



# NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico

Effective Date: January 1, 2023

Prepared for: Capstone Copper Corp.

**Authors:**

Peter Amelunxen, P.Eng., Capstone Copper Corp.

Clay Craig, P.Eng., Capstone Copper Corp.

Jenna Hardy, P.Geo., FGC, Nimbus Management Ltd.

Ali Jalbout, P.Eng., Ph.D., ASA Geotech

Vivienne McLennan, P.Geo., Capstone Copper Corp.

Josh Moncrieff, P.Geo., Capstone Copper Corp.

**IMPORTANT NOTICE**

This report was prepared as a National Instrument 43-101 Technical Report for Capstone Copper Corp. ("Capstone") by ASA Geotech, Nimbus Management Ltd. and Capstone Copper Corp., collectively the "Report Authors". The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Capstone Copper Corp. subject to terms and conditions of the individual contracts with the Report Authors.

# Table of Contents

1	Summary .....	14
1.1	Introduction .....	14
1.2	Terms of Reference .....	14
1.3	Property Setting .....	14
1.4	Mineral Concessions, Surface Rights, Royalties and Agreements .....	15
1.5	History .....	15
1.6	Geology and Exploration .....	16
1.7	Drilling and Sampling .....	17
1.8	Data Verification .....	19
1.9	Metallurgical Testwork .....	19
1.10	Mineral Resource Estimate .....	20
1.11	Mineral Resource Statement .....	21
1.12	Mineral Reserve Estimate .....	24
1.13	Mineral Reserve Statement .....	25
1.14	Life of Mine Plan .....	26
1.14.1	Introduction .....	26
1.14.2	Geotechnical Considerations .....	27
1.14.3	Mine Plan .....	27
1.15	Processing Methods .....	28
1.16	Infrastructure .....	28
1.17	Marketing .....	29
1.18	Environmental, Permitting and Social Considerations .....	29
1.18.1	Environmental .....	29
1.18.2	Permitting .....	30
1.18.3	Closure .....	30
1.18.4	Social .....	31
1.19	Capital Costs .....	31
1.20	Operating Costs .....	32
1.21	Economic Analysis .....	32
1.22	Interpretation and Conclusions .....	32
1.23	Risks and Opportunities .....	32
1.24	Recommendations .....	33
2	Introduction .....	35
2.1	Introduction .....	35
2.2	Terms of Reference .....	35
2.3	Qualified Persons .....	36
2.4	Site Visits and Scope of Personal Inspection .....	36
2.5	Information Sources, Effective Dates and References .....	37
2.6	Previous Technical Reports .....	42
3	Reliance on Other Experts .....	43

4	Property Description and Location.....	44
4.1	Introduction.....	44
4.2	Mining Concessions .....	45
4.3	Obligations to Retain the Mining Concessions .....	47
4.4	Royalties and Agreements .....	48
4.4.1	Basis.....	48
4.4.2	Golden Minerals .....	48
4.4.3	Endeavour Silver Corp. ....	48
4.4.4	Wheaton Precious Metals Corp.....	49
4.5	Surface Rights .....	50
4.6	Environmental Liabilities and Permit Requirements .....	50
4.7	Comment on Property Description and Location .....	54
5	Accessibility, Climate, Local Resources, Infrastructure and Physiography .....	55
6	History.....	57
7	Geological Setting and Mineralization .....	60
7.1	Geological Setting .....	60
7.1.1	Zacatecas Formation.....	60
7.1.2	Chilitos Formation .....	60
7.1.3	Zacatecas Red Conglomerate.....	60
7.1.4	Tertiary Volcanic and Volcaniclastic Rocks .....	60
7.1.5	Rhyolitic Subvolcanic Bodies .....	61
7.2	Faulting.....	65
7.3	Mineralization .....	66
8	Deposit Types.....	69
8.1	QP Comments on “Item 8: Deposit Types” .....	69
9	Exploration.....	70
9.1	Geological Mapping.....	70
9.2	Surface Channel Samples and Chip Specimens.....	70
9.3	Geophysical Surveys.....	71
9.3.1	Ground Magnetic Survey.....	71
9.3.2	Aeromagnetic Survey .....	71
9.3.3	Resistivity Study and Ground Induced Polarization Surveys.....	72
9.4	Exploration Potential.....	72
10	Drilling.....	74
10.1	Drilling Programs .....	74
10.2	Sample Length and True Thickness.....	82
10.3	Recommendations and Opportunities .....	83
11	Sample Preparation, Analyses and Security .....	82
11.1	Drill Core Samples.....	84
11.1.1	Drill Site Control .....	84
11.1.2	Survey Control.....	84
11.1.3	Drill Core Logging, Photography, Sampling and Security .....	84



11.1.4	Drill Core Sample Preparation and Analysis .....	85
11.1.5	Drill Core Quality Assurance and Quality Control (QAQC).....	87
11.1.5.1	Phase I and II Drilling Programs, 2004 .....	87
11.1.5.2	Phase III Drilling Program, 2005 .....	88
11.1.5.3	Phase IV and V Drilling Programs, 2006-2007 .....	89
11.1.5.4	Phase VI Drilling Program, 2008 .....	89
11.1.5.5	Phase VII-X Drilling Programs, 2010-2013 .....	90
11.1.5.6	Reanalysis of DDH Pulp Samples, 2010-2013 .....	96
11.1.5.7	Phase XI Drilling Program, 2014 .....	98
11.1.5.8	Phase XII-XVI Drilling Programs, 2015-October 2022 .....	99
11.2	DDH QAQC Conclusions.....	108
11.3	Bulk Density.....	109
11.3.1	Bulk Density Sampling Method and Procedure, 2009-2014.....	109
11.3.2	Bulk Density QAQC 2013-2014.....	110
11.3.3	Bulk Density Sampling Method and Procedure, 2015-2022.....	110
11.3.4	Bulk Density QAQC 2015-2022.....	110
12	Data Verification .....	112
12.1	Verification of Exploration, Drilling and Sampling Data for input to Mineral Resource Estimate .....	112
12.1.1	Current Drillhole Database .....	112
12.1.2	Past Drillhole Database .....	113
12.2	Verification of Inputs into Mineral Resource Estimate .....	113
12.3	Verification of Mineral Processing and Metallurgical Testing Data .....	114
12.4	Verification of Inputs into Mineral Reserve Estimate .....	115
12.5	Verification of Considerations for Geotechnical Factors.....	115
12.6	Verification of Factors Influencing Recovery .....	115
12.7	Environmental, Regulatory and Social or Community Data Verification.....	115
13	Mineral Processing and Metallurgical Testing .....	117
13.1	Introduction.....	117
13.2	Testing of Future Lead-Zinc Ores.....	117
13.2.1	Samples .....	117
13.2.2	Ore hardness.....	118
13.3	Mineralogy .....	118
13.4	Flotation Testing .....	120
13.5	Metallurgical Parameters for Resource Estimations.....	122
13.5.1	Metallurgical Parameters for V20 .....	122
13.5.1.1	Copper .....	123
13.5.1.2	Lead .....	123
13.5.1.3	Zinc .....	123
13.5.1.4	Silver .....	124
13.5.2	Metallurgical Parameters for San Rafael Vein and V10SE .....	124
13.5.2.1	Copper .....	124

