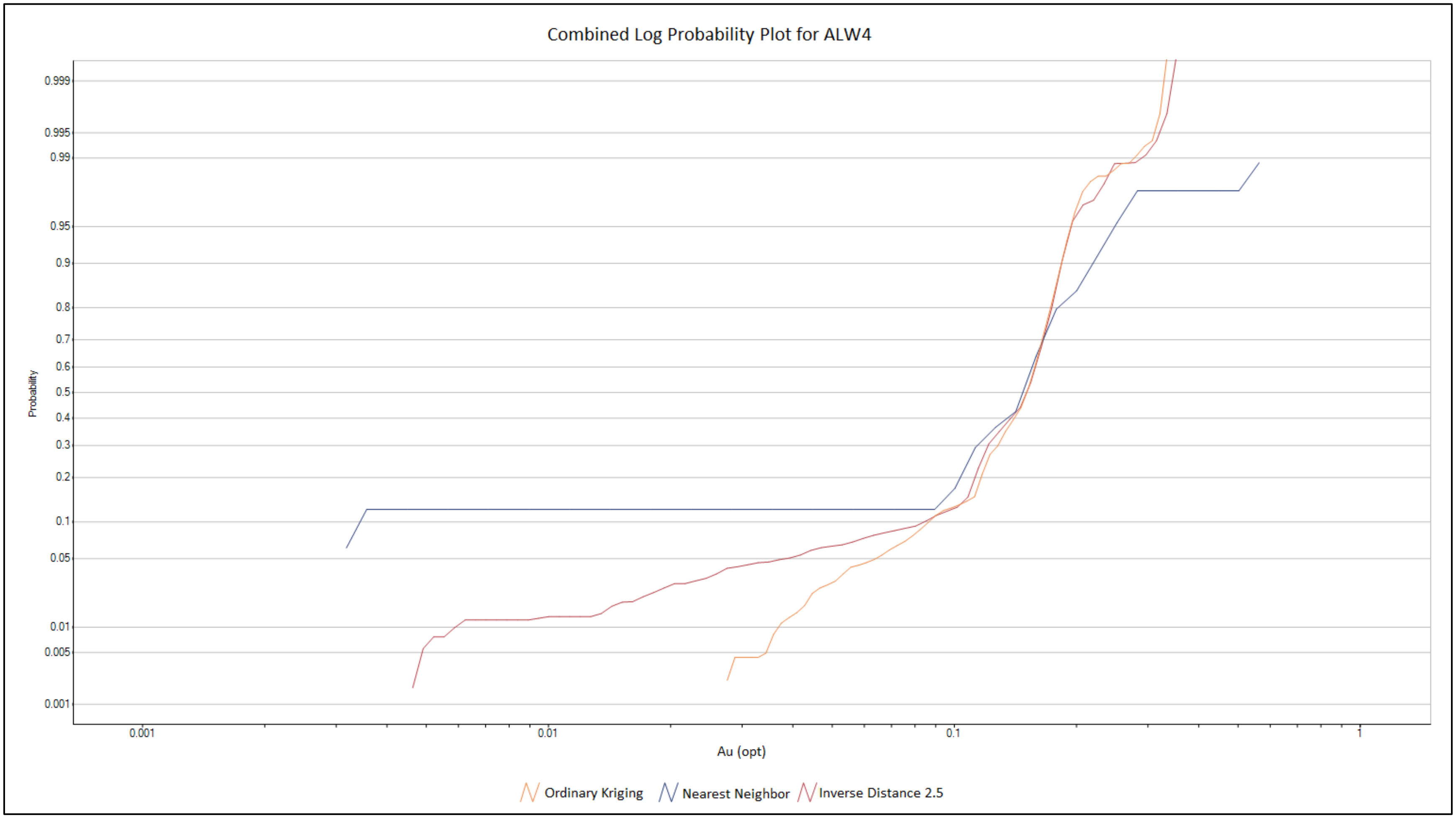
Domain ALW2


Combined Log Probability Ploy for ALW2
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

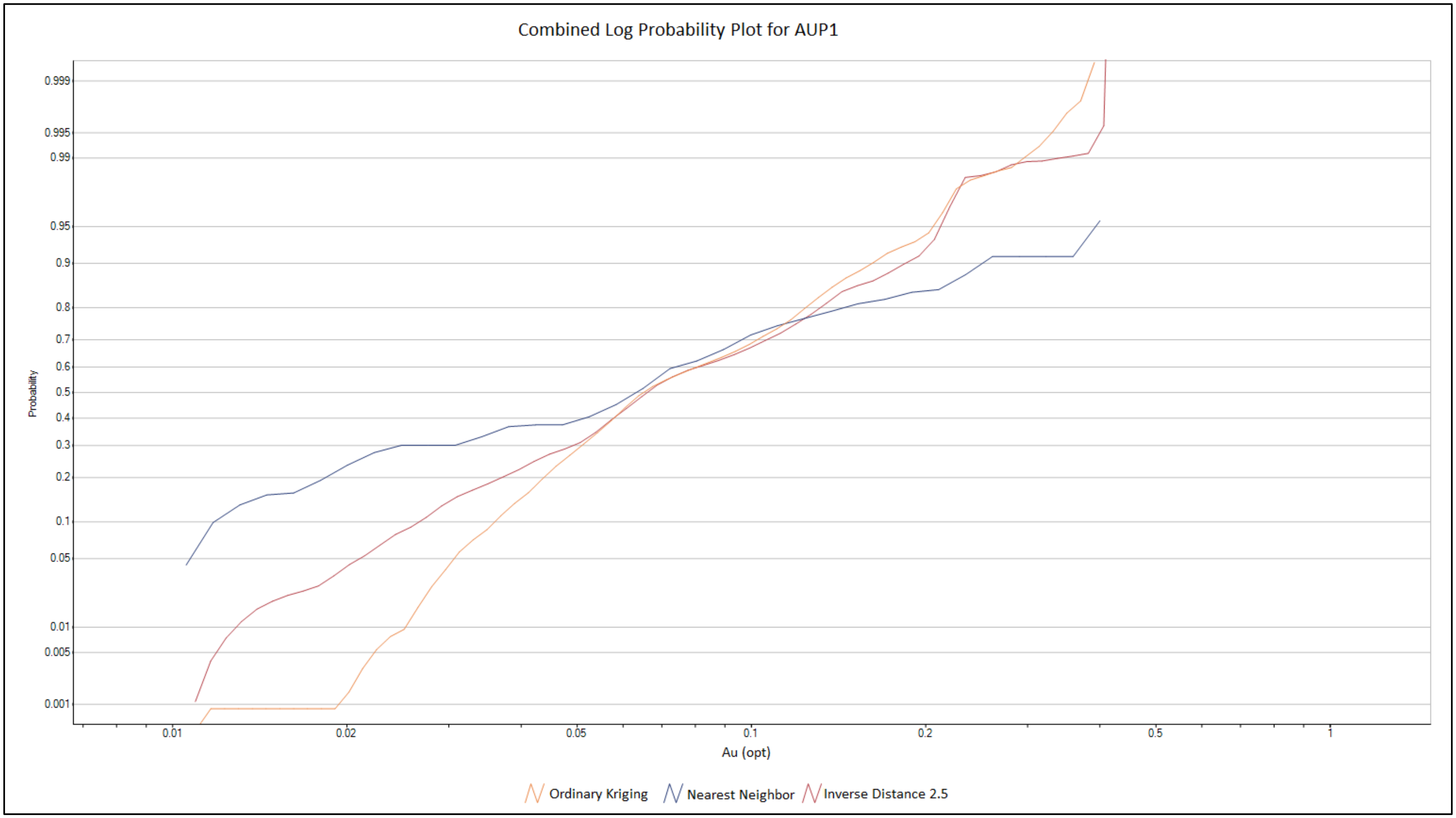
Domain ALW3


Combined Log Probability Plot for ALW3
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

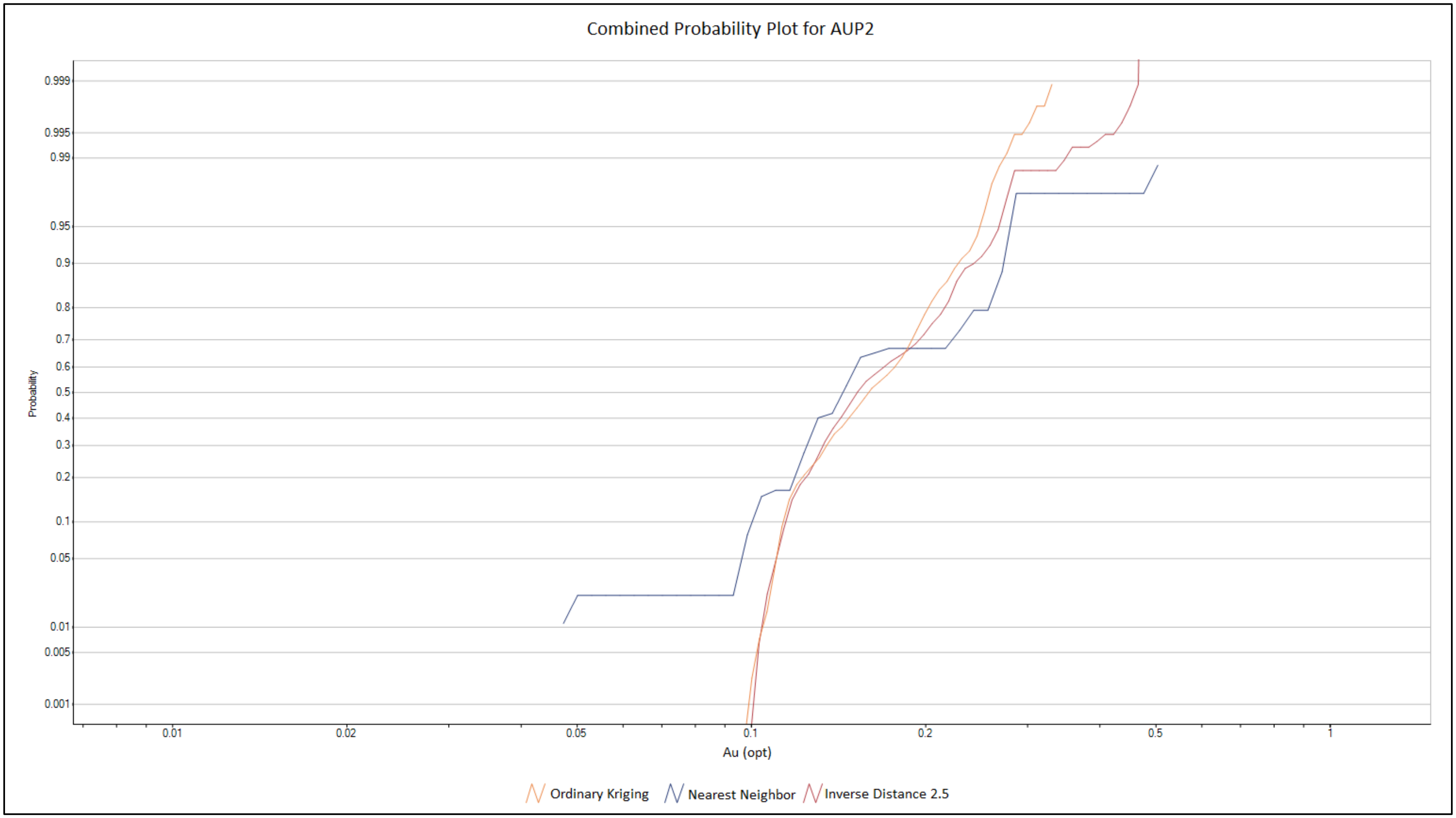
Domain ALW4


Combined Log Probability Plot for ALW4
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

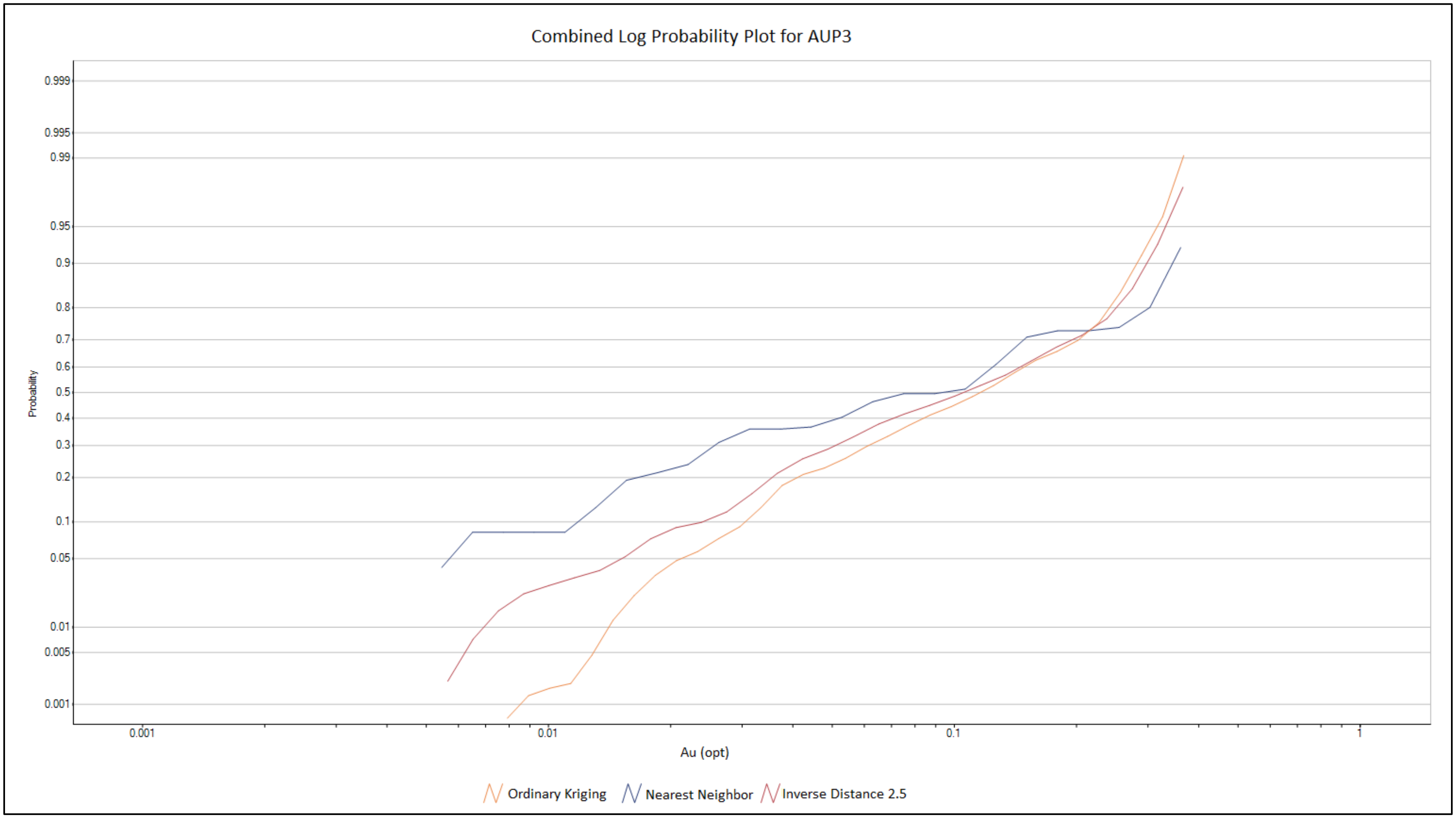
Domain AUP1


Combined Log Probability Plot for AUP1
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.01
0.02
0.05
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

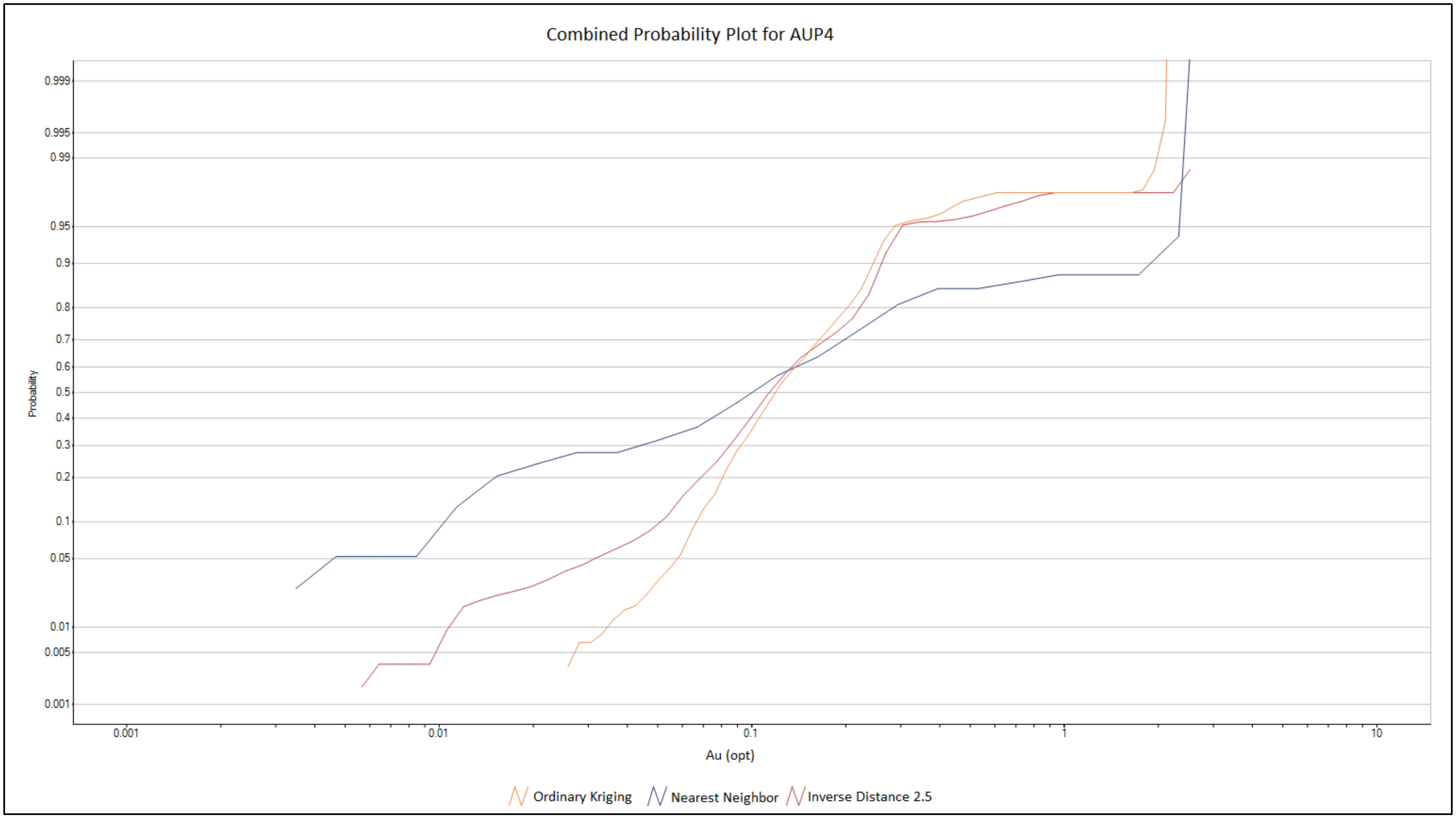
Domain AUP2


Combined Probability Plot for AUP2
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.01
0.02
0.05
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain AUP3

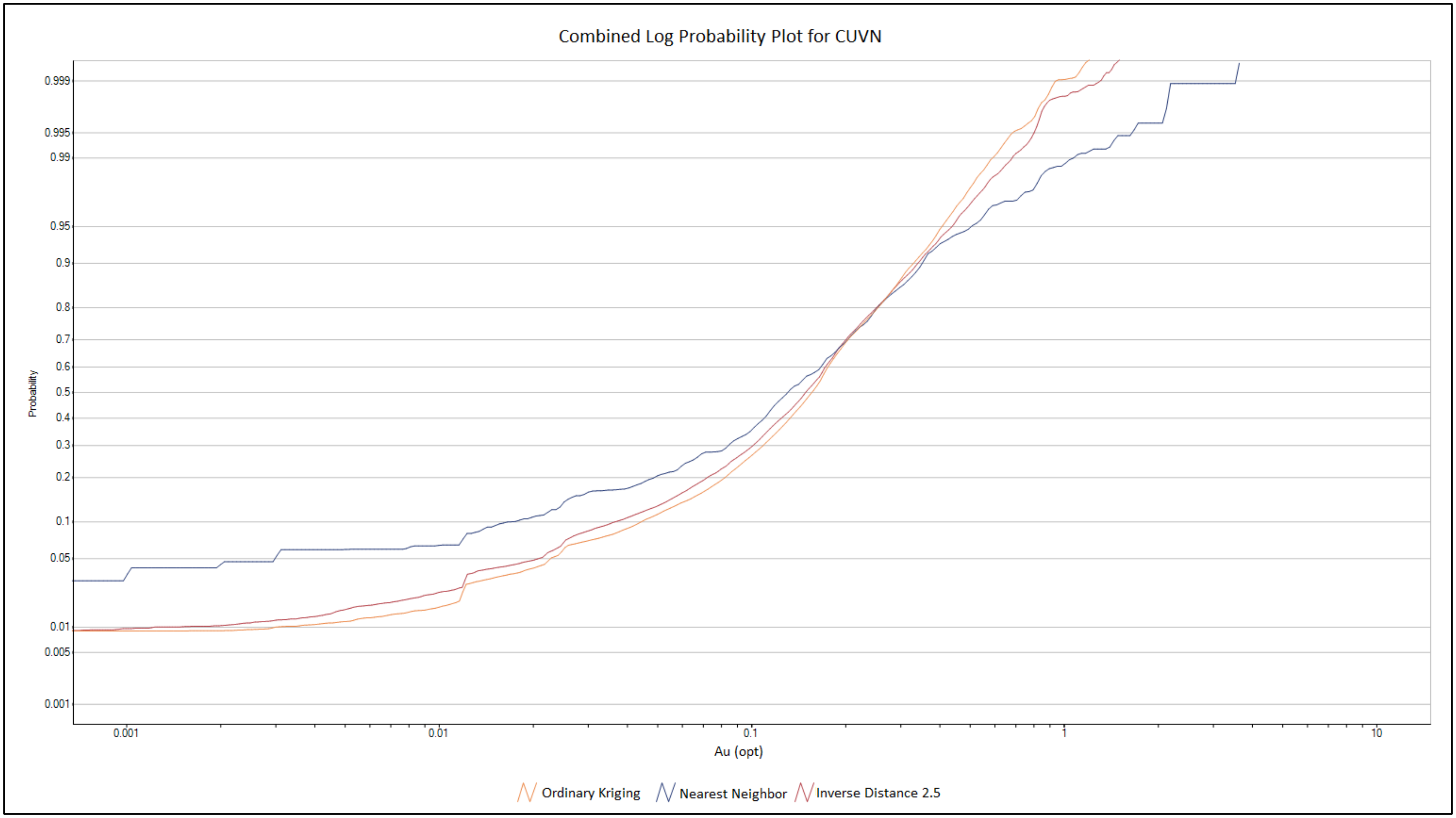

Combined Log Probability Plot for AUP3
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain AUP4


Combined Probability Plot for AUP4
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
10
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

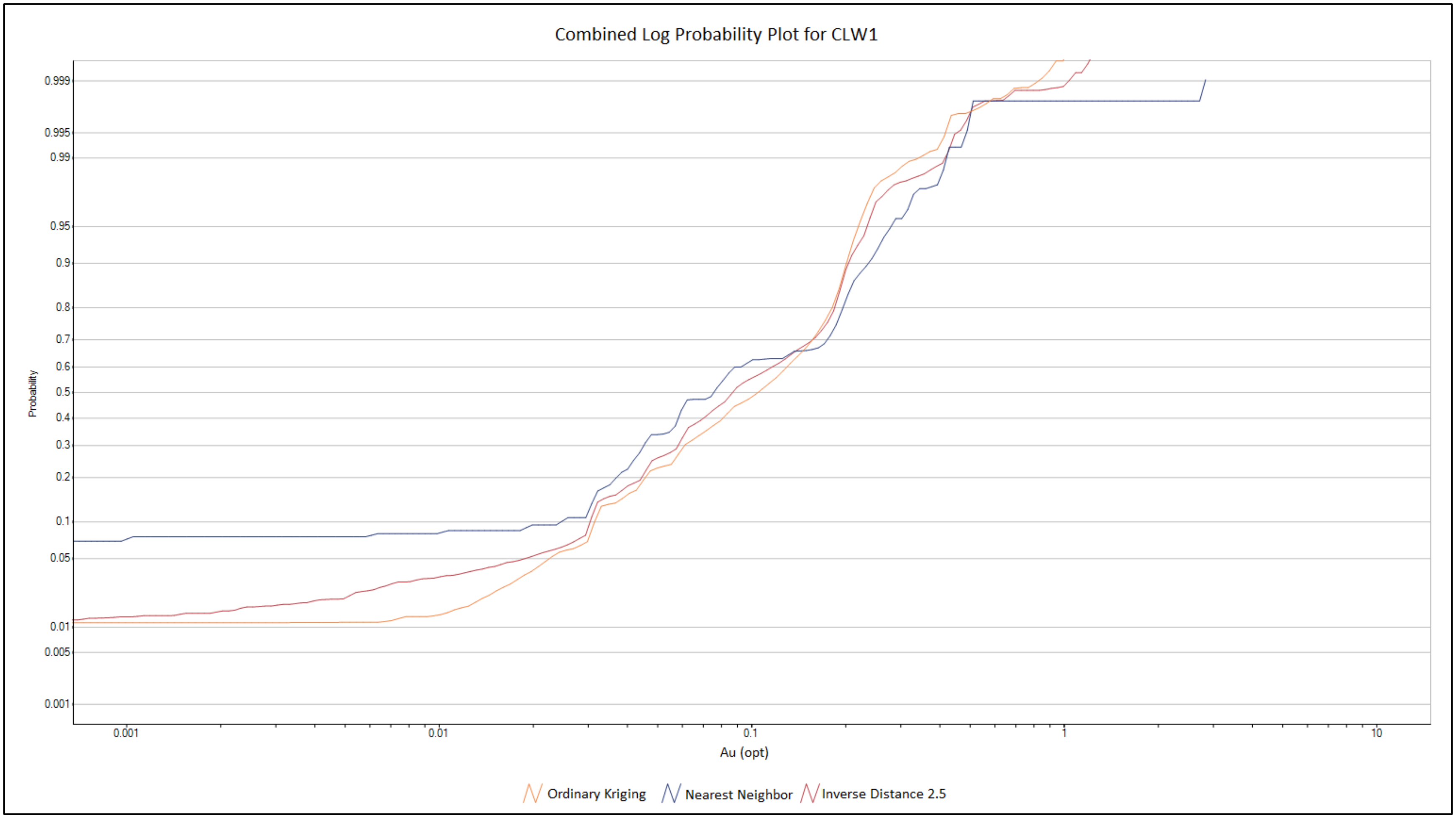
C Zone

Domain CUVN

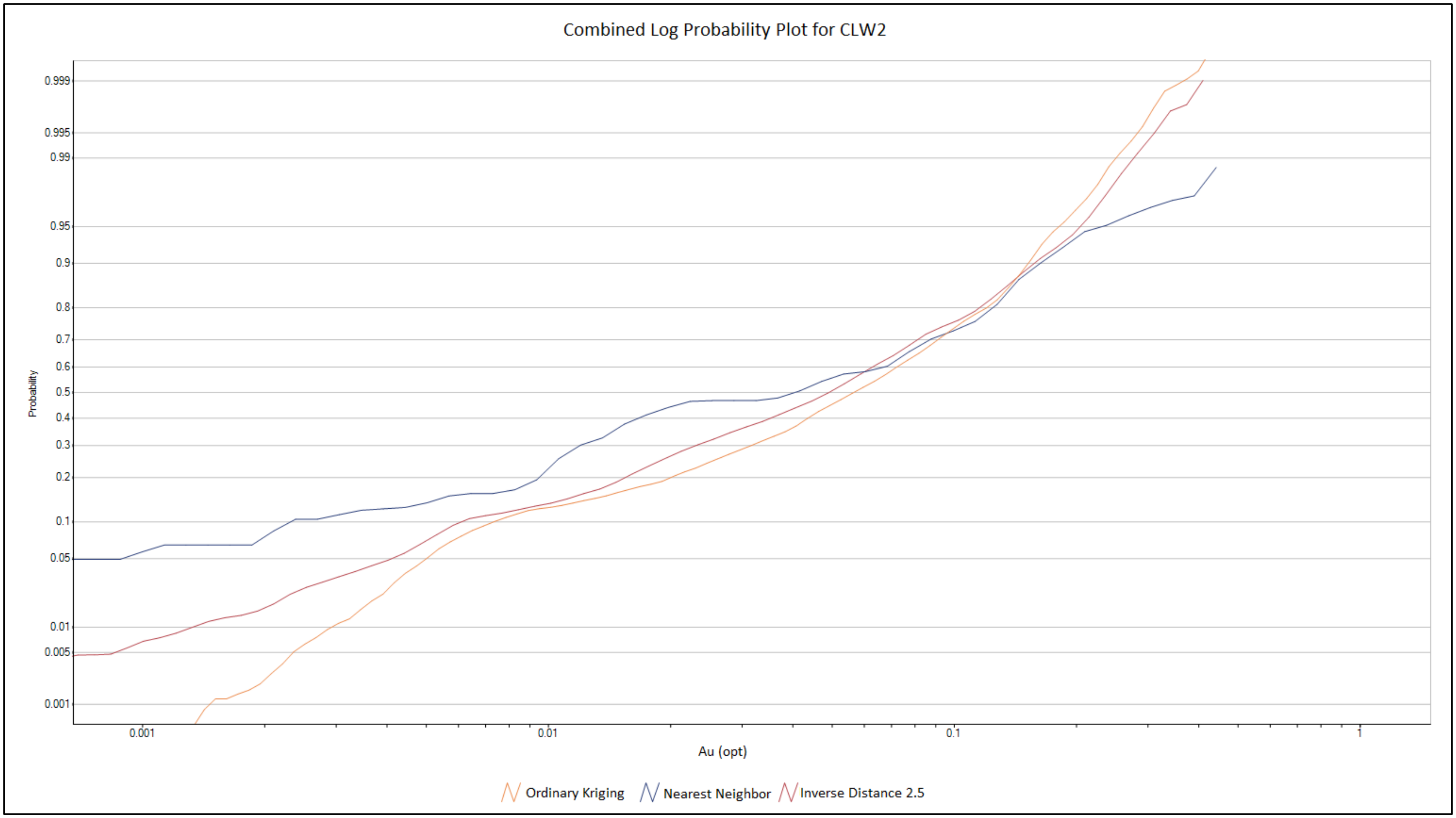


Hard Rock Consulting, LLC

Domain CLW1

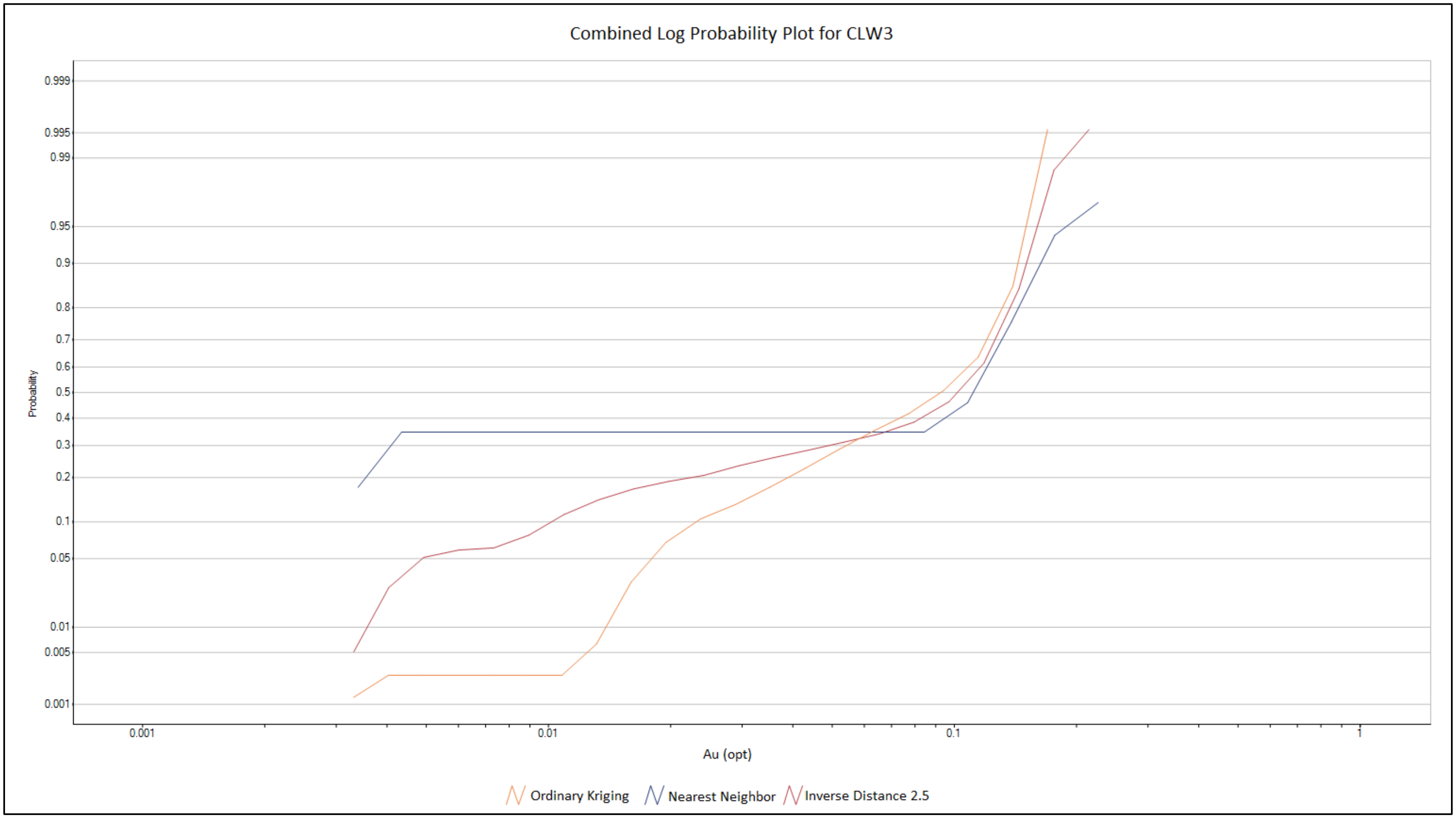

Combined Log Probability Plot for CLW1
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
10
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CLW2

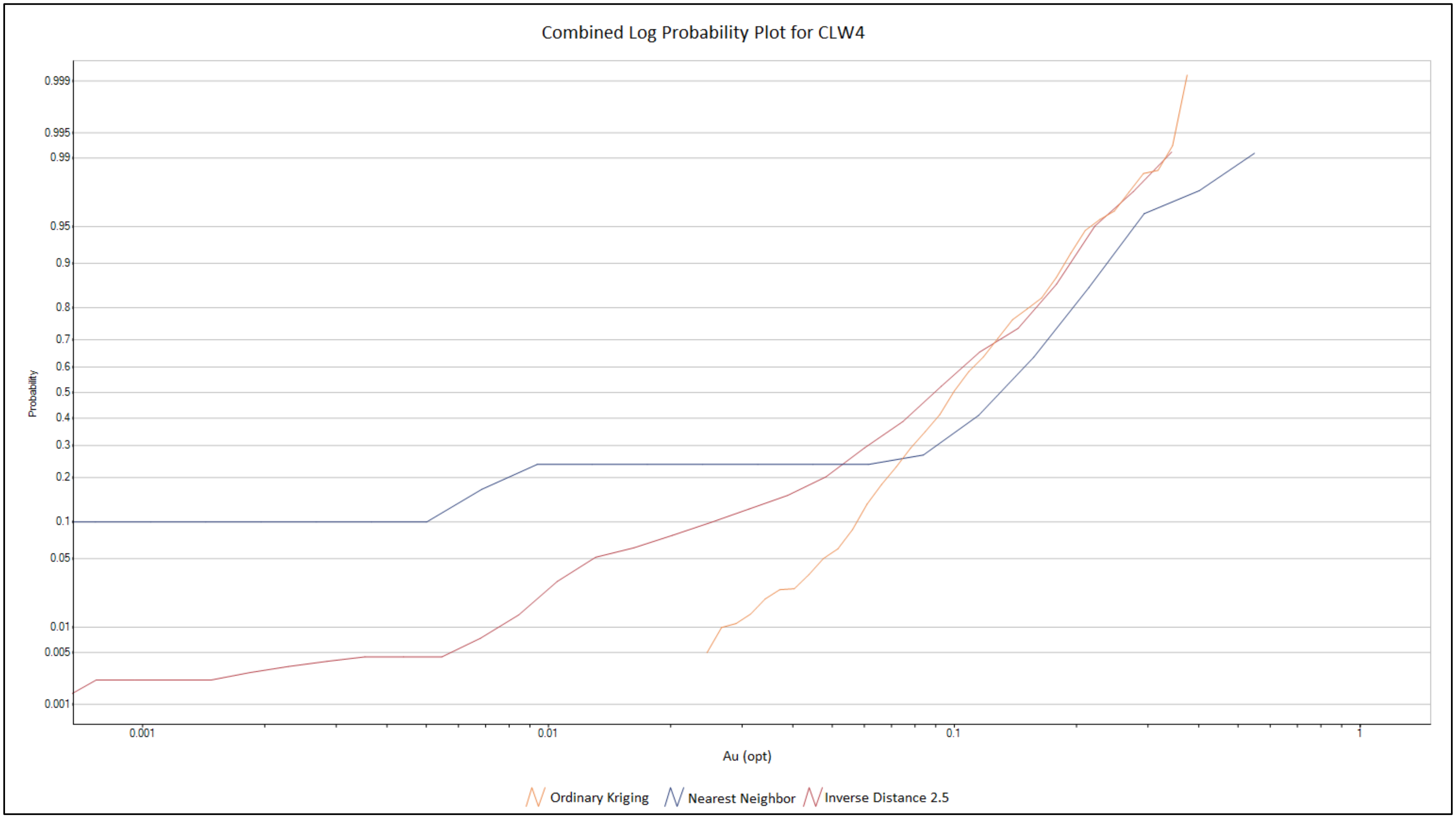


Hard Rock Consulting, LLC

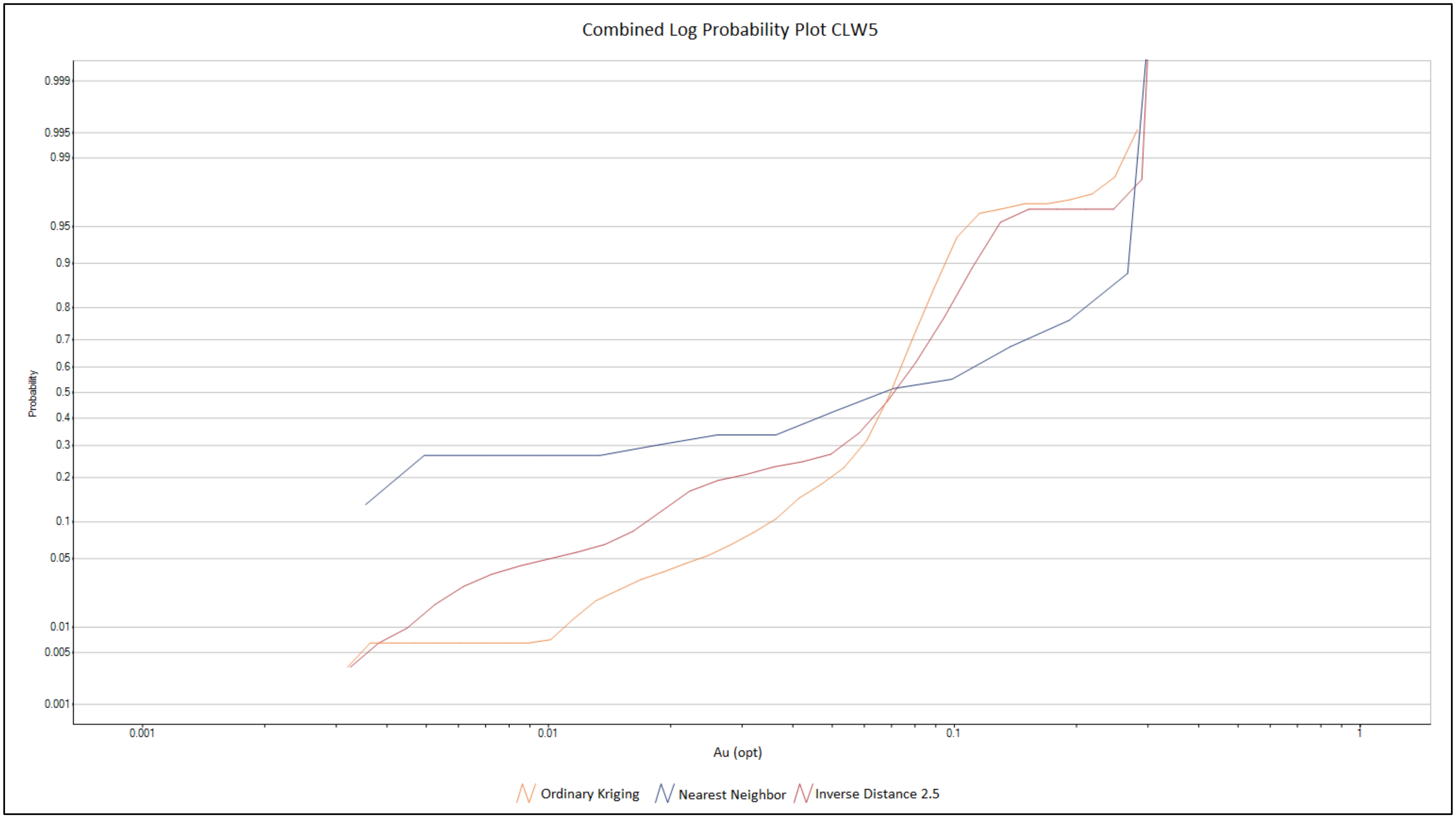
Domain CLW3


Combined Log Probability Plot for CLW3
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