13.5.3	Lead and Silver Recovery to Lead Concentrate.....	124
13.5.3.1	Zinc and Silver Recovery to Zinc Concentrate.....	125
13.6	Recommendations.....	127
14	Mineral Resource Estimates.....	128
14.1	Modelling of MNV and MNFWZ.....	129
14.1.1	Geological Modeling.....	129
14.1.2	Mineralization Modelling.....	130
14.1.2.1	Mala Noche Zone.....	131
14.1.2.2	Mala Noche Footwall Model.....	136
14.2	MNV Mineral Resource Estimation.....	139
14.2.1.1	Raw Data.....	140
14.2.1.1.1	Geochemical Sample Analysis.....	140
14.2.1.1.2	Bulk Density Sampling.....	141
14.2.1.1.3	Core Recovery and Rock Quality Data (RQD) Samples.....	142
14.2.1.2	Compositing.....	143
14.2.1.3	Exploratory Data Analysis (EDA).....	145
14.2.1.3.1	Bulk Density Data.....	148
14.2.1.3.2	Core Recovery and RQD Data.....	148
14.2.1.4	Outlier Analysis and Top Cutting.....	148
14.2.1.5	Variography.....	151
14.2.1.6	Block Model.....	154
14.2.1.7	Grade, Density and RQD Estimation.....	154
14.2.1.8	Model Validation.....	156
14.2.1.9	Mineral Resource Confidence Classification.....	157
14.2.1.10	Grade-Tonnage Reporting.....	157
14.3	MNFWZ Mineral Resource Estimation.....	160
14.3.1	Raw Data.....	160
14.3.1.1	Assay Data.....	161
14.3.1.1.1	Bulk Density.....	162
14.3.1.2	Compositing.....	162
14.3.2	Exploratory Data Analysis.....	165
14.3.2.1	Outlier Analysis.....	167
14.3.2.2	Variography.....	168
14.3.2.3	Block Model.....	170
14.3.2.4	Grade and Density.....	171
14.3.2.5	Model Validation.....	172
14.3.2.6	Mineral Resource Classification.....	174
14.3.2.7	Grade-Tonnage Reporting.....	175
14.4	Risk factors that may affect the Mineral Resource Estimate.....	178
15	Mineral Reserve Estimates.....	179
15.1	NSR Formula.....	180
15.1.1	Metal Price and FX Assumptions.....	180

15.1.2	Metallurgical Recovery Assumptions .....	180
15.1.3	2022 Mineral Reserve NSR Formulae .....	180
15.2	Cut-off Strategy and Mineral Reserve Cut-off Value .....	181
15.3	Mining Methods .....	185
15.4	Dilution and Mining Losses.....	187
15.4.1	Planned Dilution .....	187
15.4.2	Unplanned Dilution .....	187
15.4.3	Backfill Dilution .....	188
15.4.4	Mining Losses .....	188
15.5	Risks to Mineral Reserve Estimate.....	188
15.6	Recommendations and Opportunities .....	189
16	Mining Methods .....	191
16.1	Mining Method and Design .....	191
16.2	Geotechnical Considerations.....	199
16.2.1	Lithology .....	199
16.2.2	Ground support system .....	200
16.2.3	Seismicity .....	202
16.2.4	Backfill Requirements.....	202
16.2.5	Recommendations .....	202
16.3	Mining Shapes and Stope Designs .....	203
16.4	Mine Access and Material Handling .....	207
16.5	Paste Backfill .....	209
16.6	Mine Ventilation .....	211
16.7	Mine Dewatering.....	213
16.8	Mobile Equipment.....	214
16.9	Production Schedule .....	214
16.10	Opportunities .....	215
17	Recovery Methods.....	216
17.1	Introduction.....	216
17.2	Process Design Criteria .....	216
17.3	Process Plant Overview .....	217
17.4	Crushing Plant.....	217
17.5	Grinding .....	219
17.6	Flotation.....	220
17.7	Concentrate Dewatering and Filtration .....	222
17.8	Tailings Handling .....	224
17.9	Recommendations Related to Recovery Methods .....	226
18	Project Infrastructure .....	227
18.1	Regional Infrastructure .....	227
18.2	Mine Underground Infrastructure.....	227
18.3	Mine Surface Infrastructure .....	228
18.3.1	Electrical Infrastructure.....	228

18.3.1.1	Recommendations .....	229
18.3.2	Tailings Dewatering and Paste Backfill .....	229
18.3.3	Water Supply .....	231
18.3.3.1	Recommendations .....	232
18.3.4	Tailings Storage Facility .....	232
18.3.4.1	Recommendations .....	233
19	Market Studies and Contracts .....	234
19.1	Markets .....	234
19.1.1	Stream Arrangement .....	235
19.2	Contracts .....	235
19.3	Comment on “Market Studies and Contracts” .....	236
20	Environmental Studies, Permitting and Social or Community Impact .....	237
20.1	Environmental Assessment and Permitting .....	237
20.1.1	Regional and Local Settings and Baseline Studies .....	237
20.1.2	Regulatory Basis and Permitting .....	238
20.1.3	Waste Management .....	241
20.1.4	Water Availability and Use .....	241
20.1.5	Clean Industry Certification .....	242
20.1.6	Comment on Environmental Management and Permits Status .....	243
20.2	Closure Plan and Regulatory Basis .....	244
20.3	Closure Costs .....	248
20.3.1	Historical Environmental Liabilities and the Chiripa Remediation Plan .....	249
20.4	Community and Social Aspects .....	251
20.5	Recommendations .....	254
21	Capital and Operating Costs .....	257
21.1	Operating Cost Estimate .....	257
21.2	Capital Cost Estimation .....	257
22	Economic Analysis .....	259
23	Adjacent Properties .....	260
24	Other Relevant Data and Information .....	261
25	Interpretation and Conclusions .....	262
25.1	Conclusions .....	262
25.2	Risks and Opportunities .....	263
26	Recommendations .....	266
26.1	Recommendation Related to Drilling (Section 10) .....	266
26.2	Recommendation Related to Mineral Processing and Metallurgical Testing (Section 13) 266	
26.3	Recommendations Related to Mineral Reserve Estimates (Section 15.6) .....	266
26.4	Recommendations Related to Geotechnical Considerations (Section 16.2) .....	266
26.5	Recommendations Related to Recovery Methods (Section 17) .....	267
26.6	Recommendations Related to Project Infrastructure - Electrical (Section 18.3.1) .....	267
26.7	Recommendations Related to Project Infrastructure - Water (Section 18.3.3) .....	267

26.8	Recommendations Related to Tailings Storage Facility (Section 18.3.4).....	268
26.9	Recommendations Related to Environmental Studies, Permitting and Social or Community Impacts (Section 20) .....	268
27	References .....	271
28	Qualified Person Certificates .....	275

## Table of Tables

Table 1-1: Mineral Resource Statement as of January 1, 2023 at a US\$59/t NSR cut-off .....	23
Table 1-2: Mineral Reserve Statement as at January 1, 2023.....	26
Table 1-3 : Capital Cost Estimate .....	31
Table 1-4: Operating Cost Estimate.....	32
Table 1-5: Summary of Recommendations .....	33
Table 2-1: Site Inspection Details of Qualified Persons.....	36
Table 2-2: Acronyms.....	38
Table 2-3: Abbreviations .....	41
Table 2-4: Conversion Factors.....	41
Table 4-1: Cozamin Mining Concessions Summary – held by Capstone Gold S.A. de C.V.....	45
Table 4-2: Cozamin Mining Concessions Summary – held by Mining Opco, S.A. de C.V.....	46
Table 4-3: Capstone-EDR Mineral Rights Sharing Agreement.....	49
Table 6-1: Production Summary .....	59
Table 9-1: Cozamin Surface Channel and Chip Program details .....	70
Table 10-1: Capstone Drilling Program Details from 2004 to March 2023.....	75
Table 10-2: Drilling History from 2004 to October 2022.....	77
Table 11-1: Primary and Secondary Laboratories Used for Cozamin DDH Samples.....	86
Table 11-2: Sample Preparation Details at Laboratories Utilized by Cozamin .....	87
Table 11-3: Sample Digestion and Analysis at Laboratories Utilized by Cozamin .....	87
Table 11-4: Cozamin Reference Materials used in the Phase II and III Drilling Campaigns, 2005-2006 .....	88
Table 11-5: QAQC Program Summary Phase IV and V Drilling Programs, 2006-2007 .....	89
Table 11-6: Reference Materials used in the Phase VI Drilling Program, 2008.....	89
Table 11-7: 2010-2013 DDH Reference Material Standards and Blanks Data – Copper .....	92
Table 11-8: 2010-2013 DDH Reference Material Standards and Blanks Data – Silver.....	93
Table 11-9: 2010–2013 DDH Reference Material Standards and Blanks Data – Zinc .....	94
Table 11-10: 2010–2013 DDH Reference Material Standards and Blanks Data – Lead.....	95
Table 11-11: 2010-2013 DDH Sample Duplicate Performance .....	96
Table 11-12: Comparison of DDH Pulp Reanalyses to Original Sample Values, 2010-2013 .....	97
Table 11-13: 2014 DDH Certified Reference Material Standards and Blank QAQC Performance .....	98
Table 11-14: 2015-2022 DDH Certified Reference Material Standards and Blank QAQC Performance .....	100
Table 12-1: Drillhole Database Validation - Error Rates .....	112
Table 13-1: Modal Mineralogy of V10SE, San Rafael and V20 Composites .....	119
Table 13-2: Head Assays of Tested Composites.....	120
Table 13-3: Key Metallurgical Results from Variability and Blend Testing.....	121
Table 13-4: Forecast Algorithms: Lead and Silver Recovery to Lead Concentrate .....	124
Table 13-5: Forecast Algorithms: Zinc and Silver recovery to Zinc Concentrate .....	126
Table 14-1: Mineralized Domains within MNV .....	131

Table 14-2: Mineralized Domains within Mala Noche Footwall Zone .....	136
Table 14-3: Cu raw statistics of MNV .....	140
Table 14-4: Ag raw statistics of MNV .....	140
Table 14-5: Zn raw statistics of MNV .....	140
Table 14-6: Pb raw statistics of MNV .....	141
Table 14-7: Zn oxide composited statistics of MNV .....	141
Table 14-8: Pb oxide composited statistics of MNV .....	141
Table 14-9: Bulk density raw statistics (MNV domains and all lithology units).....	142
Table 14-10: Core recovery raw statistics (MNV domains and all lithology units) .....	142
Table 14-11: RQD raw statistics (MNV domains and all lithology units).....	143
Table 14-12: Cu composited statistics of MNV (undeclustered) .....	143
Table 14-13: Ag composited statistics of MNV (undeclustered) .....	144
Table 14-14: Zn composited statistics of MNV (undeclustered) .....	144
Table 14-15: Pb composited statistics of MNV (undeclustered) .....	144
Table 14-16: Zn oxide composited statistics of MNV (undeclustered).....	144
Table 14-17: Pb oxide composited statistics of MNV (undeclustered).....	144
Table 14-18: Bulk density composited statistics of (MNV domains and all lithology units).....	145
Table 14-19: Regression analysis of composited sample data in domains VN02, VN03 and VN07 .....	145
Table 14-20: Cu top-cut, composited statistics of MNV .....	149
Table 14-21: Ag top-cut, composited statistics of MNV .....	149
Table 14-22: Zn top-cut, composited statistics of MNV .....	149
Table 14-23: Pb top-cut, composited statistics of MNV .....	150
Table 14-24: Zn oxide top-cut, composited statistics of MNV.....	150
Table 14-25: Pb oxide top-cut, composited statistics of MNV.....	150
Table 14-26: Bulk density top-cut, composited statistics (MNV).....	150
Table 14-27: Cu back-transformed, semi-variogram parameters – Domains VN02 and VN03	153
Table 14-28: Ag back-transformed, semi-variogram parameters – Domains VN02 and VN03	153
Table 14-29: Zn back-transformed, semi-variogram parameters for MNV – Domains VN02 and VN03 .....	153
Table 14-30: Pb back-transformed, semi-variogram parameters for MNV – Domains VN02 and VN03 .....	154
Table 14-31: MNV Block model origin and parameters .....	154
Table 14-32: MNV estimation and search parameters .....	155
Table 14-33: MNV – SROB-Zn Mineral Resources above US\$59/t NSR cut-off as at January 1, 2023 .....	158
Table 14-34: MNV – San Rafael Mineral Resources above US\$59/t NSR cut-off as at January 1, 2023 .....	158
Table 14-35: MNV – Total Zinc Zone mineral resources above US\$59/t NSR cut-off as at January 1, 2023 .....	159
Table 14-36: MNV – San Roberto Copper-Zinc Zone mineral resources above US\$59/t NSR cut-off as at January 1, 2023 .....	160

Table 14-37: MNFWZ – Assay Lengths .....	161
Table 14-38: MNFWZ – Univariate Assay Statistics .....	161
Table 14-39: MNFWZ – Average Density by Vein .....	163
Table 14-40: Composite length statistics of MNFWZ (undeclustered).....	164
Table 14-41: Cu, Ag, Zn and Pb composited statistics of MNFWZ (undeclustered).....	164
Table 14-42: Correlogram models .....	169
Table 14-43: MNFWZ Block model origin and parameters .....	170
Table 14-44: Estimation Search Parameters .....	171
Table 14-45: MNFWZ mineral resources at various cut-off as at January 1, 2023.....	176
Table 14-46: MNFWZ mineral resource above US\$59/t NSR cut-off as at January 1, 2023....	177
Table 15-1: Cozamin Mineral Reserve Estimate at January 1, 2023.....	179
Table 15-2: Metal Recoveries and Selling Prices Used in the Mineral Reserve NSR Calculations .....	180
Table 15-3: Final Mineral Reserve NSR Formulae .....	181
Table 15-4: Cut off costs by Mining method .....	183
Table 15-5: Sustaining Capital - Equipment .....	183
Table 15-6: Sustaining Capital - Development .....	184
Table 15-7: Cost Distribution .....	184
Table 15-8: Final Cut off costs by mining method used in the reserve calculation. ....	184
Table 16-1: Distribution of Mining Methods .....	192
Table 16-2: Standard LOMP development dimensions .....	198
Table 16-3: Summary of static rock support standard for different lithologies at Cozamin .....	200
Table 16-4: Resource Block Models Used in Stope Optimization .....	203
Table 16-5: Capstone-owned Major Mobile Equipment.....	214
Table 16-6: Current Contractor-owned Major Mobile Equipment .....	214
Table 16-7: LOMP Production Schedule .....	215
Table 17-1: Selected Process Design Criteria .....	216
Table 19-1: 2023 Forecast Metal Price Assumptions .....	234
Table 19-2: Metal and Concentrate Purchase Contracts.....	235
Table 19-3: Contracts at the Cozamin Mine .....	236
Table 21-1: Summary of Operating Costs .....	257
Table 21-2: Summary of Capital Costs .....	258

## Table of Figures

Figure 4-1: Cozamin Mine Location (Source: Capstone, 2014).....	44
Figure 4-2: Cozamin Mining Concessions .....	51
Figure 4-3: Cozamin Surface Rights .....	52
Figure 4-4: Cozamin Surface Rights and Surrounding Ejido Boundaries .....	53
Figure 5-1: Surface Layout of the Cozamin Mine Facilities .....	56
Figure 7-1: Mapped Geology of the Cozamin mining concessions.....	63
Figure 7-2: Plan Showing the Distribution of Mineralized Veins near Zacatecas.....	64



Figure 7-3: Cross faults (black heavy line) with Mala Noche fault (red) and Level 8 development (fine black lines) at San Roberto area of Cozamin .....	66
Figure 10-1: Longitudinal Section of Drilling Pierce Points in San Roberto and MNV West Target (blue box) zones of the MNV .....	79
Figure 10-2: Longitudinal Section of Drilling Pierce Points in San Rafael zone of the Mala Noche Vein.....	80
Figure 10-3: Longitudinal Section of Drilling Pierce Points in Mala Noche Footwall Zone, -59° dip looking 58° azimuth.....	81
Figure 10-4: Representative Drill Section, MNV with Drill Traces.....	82
Figure 10-5: Representative Drill Section, MNFWZ with Drill Traces .....	83
Figure 11-1: 2010-2013 DDH Reference Material Standards and Blanks Chart – Copper.....	92
Figure 11-2: 2010 – 2013 DDH Reference Material Standards and Blanks Chart – Silver.....	93
Figure 11-3: 2010–2013 DDH Reference Material Standards and Blanks Chart – Zinc.....	94
Figure 11-4: 2010–2013 DDH Reference Material Standards and Blanks Chart – Lead.....	95
Figure 11-5: Isometric View of Drillholes Containing Reanalyzed Pulp Samples (red).....	97
Figure 11-6: 2014 DDH Blanks performance - copper.....	99
Figure 11-7: 2014 DDH CRM “CG-MG-14” performance – copper.....	99
Figure 11-8: 2015 to 2022 DDH Blanks performance – copper, ALS (upper) and 2015-2020 CML (lower) .....	106
Figure 11-9: 2015 to 2017 DDH CRM “CG-MG-14” performance – copper, ALS (upper) and CML (lower) .....	107
Figure 11-10: 2018 to 2022 DDH CRM “CG-MG-16” performance – copper, ALS (upper) and 2018 to 2020 CML (lower) .....	108
Figure 13-1: Long section of V10SE Vein with location of samples.....	118
Figure 13-2: Liberation of Key Sulphides at the P80 of 230 µm .....	119
Figure 13-3: Lead and Silver Recovery to the Lead Concentrate .....	125
Figure 13-4: Zinc and Silver Recovery to the Zinc Concentrate .....	127
Figure 14-1: Plan view of modelled shale (grey-blue) displayed with the rhyolite (pink), andesite (light green), diorite (dark green), MNV (red).....	130
Figure 14-2: Long section, looking south, of the mineralized MNV (red) .....	131
Figure 14-3: Cross section (San Rafael Zone), looking east, illustrating MNV Main (dark red intercepts and red solid vein) and MNV_East_HW1 (brown intercepts and brown solid vein) within the lithological boundary (green line) .....	132
Figure 14-4: Long section, looking south, of MNV_HW1 (green) in relation to MNV (red) .....	133
Figure 14-5: Long section, looking south, of MNV_HW2 (purple) in relation to MNV_HW1 (green) and MNV (red) .....	133
Figure 14-6: Long section, looking south, of MNV_HW3 (grey-blue) in relation to MNV_HW2 (purple), MNV_HW1 (green) and MNV (red) .....	134
Figure 14-7: Long section, looking south, of MNV_East_HW1 (purple) in relation to MNV_HW1 (green) and MNV (red).....	135