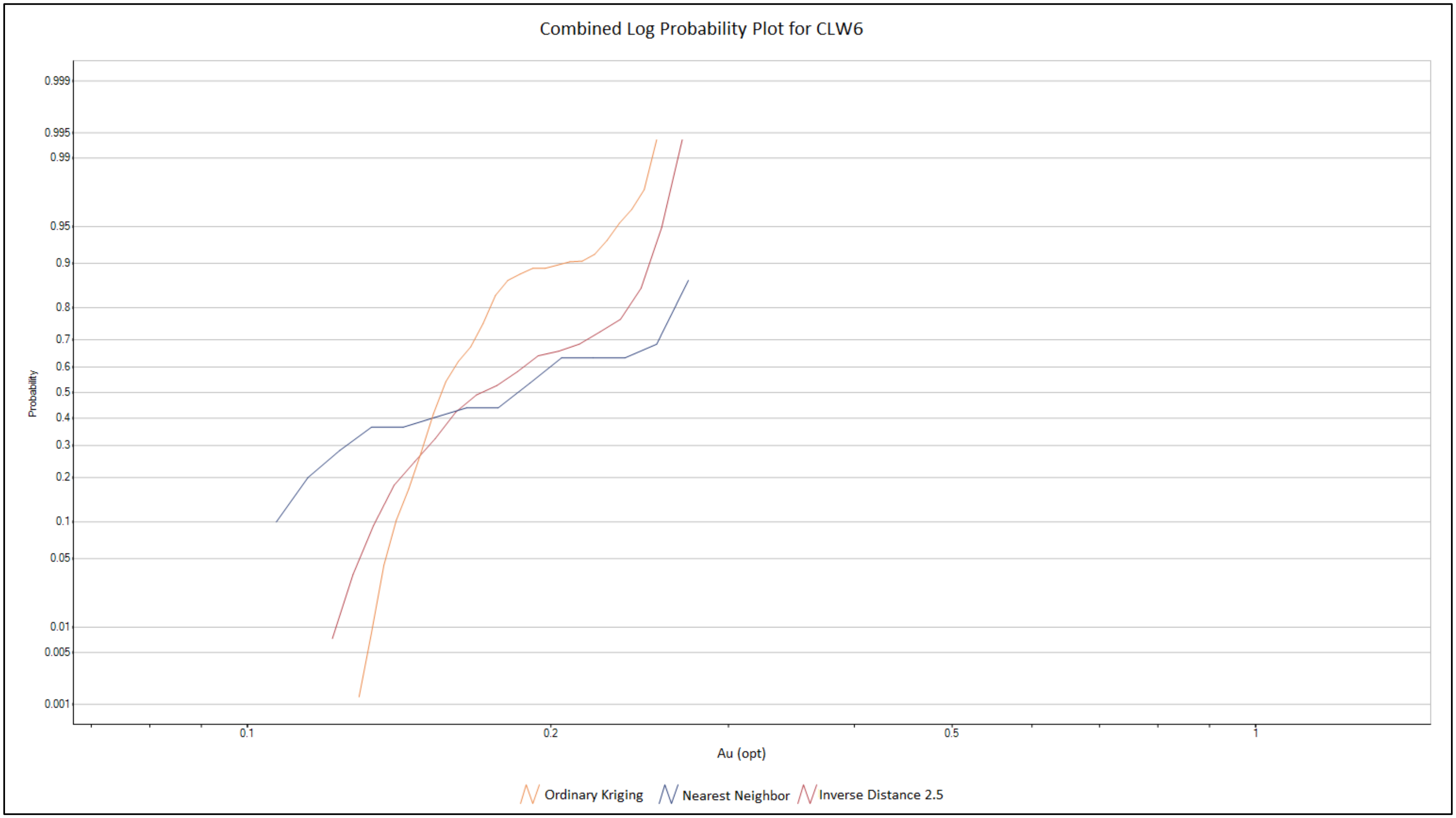
Domain CLW4


Combined Log Probability Plot for CLW4
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CLW5

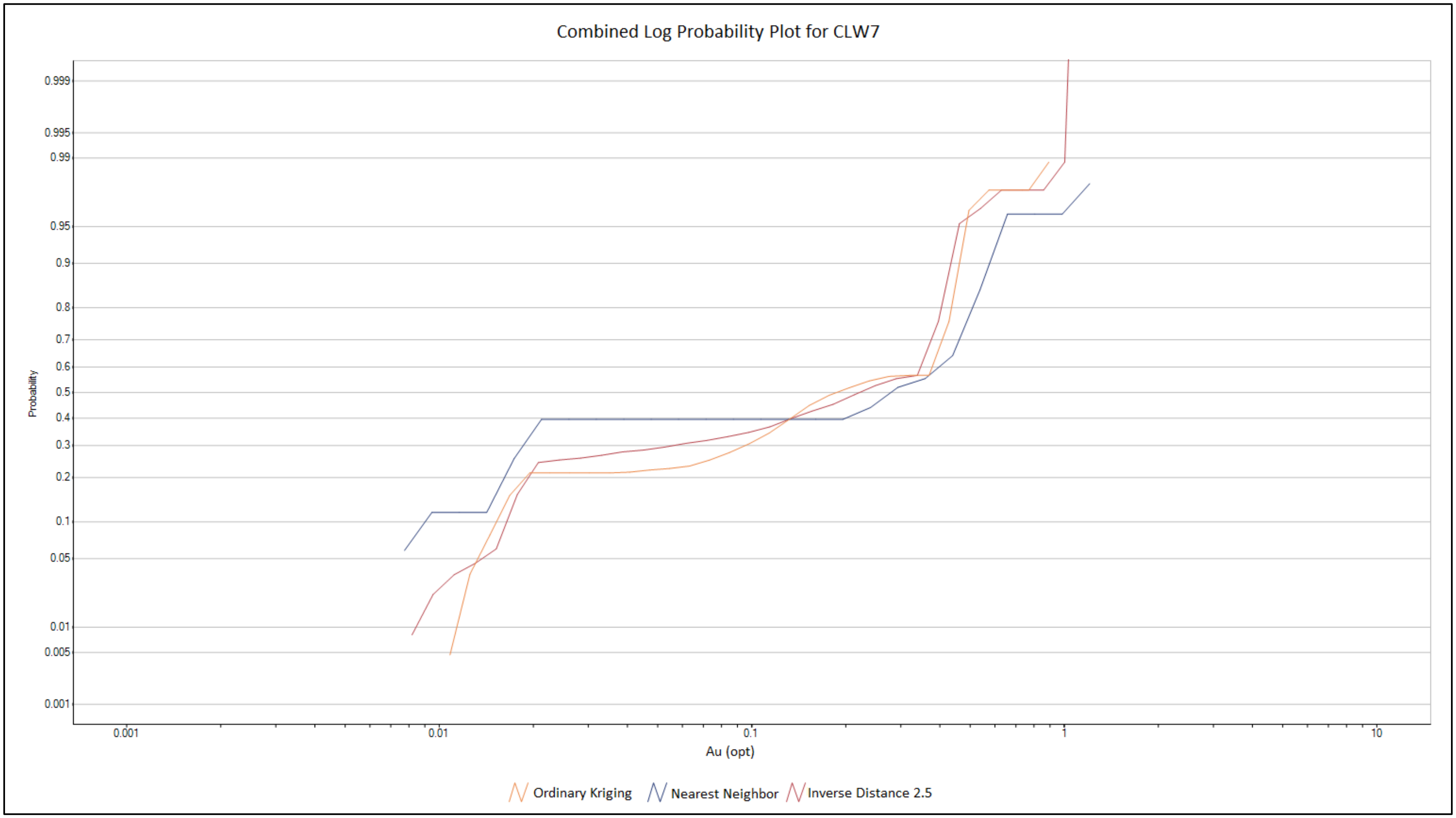

Combined Log Probability Plot CLW5
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CLW6



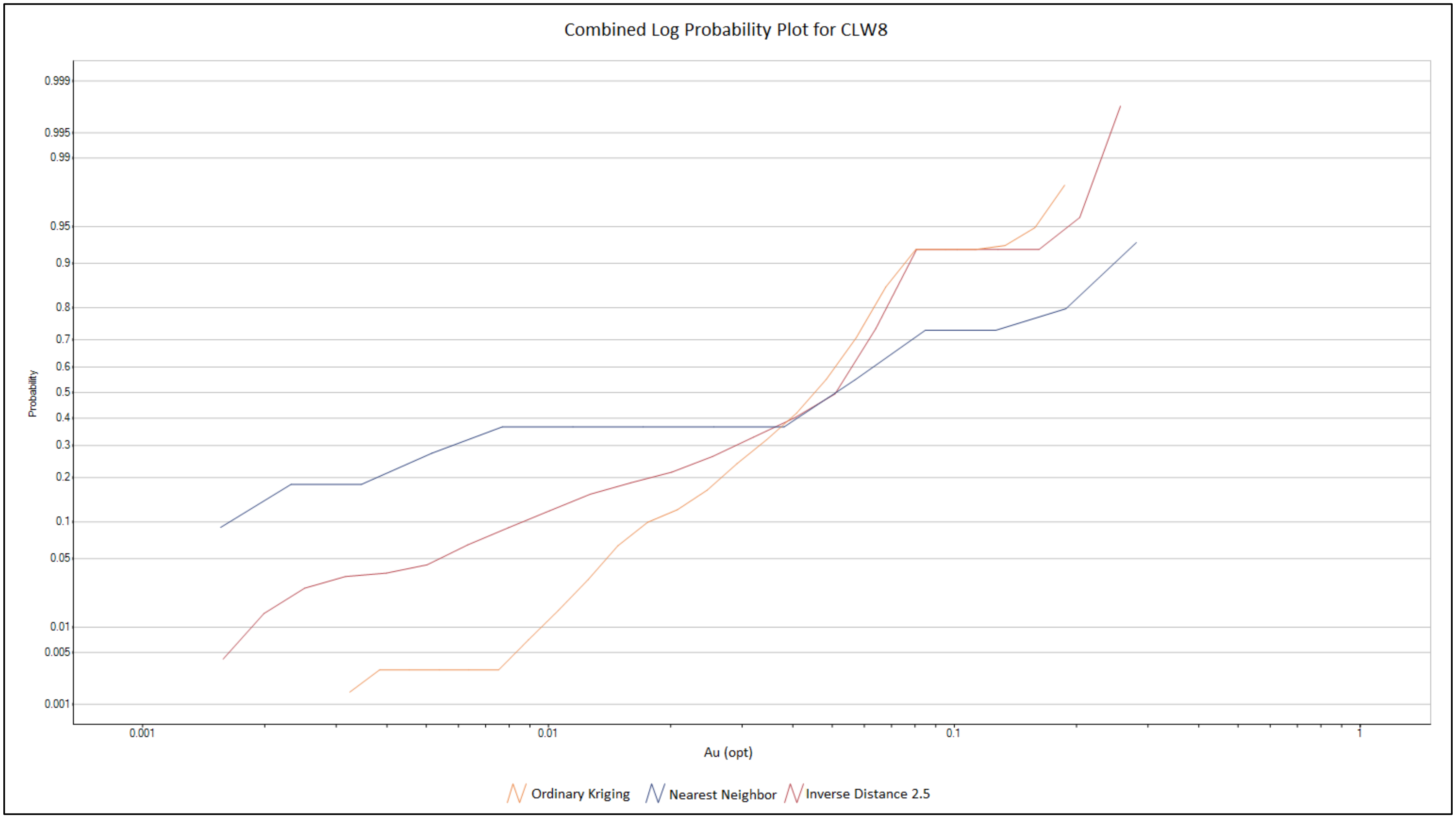
Hard Rock Consulting, LLC

Domain CLW7



Hard Rock Consulting, LLC

Domain CLW8


Combined Log Probability Plot for CLW8
Probability
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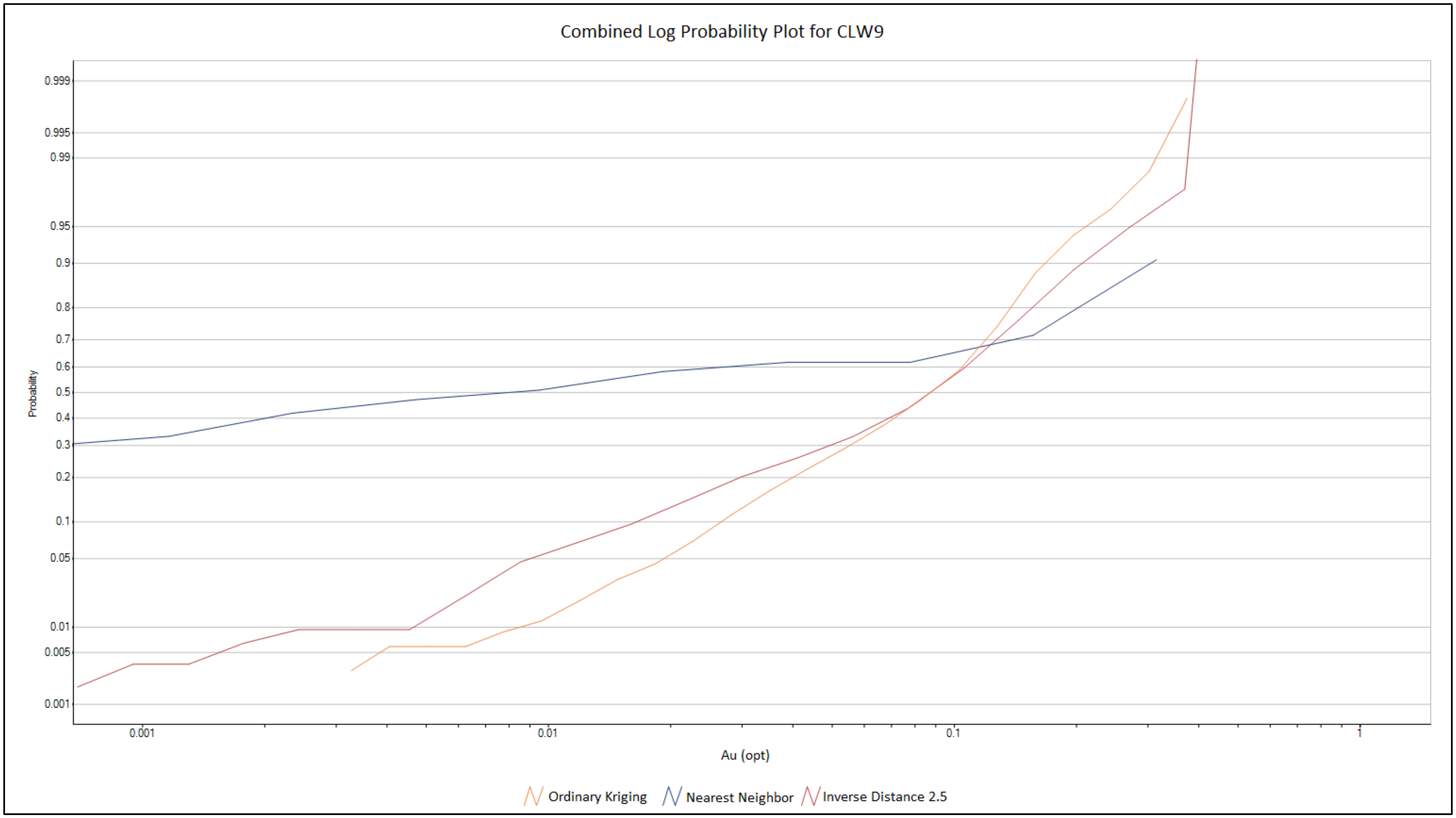
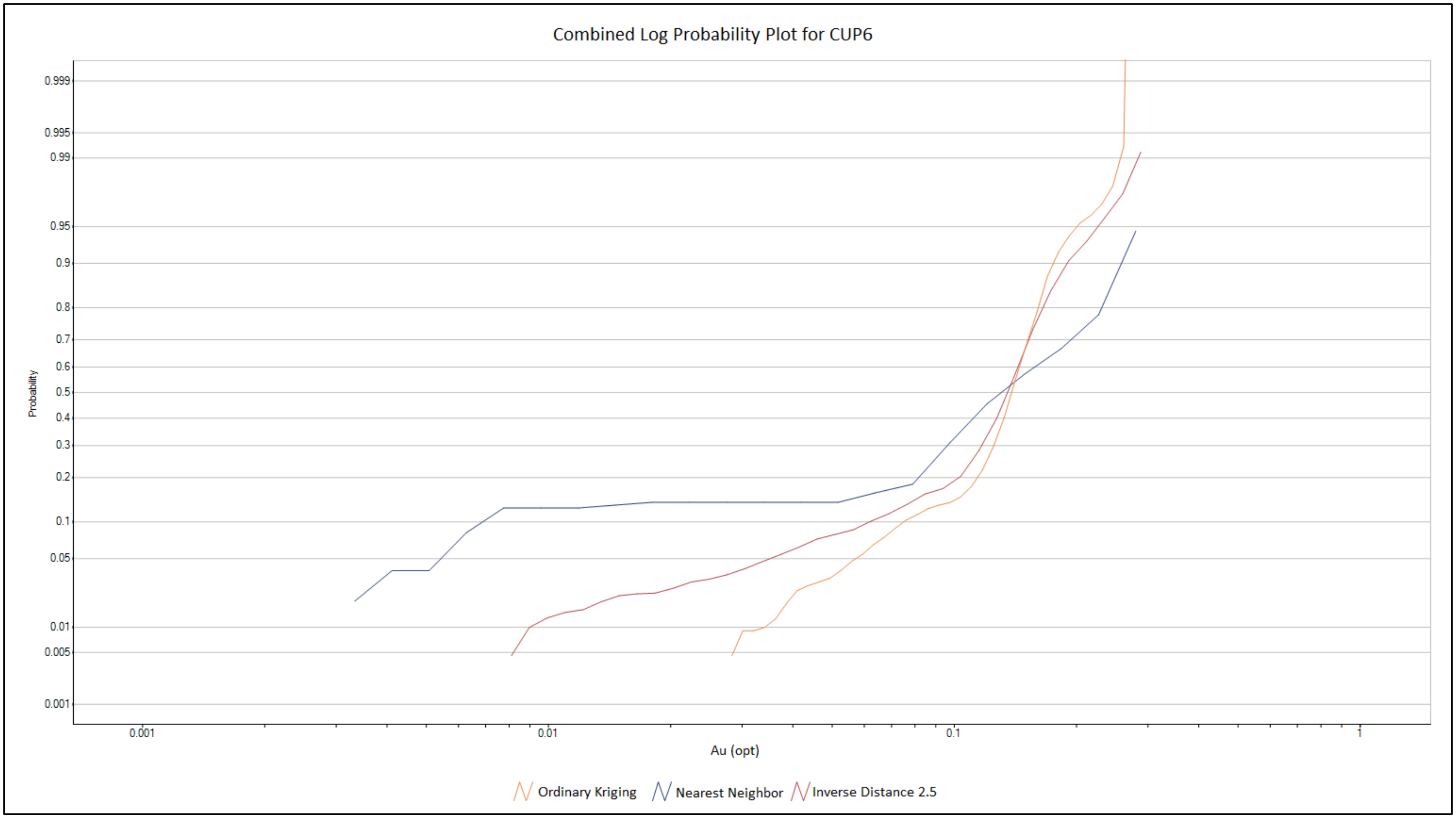
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CLW9

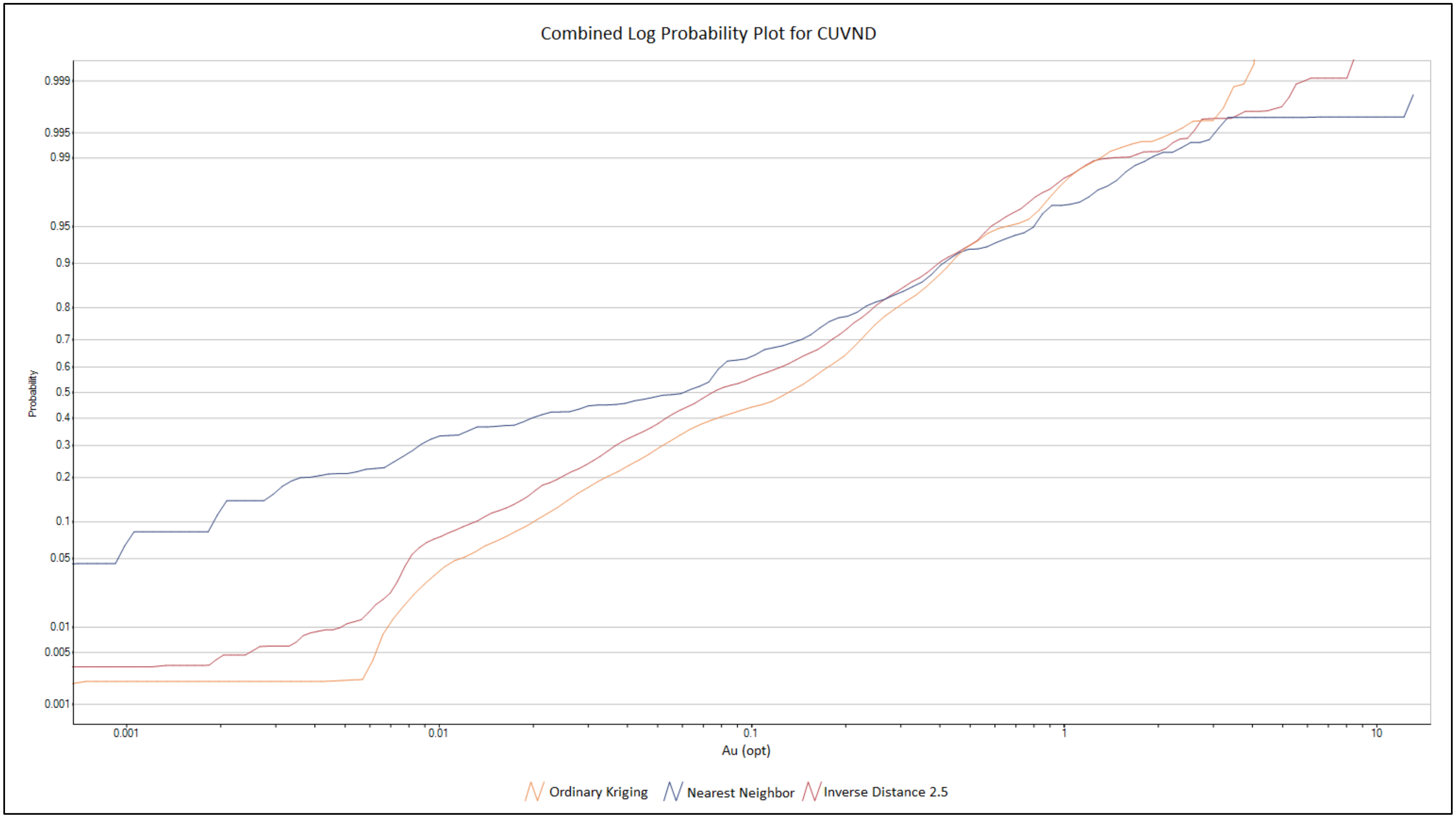

Combined Log Probability Plot for CLW9
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CUP6

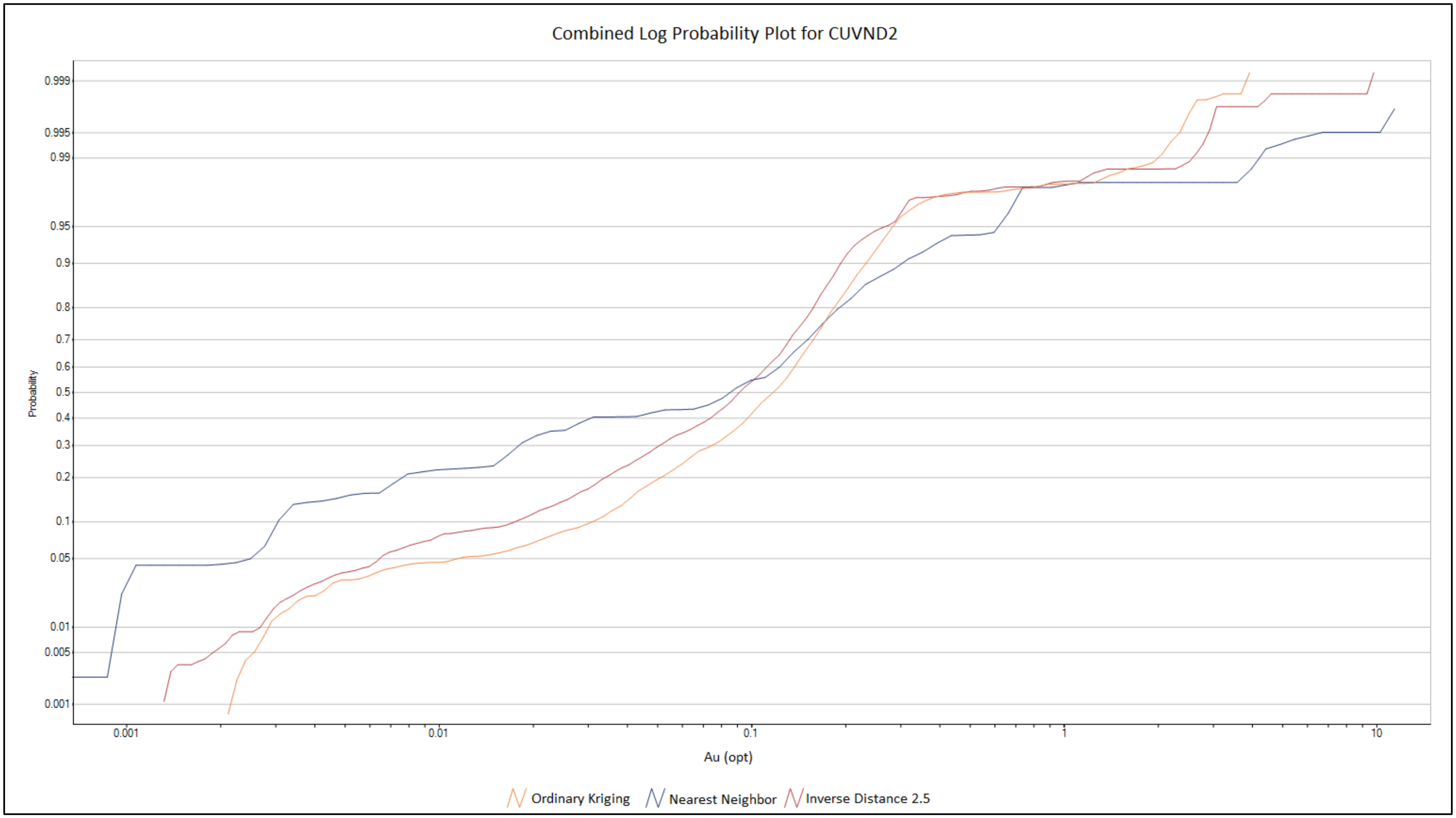

Combined Log Probability Plot for CUP6
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