Figure 14-8: Long section, looking south, of sub-domains comprising the MNV_Main vein: San Roberto (VN01), San Rafael/San Roberto Zinc (VN02) and low-grade/unmineralized (MNV08)	136
Figure 14-9: MNFWZ structural sub-domains with vein labels	138
Figure 14-10: MNFWZ structural sub-domains with drilling	139
Figure 14-11: Zinc semi-variogram models (top left: downhole; top right: major axis – direction 1; bottom left: semi-major axis – direction 2; bottom right: minor axis – direction 3)	152
Figure 14-12: Histogram of Assay Interval Lengths within the Vein Models	162
Figure 14-13: Histogram of Composite Lengths within the Vein Models	163
Figure 14-14: Box Plots of Cu Grade in Composites, by Vein	165
Figure 14-15: Box Plots of Ag Grade in Composites, by Vein	166
Figure 14-16: Box Plots of Pb Grade in Composites, by Vein	166
Figure 14-17: Box Plots of Zn Grade in Composites, by Vein	166
Figure 14-18: log Plots of Zn Grade in Composites, by Vein	168
Figure 14-19: Example Correlograms of Copper for Vein 20	169
Figure 14-20: Example Swath Plot for Copper in Vein 20 along Strike Direction	173
Figure 14-21: Comparison of Ordinary Kriged grades versus Declustered Composites (NN)	174
Figure 15-1: Actual Total Fixed and Variable OPEX Costs (US\$000's) and Milled Tonnes	182
Figure 15-2 : Actual Cost per Tonne Milled (US\$/tonne milled)	182
Figure 15-3: Mining Methods, longitudinal view looking south at 235° (not to scale)	185
Figure 15-4: Ore Source by Mining Method	186
Figure 15-5: Planned Backfill Methods	186
Figure 16-1: Mining Methods, longitudinal view looking south at 235° (not to scale)	192
Figure 16-2: Typical Longhole Stopping Design	193
Figure 16-3: Typical Transverse Longhole design	194
Figure 16-4: Longitudinal view of the Longhole Mining Sequence with Paste Backfill	194
Figure 16-5: typical x-section of mechanized cut and fill mining method	195
Figure 16-6: Typical level layout of cut and fill mining method.	196
Figure 16-7: LOMP Development requirements	197
Figure 16-8: Single Vein Longitudinal LHOS Mining Method Diagram using Conventional Backfill	198
Figure 16-9 : Cut and Fill Dilution Assumption	205
Figure 16-10: Longhole Dilution Assumption	206
Figure 16-11: One-way Haulage Loop, view looking down with plunge of +20° and azimuth of 35° (Not to scale)	209
Figure 16-12: Backfill Profile Keeping All Waste Underground	210
Figure 16-13: Underground Paste Distribution System, view looking west, (Not to Scale)	210
Figure 16-14: Cozamin Ventilation Network Section, looking to the northeast at 55°	212
Figure 16-15: Cozamin Dewatering Network, Section looking to the northeast at 55°	213
Figure 17-1: Crushing Flow Sheet	218
Figure 17-2: Milling Flow Sheet	220
Figure 17-3: Copper Flotation Flow Sheet	221

Figure 17-4: Zn Flotation Flow Sheet.....	222
Figure 17-5: Concentrate Handling Flow Sheet.....	224
Figure 17-6: Slurry Tailings Handling Flow Sheet.....	225
Figure 18-1: Tailings Dewatering and Paste Plant Simplified Process Flow .....	230
Figure 18-2: Filtered Tailings Storage Facility Design .....	233

# 1 Summary

## 1.1 Introduction

Mr. Peter Amelunxen, Mr. Clay Craig, Ms. Jenna Hardy, Dr. Ali Jalbout, Ms. Vivienne McLennan and Mr. Josh Moncrieff prepared this technical report (“the Report”) for Capstone Copper (“Capstone”) on the Cozamin Mine (“Cozamin” or “the Project”), in Zacatecas, Mexico.

Cozamin is an operating underground copper–silver–zinc–lead mine with a 3,980 tpd milling capacity. Capstone owns 100% of Cozamin through its subsidiaries Capstone Gold S.A. de C.V. (Capstone Gold; 99.9% ownership) and Capstone Mexico Mining Corp. (0.01% ownership).

## 1.2 Terms of Reference

This Report supports Capstone’s news release dated May 3, 2023 entitled “Capstone Copper Reports First Quarter 2023 Results”.

The Mineral Resource and Mineral Reserve are reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Definition Standards for Mineral Resources and Mineral Reserves (May 2014; the 2014 CIM Definition Standards) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2019; 2019 CIM Best Practice Guidelines).

Measurement units used in this Report are metric units and currency is expressed in US dollars (US\$), unless stated otherwise. The Mexican currency is the Mexican peso (\$MXN). The Report uses Canadian English.

## 1.3 Property Setting

Cozamin is located approximately 3.5 km to the north–northeast of the city of Zacatecas, in the Municipality of Morelos of the Zacatecas Mining District, near the southeastern boundary of the Sierra Madre Occidental Physiographic Province.

The road from Zacatecas to the mine boundary is paved. Internal all-weather roads provide access to the mine and surrounding areas. Staff and operators are sourced from Zacatecas and other nearby communities.

Cozamin is connected to the national power grid and has back-up power generators on site. The mine sources its process mill and mine water supply from seasonal rainfall, permitted wells, groundwater inflow from abandoned mines and a local municipal water treatment plant.

The climate in the region is semi-arid. Mining operations are year-round. Elevations at Cozamin vary from 2,400 meters above sea level (“masl”) to 2,600 masl. Vegetation consists of natural grasses, mesquite or huizache and crasicaule bushes.

## **1.4 Mineral Concessions, Surface Rights, Royalties and Agreements**

The Cozamin Mine comprises 93 mining concessions covering 4,260 ha. Ninety of the concessions are listed in the Public Registry of Mining. The remaining three mining concessions were lawfully transferred to Capstone Gold in 2019 but are pending registration with the Public Registry of Mining. All required payments to keep the concessions in good standing were made as at the Report effective date.

Capstone Gold is the registered holder of 45 of the mining concessions and Mining Opco, S.A. de C.V., a wholly-owned subsidiary of Capstone, is the registered holder of the remaining 45 concessions. Capstone also entered into a mineral rights sharing agreement with Endeavour Silver Corp. (“EDR”) covering concessions that abut the southern boundary of the Cozamin Mine property in 2017. The agreement provides Capstone with exploration and exploitation rights on seven EDR concessions deeper than 2,000 masl, a depth where copper-rich mineralization was historically mined by Capstone, and provides EDR with exploration and exploitation rights on Capstone concessions shallower than 2,000 masl.