D Zone

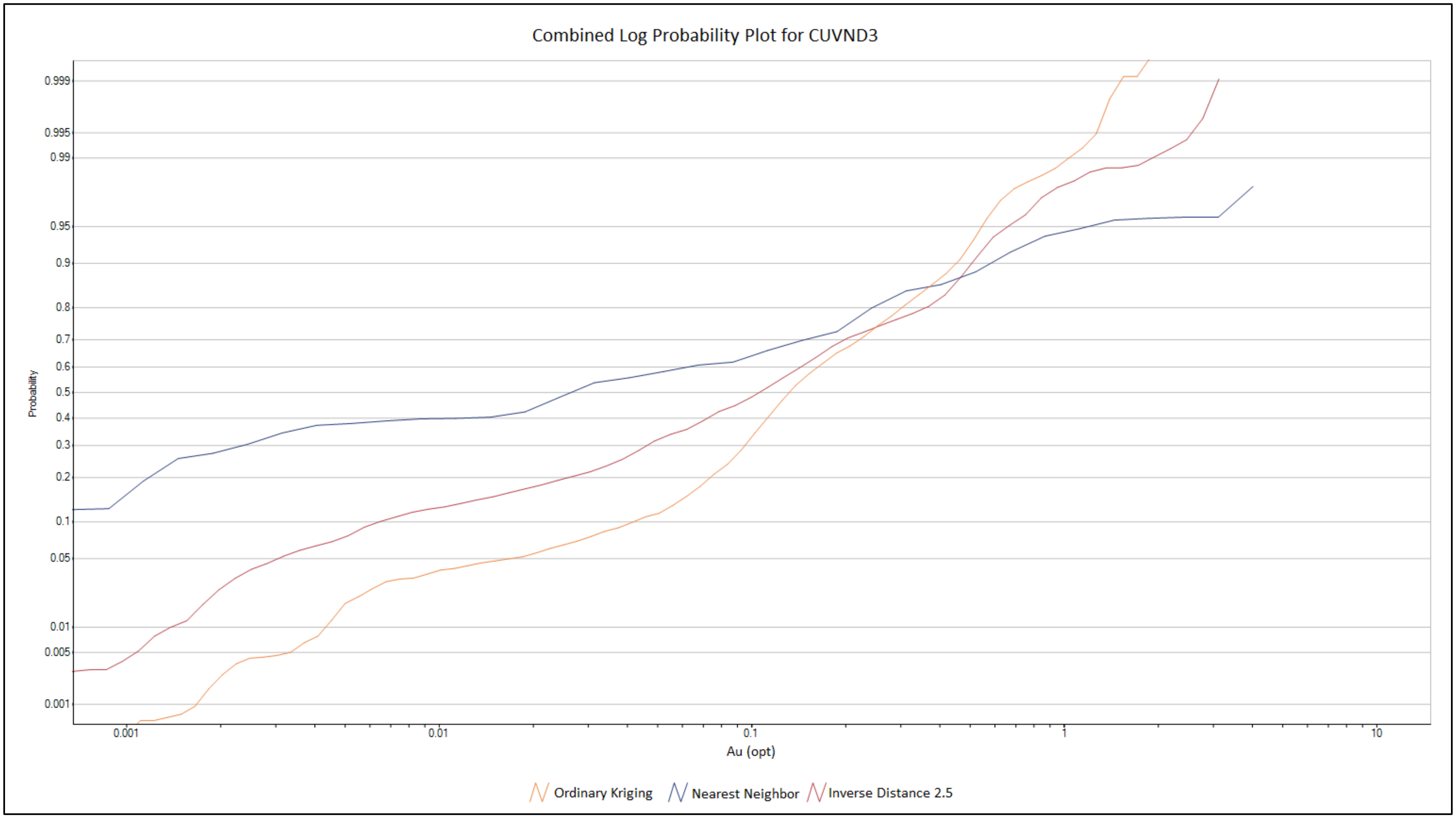
Domain CUVND



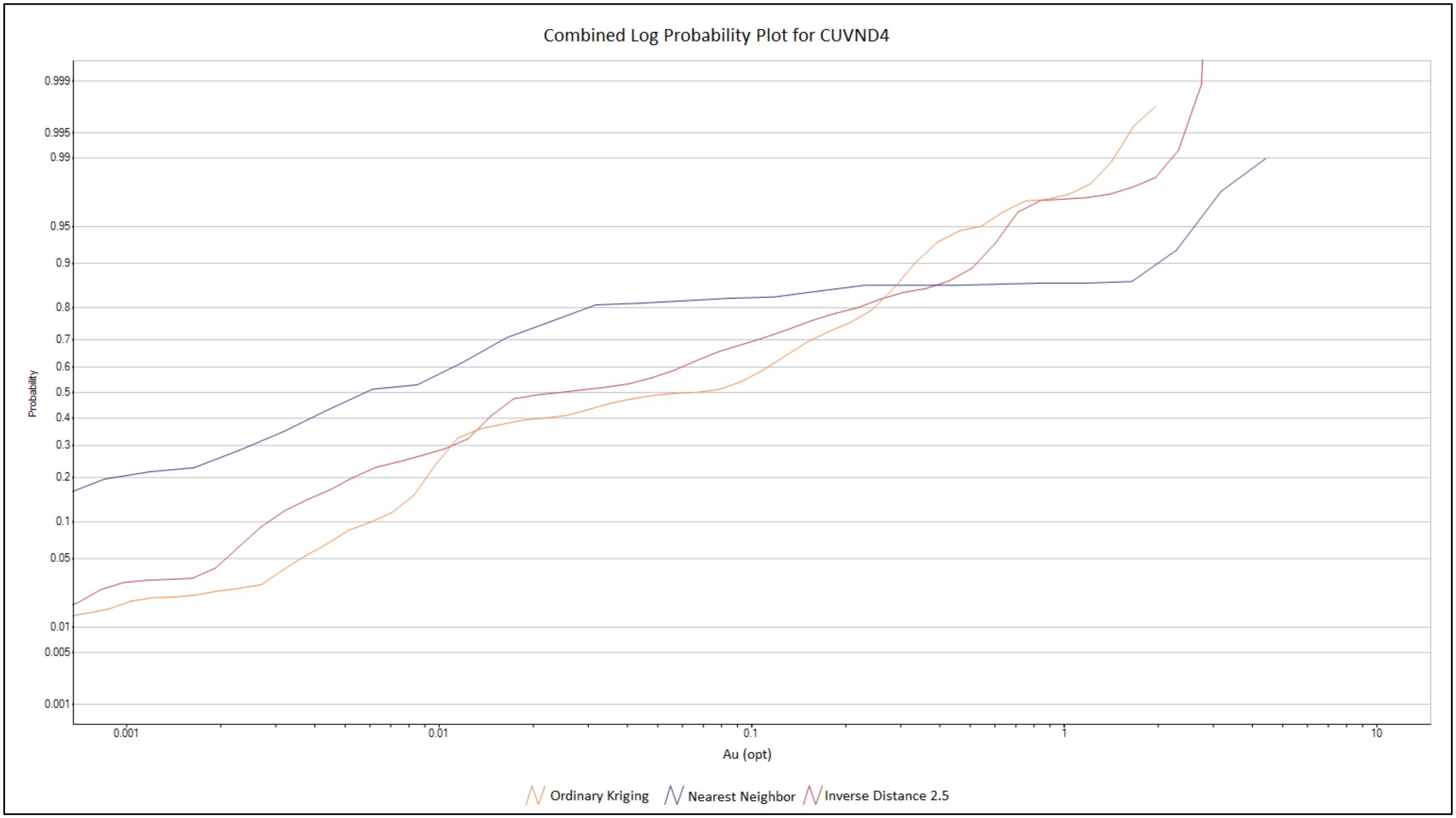
Domain CUVND2



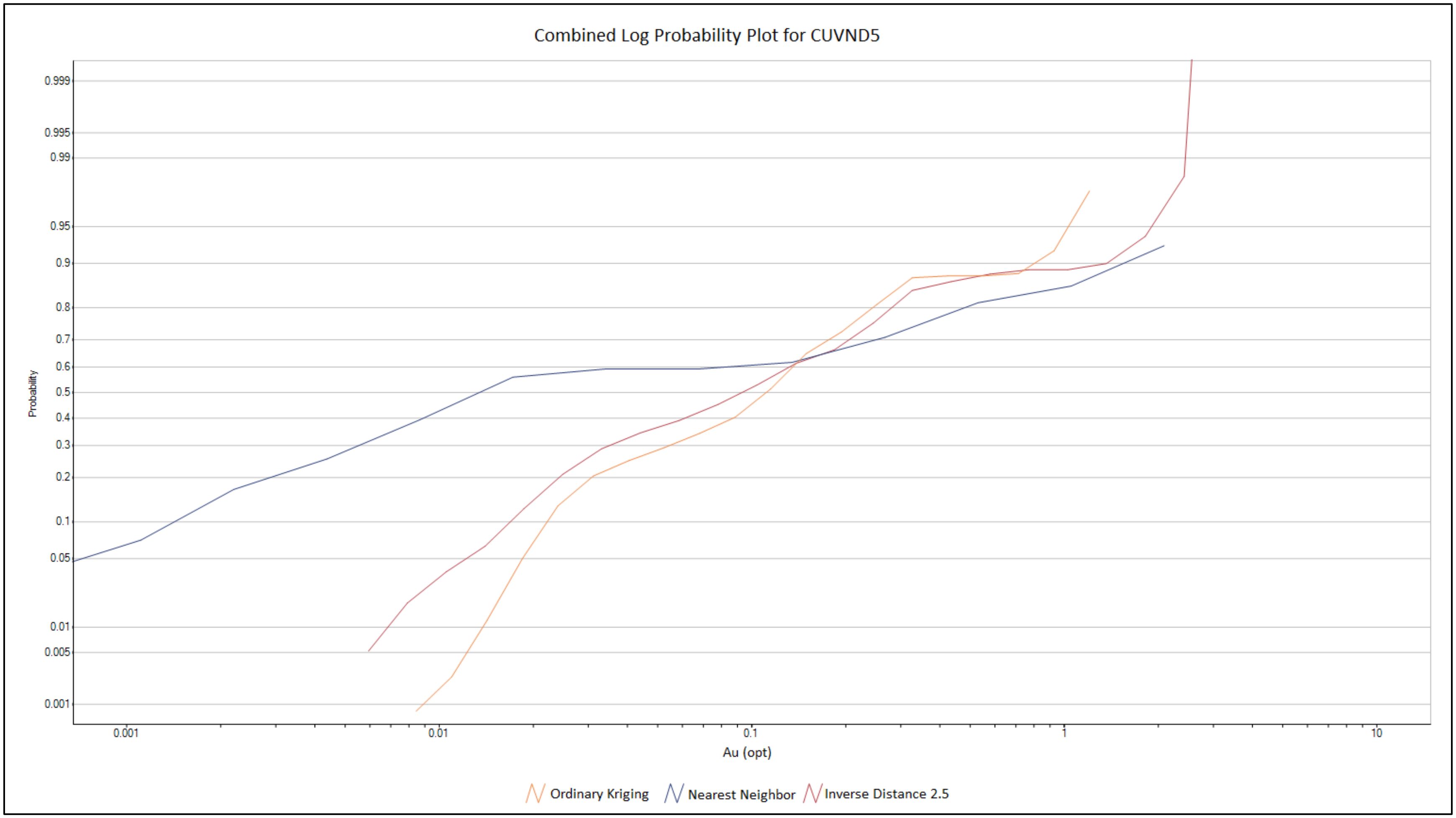
Domain CUVND3



Domain CUVND4

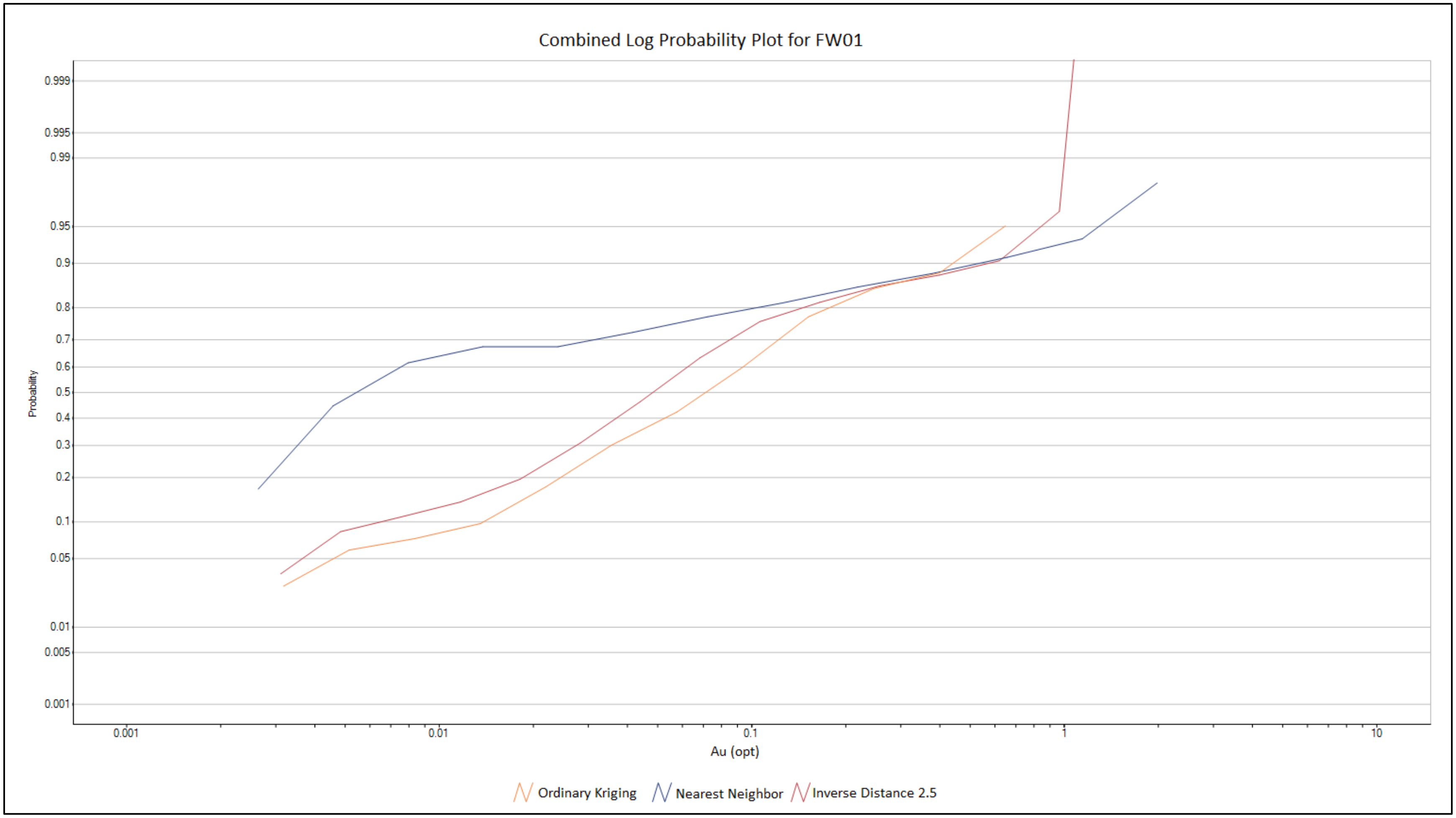


Domain CUVND5

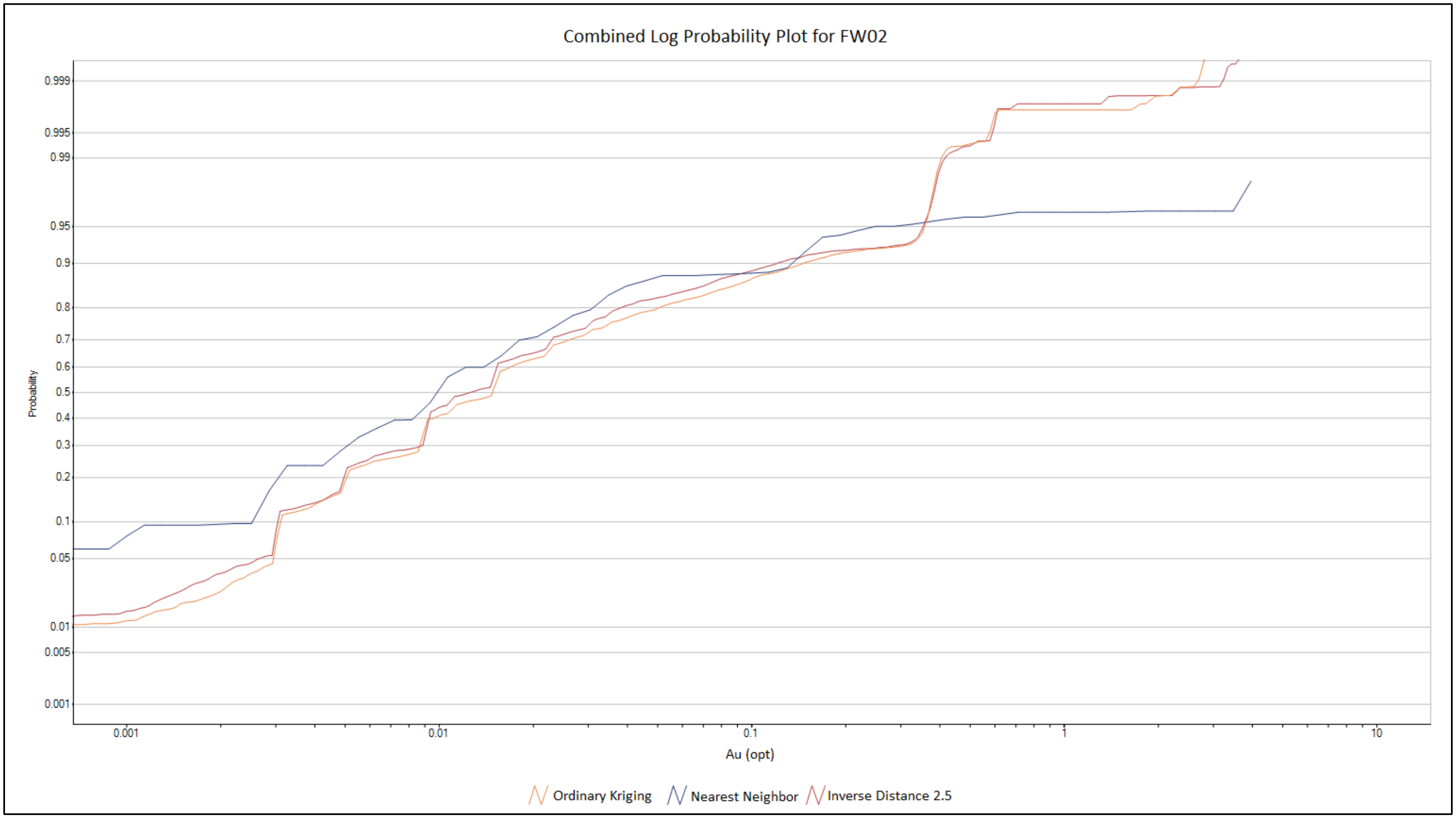


Footwall Zone

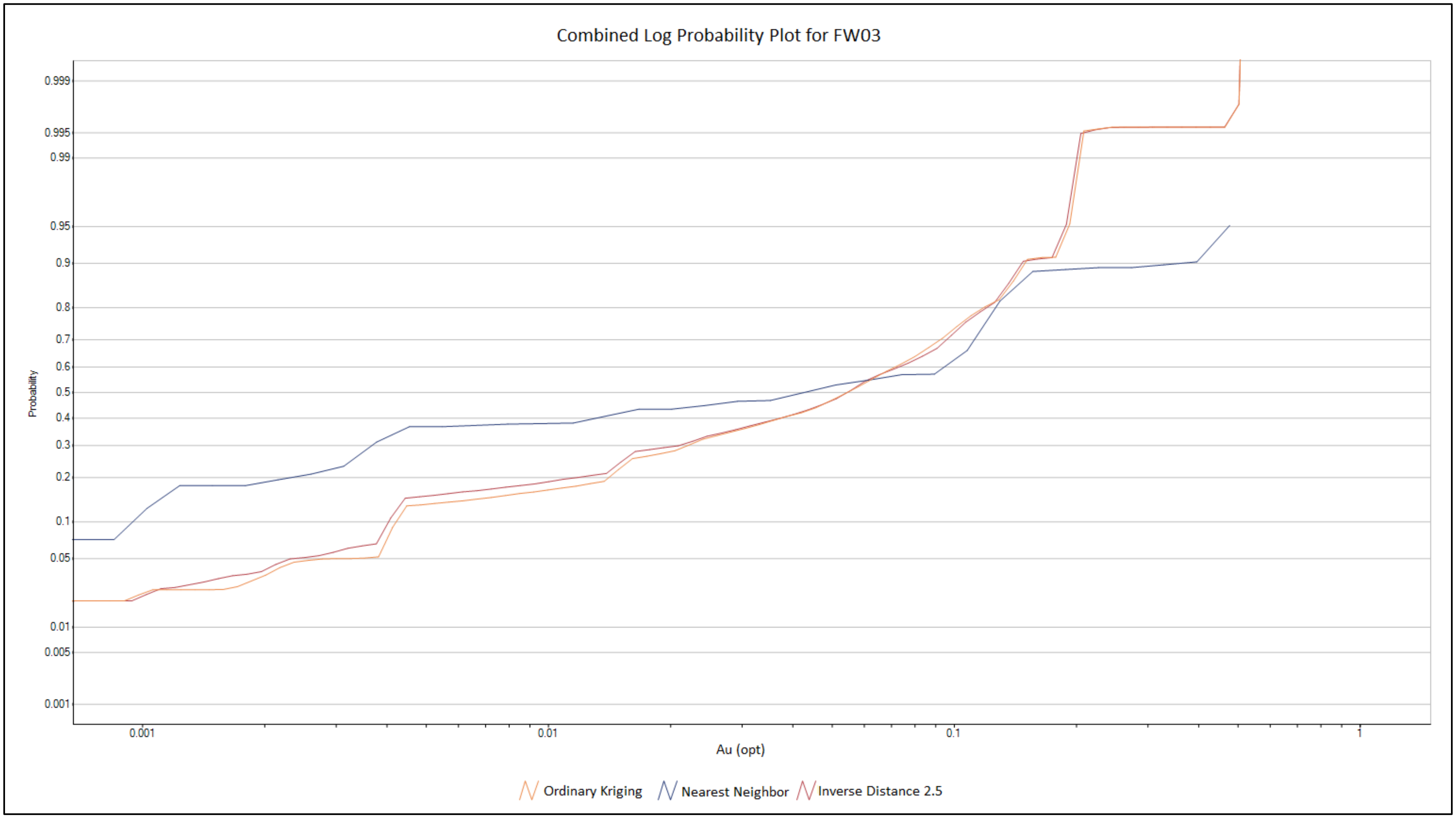
Domain FW01



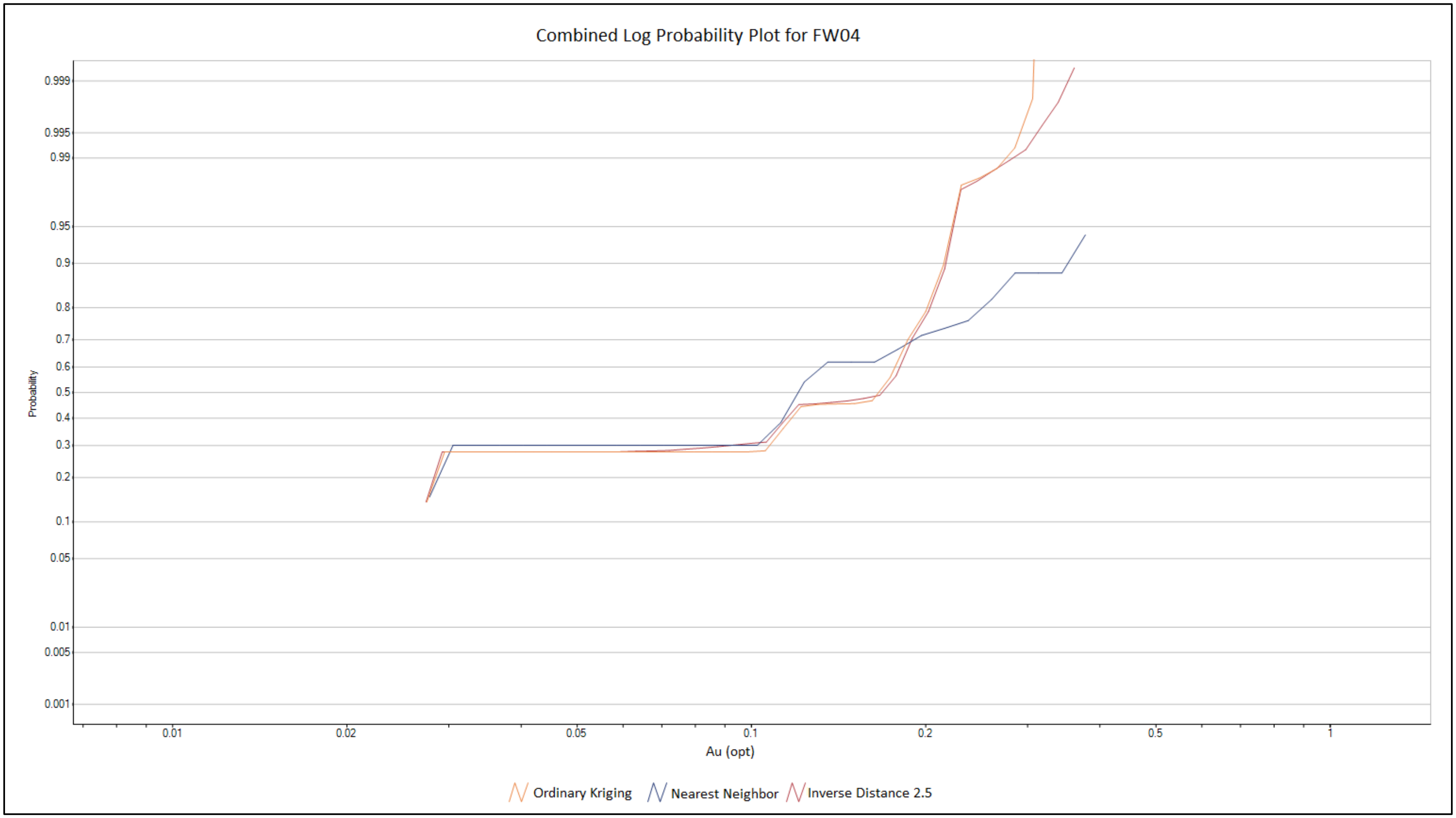
Domain FW02


Combined Log Probability Plot for FW02
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
10
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

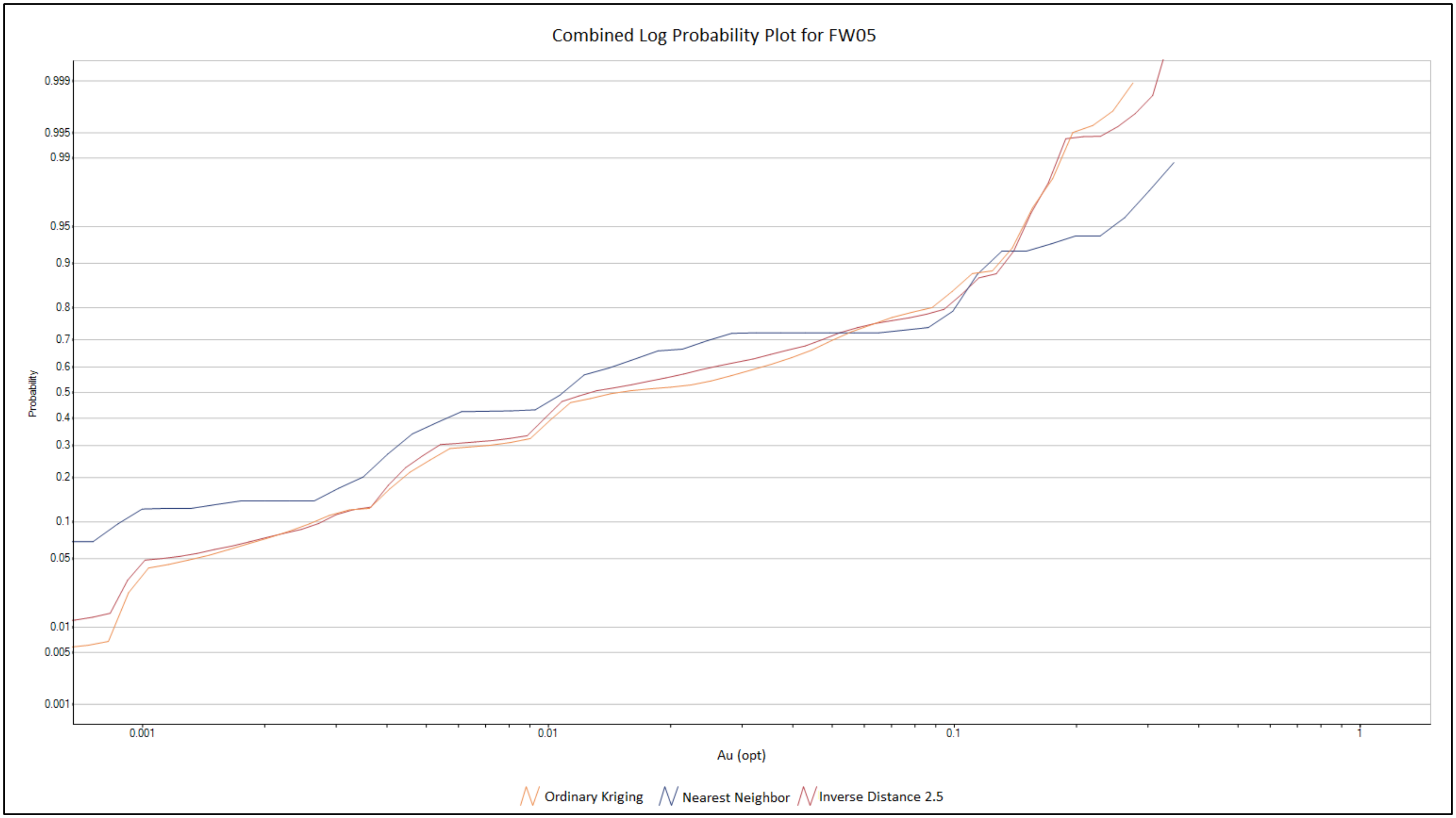
Domain FW03


Combined Log Probability Plot for FW03
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

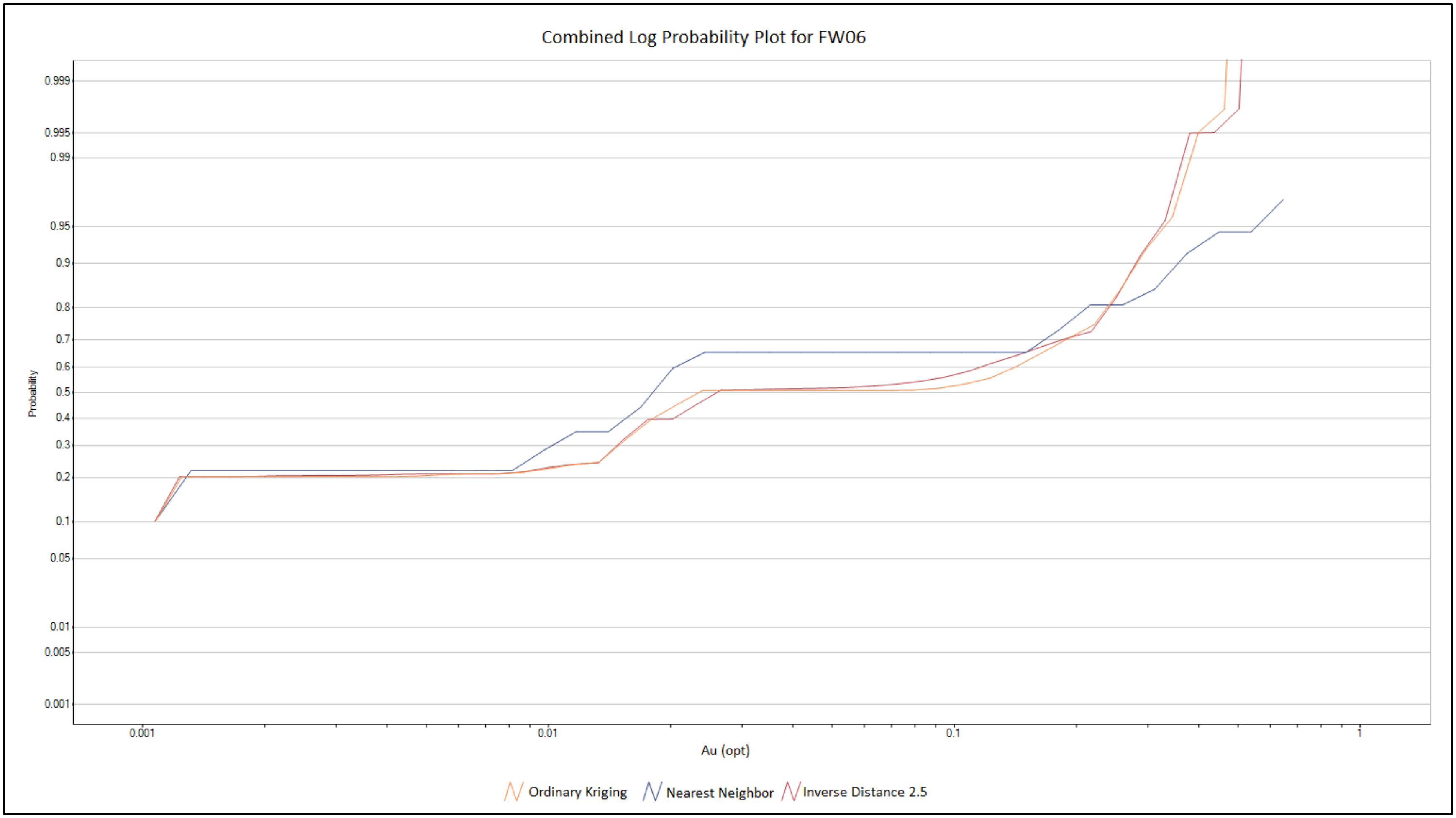
Domain FW04


Combined Log Probability Plot for FW04
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.01
0.02
0.05
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain FW05

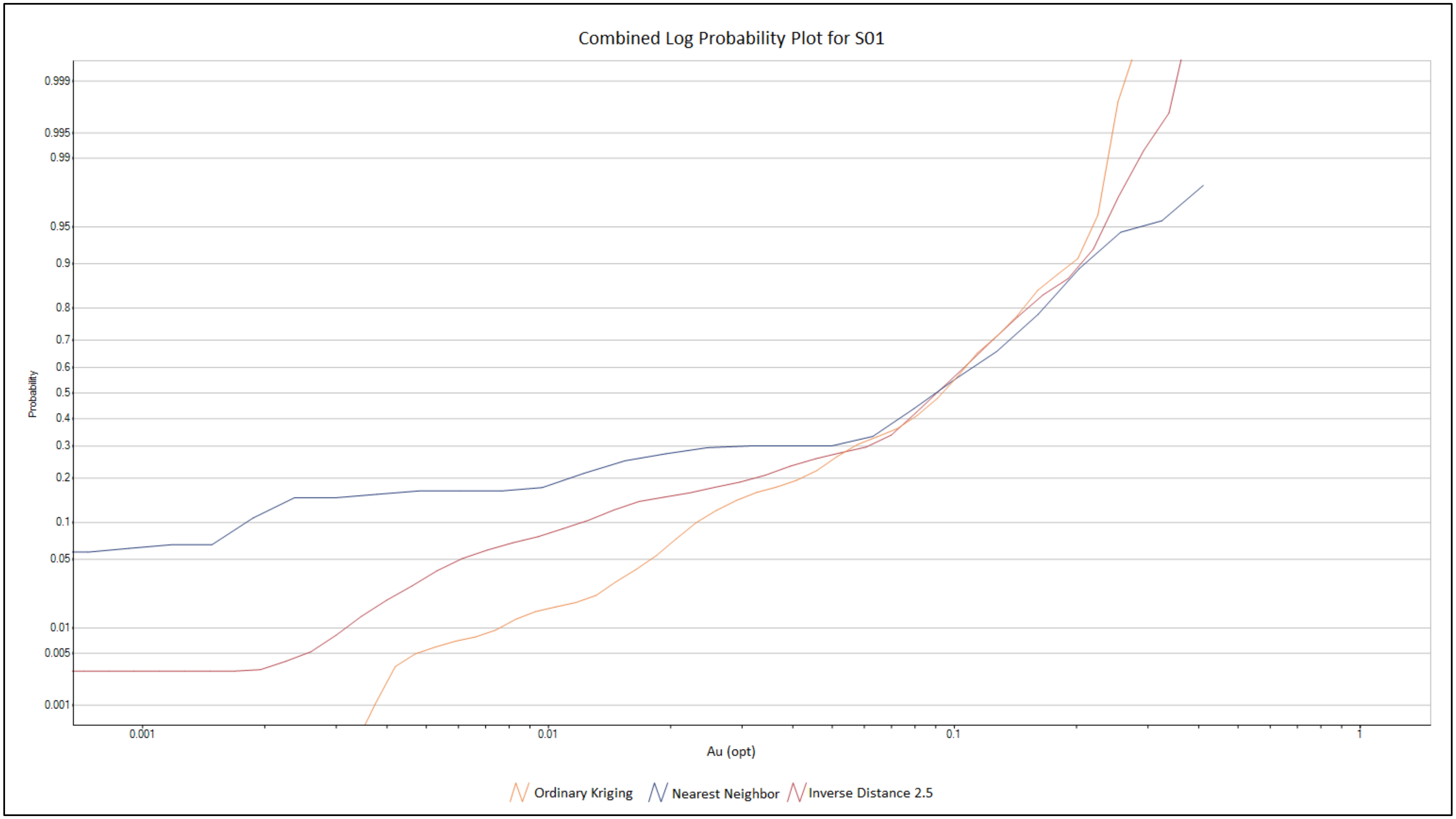

Combined Log Probability Plot for FW05
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain FW06

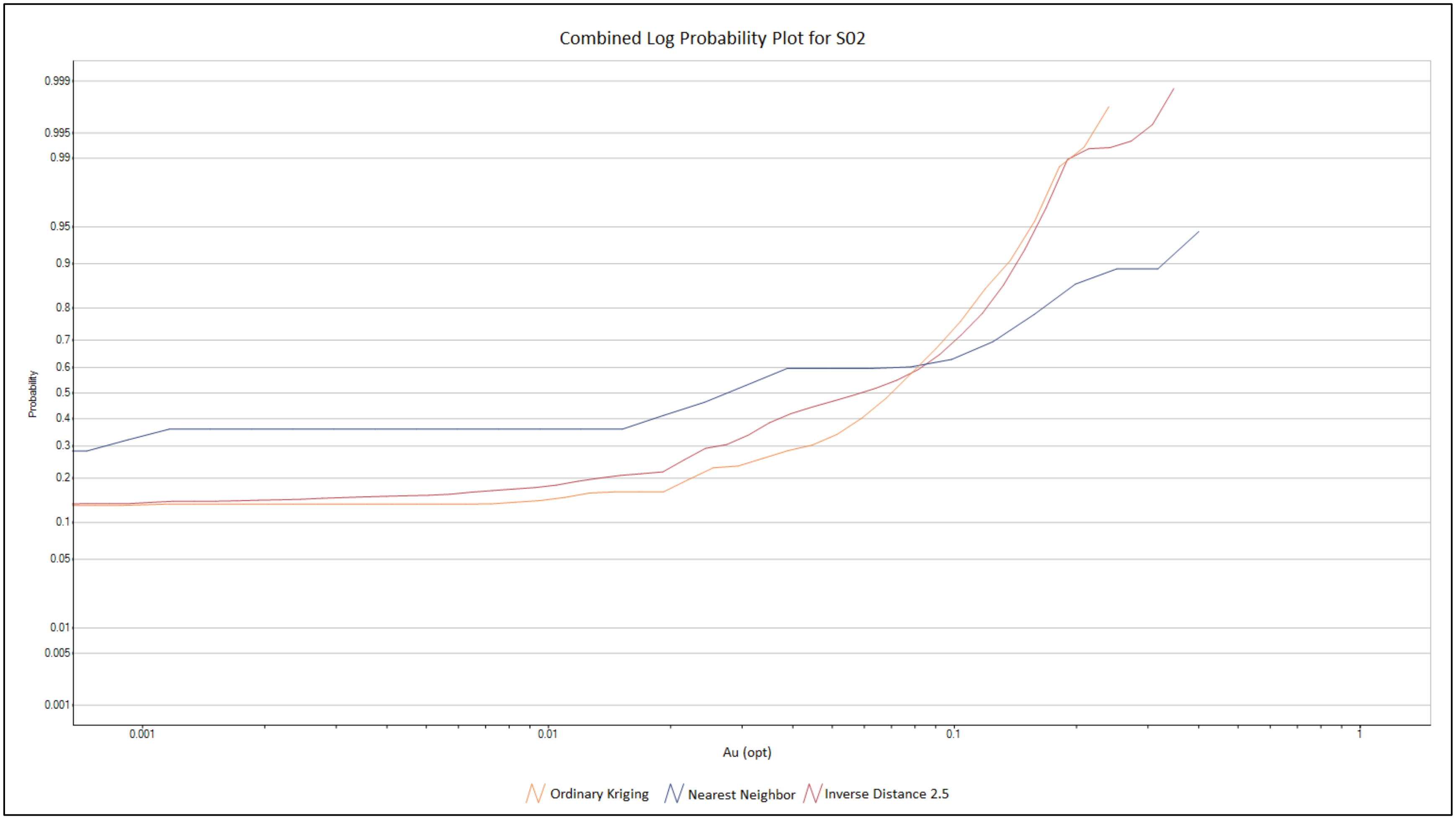

Combined Log Probability Plot for FW06
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

South Target

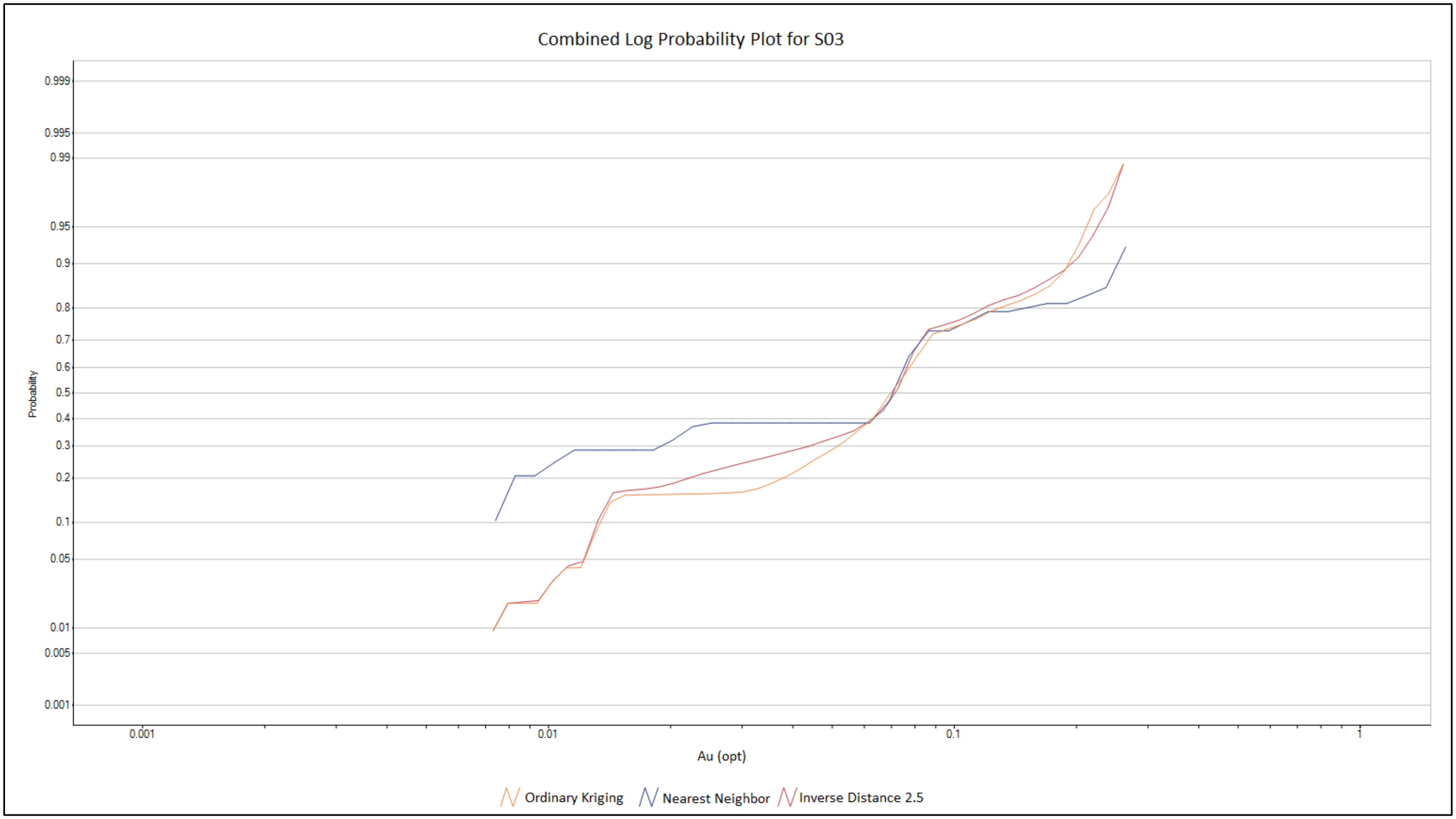
Domain S01



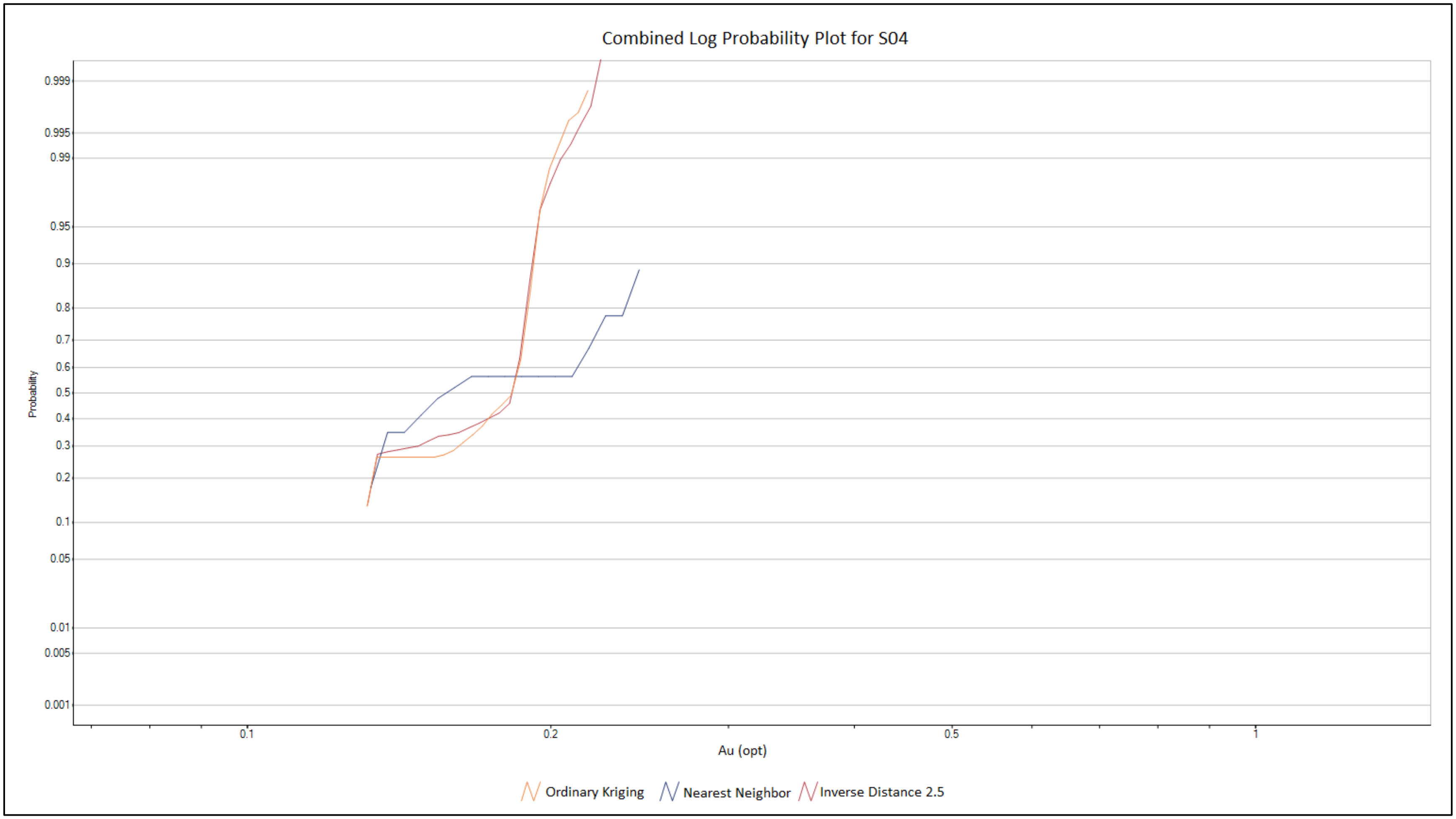
Domain S02


Combined Log Probability Plot for S02
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

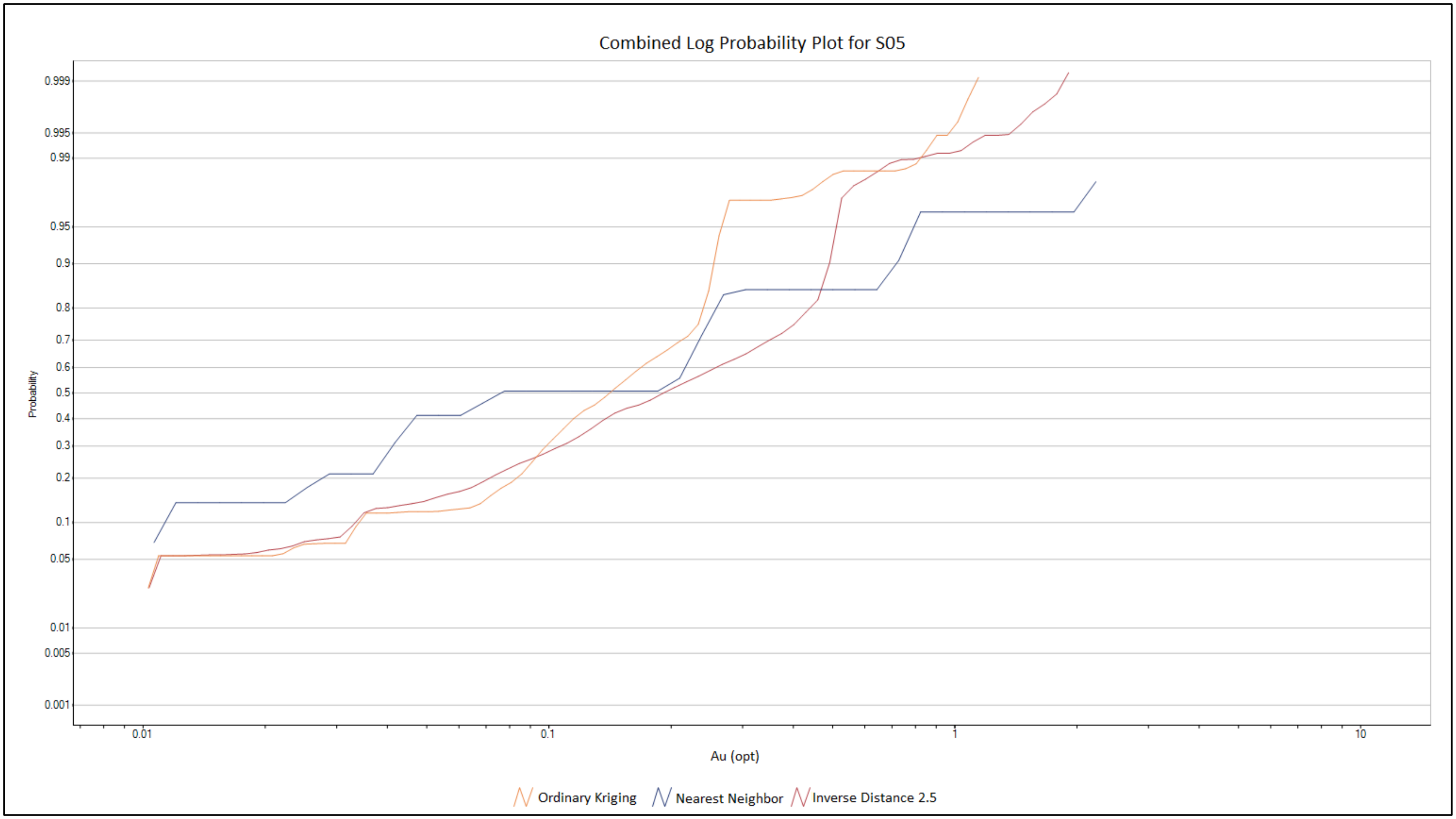
Domain S03


Combined Log Probability Plot for S03
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain S04

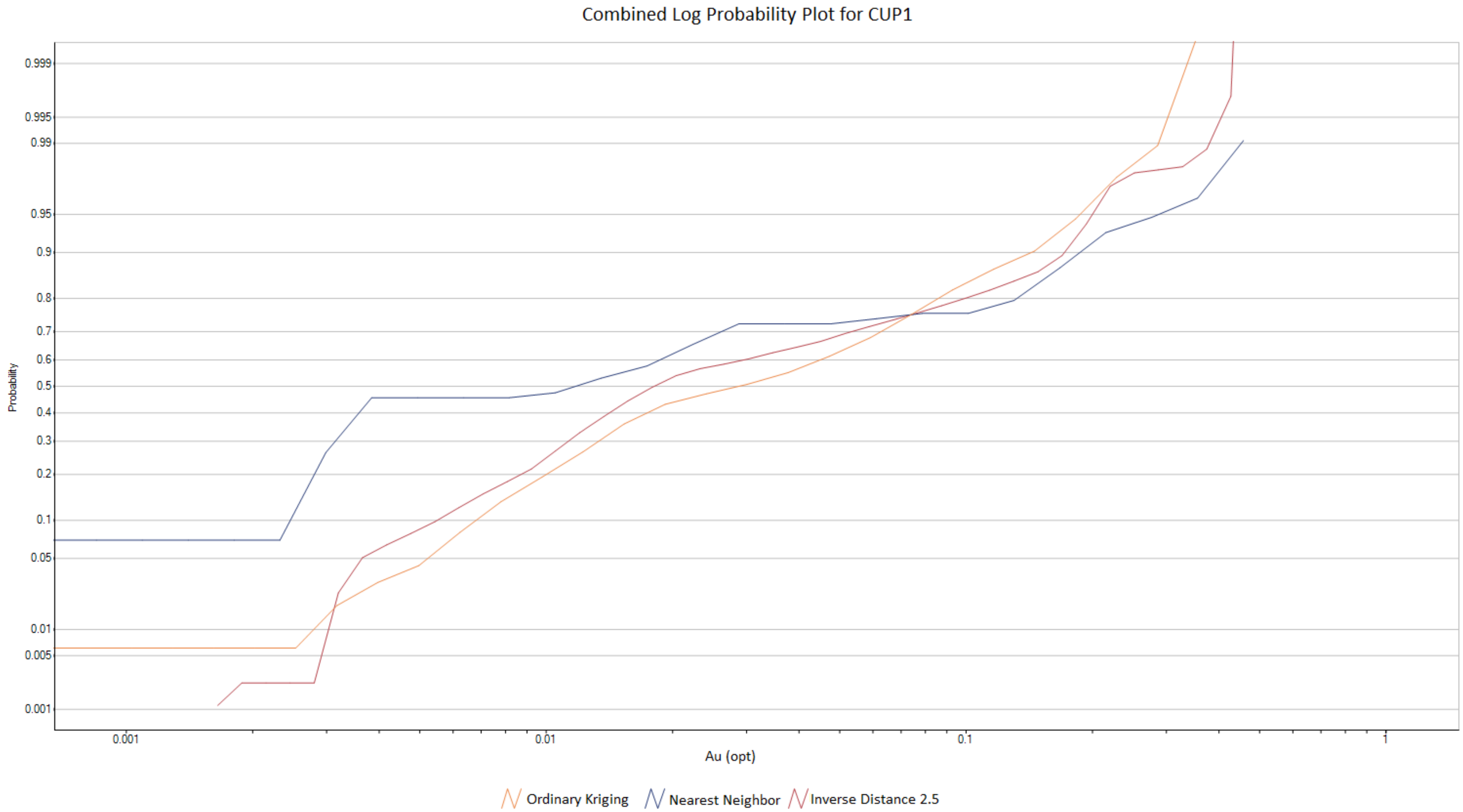

Combined Log Probability Plot for S04
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain S05

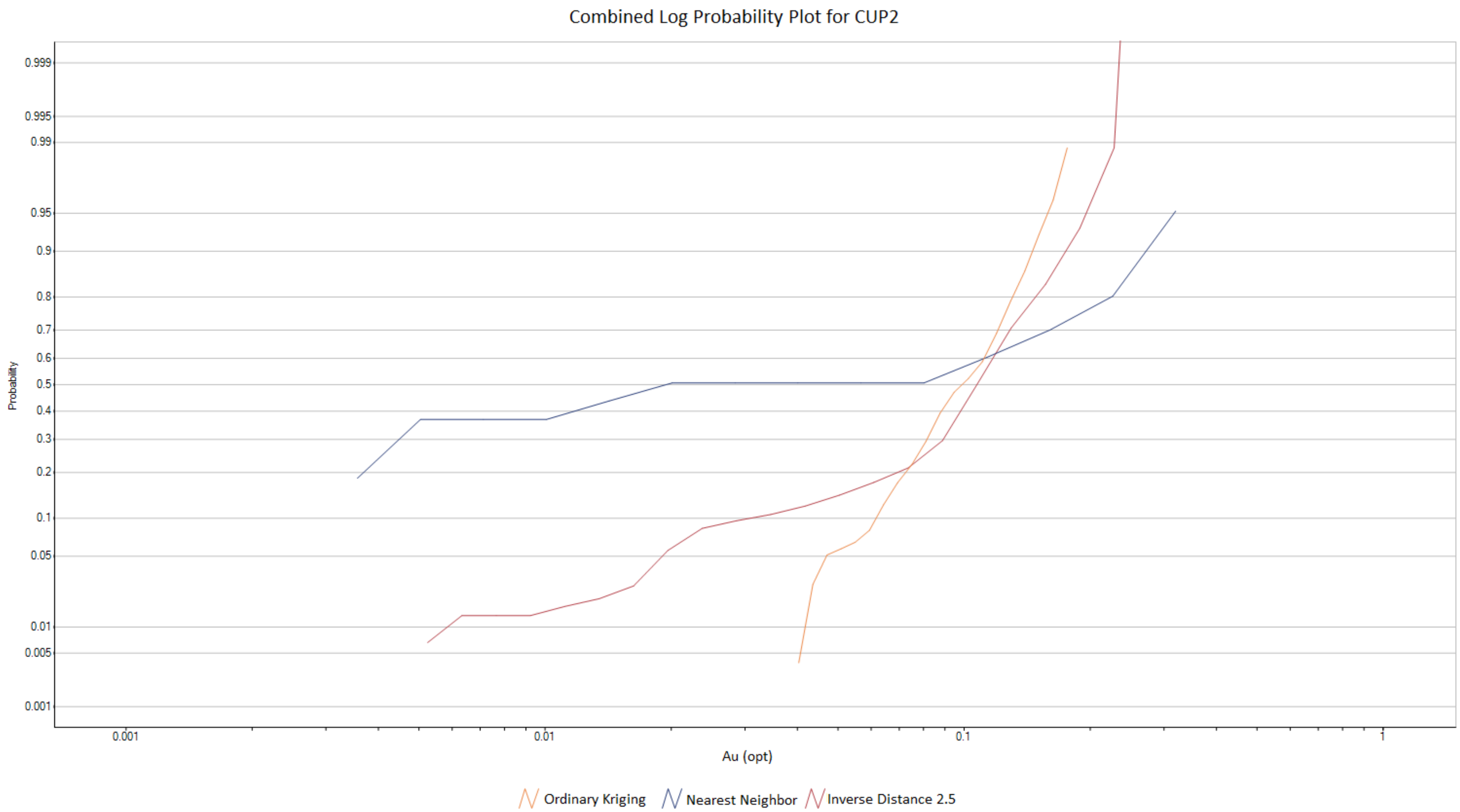

Combined Log Probability Plot for S05
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.01
0.1
1
10
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Upper Fracture Zone

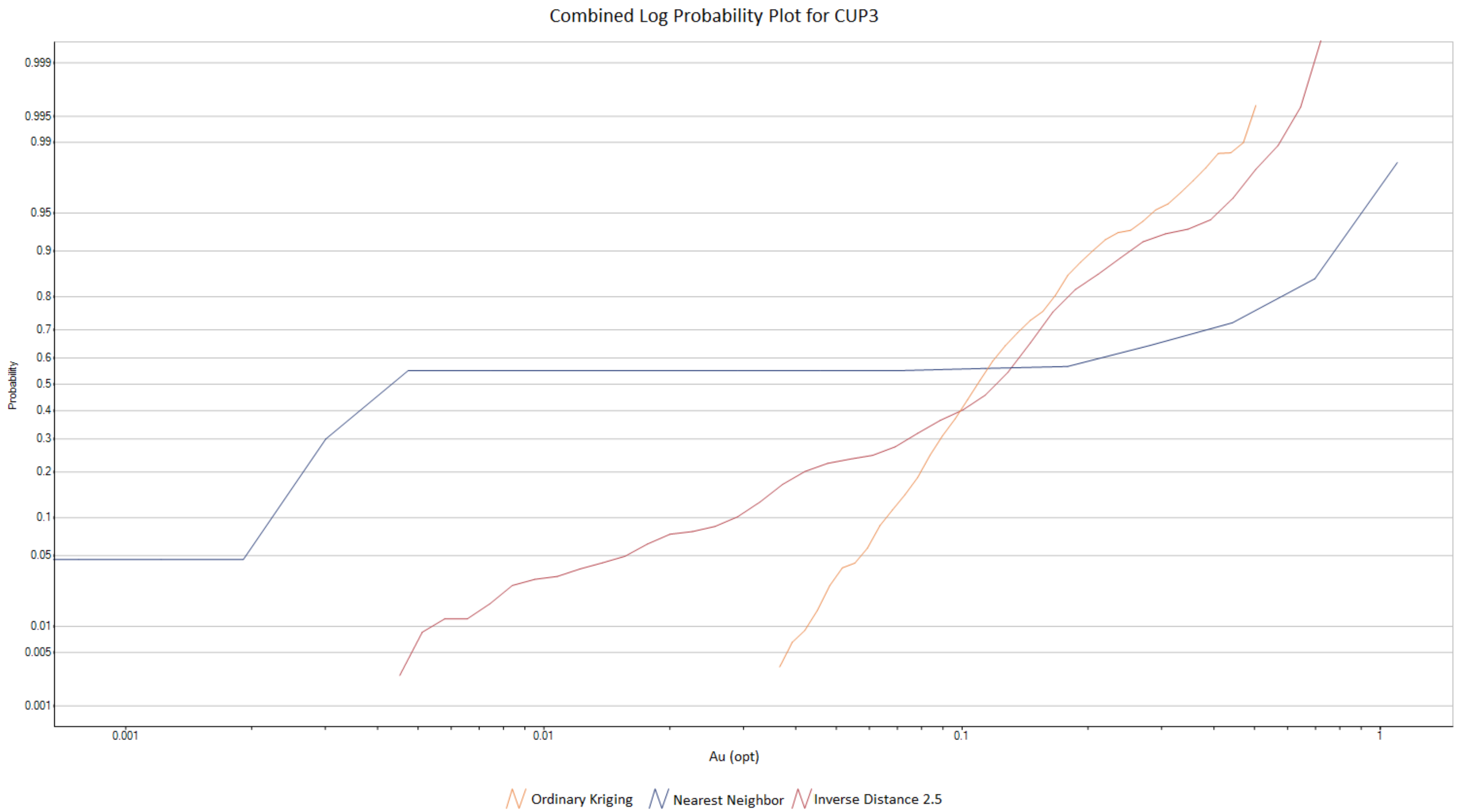
Domain CUP1



Domain CUP2


Combined Log Probability Plot for CUP2
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CUP3



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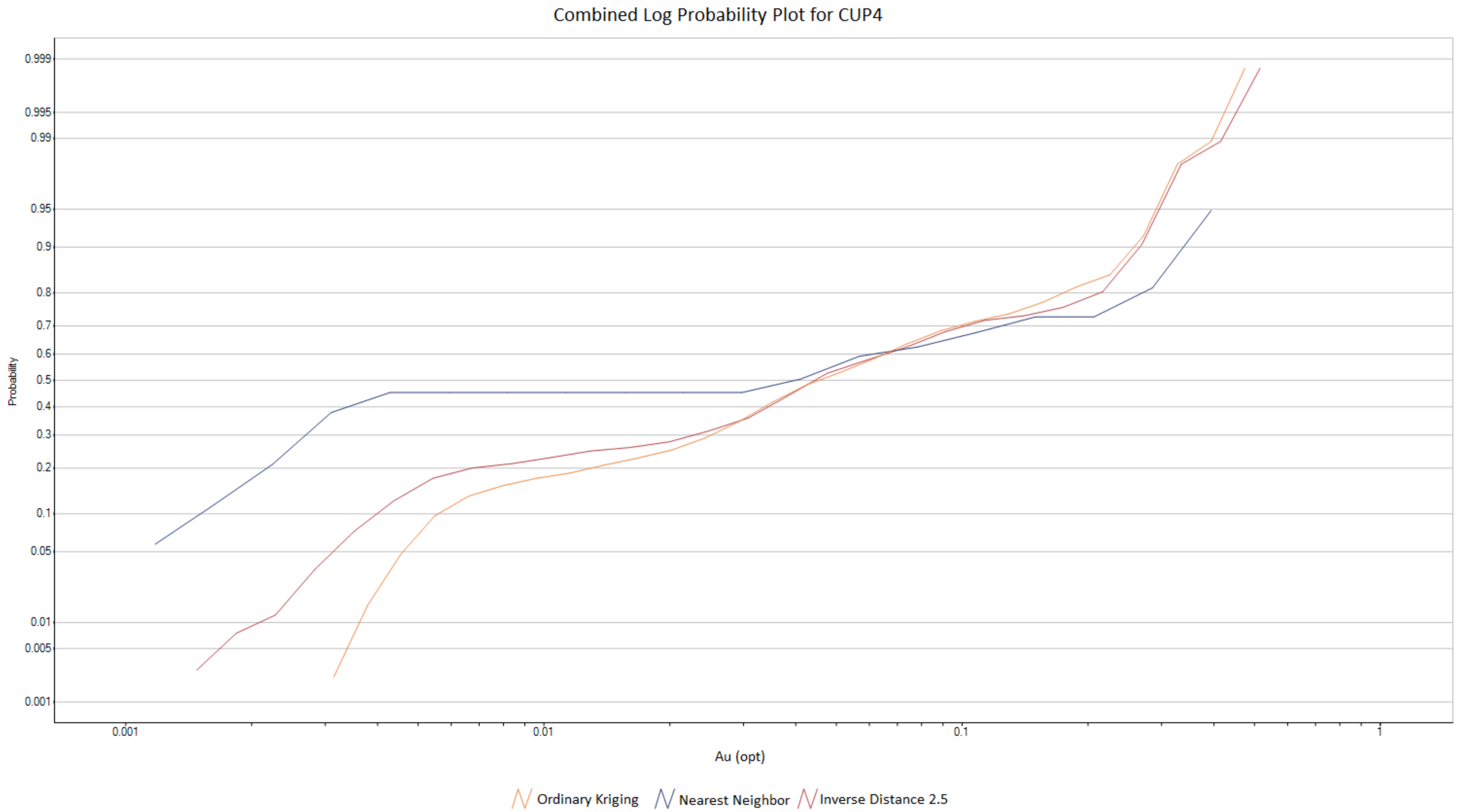
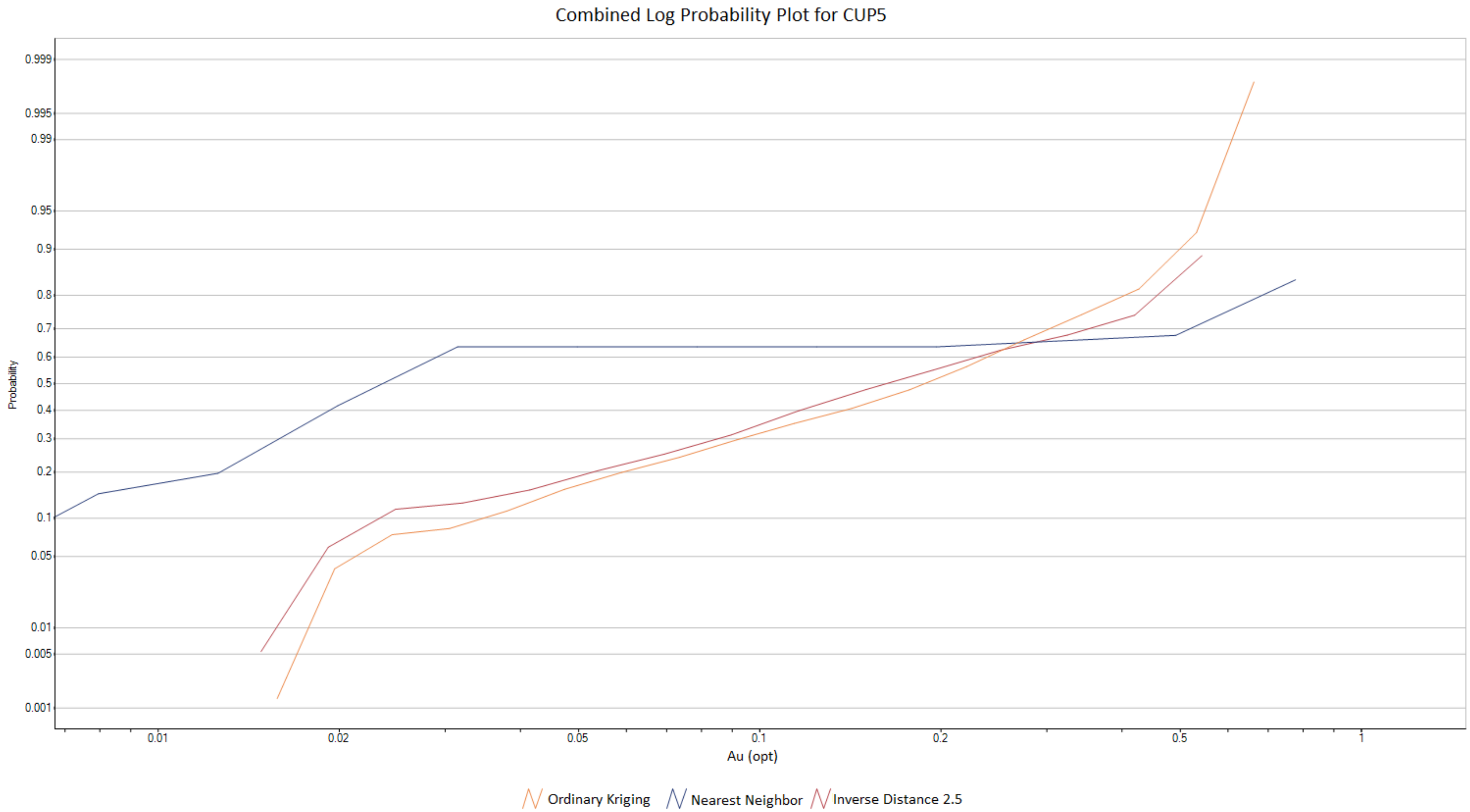
Domain CUP4


Combined Log Probability Plot for CUP4
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.001
0.01
0.1
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

Domain CUP5


Combined Log Probability Plot for CUP5
Probability
0.999
0.995
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.005
0.001
0.01
0.02
0.05
0.1
0.2
0.5
1
Au (opt)
Ordinary Kriging
Nearest Neighbor
Inverse Distance 2.5

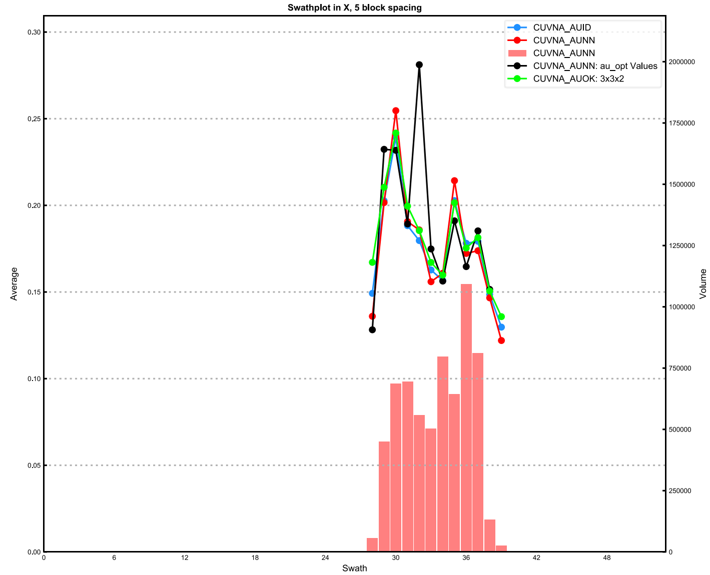
APPENDIX G

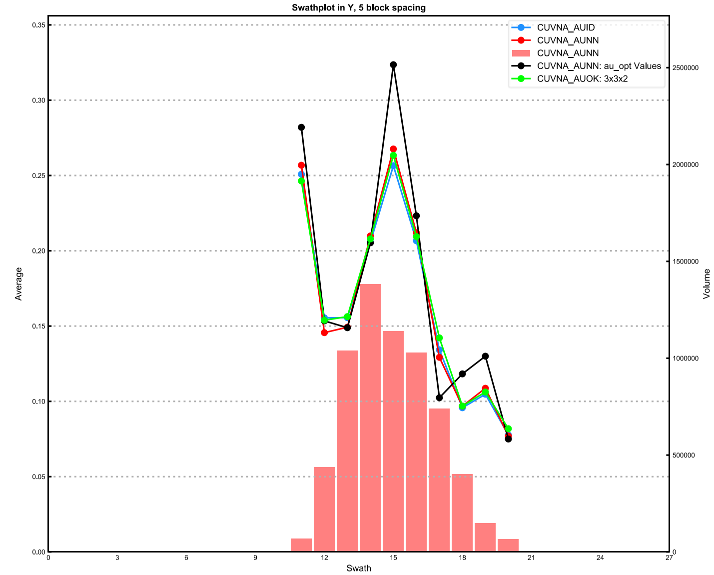
Swath Plots

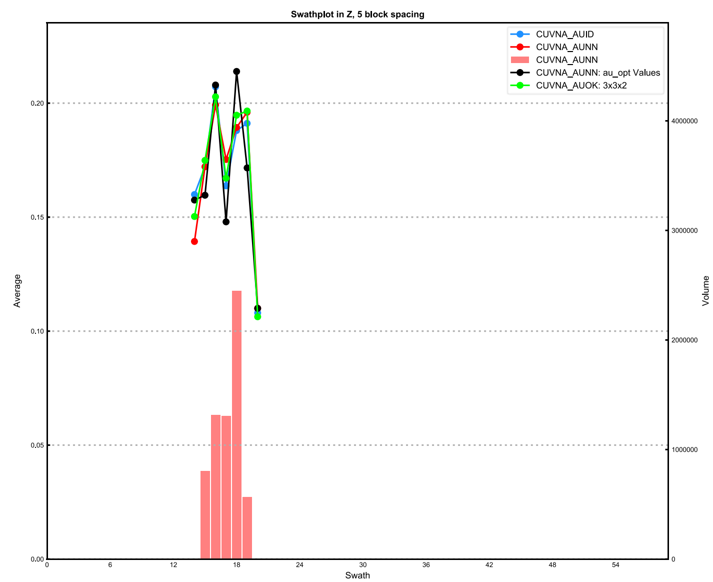
Swath Plots

For all plot pages:

- X Swath – Upper Left Corner
- Y Swath – Upper Right Corner
- Z Swath – Lower Center
- BLACK – Composites
- RED – Nearest Neighbor Estimate
- BLUE – Inverse Distance$^{2.5}$ Estimate
- GREEN – Ordinary Krige Estimate


Swathplot in X, 5 block spacing
CUVNA_AUID
CUVNA_AUNN
CUVNA_AUNN
CUVNA_AUNN: au_opt Values
CUVNA_AUOK: 3x3x2
Average
Volume
Swath


Swathplot in Y, 5 block spacing
CUVNA_AUID
CUVNA_AUNN
CUVNA_AUNN
CUVNA_AUNN: au_opt Values
CUVNA_AUOK: 3x3x2
Average
Volume
Swath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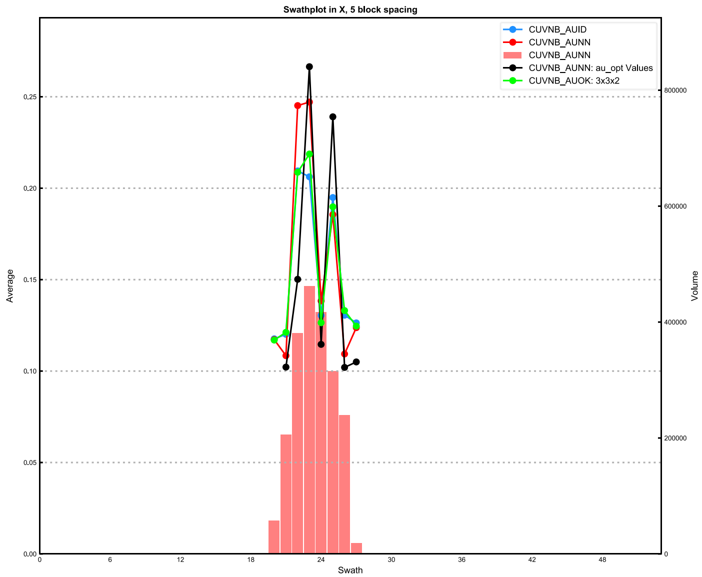
Average
Volume
Swath

CUVNA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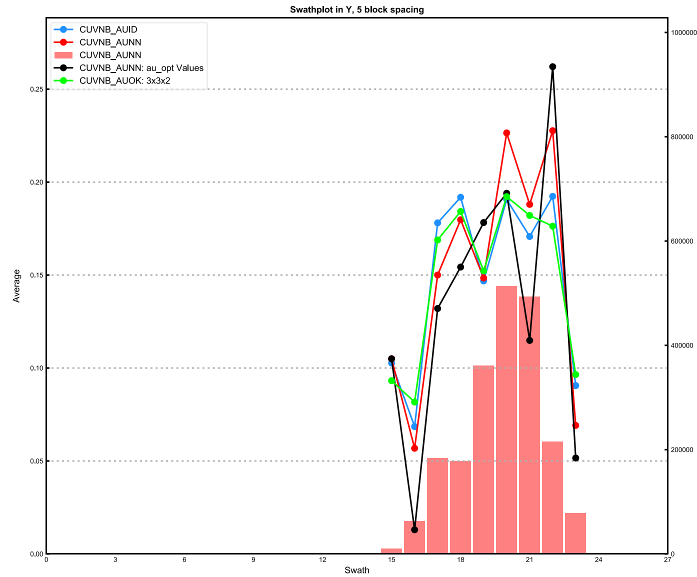
Volume
Swath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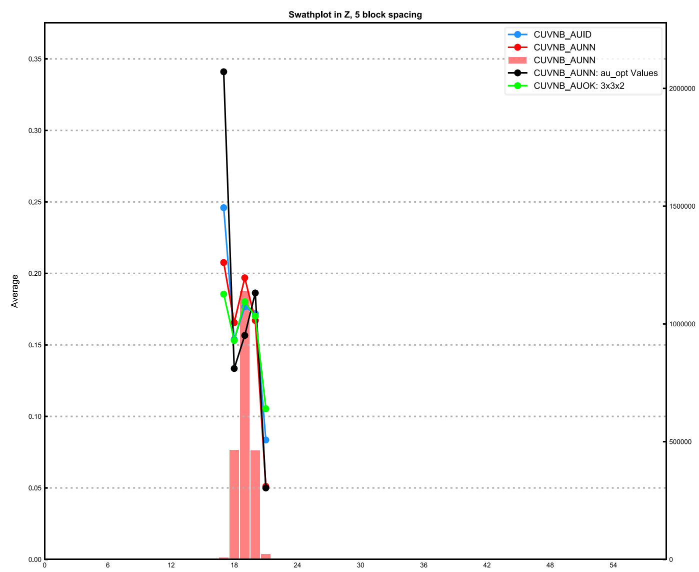
Volume
Swath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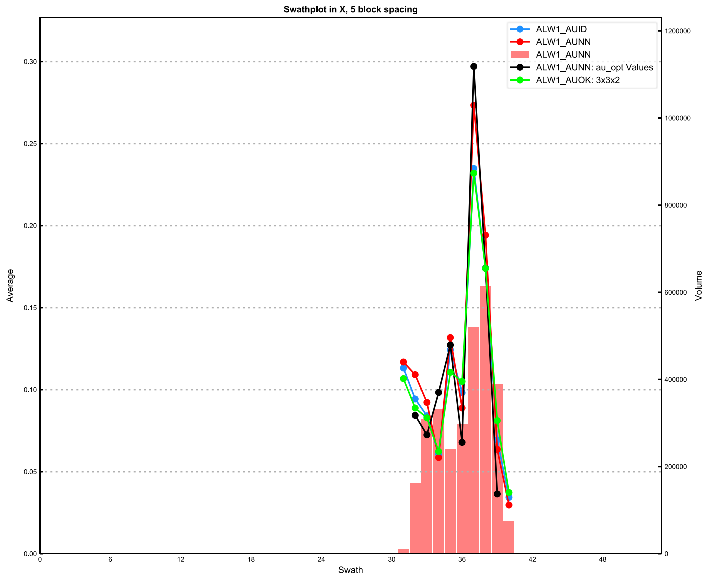
Average
Volume
Swath

CUVNB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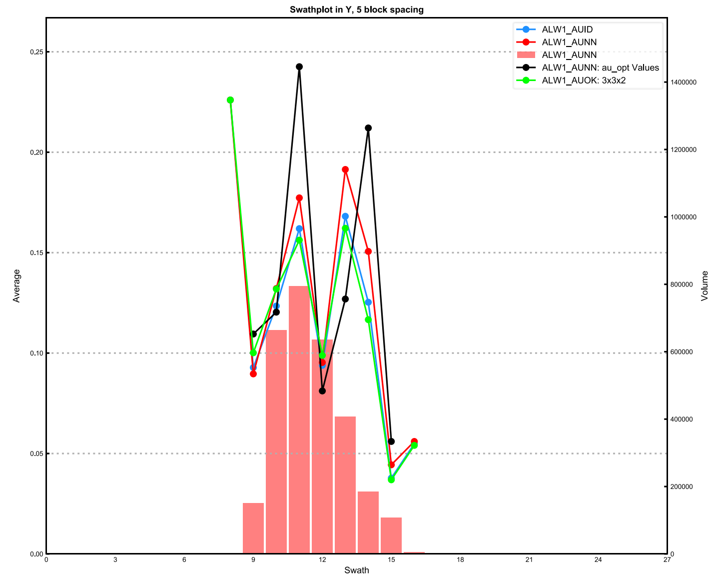
Volume
Swath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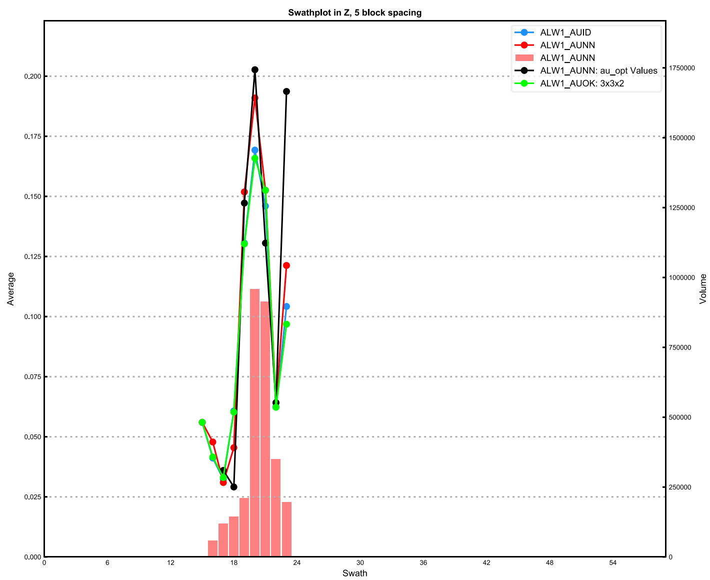
Volume
Swath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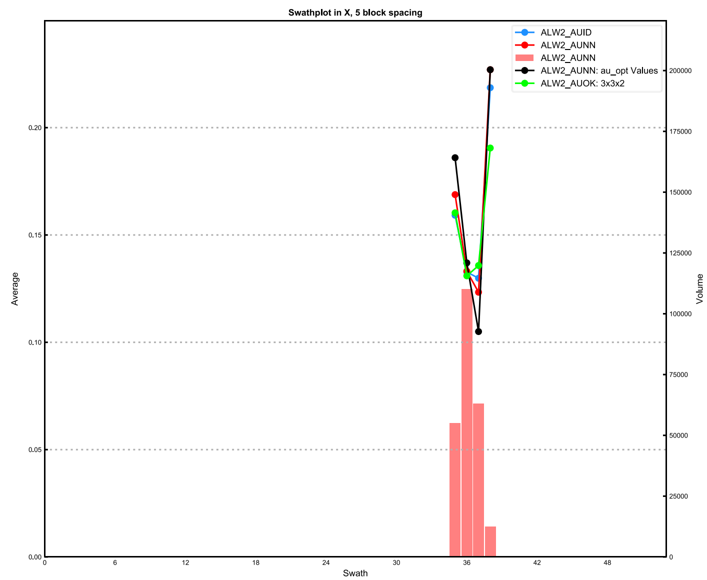
Average
Volume
Swath