Capstone holds the necessary surface rights required for mining operations and as required for exploration activities.

A 3% NSR royalty is payable to Grupo Minera Bacis S.A. de C.V. (“Bacis”) and a 1% NSR royalty is payable to EDR, based on the concessions where mining occurs.

Capstone signed a silver stream agreement with Wheaton Precious Metals Corp., (“Wheaton”) effective December 1, 2020. On February 19, 2021, Wheaton paid an upfront cash consideration of US\$150 million for 50% of the silver production until 10 million silver ounces are delivered, then decreasing to 33% of silver production for the remaining life-of-mine (“LOM”). Wheaton will make ongoing payments equal to 10% of the spot silver price at the time of delivery for each ounce delivered to them. Capstone is required to have an operating paste backfill plant and deposition of a minimum volume of paste underground before the end of 2023 as a condition of the agreement, or refund Wheaton up to a maximum of US\$13 million.

## **1.5 History**

Companies with previous involvement in the Project area include Consejo de Recursos Minerales, Minera Cozamin, Industrias Peñoles S.A. de C.V., and Minera Argenta, a Bacis subsidiary. Work completed included core drilling and underground mining at the historical San Roberto mine.

Capstone obtained its Project interest in 2003. Capstone completed reconnaissance and geological mapping, rock chip and channel geochemical sampling, ground geophysical surveys (magnetic, controlled source audio magnetotelluric resistivity and induced polarization), an aeromagnetic geophysical survey, surface and underground core drilling, metallurgical testwork, mineral resource and mineral reserve estimates, technical studies and environmental studies and monitoring. This work targeted the Mala Noche Vein (“MNV”) system underneath the historical San Roberto mine and the San Rafael area to the east of San Roberto. The Mala Noche Footwall Zone (“MNFWZ”) mineralization was discovered in 2010. Exploration continues to focus on the

potential for additional mineralized zones in fault splays off the main zone, analogous to the MNFWZ and in other parallel to sub-parallel structures. Cozamin has produced from the San Roberto and San Rafael zones since 2006 and from MNFWZ since 2010.

## 1.6 Geology and Exploration

The Cozamin Mine is situated within the Zacatecas Mining District that covers a belt of epithermal and mesothermal vein deposits containing silver, gold and base metals (copper, lead and zinc). The district is in the Southern Sierra Madre Occidental Physiographic Province near the boundary with the Mesa Central Physiographic Province in north-central Mexico. The dominant structural features that localize mineralization are of Tertiary Age, and are interpreted to be related to the development of a volcanic centre and to northerly trending basin-and-range structures (Ponce and Clark, 1988)

The host rocks for the Mala Noche Vein (“MNV”) system are intercalated carbonaceous metasedimentary rocks and andesitic volcanic rocks, and Tertiary rhyolite intrusive rocks and flows. Copper-dominant mineralization is associated with rhyolite flow domes. Economic mineralization at Cozamin is polymetallic and includes copper, silver, lead and zinc. The predominant gangue minerals are quartz, calcite, pyrite and pyrrhotite.

In 2004, Capstone scout drilled the MNV beneath the down dip extent of the historical mine workings of the San Roberto mine. The initial three drill sections, comprising two drillholes each, all intersected economic mineralization over true widths varying from 3.2 m to 14.9 m. These three drill sections were distributed over 550 m of strike extent beneath the historic workings. At that point, Capstone decided to drill drillholes beneath the San Roberto workings on cross-sections spaced every 100 m along strike. These holes targeted the MNV at approximately 2,150 masl, or approximately 65 m below the historical workings. This strategy resulted in the first 20 exploration holes being distributed over a strike length of 1.4 km. Of these first 20 drillholes, 17 intersected significant mineralization that averaged 6.64 m in true width and had weighted grade averages of 2.61% Cu, 91.3 g/t Ag and 1.38% Zn. These higher copper grades and economic silver grades reinforced the Company’s belief that the historic workings at San Roberto were located just above the upper reaches of a large copper-silver mineralized system. In late 2006, Cozamin commenced commercial production at 1,000 tonnes per day (“tpd”) with a three-year mine life in reserve, while at the same time continuing exploration.

The MNV system has a mapped east–west strike length of at least 5.5 km, an average thickness of 5 m and has been drill tested to about 1,500 m depth. From 2004 until late 2009, the Company focused exploration on the MNV system, where underground drilling targeted various zones within the San Roberto mine to increase confidence for resource classification. A similar approach was taken with surface drilling that focused on the San Rafael area of the MNV system, situated to the east of the San Roberto mine. Additional surface or underground step-out and infill drilling targeting copper mineralization was conducted at the MNV from 2010 to 2013, 2015 to 2017, and 2020 to present. Exploration drilling up to 2017 showed that the copper-silver dominant phase of mineralization at San Roberto extended to 1,700 masl, 515 m below the historical workings. In

2016 and 2017, step-out and infill drilling tested the grade and continuity of zinc mineralization at the San Roberto Zinc and San Rafael areas of the MNV. Starting in 2020, step-out drilling to test deeper below San Roberto identified a new target called the MNV West Target. The 2023 exploration program includes a proposed 8,700 m of infill drilling at the MNV West Target.

In 2010, the Company discovered a new zone of high-grade copper-silver mineralization localized in a structure in the footwall of the MNV, splaying approximately 30° to the southeast. This zone is referred to as the Mala Noche Footwall Zone (“MNFWZ”), and currently measures more than 2.5 km along strike and between 200 m and 1000 m down dip. Additional exploration and infill drilling at the MNFWZ was executed from 2011 to 2013, from 2015 to 2017 and from 2018 through the 2021 drilling program, testing to approximately 1,450 m below surface. Drilling from 2017 to 2020 identified and defined significant extensions to the zone along strike and up-dip, and mineralization remains open locally up-dip, down-dip, and along strike to the east and west. Mining commenced in the MNFWZ in November 2010.

Mineralized zones at MNFWZ comprise:

- Copper-silver zones including the principal zone Vein 20 (“VN20”) along with Vein 9 (“VN09”), Vein 18 (“VN18”), Vein 21 (“VN21”), Vein 22 (“VN22”) and Vein 23 (“VN23”);
- Copper-zinc zones Vein 8 (“VN08”), Vein 10 northwest (VN10-NW) and Vein 19 (“VN19”);
- Zinc-silver-lead zones Vein 10 southeast (“VN10-SE”), Vein 11A (“VN11A”), Vein 24A (“VN24A”), and Vein 24B (“VN24B”).

Since 2014, annual exploration drilling at Cozamin tested for mineralization in fault splays off the MNV analogous to the MNFWZ and in other parallel to sub-parallel structures. Current exploration potential at Cozamin includes deep drilling tests for additional copper mineralization below both MNFWZ and the MNV West Target, and drilling tests to explore for additional zinc mineralization at both MNFWZ and along strike of the MNV east of San Rafael.

## 1.7 Drilling and Sampling

Capstone’s surface and underground drilling on the Project for the period 2004 to October 2022 totals 1,293 core holes (583,550 m). Core diameters include HQ (63.5 mm core diameter), NQ (47.6 mm) and BQ (36.4 mm).

Core is logged for recovery, rock quality designation (“RQD”), lithology, structure, alteration and mineralization. All core is photographed. Core recovery is typically good. No obvious drilling, sampling or recovery factors materially affect the reliability of the samples.

Drill hole collars are located by Capstone staff using total station Trimble model S6 or Leica instruments. Downhole survey readings were recorded using Eastman Single Shot, Flexit SensIT or Reflex EZ-Shot instruments.



A geologist marks the saw line along the centre of the core, with each side containing roughly equivalent mineralization. Sampling is conducted on nominal 1.0 m to 2.0 m intervals.

Capstone collects bulk density measurements using the water displacement method from each drillhole, including samples from mineralized and non-mineralized intercepts.

Independent sample preparation and analytical laboratories used by Capstone include:

- Sample preparation: ALS facilities in Hermosillo and Zacatecas, Mexico; SGS facilities in Durango, Mexico; Actlabs facilities in Zacatecas;
- Analysis: ALS facilities in Vancouver, Canada; SGS facilities in Toronto, Canada; Inspectorate laboratory in Sparks, Nevada, USA; Actlabs facilities in Zacatecas; Eco Tech laboratory, Kamloops, Canada.