ALW1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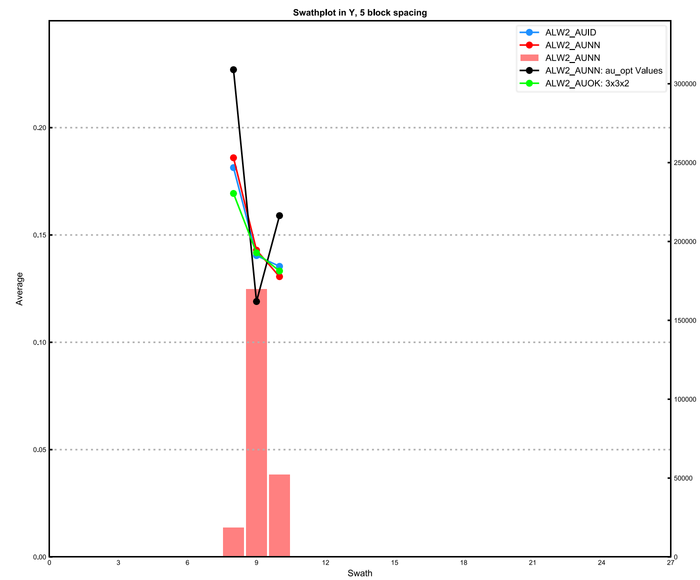
Volume
Swath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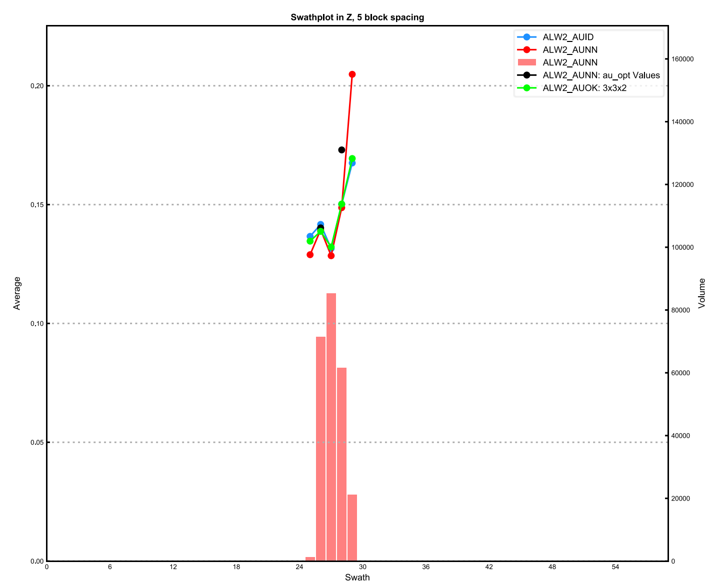
Volume
Swath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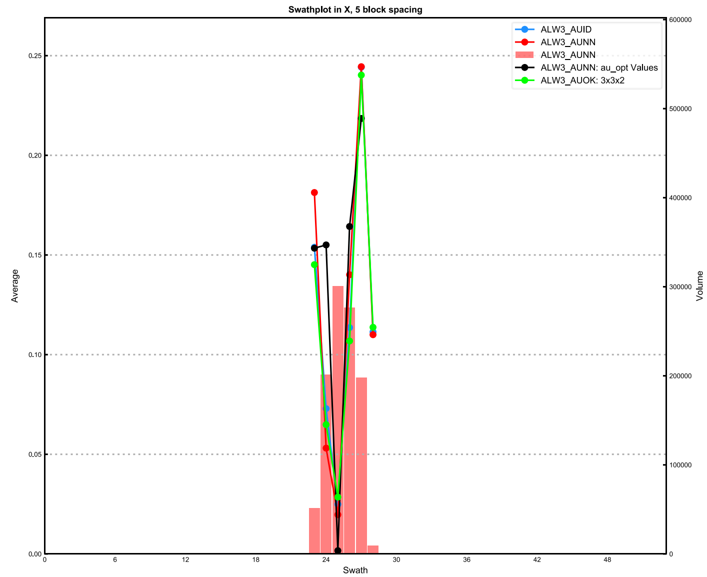
Average
Volume
Swath

ALW2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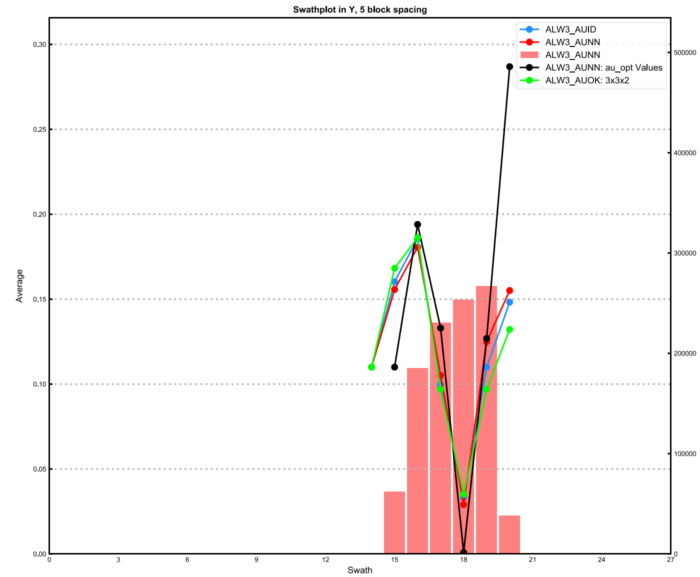
Average
Volume
Swath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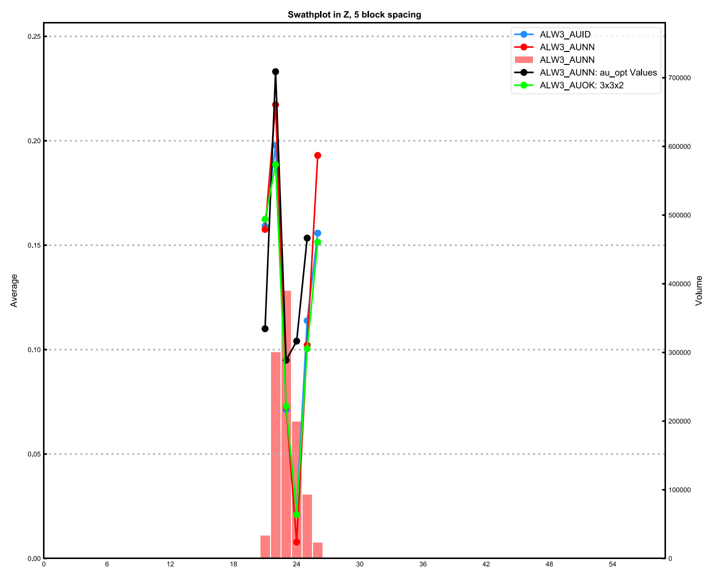
Average
Volume
Swath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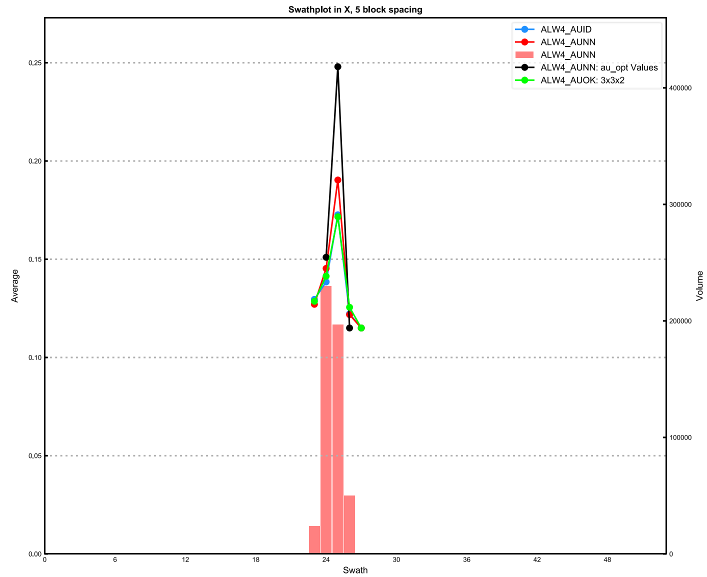
Average
Volume
Swath

ALW3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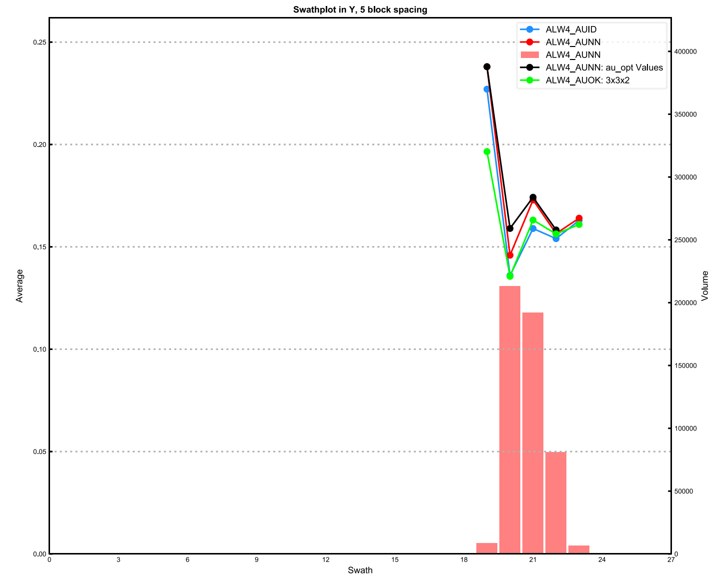
Average
Volume
Swath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ALW4_AUNN: au_opt Values
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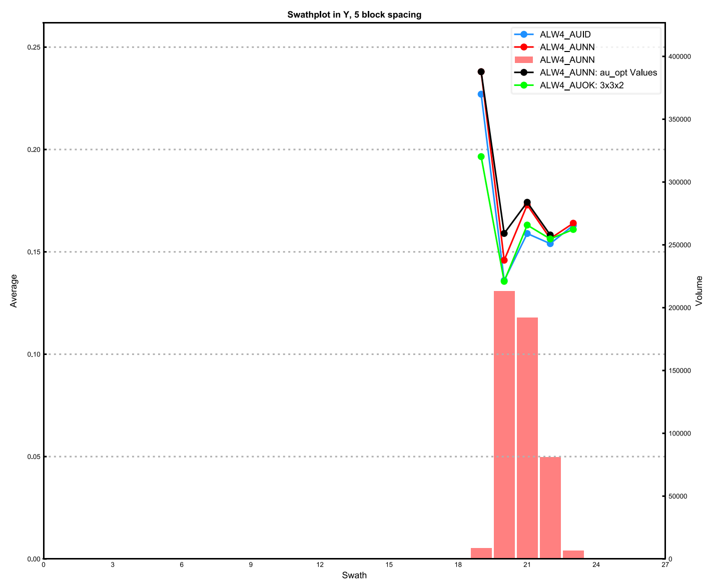
Average
Volume
Swath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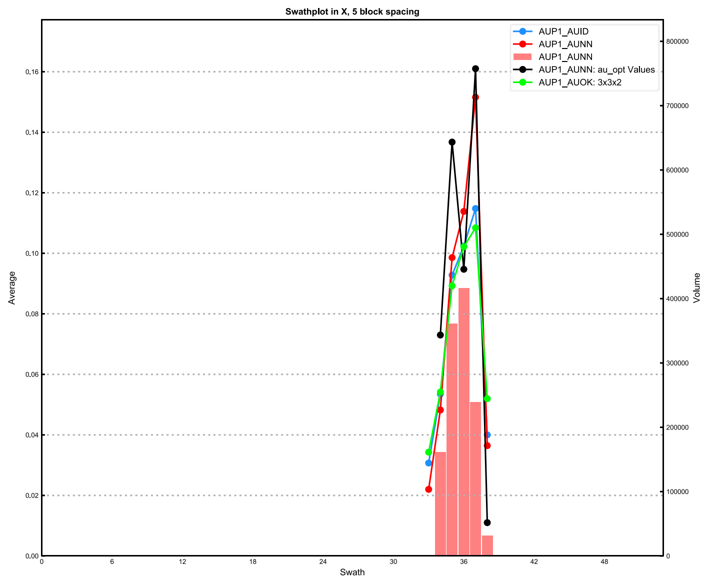
Average
Volume
Swath

ALW4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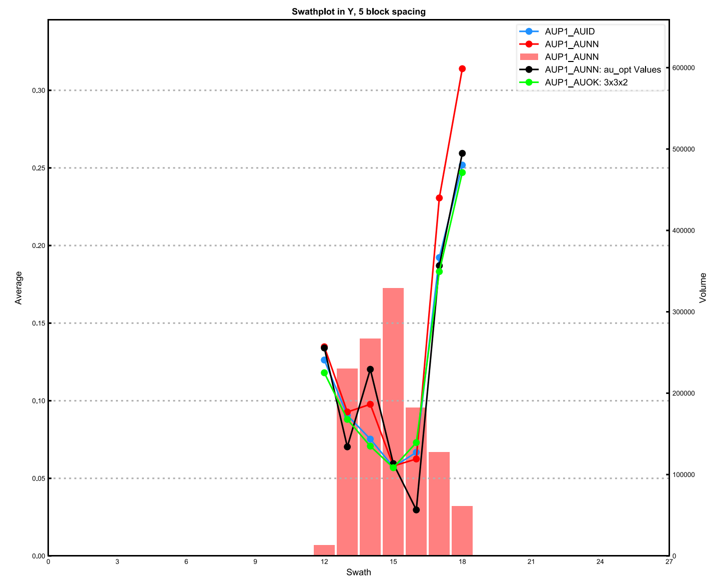
AUP1_AUNN: au_opt Values
AUP1_AUOK: 3x3x2
Average
Volume
Swath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AUP1_AUNN: au_opt Values
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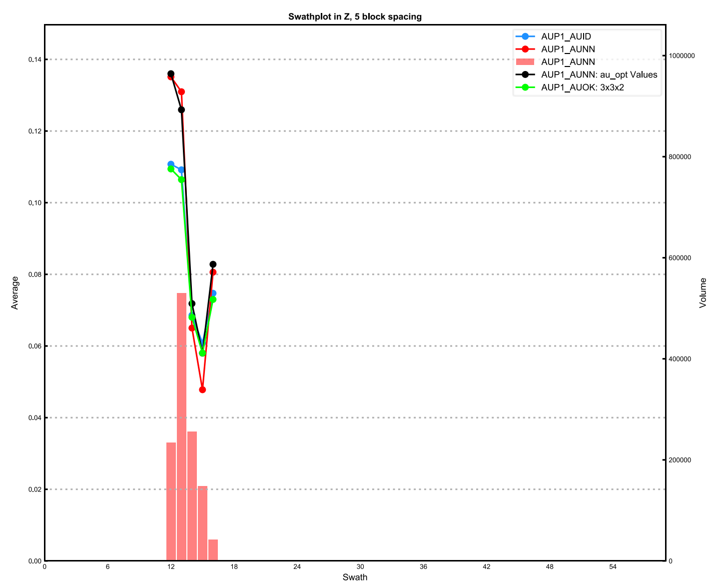
Average
Volume
Swath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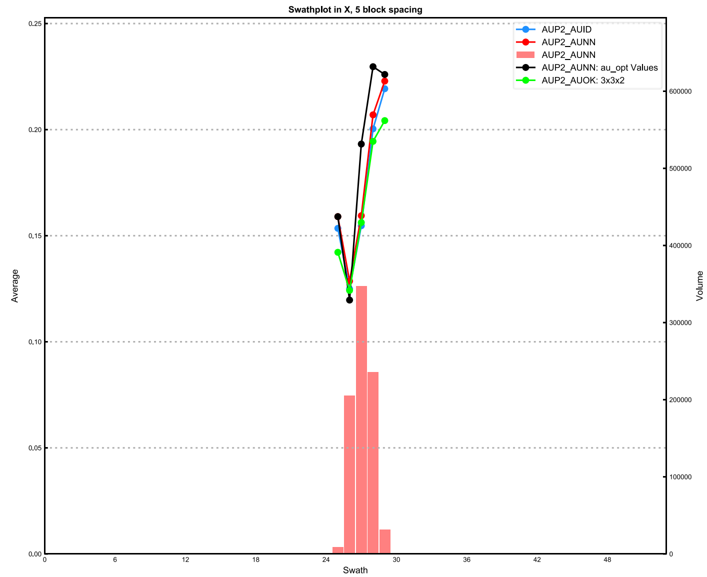
Average
Volume
Swath

AUP1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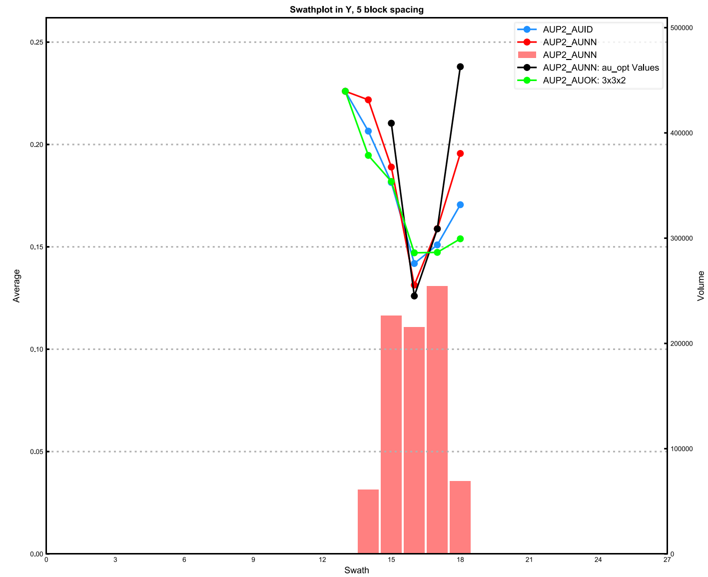
Average
Volume
Swath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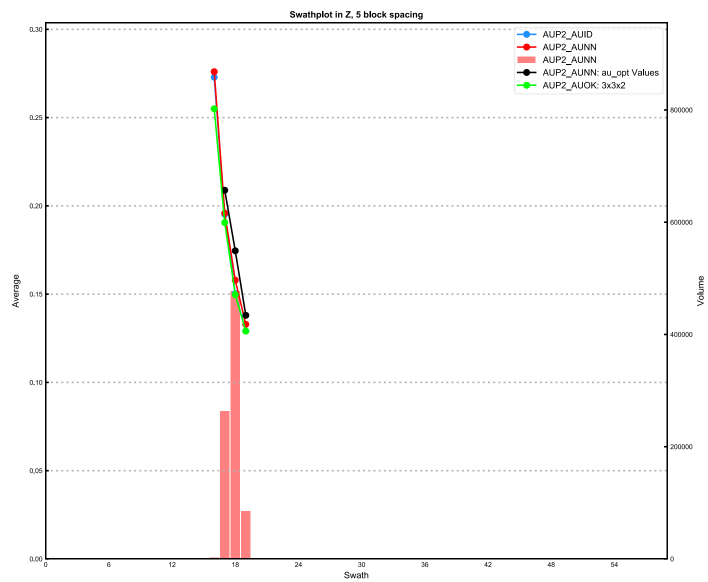
Average
Volume
Swath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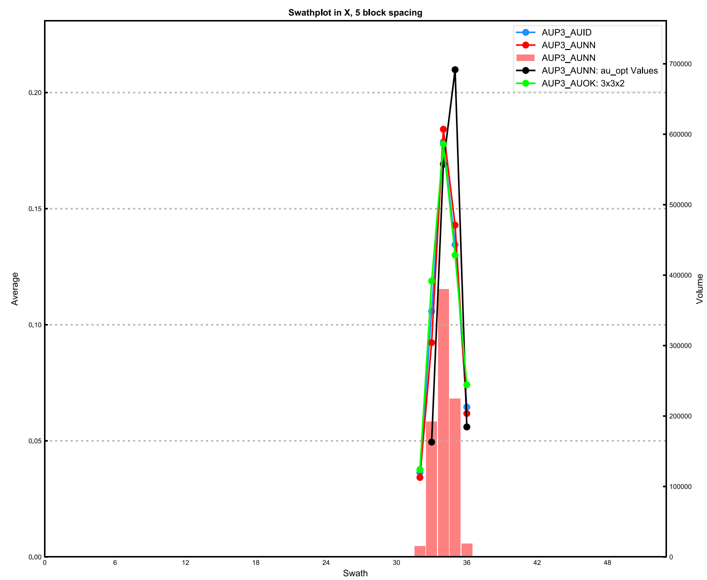
Average
Volume
Swath

AUP2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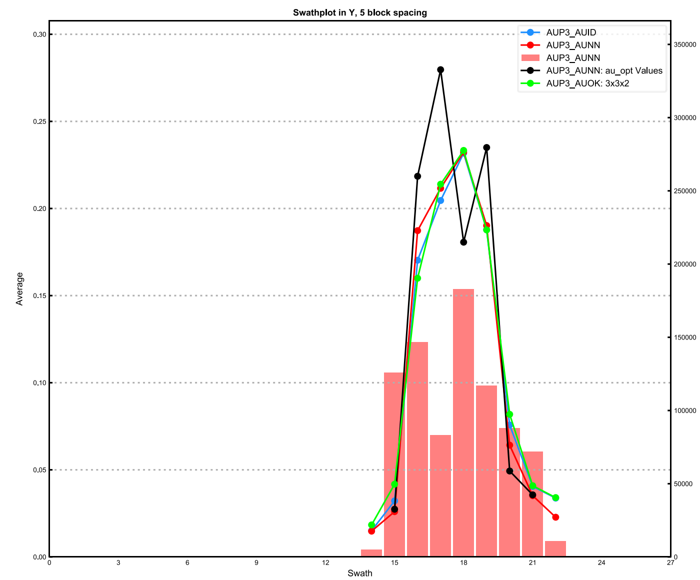
Average
Volume
Swath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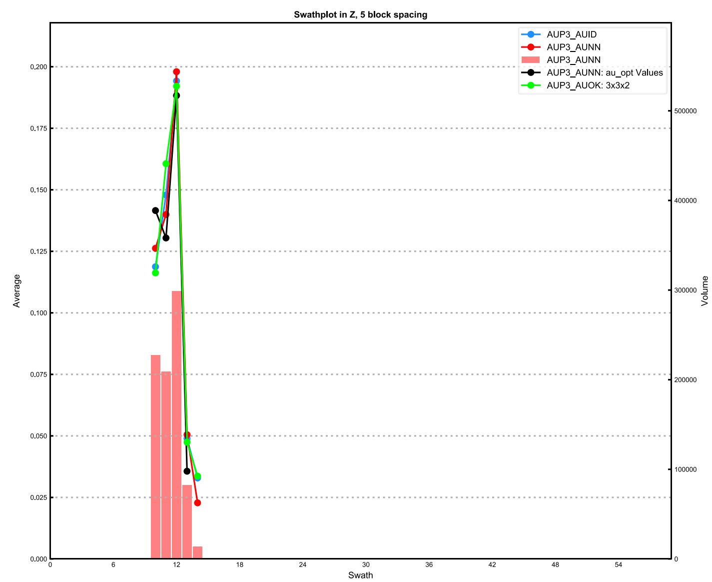
Volume
Swath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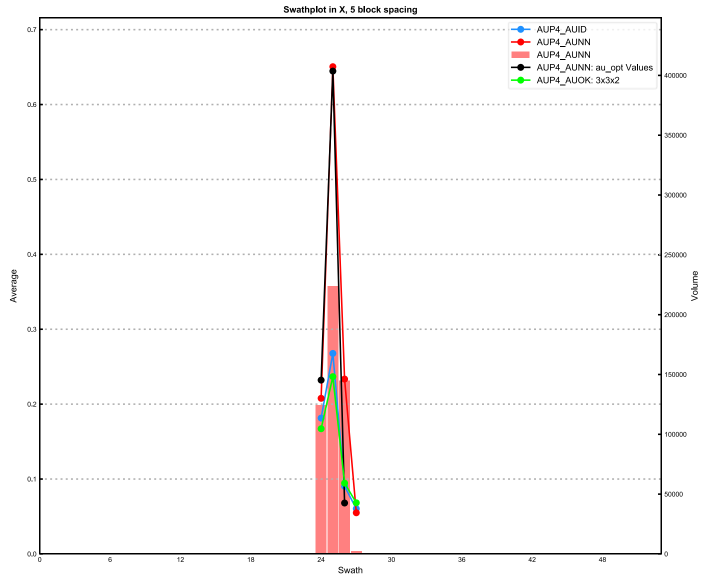
Average
Volume
Swath

AUP3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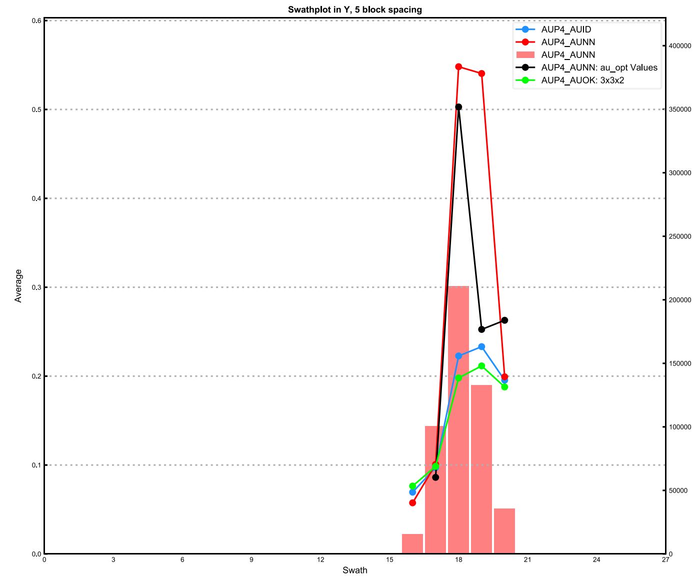
Volume
Swath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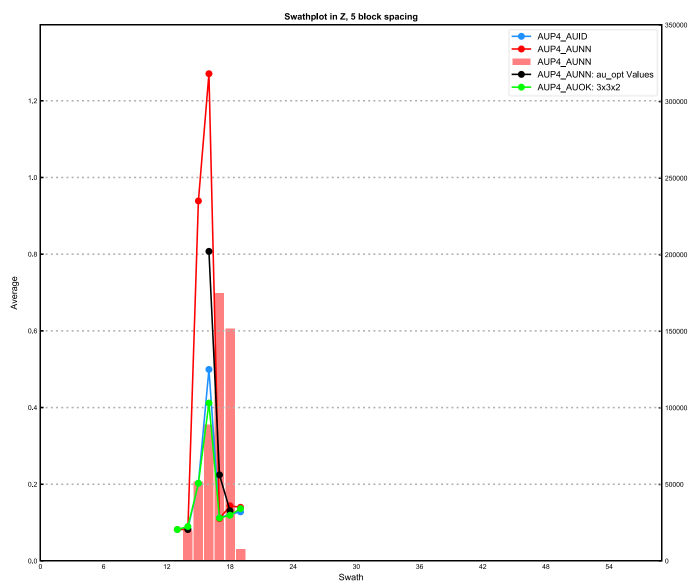
Swath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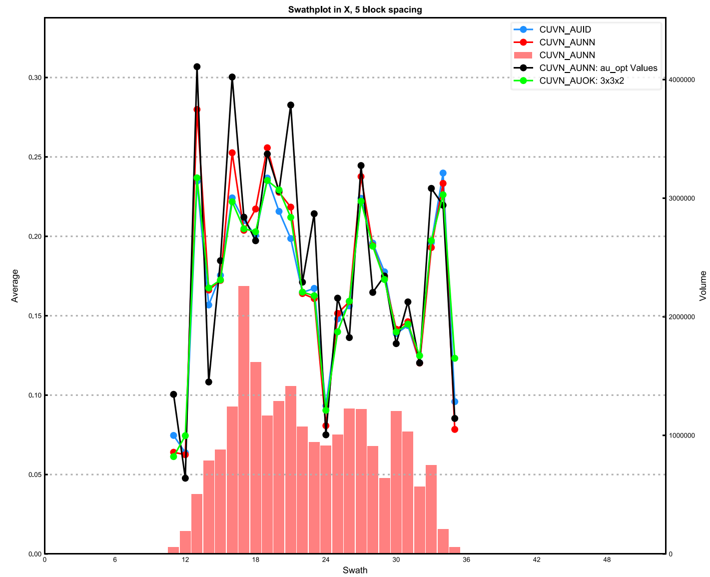
Average
Volume
Swath

AUP4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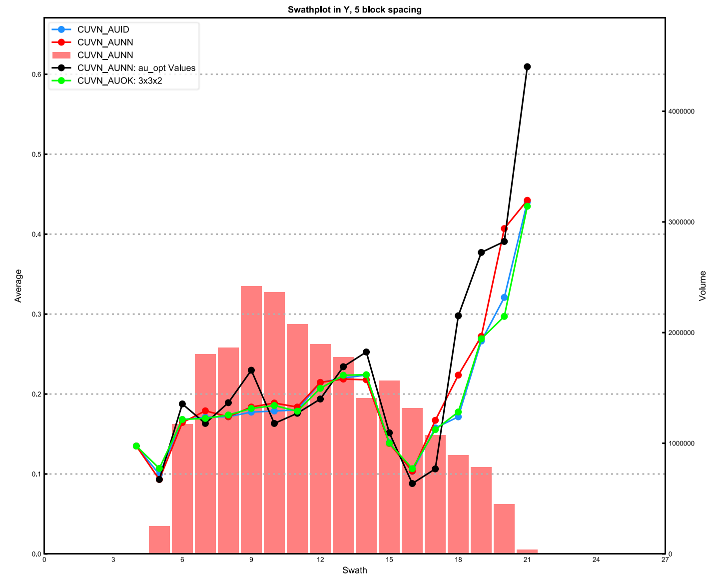
Average
Volume
Swath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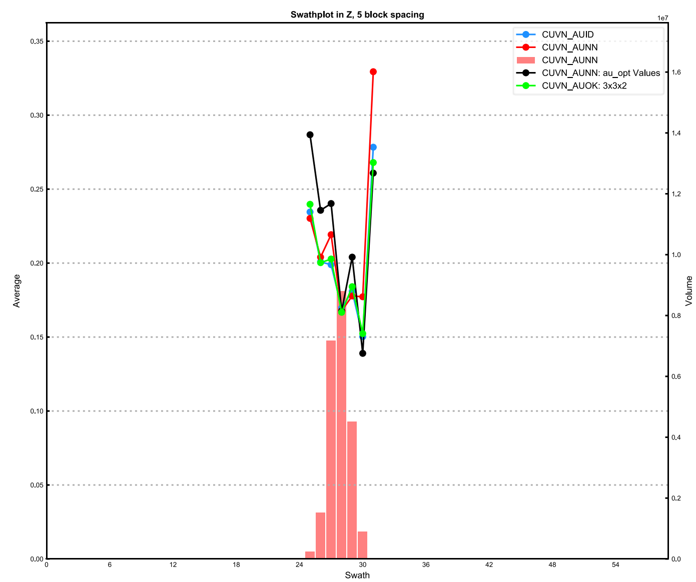
Volume
Swath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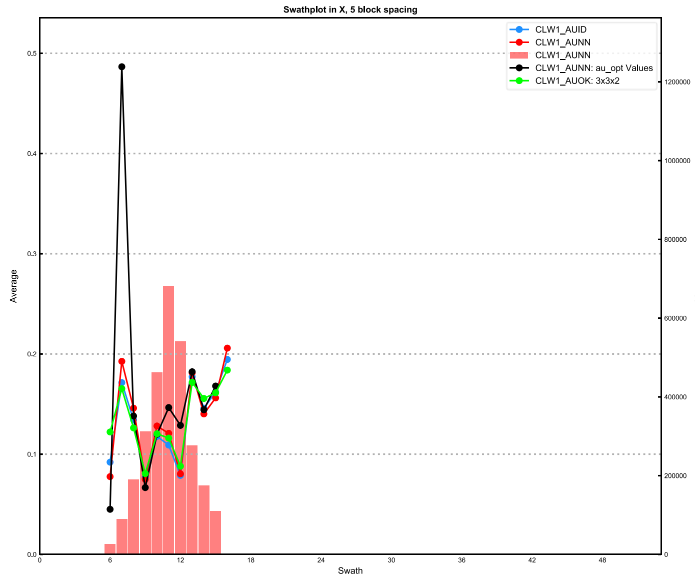
Average
Volume
Swath

CUVN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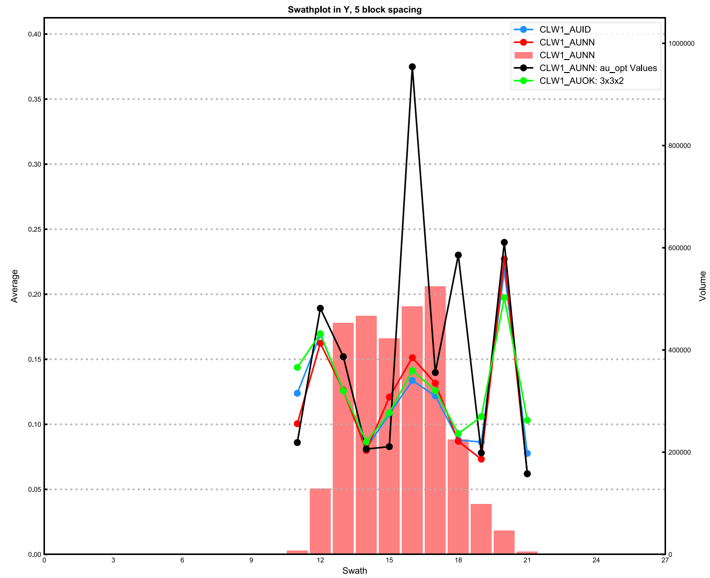
Average
Volume
Swath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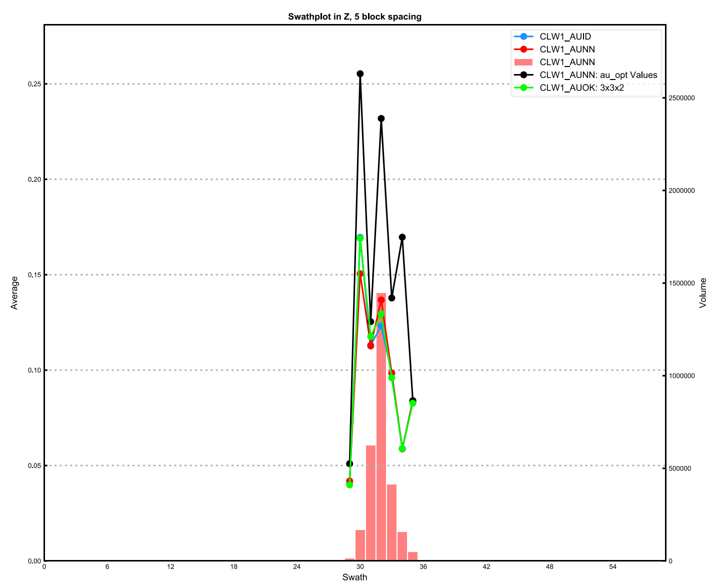
Volume
Swath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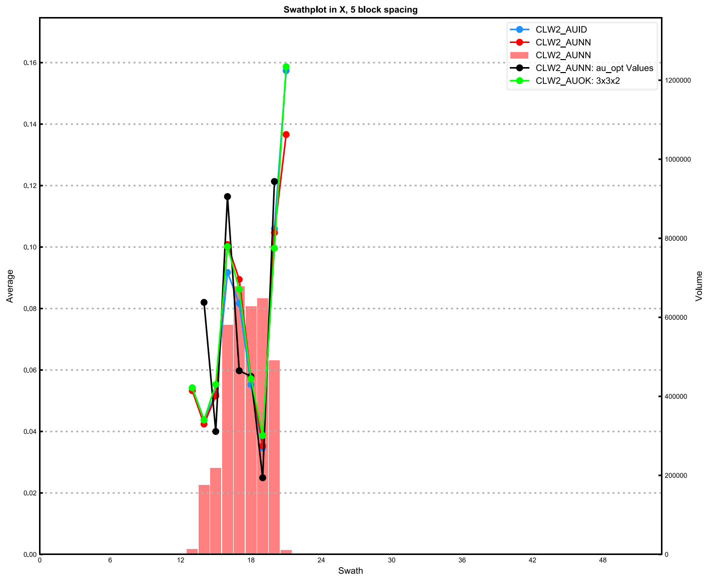
Average
Volume
Swath

CLW1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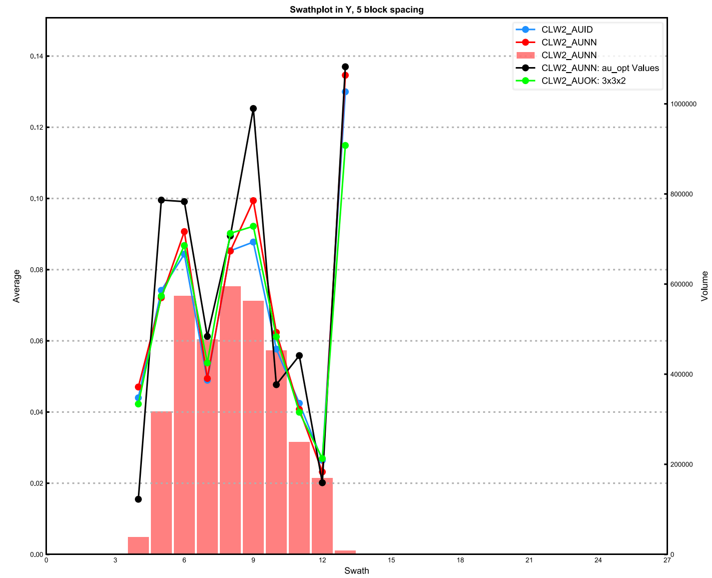
Volume
Swath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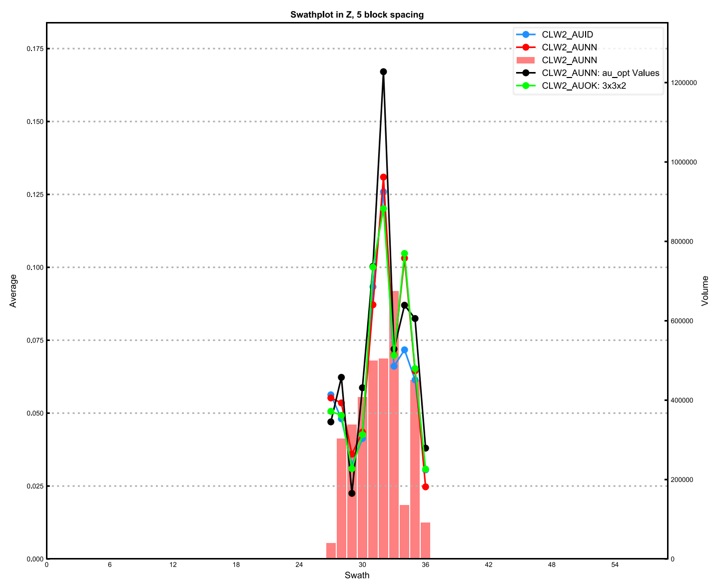
Volume
Swath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CLW2_AUID
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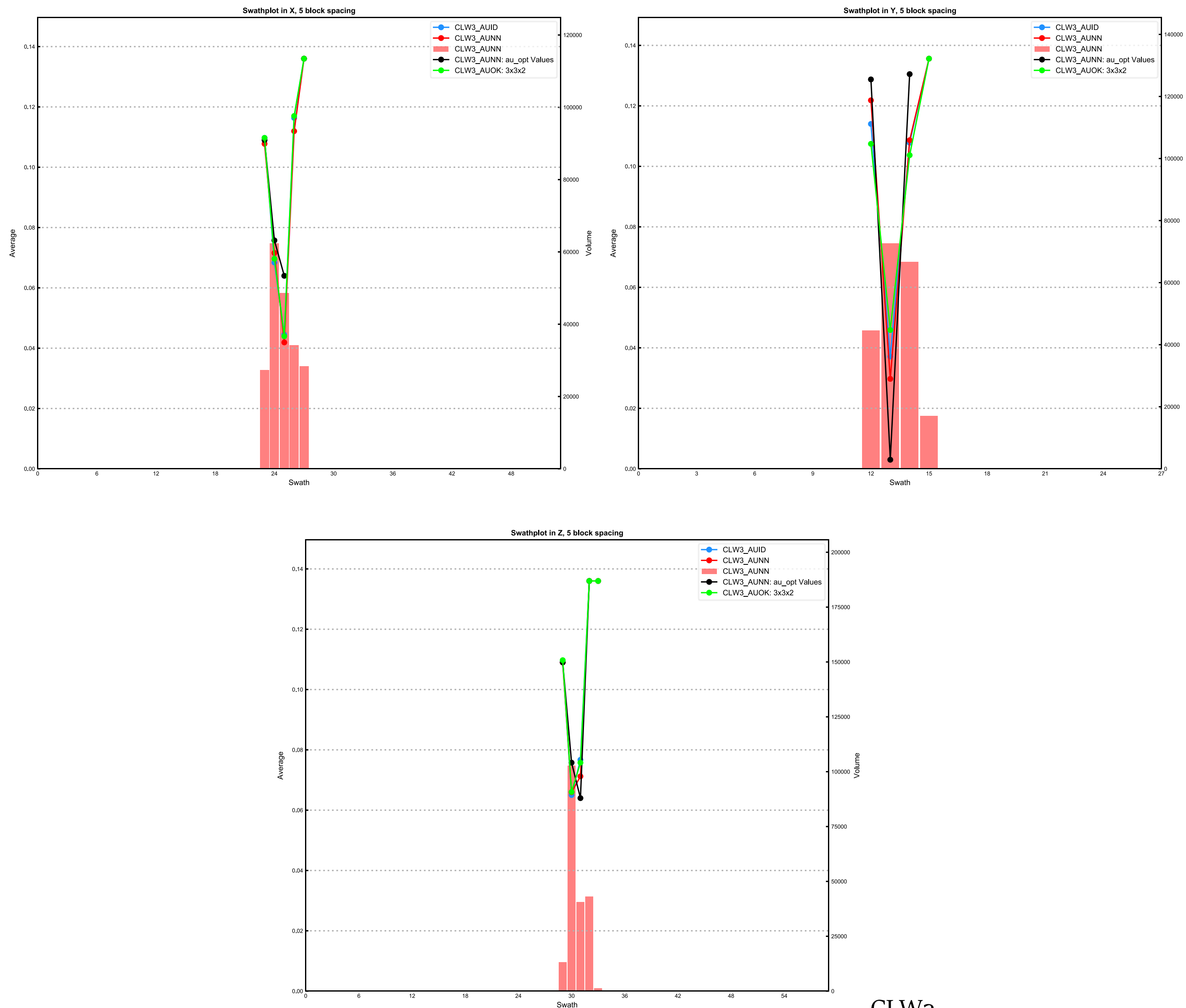
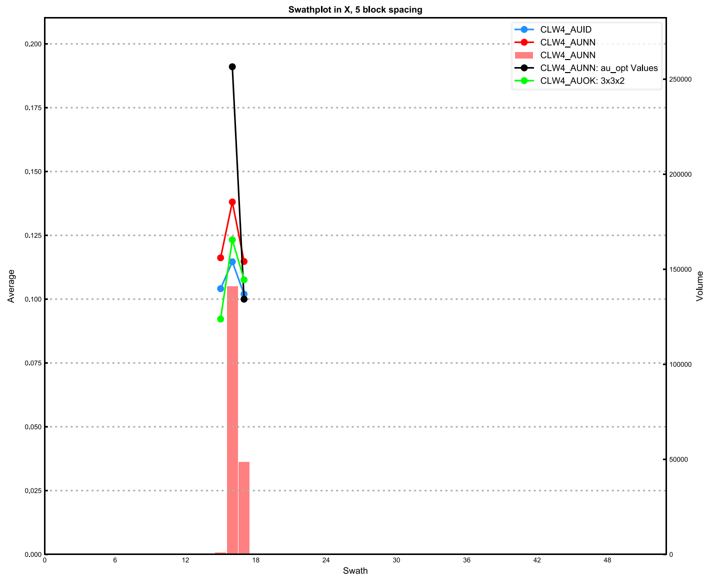
CLW2_AUOK: 3x3x2
Average
Volume
Swath

CLW2



CLW3

Hard Rock Consulting, LLC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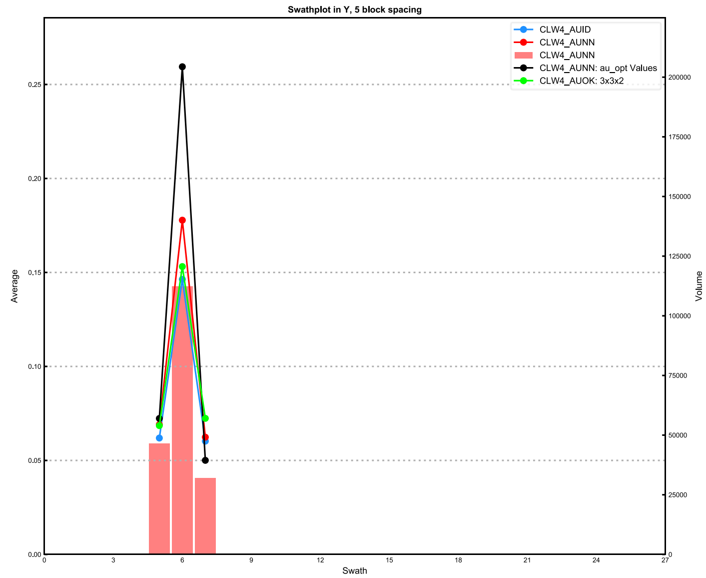
Volume
Swath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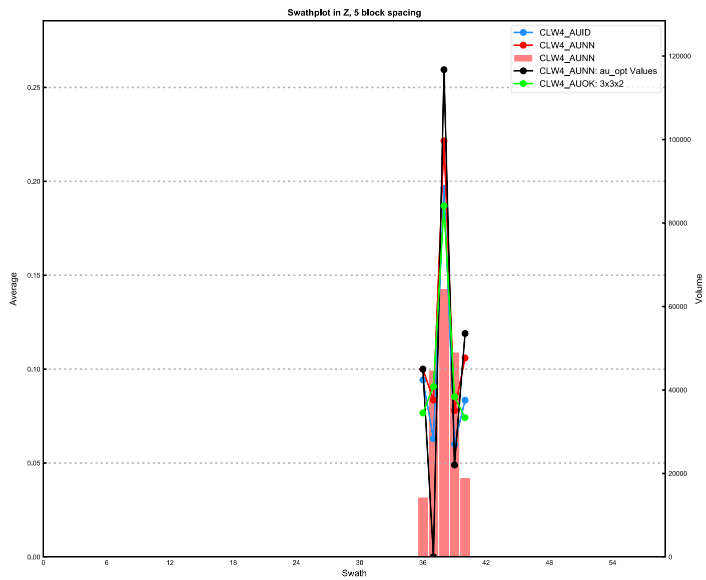
Average
Volume
Swath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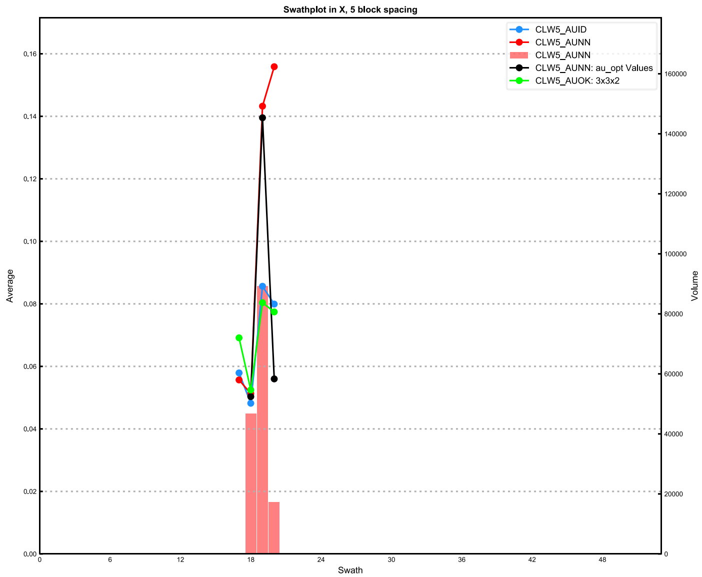
Average
Volume
Swath

CLW4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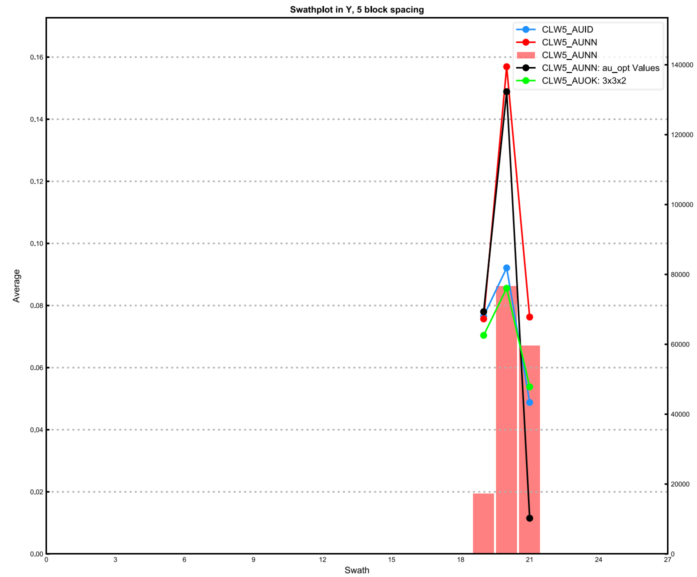
Average
Volume
Swath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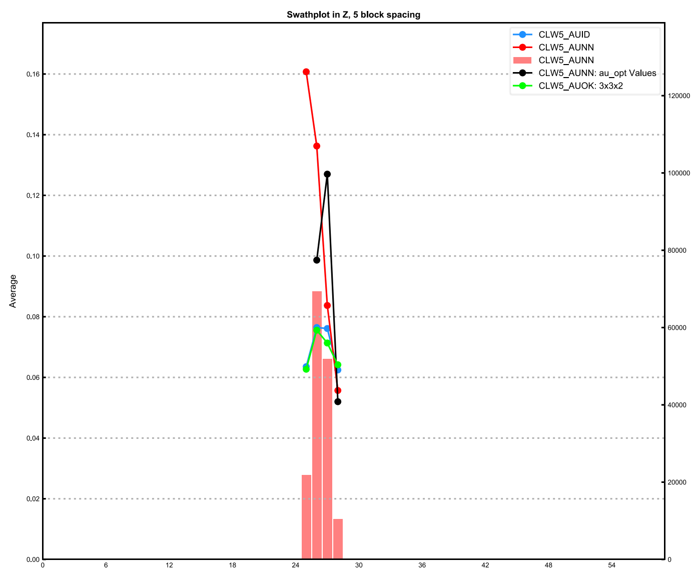
Average
Volume
Swath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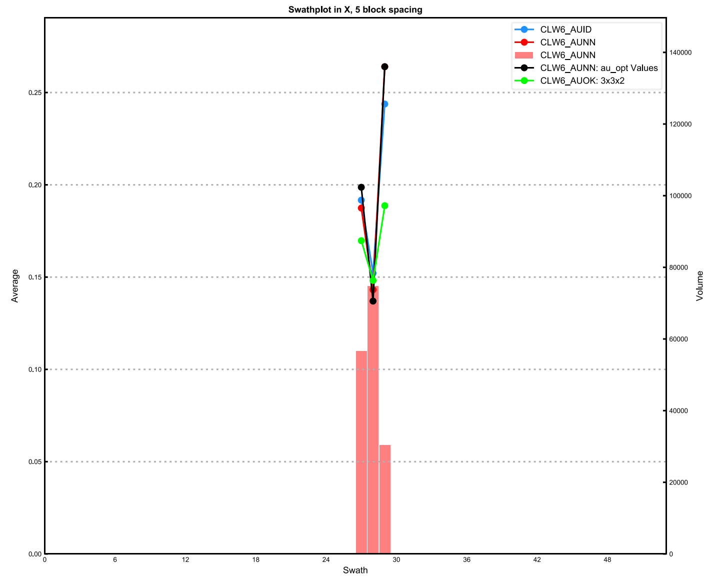
Average
Volume
Swath

CLW5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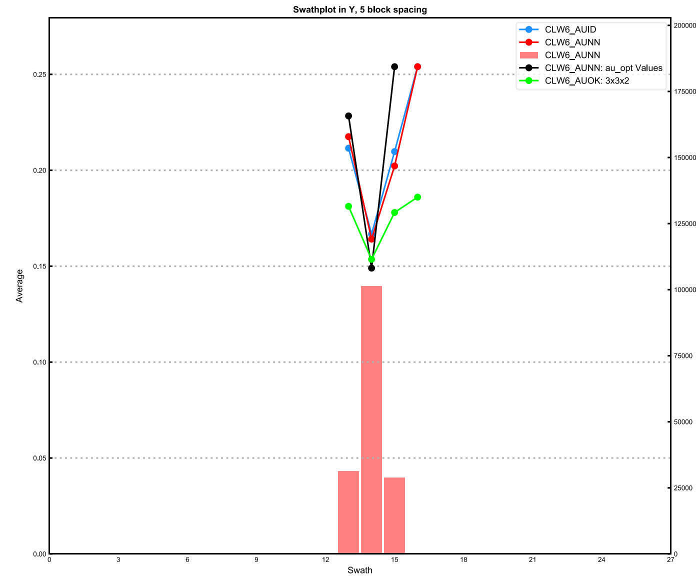
Average
Volume
Swath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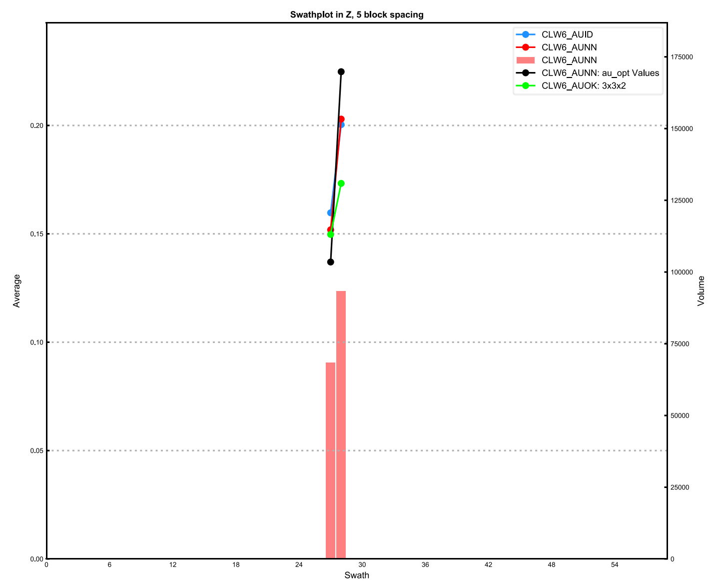
Volume
Swath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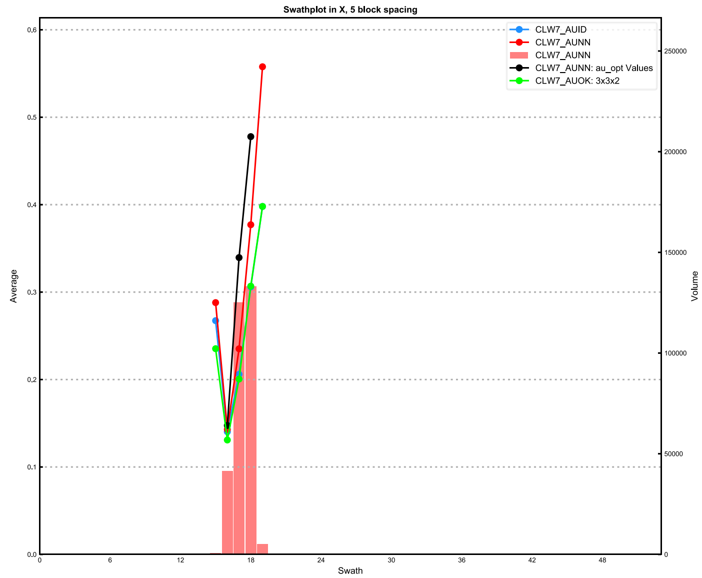
Volume
Swath

CLW6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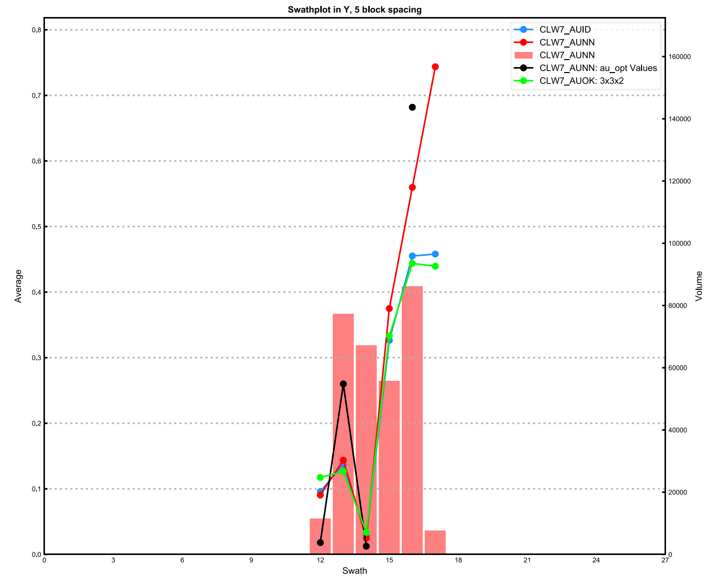
Volume
Swath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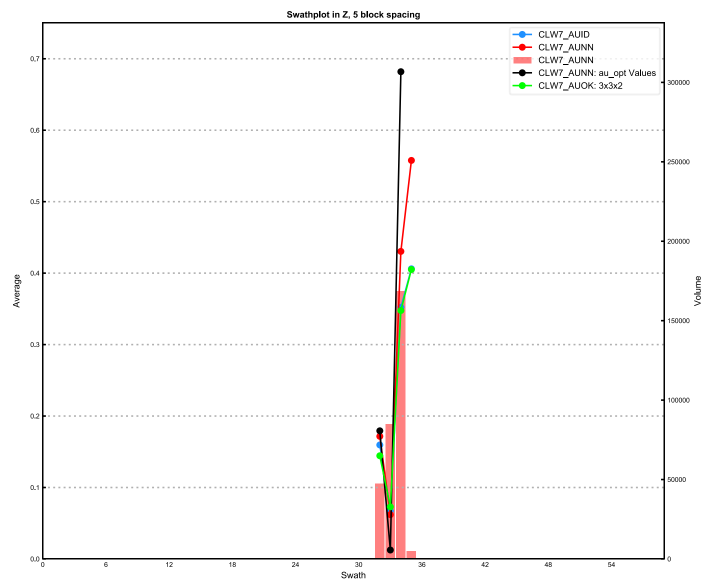
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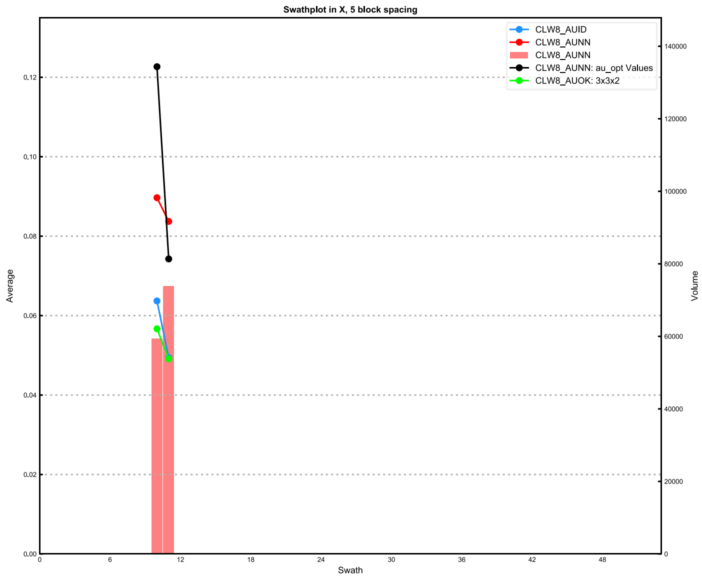
Volume
Swath

CLW7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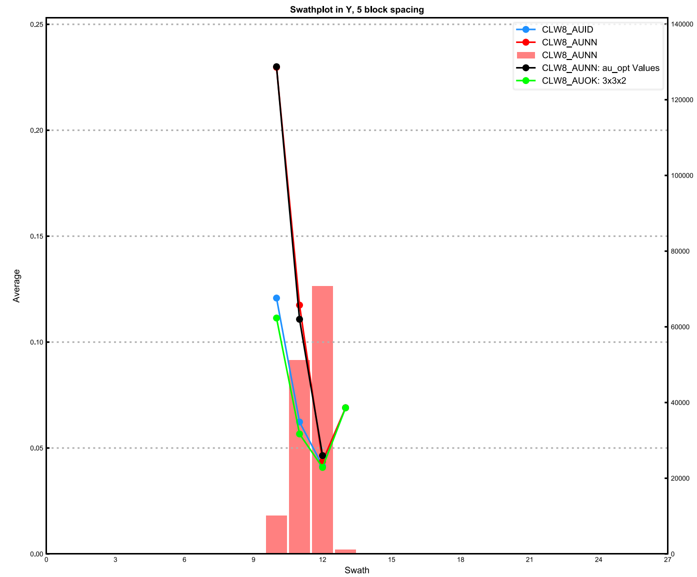
Swath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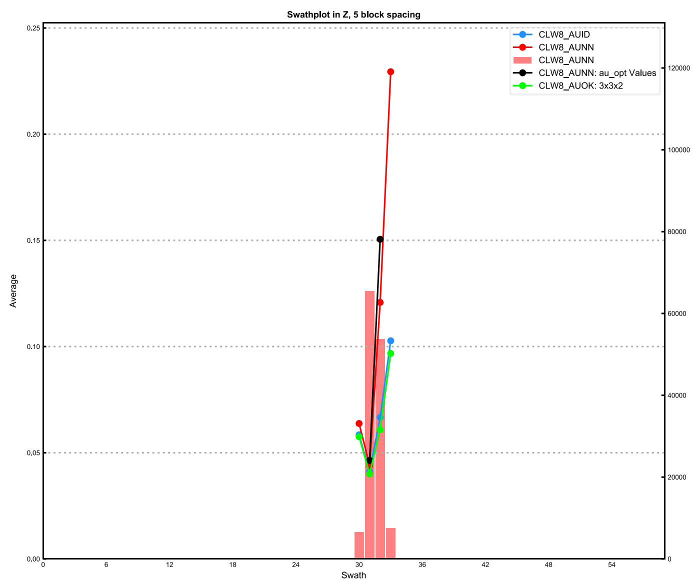
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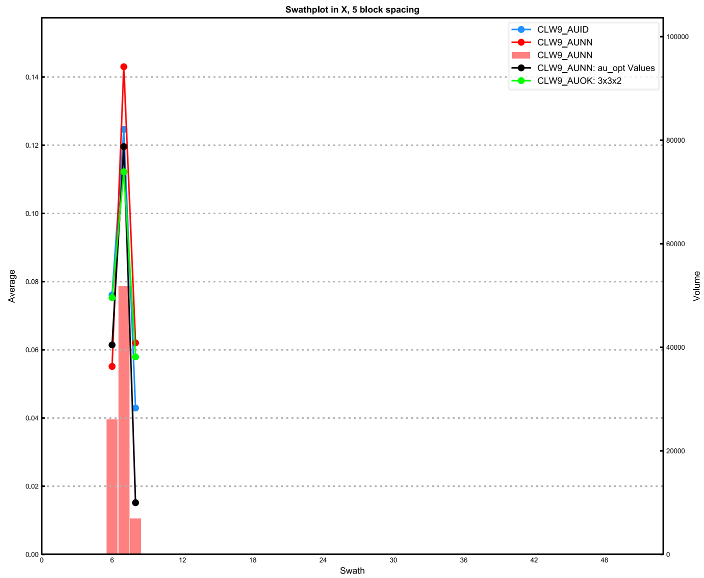
Volume
Swath

CLW8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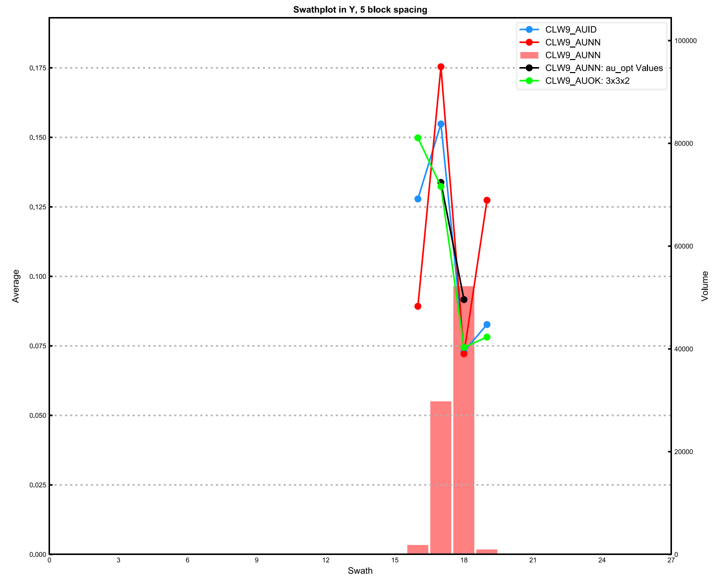
Volume
Swath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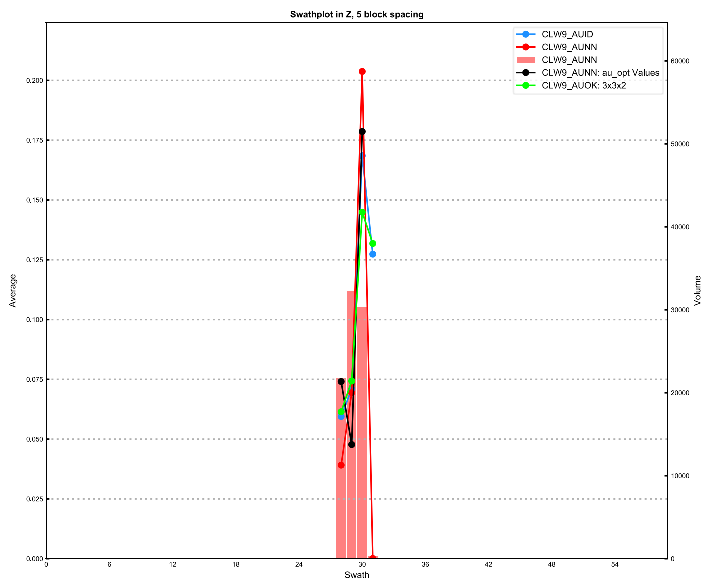
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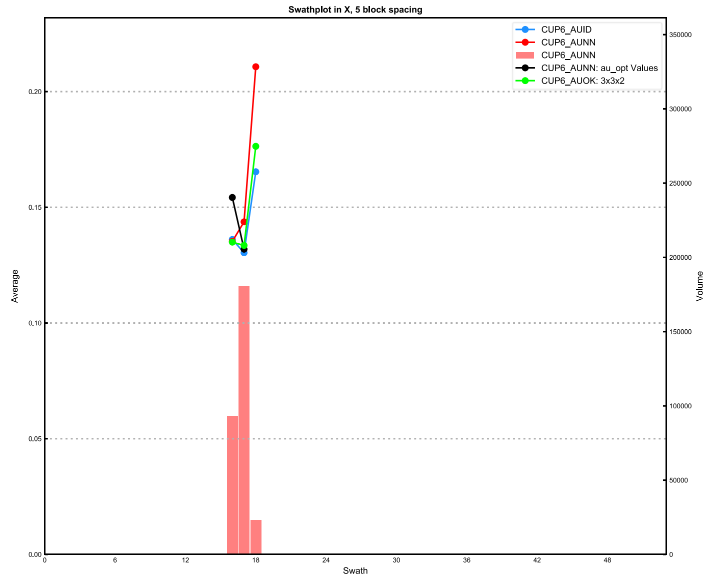
Average
Volume
Swath

CLW9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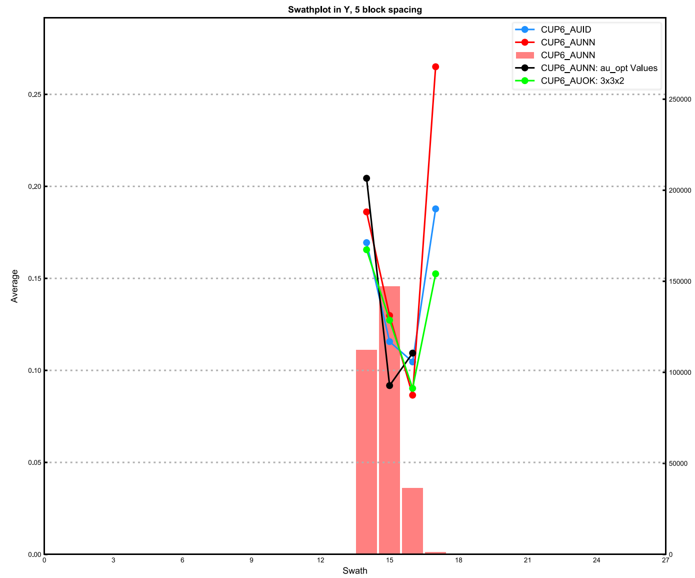
Volume
Swath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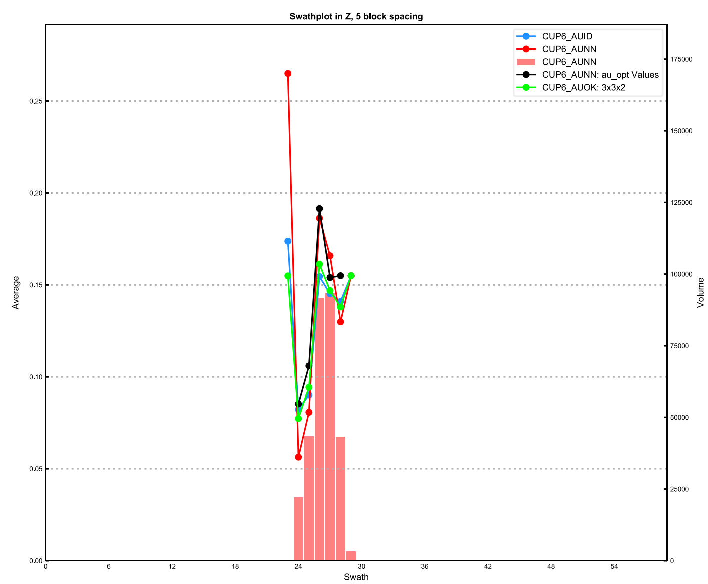
Volume
Swath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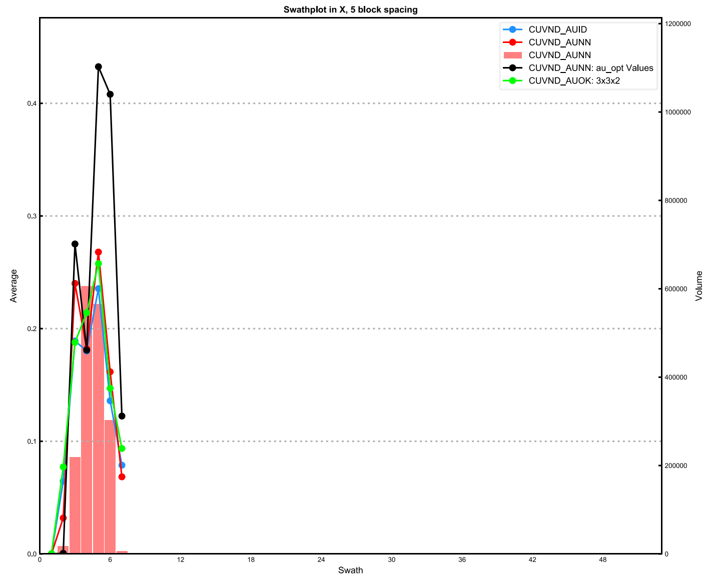
Average
Volume
Swath

CUP6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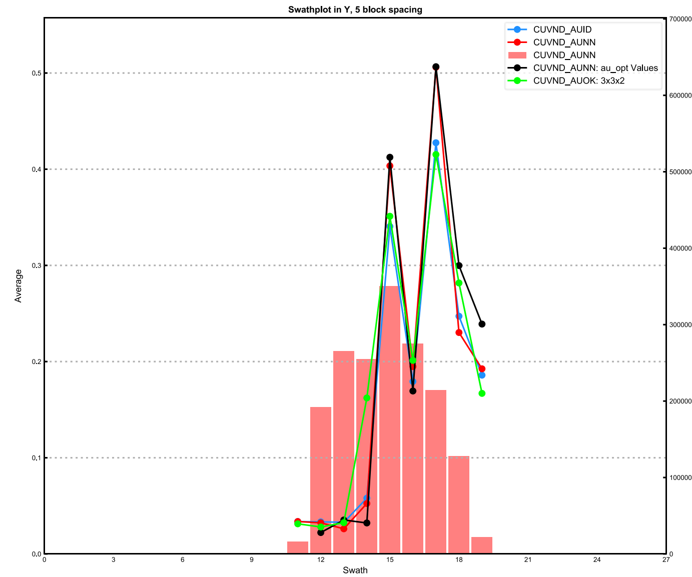
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Volume
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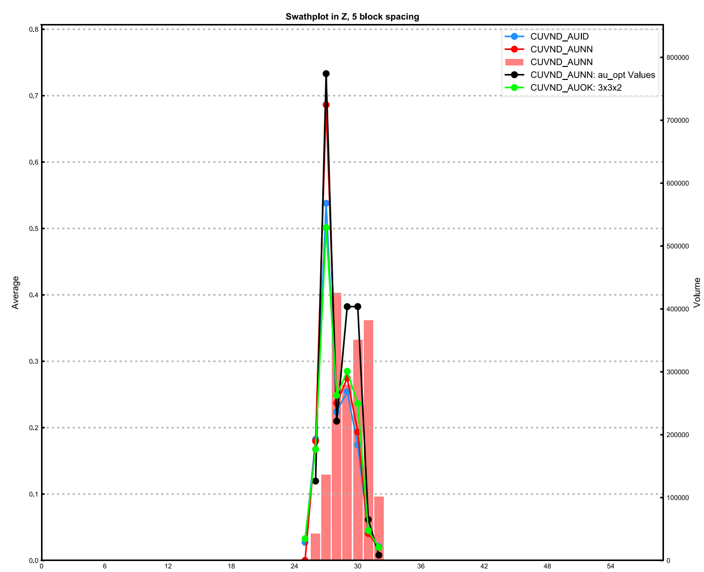
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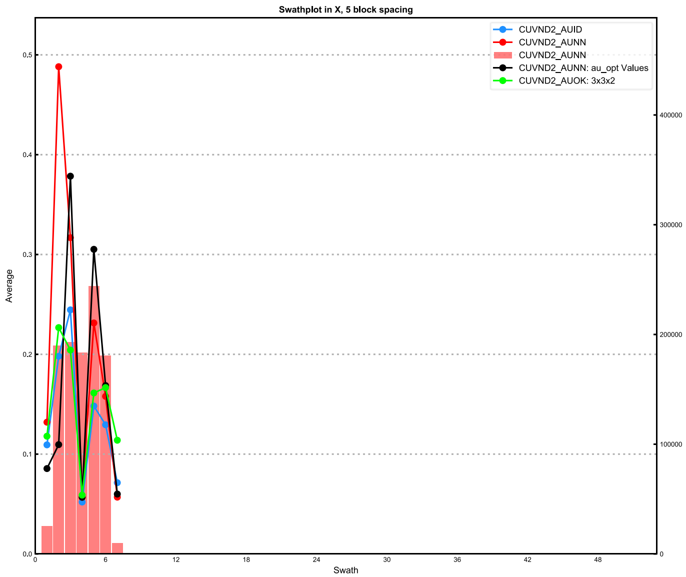
Average
Volume
Swath