These laboratories held accreditations at the time they were used, which could include ISO 9001, ISO 9002 and ISO 17025.

The Cozamin Mine laboratory is accredited to ISO 17025 for some procedures and is not independent.

Sample preparation methods varied by campaign and laboratory. All samples were dried. Crushing included 70% passing 1.8 mm, 75% passing 2 mm, 90% passing 2 mm, or 95% passing 6.4 mm. Pulverization included 90% passing 75 µm, 95% passing 104 µm, 95% passing 105 µm or 100% passing 75 µm.

Depending on the laboratory, copper, lead and zinc assays were performed using a four-acid digest followed by inductively-coupled plasma (“ICP”), atomic emission spectroscopy (“AES”) or optical emission spectroscopy (“OES”). Copper, lead, zinc, and silver assays could be performed using an aqua regia digest with ICP-AES or three-acid digest with ICP-OES finish. Depending on the laboratory and element, overlimit assays used a four-acid digestion followed by either titration or sodium peroxide fusion, an aqua regia digest with an atomic absorption (“AA”) spectroscopy (“AAS”) finish, or three acid digestion with an AA finish. Silver assays were performed using a four acid digest with an ICP-AES or ICP-OES finish, and fire assay with a gravimetric finish, or a multi-acid digest with an AAS finish. Depending on the laboratory, overlimit assay methods could include fire assay (50 g charge) with an AA finish or fire assay (30 g charge) with a gravimetric finish.

Quality assurance and quality control (“QA/QC”) measures included insertion of blank samples, standard reference materials (“standards”), and duplicate samples such as field, coarse and pulp rejects, re-assay of samples from selected drill campaigns, and check assay of selected samples by a second laboratory. Review of the QA/QC data from 2014 through October 2022 showed acceptable accuracy, precision and lack of contamination. Reanalysis of available pulps from samples collected from 2010 through 2013 within resource domains, including QAQC controls, confirmed original values in 2014. Analytical data in the current database were considered acceptable for use in Mineral Resource and Mineral Reserve estimation.



## 1.8 Data Verification

The QPs performed appropriate data verification steps on the data in their areas of expertise, including site visits. The reviewed data were considered acceptable for use in the Report.

## 1.9 Metallurgical Testwork

The operating plant design was based on metallurgical testwork results primarily sourced from the copper-rich ores that were the focus of the original LOM plan (“LOMP”).

A metallurgical testwork program completed in 2020 and 2021 focused on 14 lead–zinc rich samples from the San Rafael (four samples) and V10SE (10 samples) areas that are planned to be treated later in the LOMP presented in this Report. Those test samples are representative of the various types and styles of mineralization in those zones. Work completed included mineralogy, and Bond ball mill and flotation tests.

Copper, lead, and zinc were present as chalcopyrite, galena and sphalerite respectively. At the plant grind sizing, chalcopyrite, galena and sphalerite liberation from the V10SE mineralization all favour good metallurgy. San Rafael chalcopyrite is less liberated, whereas galena and sphalerite are somewhat less well liberated.

The V10SE material was found to be moderately hard at 15.2 kWh/t, this value is within the plant grinding capacity.

A factorial-designed test flotation program was run to establish the basic rules of processing the lead–zinc mineralization. Sequential lead–zinc flotation could be consistently achieved (and copper–lead–zinc flotation when enough copper was present to allow for some flotation). Zinc sulphate and ammonium metabisulphite were needed to effect sequential lead and zinc flotation. High doses of ammonium metabisulphite, relative to those typically used at Cozamin, were especially beneficial. In the absence of copper, the use of cyanide, even at modest doses, severely retarded flotation of all metals. Recoveries were very poor. However, as the copper content rose with the blending of V20 with the lead–zinc ores, the need for cyanide returned. The current primary grind size was adequate and regrinding was not needed to create cleaner concentrates of grades similar to previous ores, at high cleaner stage recoveries.

A 50:50 blend of San Rafael and V10SE materials was tested to examine if the metallurgy of the blended feed was similar to that of the individual feed components. Different proportions of copper feeds were mixed with the V10SE/San Rafael blend for the same reason. The variability composites floated 55% to 62% of the copper to the copper concentrate. When blended together, copper recoveries were higher at 66% to 68% in repeat tests. Lead flotation from all but one of the V10SE samples was highly effective with batch recoveries greater than 90%. Galena from San Rafael floated somewhat less well but results were typical of previous testwork. Zinc flotation was also effective with batch recoveries in the high 80s percent in most samples. Concentrate grades were typically greater than 20% for copper, 30% to 60% for lead and greater than 40% for

zinc. More silver was recovered to the lead concentrate, often rendering this (by value) a silver concentrate. Little silver floated to the zinc concentrates.

Copper flotation recovery to the copper concentrate is assumed to be the average from the laboratory testwork at 63.2% for V10SE mineralization and 59.4% for San Rafael. Silver recoveries are projected at 16.2% for V10SE mineralization and 20.1% for San Rafael. The copper concentrate is expected to assay 26% copper. Where a lead concentrate can be made, lead and silver flotation recoveries to the lead concentrates show a connection with lead head grades. Algorithms were developed to predict the lead and silver recoveries to lead concentrate. The lead concentrate is expected to assay 55% lead. Zinc recovery to the zinc concentrate is linked to zinc head grade. Algorithms for zinc and silver recovery to the zinc concentrate were generated. Silver recovery is set at 18% for Calicanto and 27% for San Rafael. The zinc concentrate is expected to assay 46% zinc.

Cozamin concentrates do not contain deleterious elements that could lead to downstream treatment penalties.

## **1.10 Mineral Resource Estimate**

The Mineral Resource is estimated within the MNV and MNFWZ. Modelling was completed using commercially available three-dimensional software: Leapfrog, Maptek Vulcan and Hexagon MineSight.

Four lithological units were modeled based on core logs and surface mapping, including shale, andesite, diorite and rhyolite. Mineralization domains for MNV and MNFWZ were also constructed. Five discrete veins were modelled in the MNV. One vein model was split into three sub-domains to spatially segregate high-grade mineralization from surrounding low-grade/unmineralized material. Thirteen vein domains were modelled at MNFWZ. All vein boundary surfaces were manually edited to restrict their extents along strike, up dip and down dip.

A 2.0 m composite length was selected to match the minimum mining thickness. The vein domains and lithology wireframes were used to code the drillhole data in the compositing process. The selective mining unit dimension is 12 m east × 2 m north × 10 m elevation.

Exploratory data analysis was completed using histograms, probability plots, and contact plots to determine domain boundaries for estimation. Vein limits were typically treated as hard boundaries.

Grade distributions in each vein were assessed graphically and spatially for the presence of outlier samples, using identification of population breaks in histograms, and inflection points in log-probability plots and in mean-and-variance plots. Top-cut selection and search distance restrictions considered the locations of the outlier samples relative to other data. If high grade samples were isolated from other samples, top cuts and/or search restrictions were stricter to mitigate against grade overestimation, and conversely, they were relaxed if spatially associated

with other high-grade samples. Depending on the zone, selected copper, lead, zinc, silver and density samples could be capped or outliers restricted. Top cuts and grade restrictions were applied within the individual estimation profiles.

Experimental variograms and variogram models in the form of correlograms were generated for copper, lead, zinc, and silver grades. Grades were estimated using ordinary kriging (“OK”), with inverse-distance-squared weighting (“ID2”) and nearest neighbour (“NN”) techniques used as checks of the OK estimate for global mean-grade unbiasedness. The OK grade estimation strategy was defined through an assessment of variogram shapes and ranges, and a review of the estimation parameters used in previous estimates. Density and RQD were estimated using ID2. A multi-pass search strategy employing a dynamic search ellipse was used at MNV. Estimation at MNFWZ used a multi-pass search strategy with no dynamic anisotropy.