CUVND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Volume
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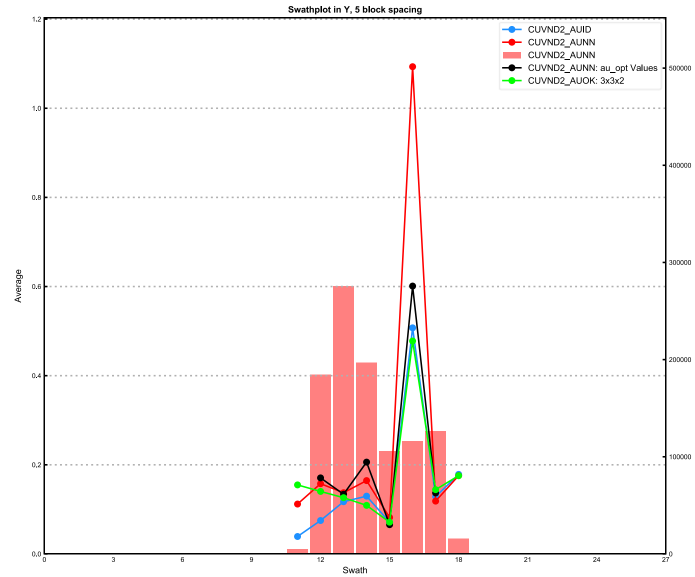
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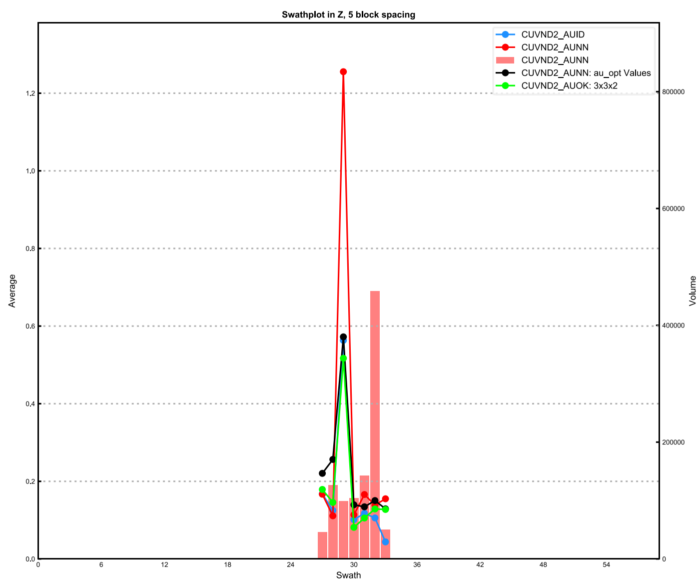
Volume
Swath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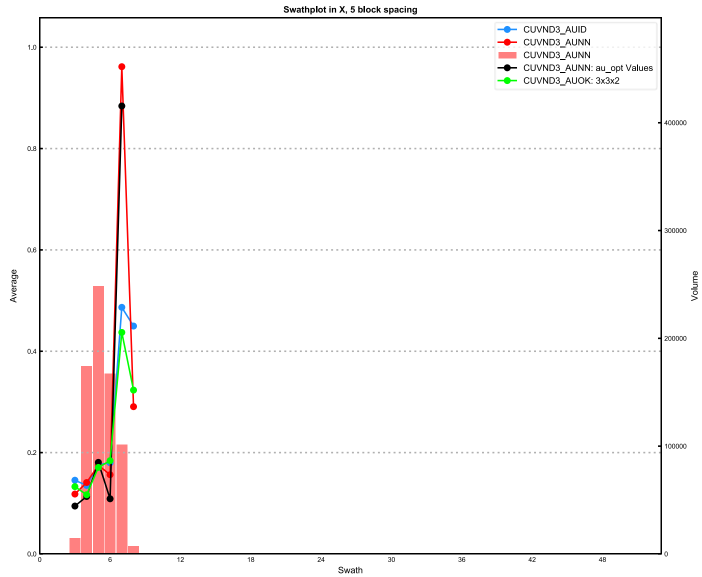
Average
Volume
Swath

CUVND2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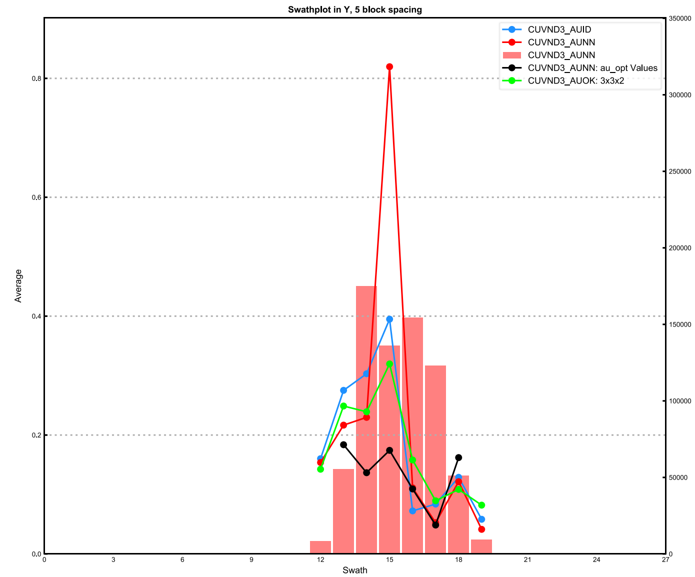
Volume
Swath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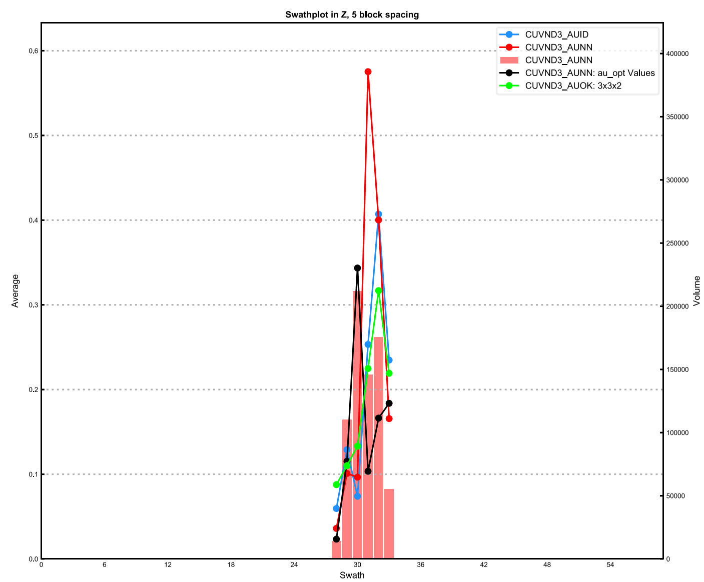
Volume
Swath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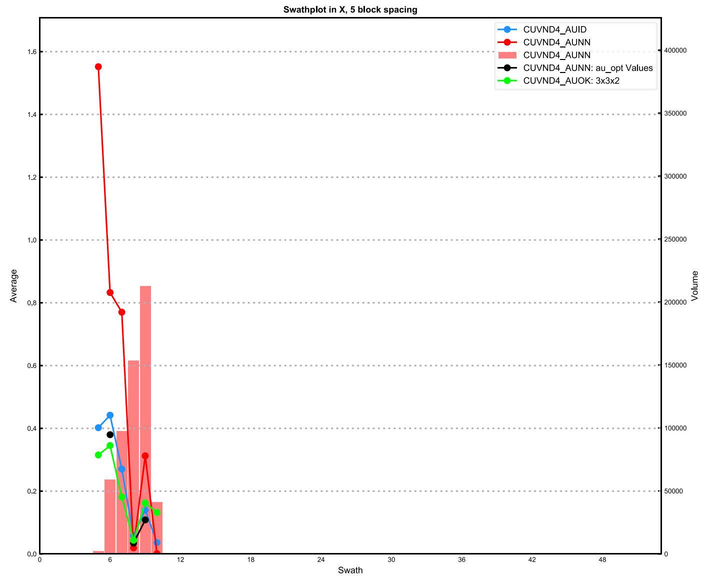
Average
Volume
Swath

CUVND3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Volume
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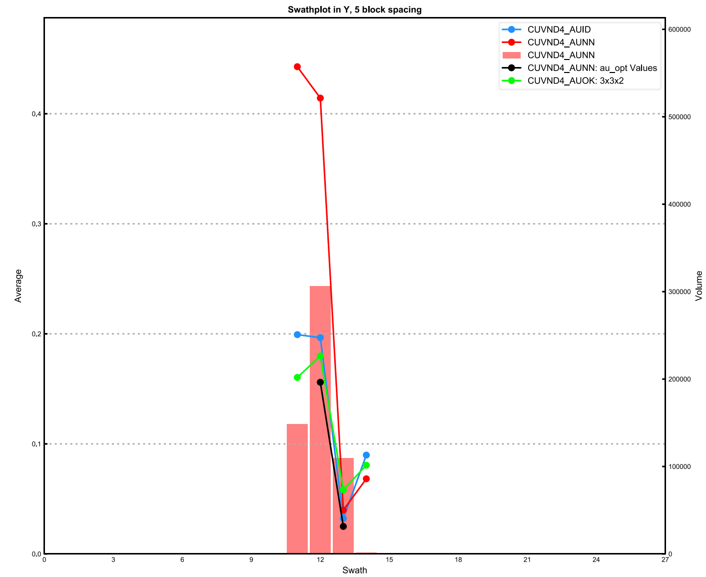
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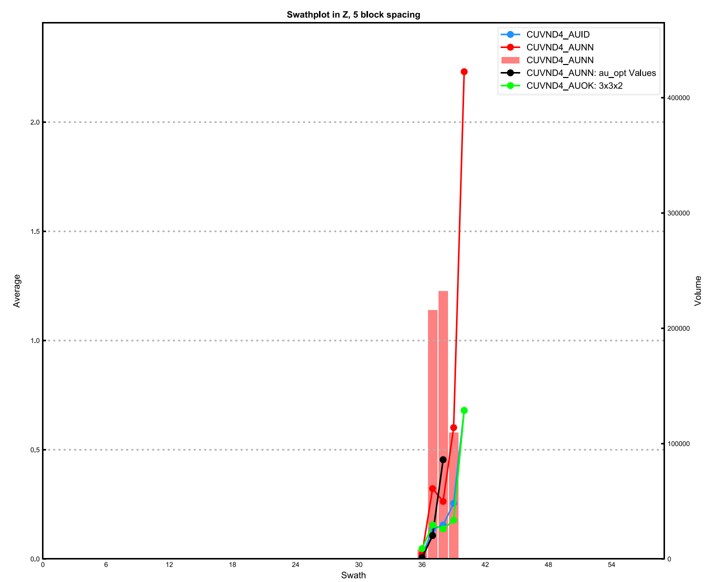
Volume
Swath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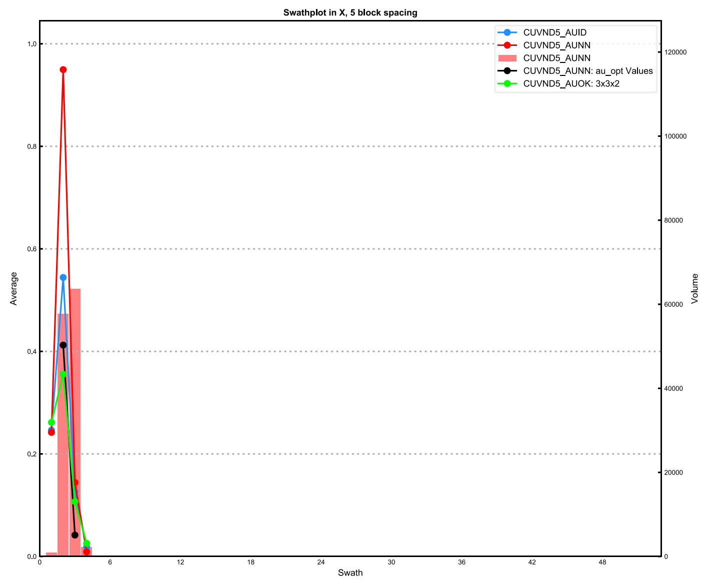
Average
Volume
Swath

CUVND4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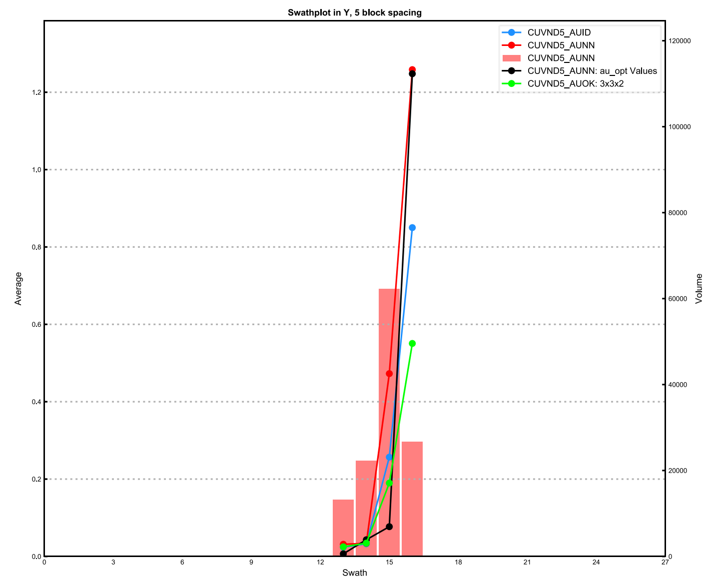
Swath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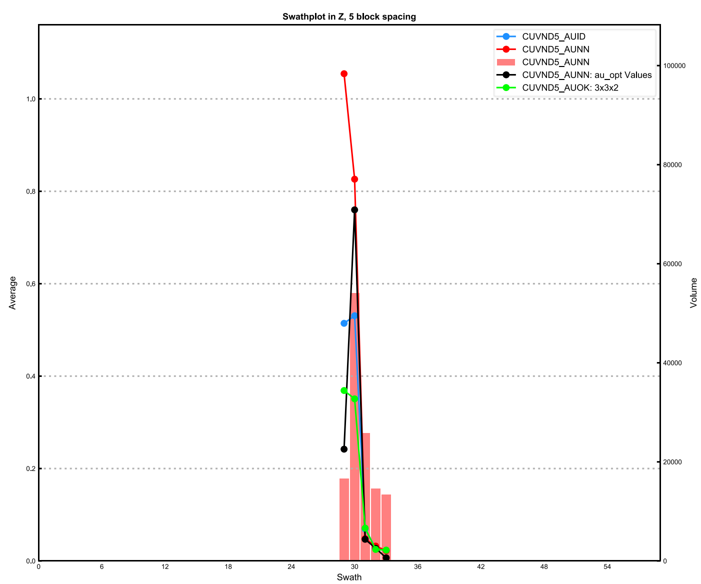
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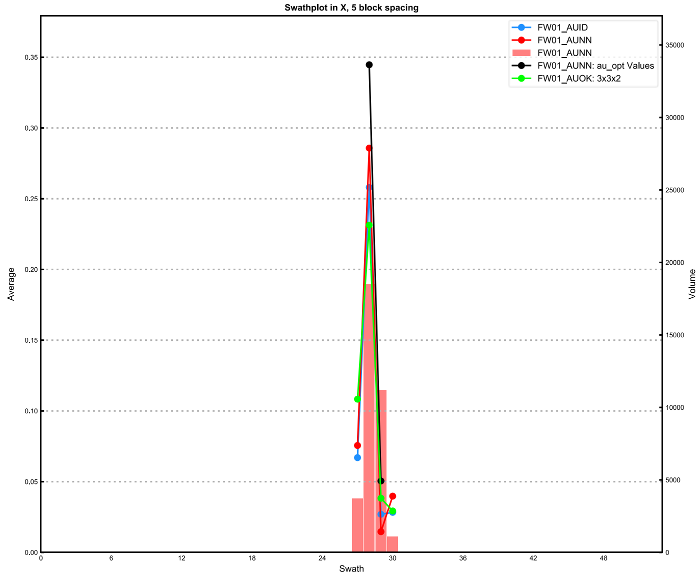
Volume
Swath

CUVND5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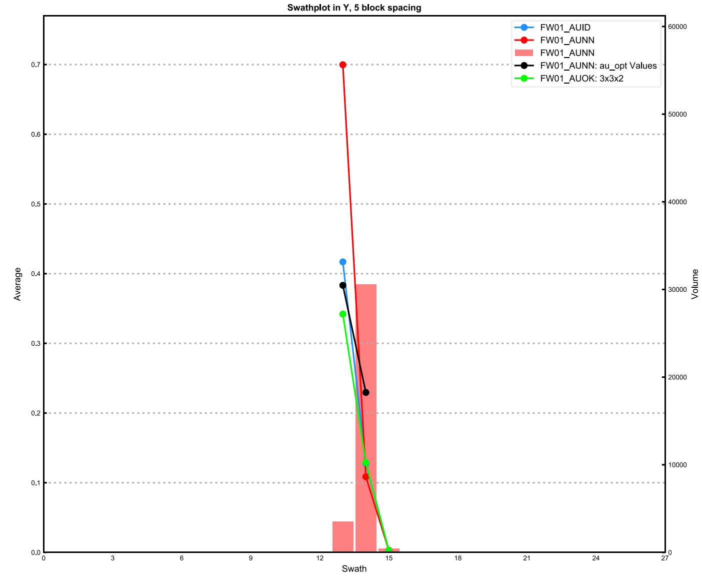
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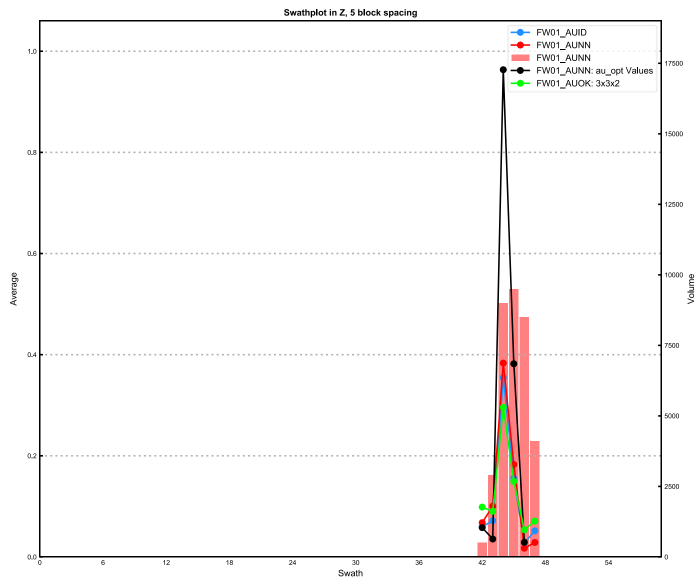
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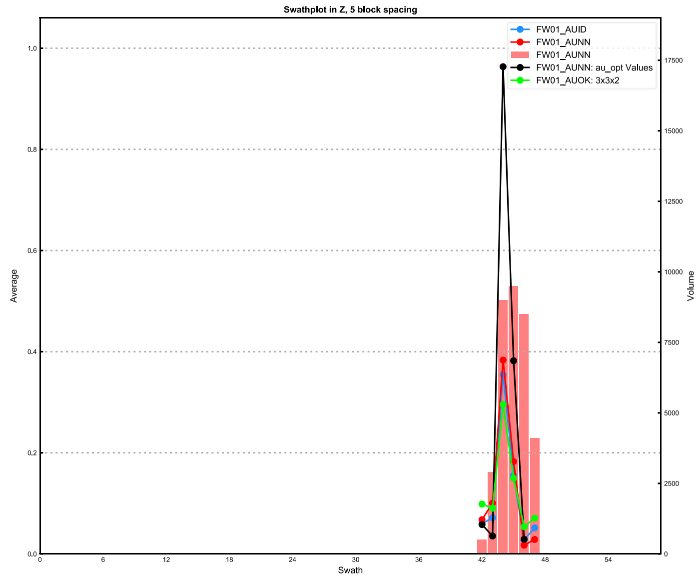
Volume
Swath

FW01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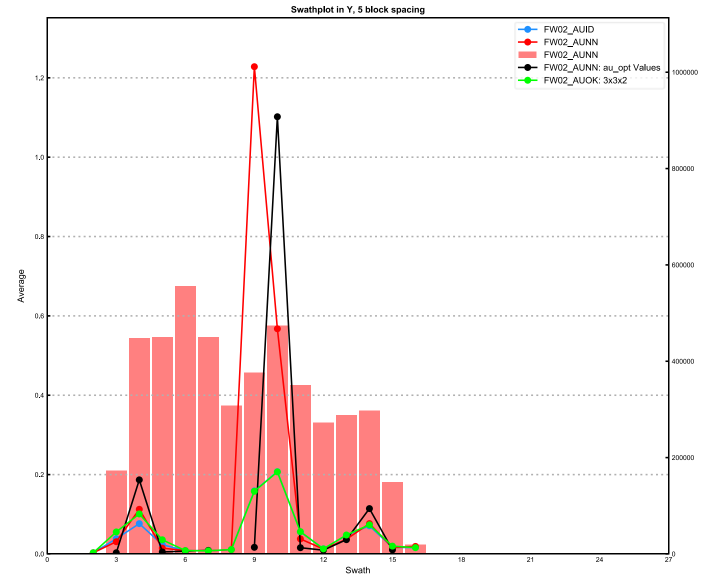
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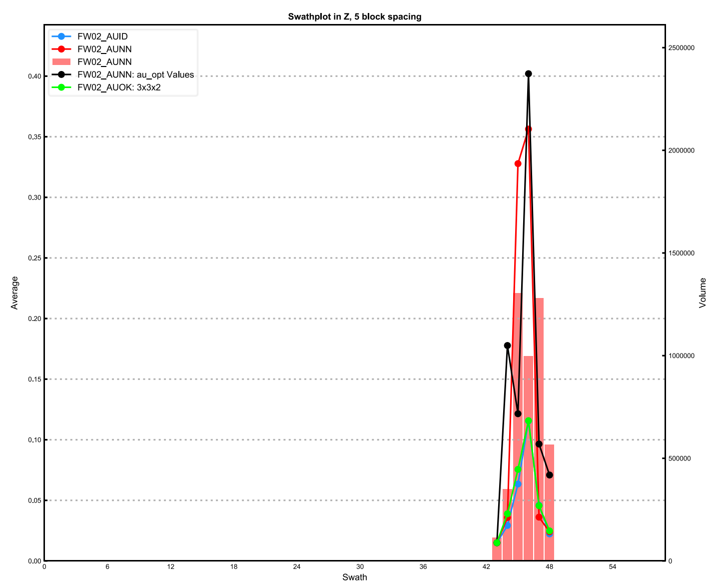
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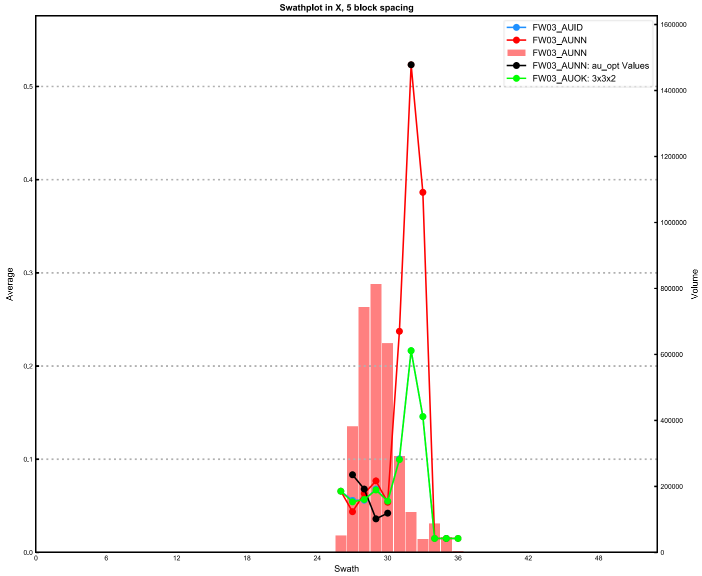
Volume
Swath

FW02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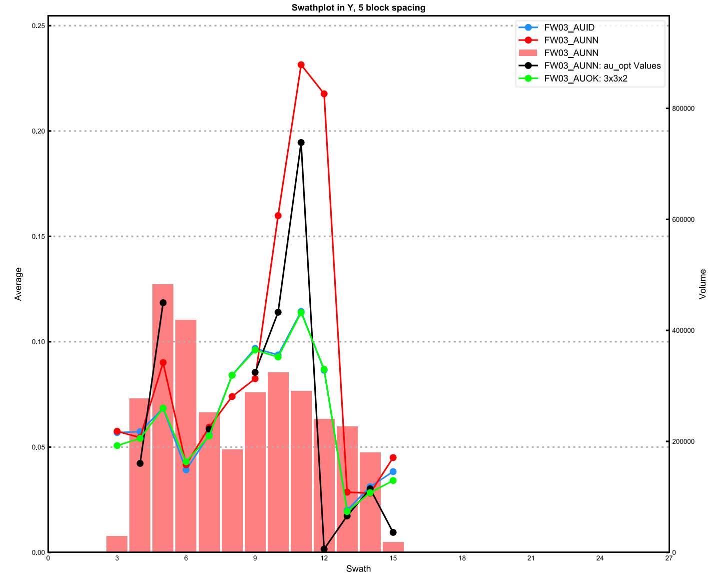
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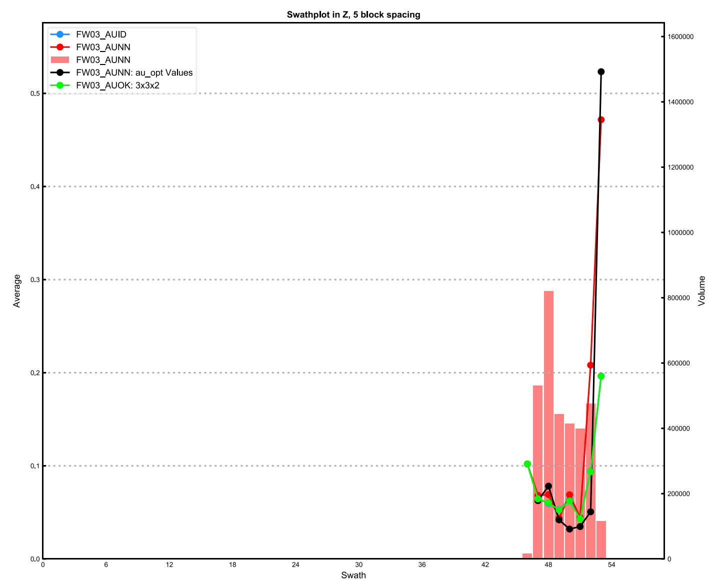
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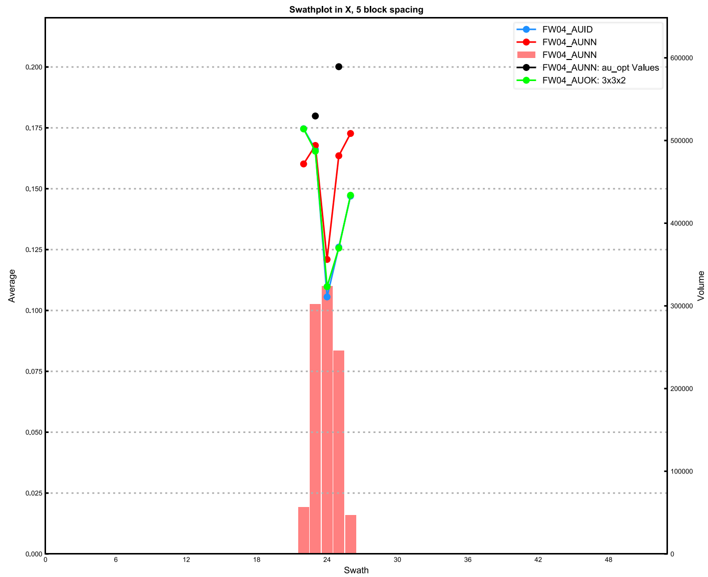
Volume
Swath

FW03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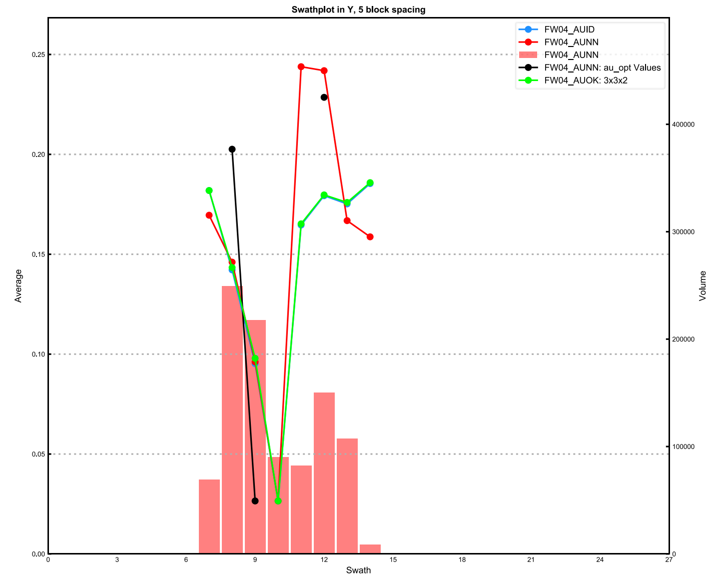
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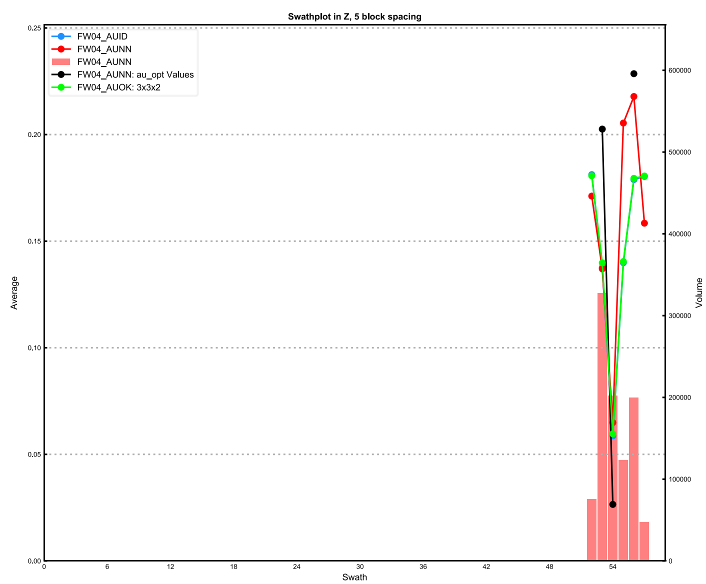
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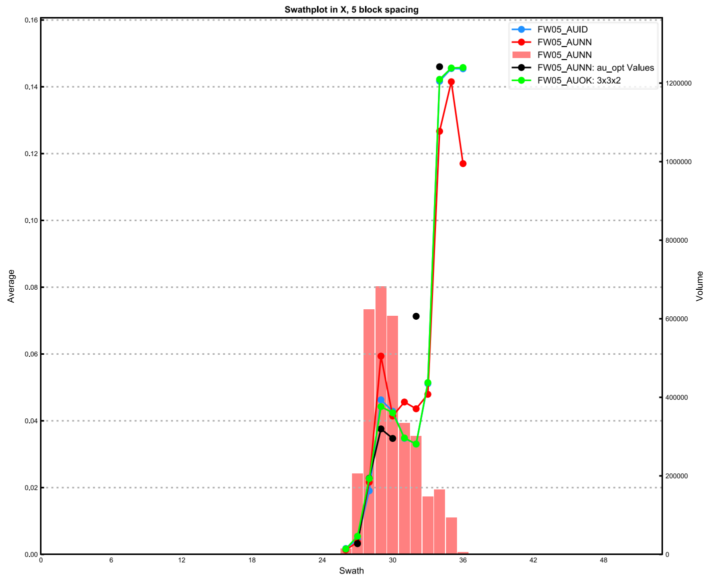
Volume
Swath

FW04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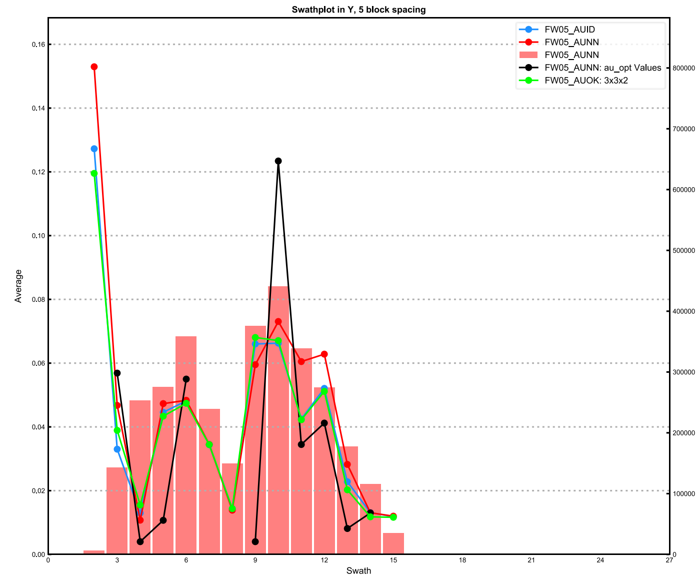
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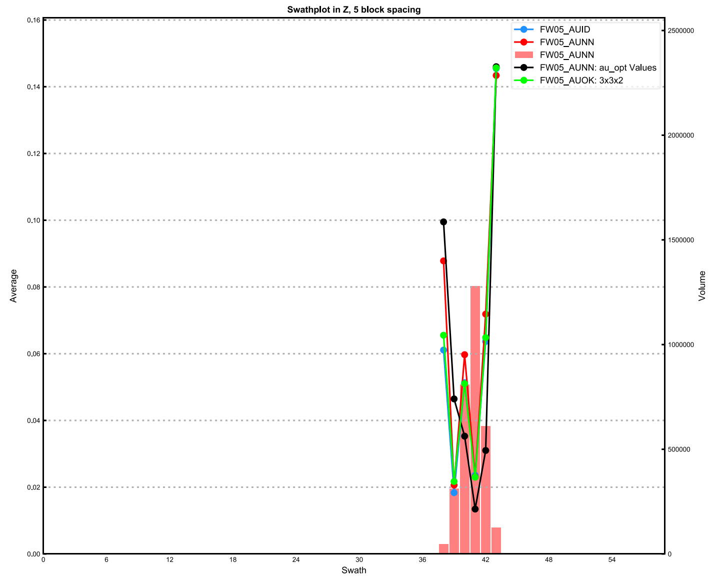
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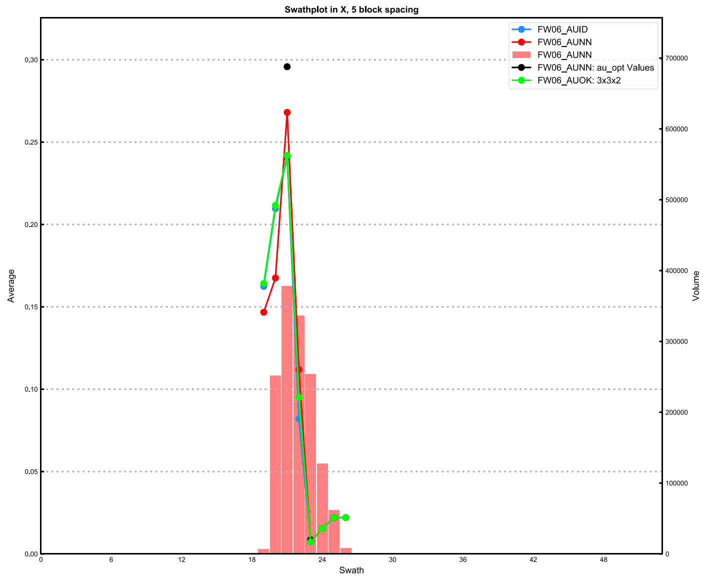
Volume
Swath

FW05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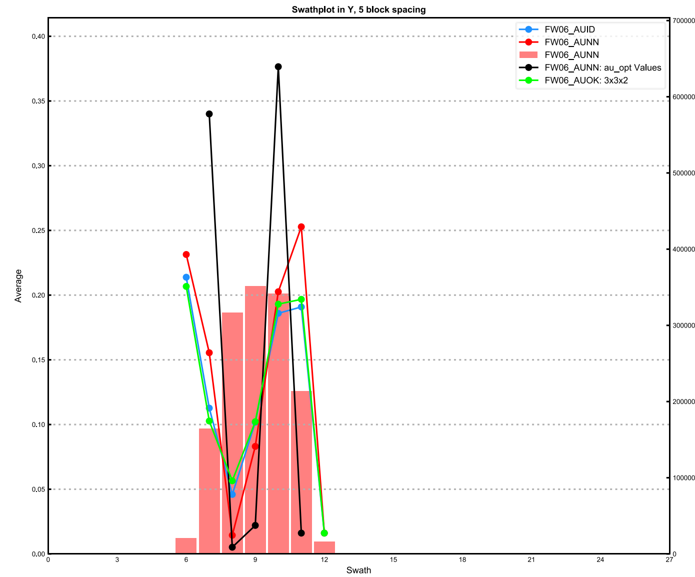
Volume
Swath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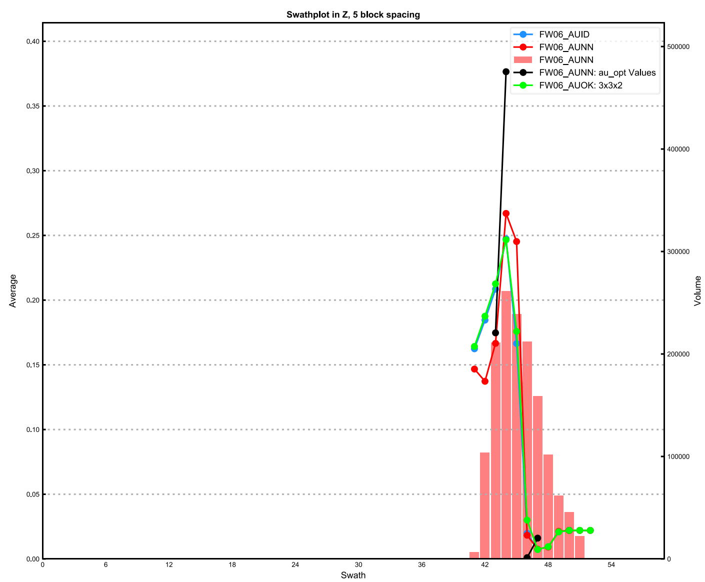
Average
Volume
Swath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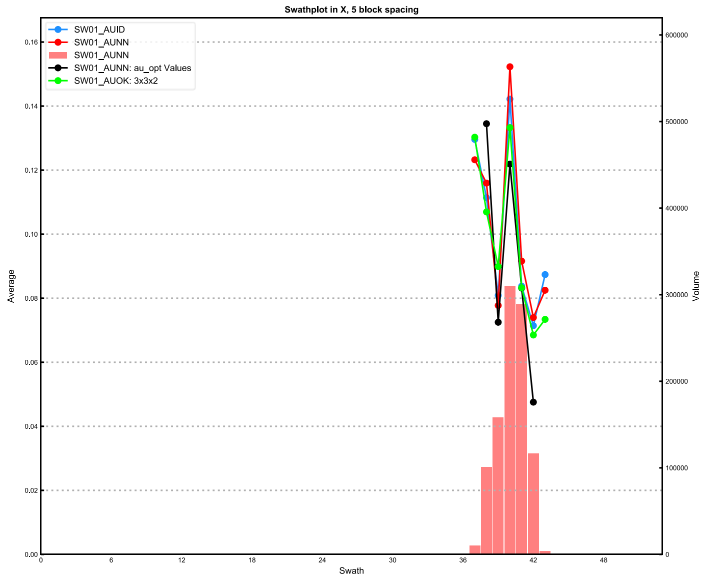
Average
Volume
Swath