At MNV, search distances could range from 15 m to 350 m. Depending on the domain, a maximum of either 12 or 16 composites could be used, with a maximum of either three or four composites per drill hole. For all MNV domains, silver estimates used the same parameters as the copper estimates to maintain their spatial correlation. Lead and zinc were estimated independently of each other and of copper and silver. At MNFWZ, multiple estimation passes were used, with search distances ranging from 10 m to 800 m. Depending on the domain and estimation pass, up to 12 composites could be used, with a maximum of two composites per drill hole. Copper, silver, lead and zinc were estimated independently of each other.

Model validation consisted of visual inspection, swath plots, global change of support assessments, and comparison of block values to drill hole grades. The Mineral Resource was classified using a combination of assessment of data reliability, drill hole spacing, and proximity to existing openings.

The Mineral Resource assumes underground mining by long-hole stoping and cut-and-fill mining methods with mineral processing by flotation. The Mineral Resource was constrained using a US\$59/t net smelter return (“NSR”) criterion and adjusted for mining depletion.

## **1.11 Mineral Resource Statement**

The Mineral Resource is reported in situ for the MNV and MNFWZ areas using the 2014 CIM Definition Standard. The effective date for the estimate is January 1, 2023. Clay Craig, P.Eng., Director, Mining and Strategic Planning at Capstone is the Qualified Person responsible for the Cozamin Mineral Resource. The Mineral Resource is summarized in Table 1-1, and is reported inclusive of the Mineral Resource converted to Mineral Reserve.

The NSR of each block in the block model was estimated using a formula that incorporates the long-term projected value of the metals at typical operational metallurgical recoveries, less the cost for concentrate transport to the smelter, confidential smelter contract terms and royalties. The NSR cut-off for reporting the Mineral Resource is US\$59/tonne, based on rounded average actual mining, milling, general and administrative costs. In the Mineral Resource estimate

described in this Technical Report, NSR is based on updated metallurgical recoveries related to zone mineralization.

Four formulae were used to estimate NSR for the Cozamin Mineral Resource in this report.

MNFWZ domains VN20, VN21, VN22, VN23, VN18 and VN09 used the copper-silver Mineral Resource NSR formula:

$$\text{Copper-Silver NSR} = (\text{Cu}\% * \$70.722 + \text{Ag g/t} * \$0.534) * (1 - \text{NSRRoyalty}\%)$$

MNFWZ copper-silver zones used assumed metallurgical recoveries of 96% Cu and 86% Ag.

MNFWZ domains VN08, VN10-NW and VN19 plus the MNV San Roberto zone use the copper-zinc Mineral Resource NSR formula:

$$\text{Copper-Zinc NSR} = (\text{Cu}\% * \$69.739 + \text{Ag g/t} * \$0.498 + \text{Zn}\% * \$12.956) * (1 - \text{NSRRoyalty}\%)$$

Copper-zinc zones used assumed metal recoveries of 95% Cu, 84% Ag and 67% Zn.

MNFWZ domains VN10-SE, VN24a, VN24b and VN11A used the MNFWZ zinc-silver Mineral Resource NSR formula:

$$\text{MNFWZ-Zinc NSR} = (\text{Ag g/t} * \$0.348 + \text{Zn}\% * \$16.795 + \text{Pb}\% * \$15.105) * (1 - \text{NSRRoyalty}\%)$$

MNFW zinc-silver zones used assumed metallurgical recoveries of 67% Ag, 87% Zn, and 93% Pb.

MNV San Rafael and San Roberto Zinc zones use the MNV-zinc Mineral Resource NSR formula:

$$\text{MNV-Zinc NSR} = (\text{Ag g/t} * \$0.241 + \text{Zn}\% * \$15.511 + \text{Pb}\% * \$12.993) * (1 - \text{NSRRoyalty}\%)$$

MNV zinc zones used assumed metal recoveries of 55% Ag, 80% Zn, and 80% Pb.

Projected long-term metal price assumptions used were Cu = US\$3.75/lb, Ag = US\$22.00/oz, Zn = US\$1.35/lb and Pb = US\$1.00/lb. Current smelter contract terms and transportation costs were incorporated but are covered by confidentiality agreements. Royalty payments of 1% to 3% of NSR, due on some areas of the Cozamin Mine property, are included in the formula as required geographically.

**Table 1-1: Mineral Resource Statement as of January 1, 2023 at a US\$59/t NSR cut-off**

Classification	Tonnes (kt)	Grade				Contained Metal			
		Copper (%)	Silver (g/t)	Zinc (%)	Lead (%)	Copper Metal (kt)	Silver Metal (koz)	Zinc Metal (kt)	Lead Metal (kt)
Total Mineral Resource (MNV + MNFWZ)									
Measured	400	1.25	53.8	1.23	0.40	5	692	5	2
Indicated	19,264	1.59	46.8	1.08	0.41	306	28,970	207	79
Measured + Indicated	19,664	1.58	46.9	1.08	0.41	311	29,662	212	81
Inferred	12,283	0.72	38.3	1.97	0.83	88	15,123	242	102
MNFWZ (Copper-Silver, Copper-Zinc and MNFWZ-Zinc Zones)									
Measured	0	0.00	0.0	0.00	0.00	0	0	0	0
Indicated	16,159	1.74	47.2	0.86	0.41	281	24,538	139	66
Measured + Indicated	16,159	1.74	47.2	0.86	0.41	281	24,538	139	66
Inferred	6,553	0.91	39.0	1.48	1.34	59	8,213	97	88
MNV (Copper-Silver, Copper-Zinc and Zinc Zones)									
Measured	400	1.25	53.8	1.23	0.40	5	692	5	2
Indicated	3,105	0.81	44.4	2.21	0.43	25	4,432	69	13
Measured + Indicated	3,506	0.86	45.5	2.10	0.42	30	5,124	74	15
Inferred	5,730	0.49	37.5	2.54	0.24	28	6,910	145	14

Table Notes:

- The Mineral Resource is reported insitu, using the 2014 CIM Definition Standards, and have an effective date of January 1, 2023.
- The Qualified Person for the estimate is Mr. Clay Craig, P.Eng., a Capstone employee.
- The Mineral Resource is reported inclusive of the Mineral Resource converted to Mineral Reserve. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
- The Mineral Resource was estimated assuming underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.
- The Mineral Resource is reported above a net smelter return of US\$59/t. Metal price assumptions in the NSR formulae were US\$3.75/lb Cu, US\$22.00/oz Ag, US\$1.35/lb Zn and US\$1.00/lb Pb.
- Metallurgical recoveries used in the NSR formulae are based on mineralization. Metallurgical recoveries vary by domain and NSR formula. The NSR formula for MNV zinc zones is  $(Ag \times 0.241 + Zn \times 15.511 + Pb \times 12.993) \times (1 - NSR \text{Royalty}\%)$  using metallurgical recoveries of 55% Ag, 80% Zn and 80% Pb. The NSR formula for MNV copper-zinc zones is  $(Cu \times 69.739 + Ag \times 0.498 + Zn \times 12.956) \times (1 - NSR \text{Royalty}\%)$  using metallurgical recoveries of 95% Cu, 85% Ag and 67% Zn. Copper-silver dominant zones use the NSR formula:  $(Cu \times \$70.72 + Ag \text{ g/t} \times \$0.53) \times (1 - NSR \text{Royalty}\%)$ . Copper-silver dominant zones use the following metallurgical recoveries: 96.16% Cu and 85.83% Ag. Copper-zinc zones use the NSR formula:  $(Cu \times \$69.74 + Ag \text{ g/t} \times \$0.50 + Zn \times \$12.96) \times (1 - NSR \text{Royalty}\%)$ . Copper-zinc zones use the following metallurgical recoveries: 94.82% Cu, 83.82% Ag, 66.95% Zn, and 0% Pb. MNFWZ zinc-dominant zones use the NSR formula:  $(Ag \text{ g/t} \times \$0.35 + Zn \times \$16.80 + Pb \times \$15.11) \times (1 - NSR \text{Royalty}\%)$ . MNFWZ-Zinc-dominant zones use the following metallurgical recoveries: 66.50% Ag, 86.79% Zn, and 92.86% Pb. The formulae include consideration of confidential current smelter contract terms, transportation costs and 1-3% net smelter return royalty payments.
- Totals may not sum due to rounding.