FW06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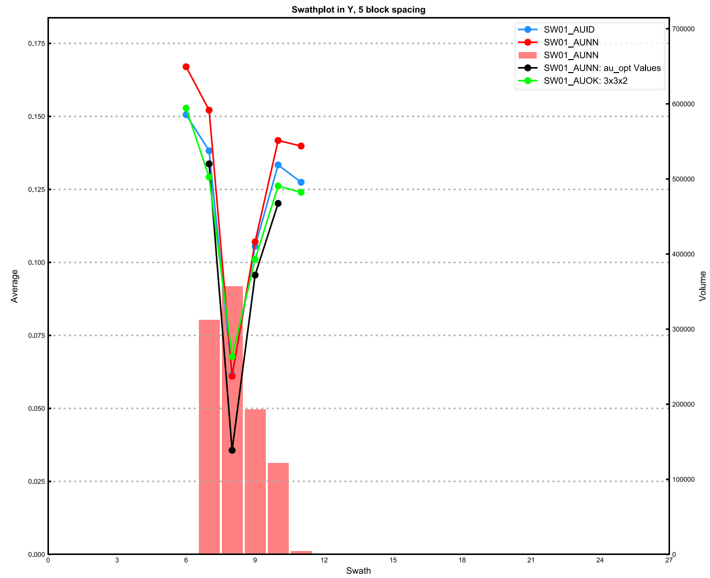
Average
Volume
Swath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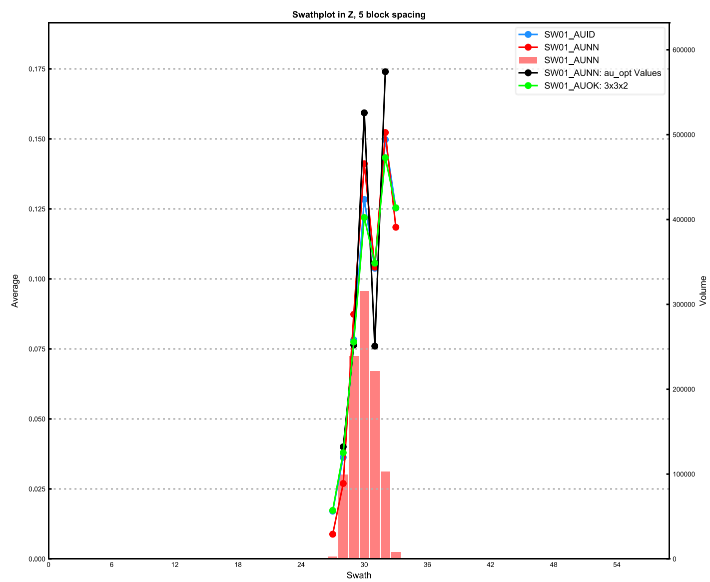
Average
Volume
Swath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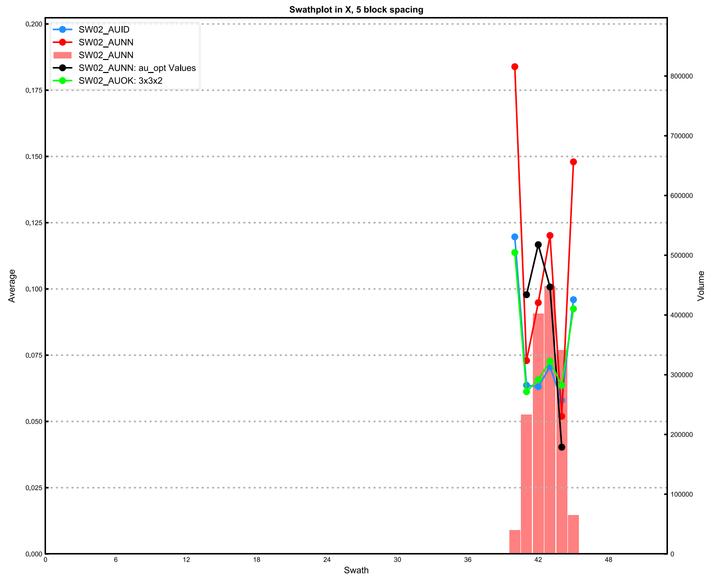
Average
Volume
Swath

S01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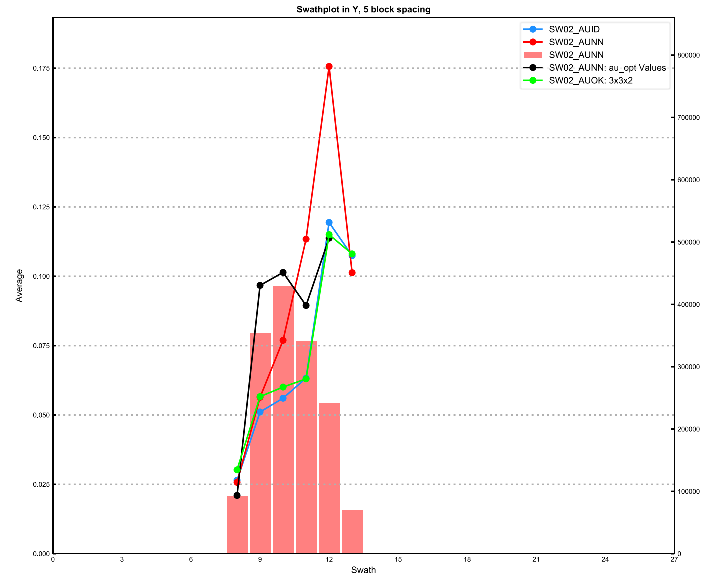
Average
Volume
Swath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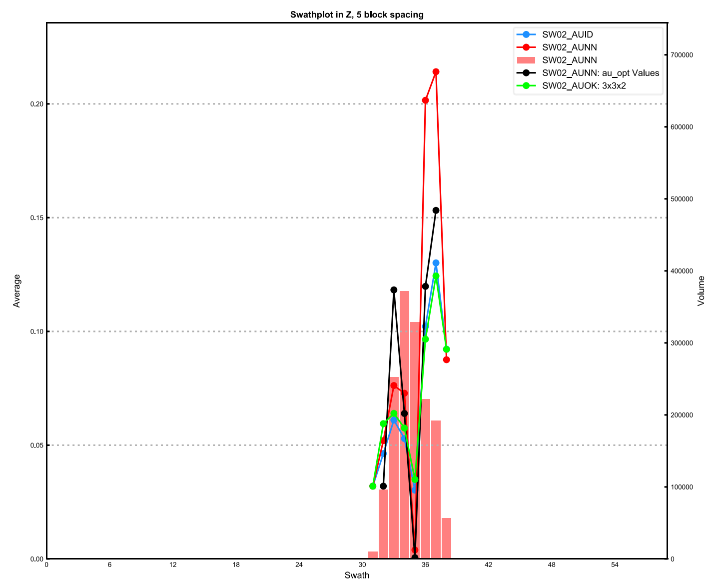
Average
Volume
Swath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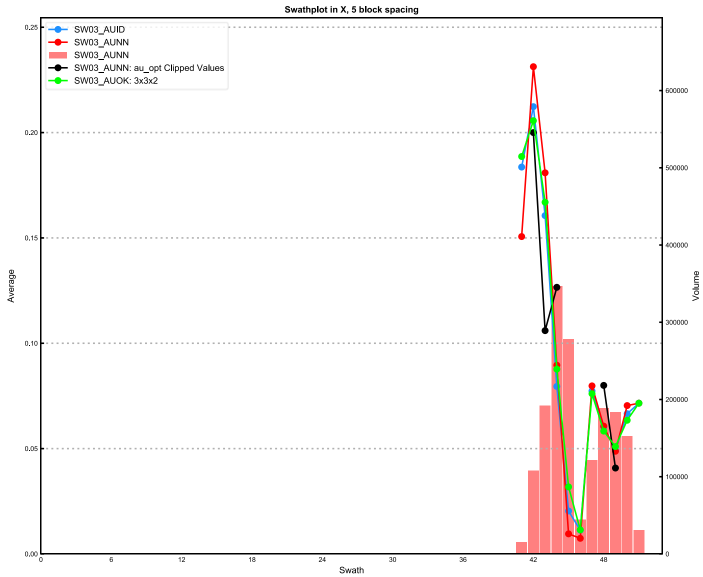
Average
Volume
Swath

S02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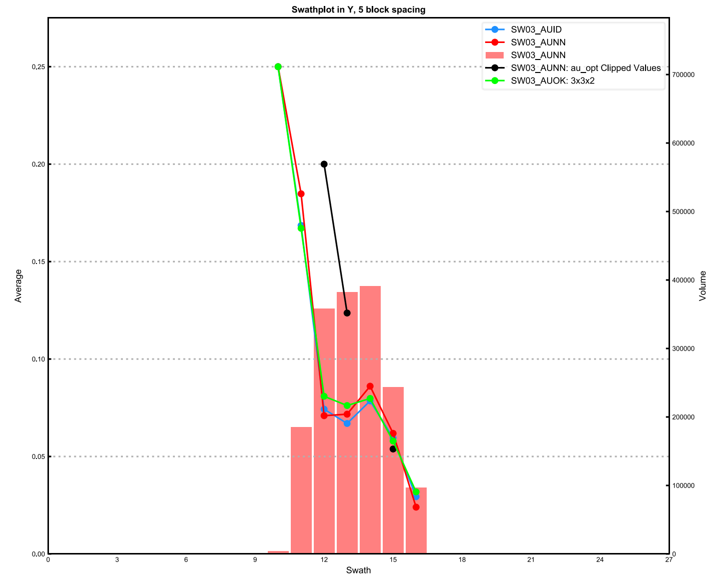
Average
Volume
Swath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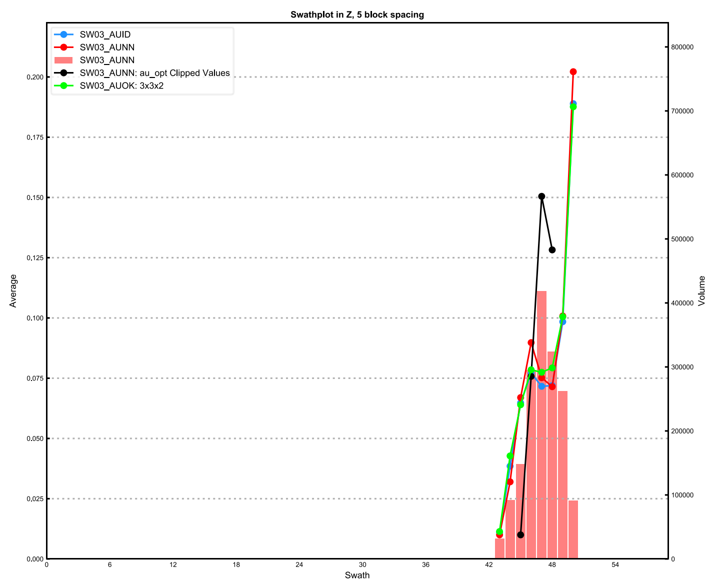
Average
Volume
Swath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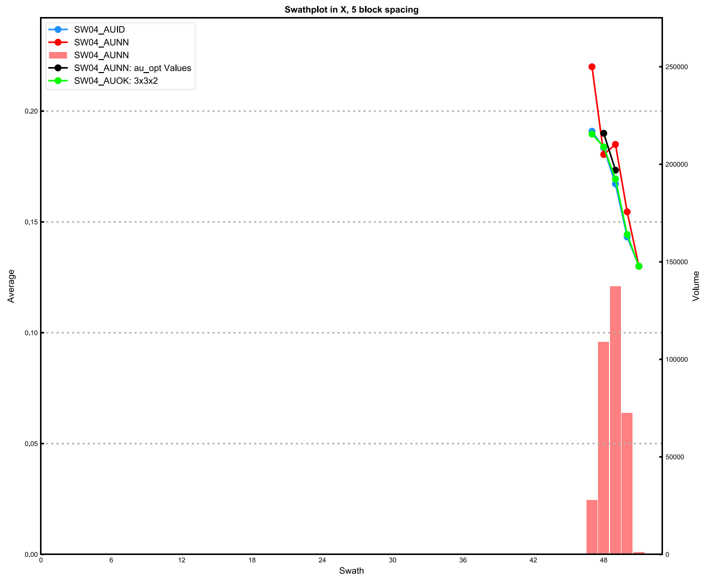
Average
Volume
Swath

S03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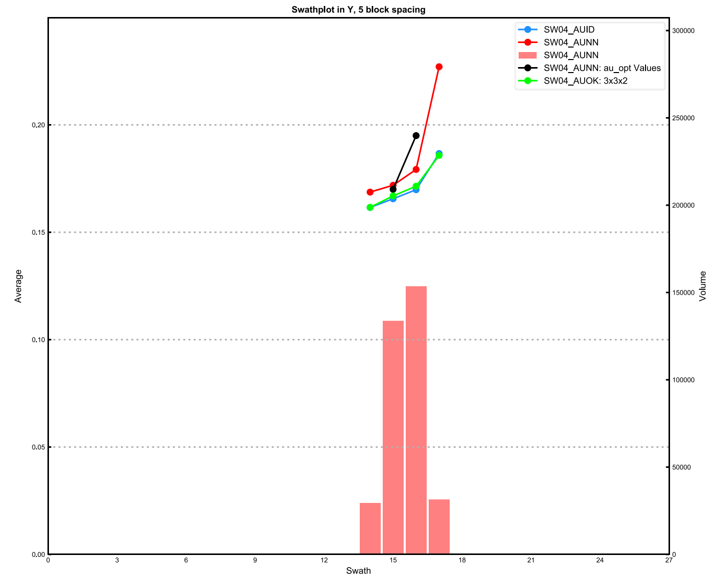
Average
Volume
Swath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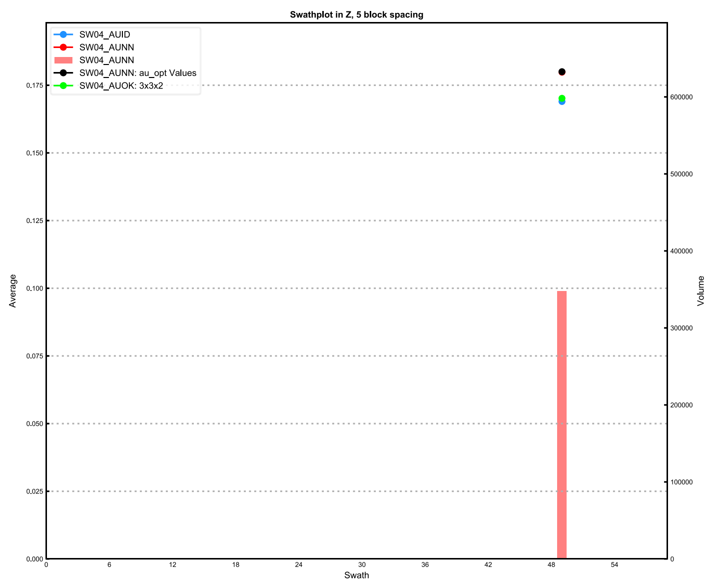
Average
Volume
Swath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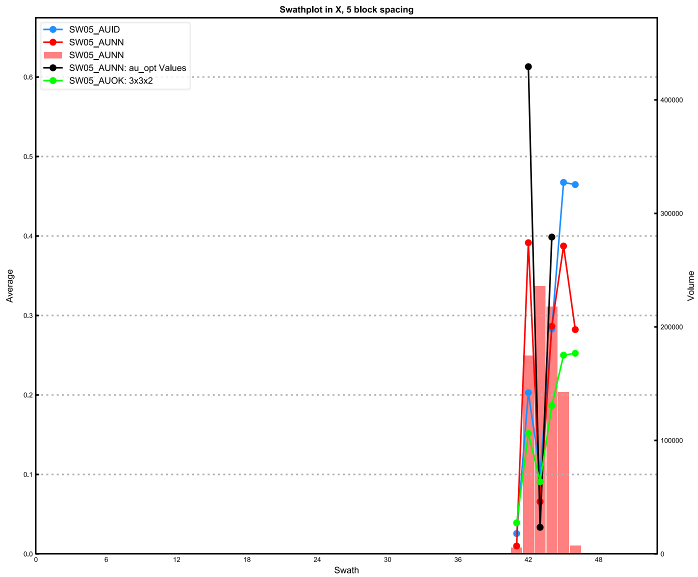
Average
Volume
Swath

S04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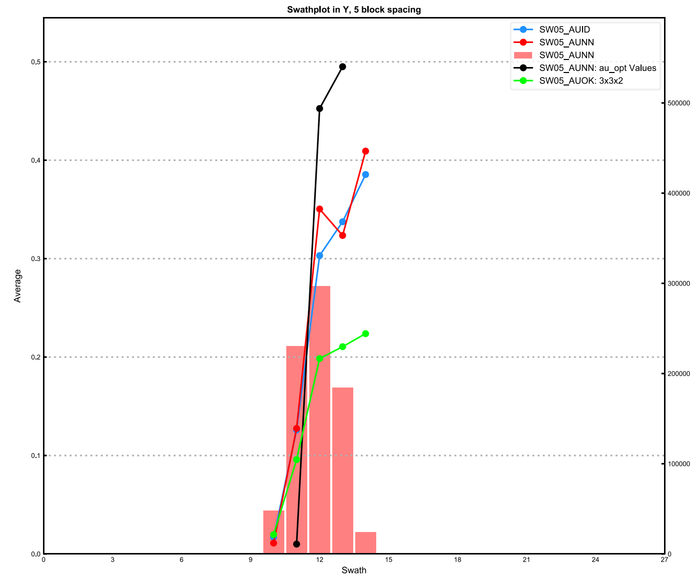
Average
Volume
Swath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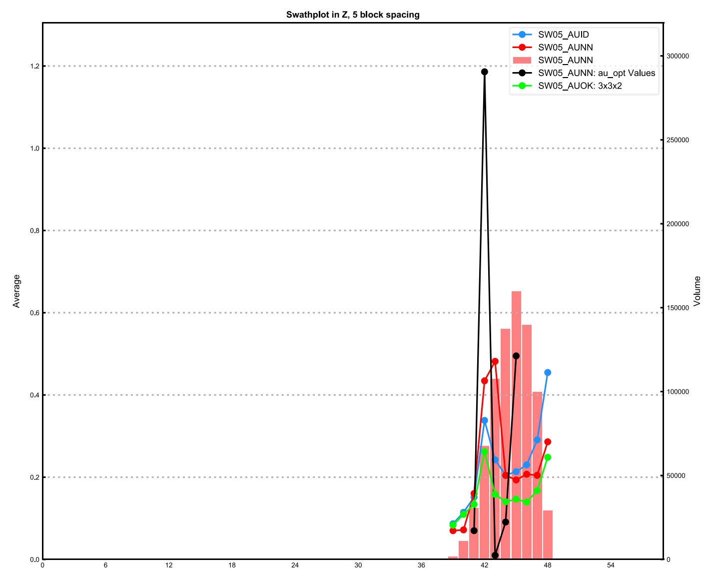
Average
Volume
Swath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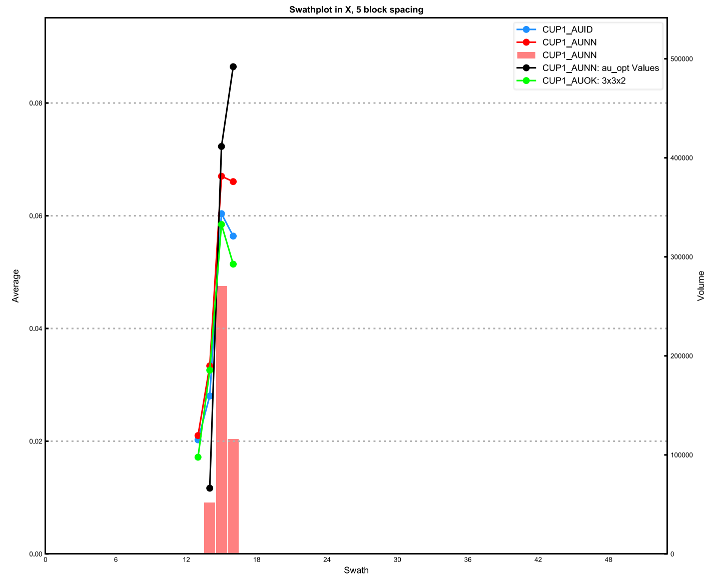
Average
Volume
Swath

S05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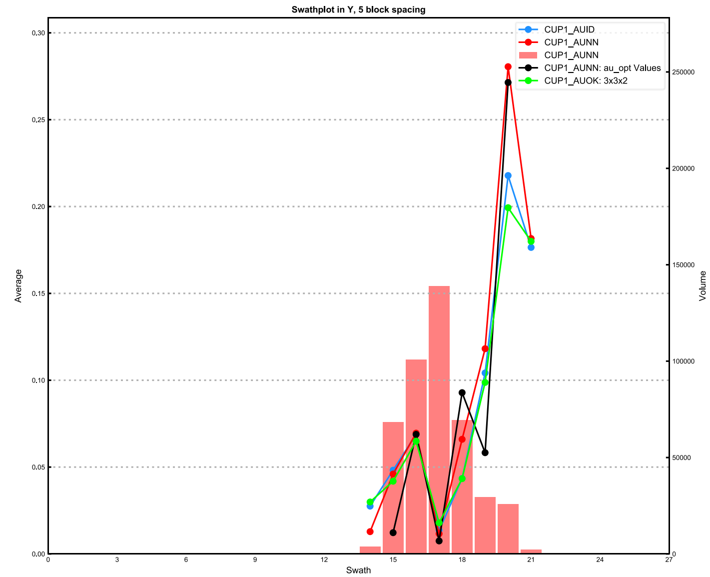
Average
Volume
Swath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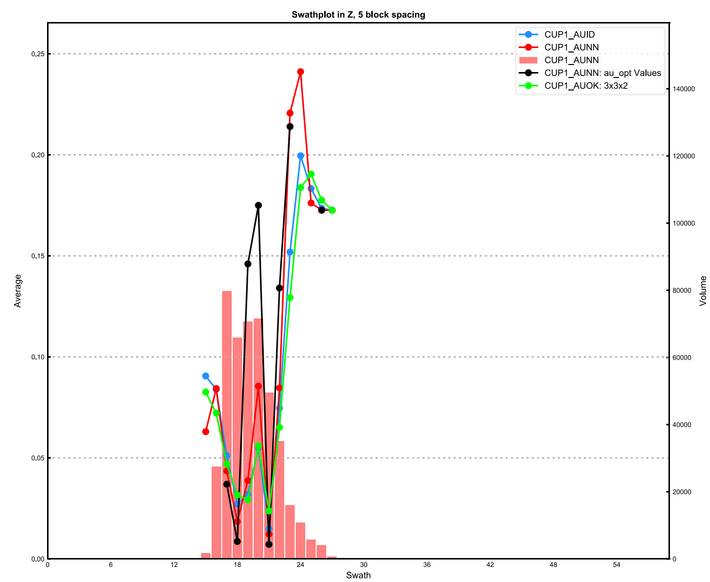
Average
Volume
Swath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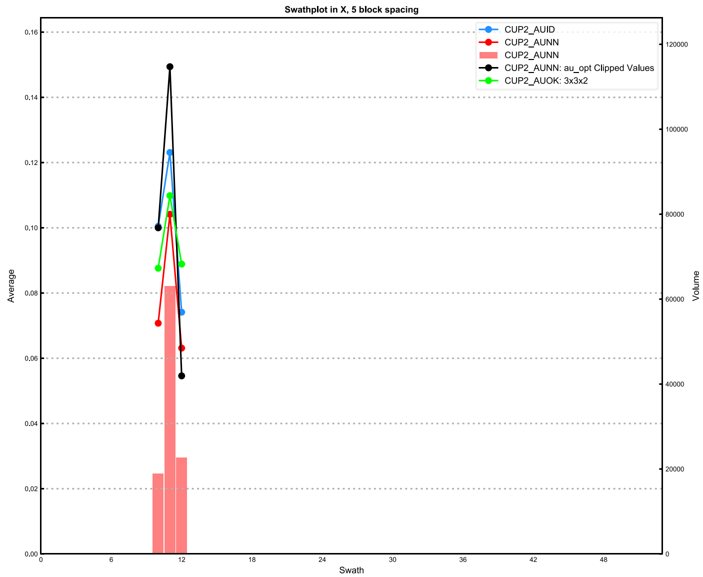
CUP1_AUOK: 3x3x2
Average
Volume
Swath

CUP1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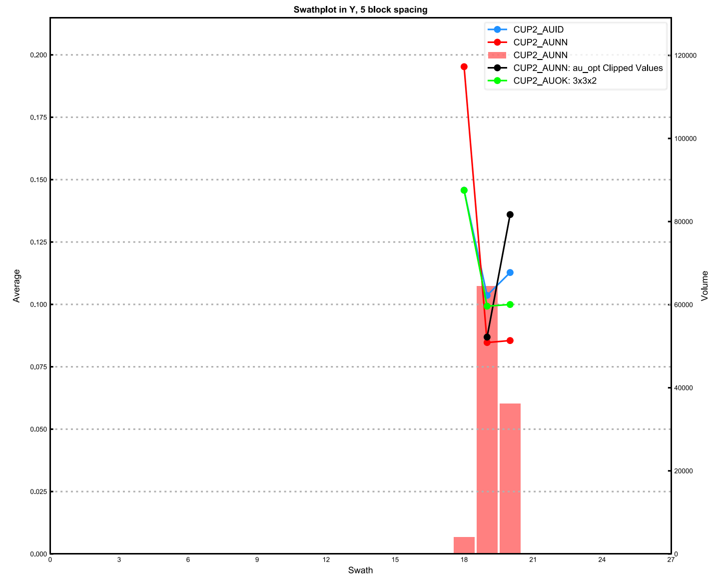
Average
Volume
Swath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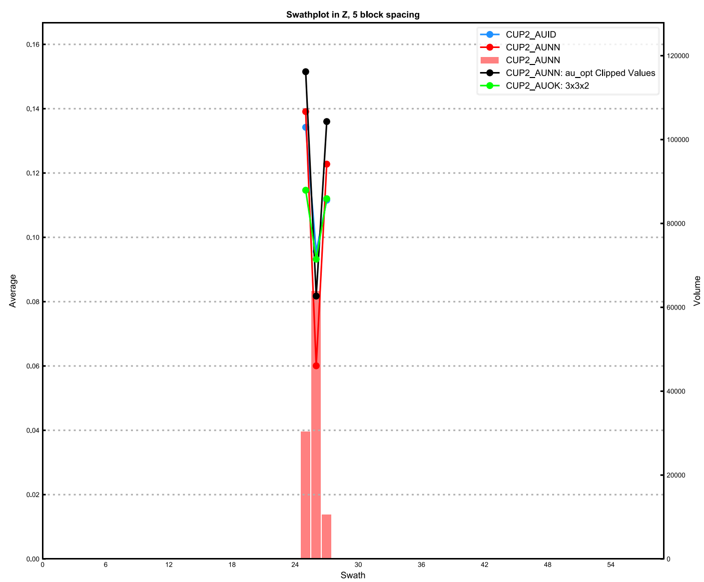
Average
Volume
Swath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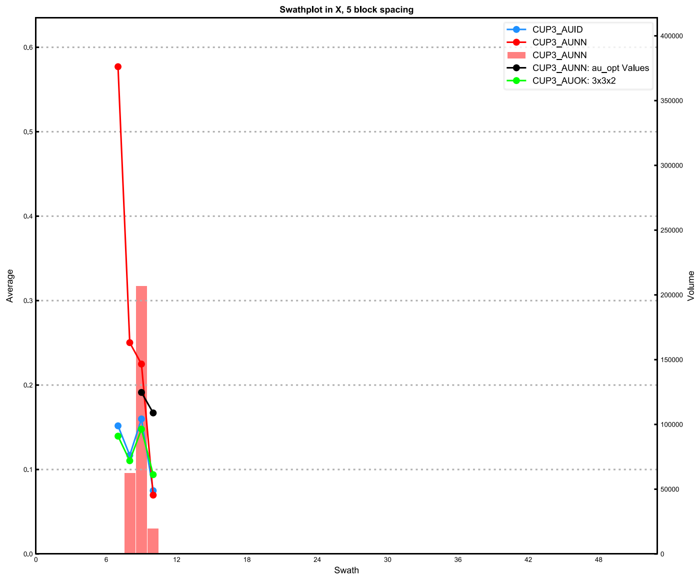
Average
Volume
Swath

CUP2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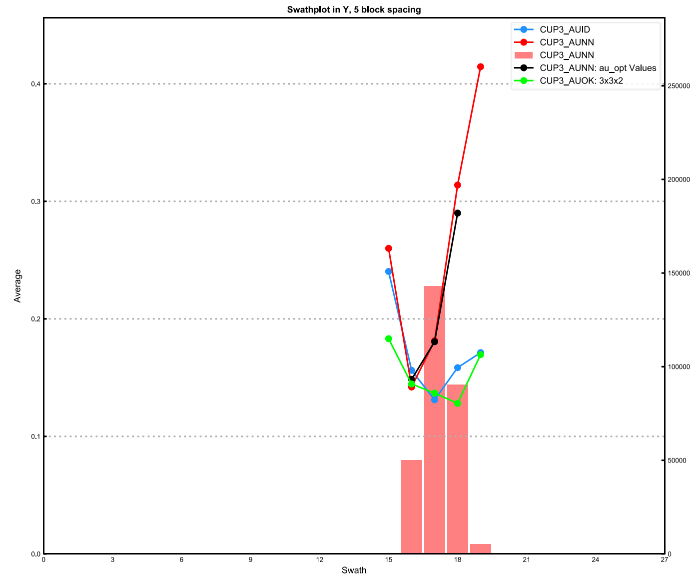
Average
Volume
Swath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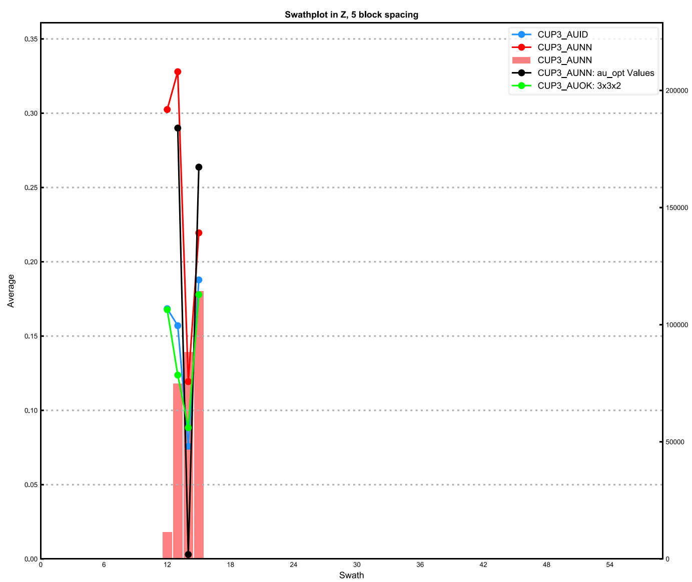
Average
Volume
Swath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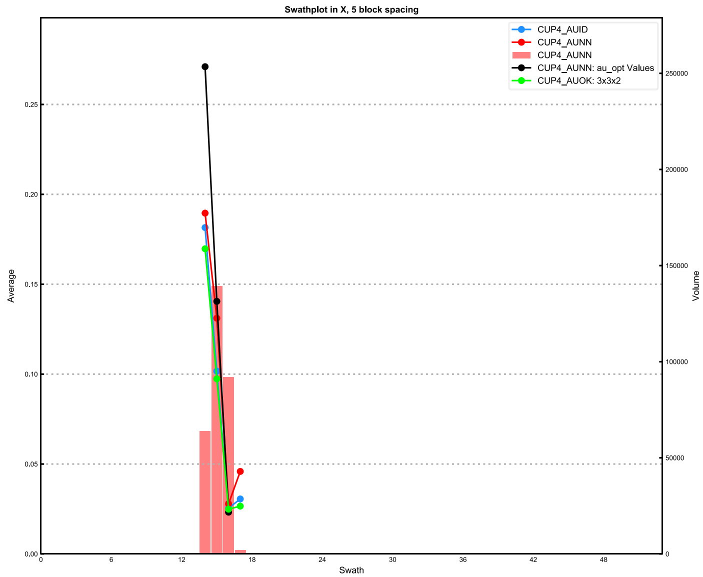
CUP3_AUOK: 3x3x2
Average
Volume
Swath

CUP3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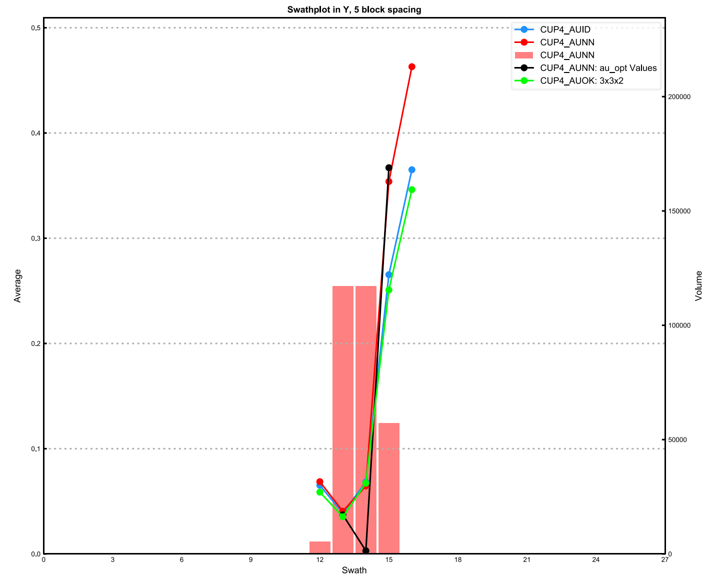
Volume
Swath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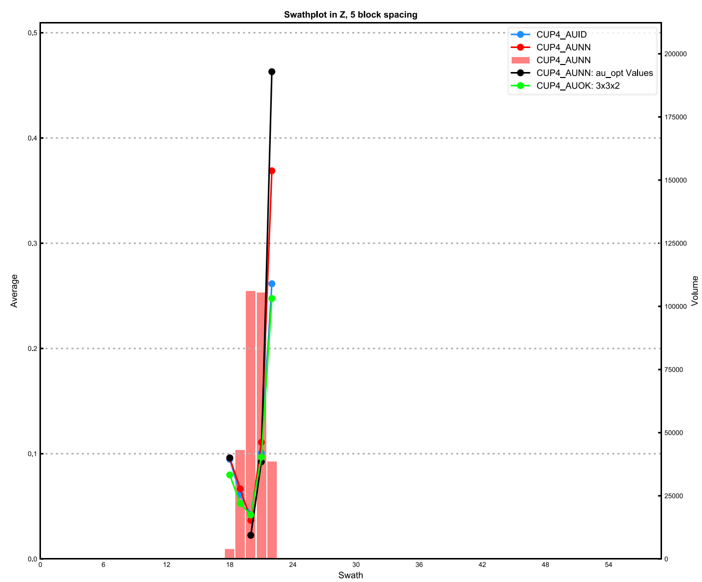
Volume
Swath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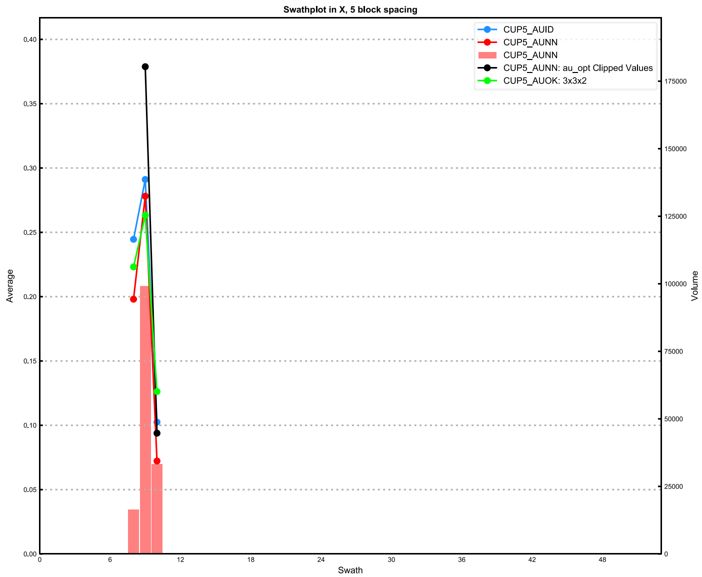
Average
Volume
Swath

CUP4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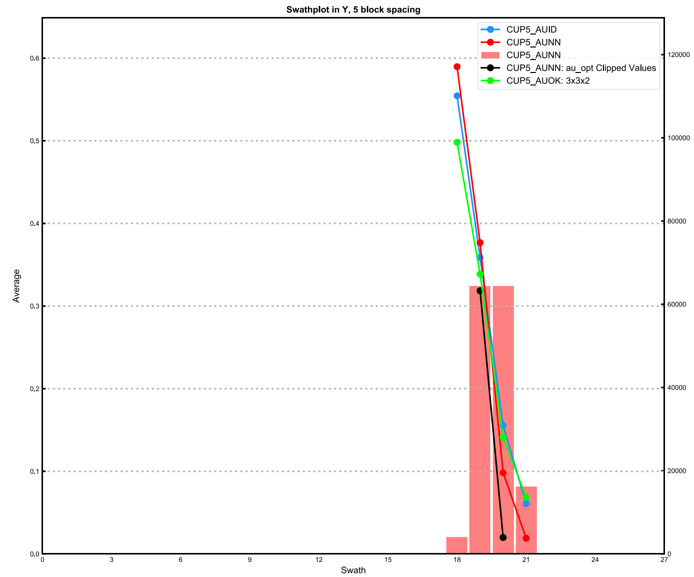
Average
Volume
Swath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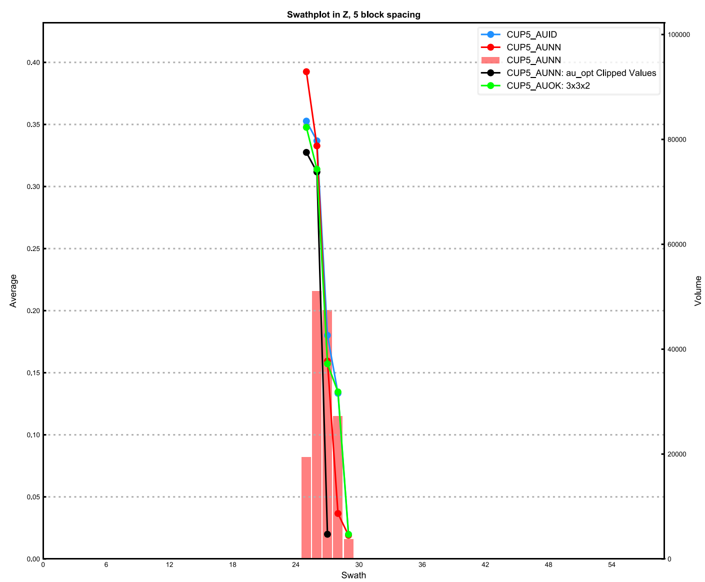
Volume
Swath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CUP5_AUOK: 3x3x2
Average
Volume
Swath

CUP5