Factors and uncertainties that could affect the Mineral Resource estimate includes metal price and exchange rate assumptions, changes to the assumptions used to generate the NSR cut-offs, changes in local interpretations of mineralization geometry and continuity of mineralized zones, changes to geological and mineralization shapes, and geological and grade continuity assumptions, domain interpretations, changes to geotechnical, mining and metallurgical recovery assumptions, changes to the input and design parameter assumptions that constrain the estimates, and the assumptions as to the continued ability to access the site, retain mineral and surface rights titles, maintain environment and other regulatory permits, and maintain the social license to operate.

## 1.12 Mineral Reserve Estimate

The Cozamin Mineral Reserve estimate is converted from Mineral Resource block models for the MNFWZ and the MNV San Roberto/San Rafael Zones. Inferred Mineral Resource material is set to waste in the mine design.

The Mineral Reserve is estimated based on longitudinal and transverse longhole stoping and mechanized cut and fill mining methods. Stope shapes were generated in Deswik Stope Optimizer software (“DSO”). These shapes were applied to the two Mineral Resource block models listed above after the models had been depleted of past mining production and areas of geotechnical sterilization. Planned (internal) dilution is included interior to the walls of designed stope wireframes. The minimum longhole stope width was set to 1 m for stope creation. Planned dilution in development and cut-and-fill shapes is accounted for in the development drives. The minimum cut-and-fill width was set to 4.0 m. Unplanned (external) dilution was included in stope wireframes as a linear expansion into the hanging wall and footwall by an expected distance. For longhole stopes, an additional dilution at zero grade was added to consider blasting adjacent to a paste filled stope (end wall dilution). An accommodation for backfill dilution was included. Mucking ore losses inside longhole stopes and cut and fill stopes have been accounted for with a recovery factor of 95%. The Mineral Reserve is classified as Proven and Probable in accordance with the definitions in CIM (2014).

The NSR cut-off for reporting the Mineral Reserve is based on recent mining, milling, general and administrative costs, with adjustments made to reflect inflationary pressures, new mining methods, paste fill and filtered tailings. The NSR cut-off is fully costed to include the sustaining capital equipment and development costs. A second interrogation without the cost of sustaining capital development is conducted to ensure that resources laterally and adjacent to the fully costed reserves are included in the reserve estimate. The blended NSR cut-off for longhole stoping mining method with and without sustaining capital development is US\$68.33/t and US\$60.54/t respectively. The blended NSR cut-off for cut and fill mining method with and without sustaining capital development is US\$74.79/t and US\$65.55/t respectively.

NSR in the Mineral Reserve was calculated using three formulae specific to zone mineralization.

Copper-silver dominant zones use the Mineral Reserve NSR formula:

$$\text{NSR23CuRSV} = (\text{Cu}\% * \$66.638 + \text{Ag g/t} * \$0.484) * (1 - \text{NSRRoyalty}\%)$$

Metal recoveries of 96% Cu, 86% Ag, 0% Pb and 0% Zn were used in the formula for Mineral Reserve copper-silver dominant zones.

MNFWZ zinc-silver zones use the Mineral Reserve NSR formula:

$$\text{NSR23ZnRSV}_{\text{FWZ}} = (\text{Ag g/t} * \$0.290 + \text{Zn}\% * \$13.723 + \text{Pb}\% * \$13.131) * (1 - \text{NSRRoyalty}\%)$$

Metal recoveries of 0% Cu, 61% Ag, 93% Pb and 88% Zn were used in MNFWZ zinc-silver dominant zones.

MNV zinc-silver dominant zones use the Mineral Reserve NSR formula:

$$\text{NSR23ZnRSV}_{\text{MNV}} = (\text{Ag g/t} * \$0.228 + \text{Zn}\% * \$12.121 + \text{Pb}\% * \$11.363) * (1 - \text{NSRRoyalty}\%)$$

Metal recoveries of 0% Cu, 56% Ag, 80% Pb and 77% Zn were used in MNV zinc-silver dominant zones.

Metal prices used in the formulae were US\$3.55/lb Cu, US\$20.00/oz Ag, US\$1.15/lb Zn and US\$0.90/lb Pb. An exchange rate of MX\$20 per US\$1 is assumed.

Current smelter contract terms and transportation costs were incorporated in the NSR estimate formulae but are covered by confidentiality agreements. Royalty payments of 1% to 3% of NSR, due on some areas of the Cozamin Mine property, are included in the formula as required geographically.

### 1.13 Mineral Reserve Statement

The Mineral Reserve comprises the MNV and MNFWZ areas using the 2014 CIM Definition Standard and are reported at the point of delivery to the process plant. The effective date for the estimate is January 1, 2023. The Qualified Person for the Cozamin Mineral Reserve Estimate is Clay Craig, P.Eng., Director, Mining and Strategic Planning at Capstone.

The Cozamin Mineral Reserve is summarized in Table 1-2.



**Table 1-2: Mineral Reserve Statement as at January 1, 2023**

Classification	Tonnes (kt)	Grade				Contained Metal			
		Copper (%)	Silver (g/t)	Zinc (%)	Lead (%)	Copper Metal (kt)	Silver Metal (koz)	Zinc Metal (kt)	Lead Metal (kt)
MNV + MNFWZ Mineral Reserve Summary									
Proven	-	-	-	-	-	-	-	-	-
Probable	10,210	1.65	43.44	0.54	0.29	168	14,258	55	29
Proven + Probable	10,210	1.65	43.44	0.54	0.29	168	14,258	55	29

Table Notes:

- The Mineral Reserve is reported at the point of delivery to the process plant, using the 2014 CIM Definition Standards, and has an effective date of January 1, 2023.
- The Qualified Person for the estimate is Mr. Clay Craig, P.Eng., a Capstone employee.
- The Mineral Reserve is reported within fully diluted mineable stope shapes generated by the Deswik Mineable Shape Optimiser software. Mining methods include long-hole stoping and cut-and-fill methods.
- The Mineral Reserve is reported at or above a blended cut-off of US\$60.54/t NSR for long-hole stoping and US\$65.55/t NSR for cut-and-fill mining.
- The NSR cut-off is based on operational mining and milling costs plus general and administrative costs. The NSR formulae vary by zone. Three separate NSR formulae are used based on zone mineralization and metallurgical recoveries. Copper-silver dominant zones use the NSR formula:  $(Cu*66.638 + Ag*0.484)*(1-NSRRoyalty\%)$ . MNFWZ zinc-silver zones use the NSR formula:  $(Ag*0.290 + Zn*13.723 + Pb*13.131)*(1-NSRRoyalty\%)$ . MNV zinc-silver dominant zones use the NSR formula:  $(Ag*0.228 + Zn*12.121 + Pb*11.363)*(1-NSRRoyalty\%)$ . Metal price assumptions of Cu = US\$3.55/lb, Ag = US\$20.00/oz, Pb = US\$0.90/lb, Zn = US\$1.15/lb and metal recoveries of 96% Cu, 86% Ag, 0% Pb and 0% Zn in copper-silver dominant zones, 0% Cu, 61% Ag, 93% Pb and 88% Zn in MNFWZ zinc-silver dominant zones, and 0% Cu, 56% Ag, 80% Pb and 77% Zn in MNV zinc-silver dominant zones. The formulae include consideration of confidential current smelter contract terms, transportation costs and 1–3% net smelter return royalty payments. Royalties are dependent on the mining concession, and are treated as costs in the Mineral Reserve estimates.
- Totals may not sum due to rounding.

Factors and uncertainties that may materially impact the Mineral Reserve estimate includes changes to long-term metal price and exchange rate assumptions; changes to assumed treatment and refining charges ("TC/RCs"); changes to metallurgical recovery assumptions; changes to the input assumptions used to derive the stope shapes and development designs applicable to the underground mining methods used to constrain the estimates; local vein variability caused by model smoothing; changes to the forecast dilution and mining recovery assumptions; unanticipated deviation of performance or assumptions during the transition to paste backfill and new mining methods; changes to the NSR cut-offs applied to the estimates; variations in geotechnical (including seismicity), hydrogeological and mining method assumptions; and changes to environmental, permitting and social license assumptions.

## 1.14 Life of Mine Plan

### 1.14.1 Introduction

Mining is undertaken using conventional underground mining methods and equipment. The LOMP production schedule was completed by Stantec in March 2023. The production plan was created with Deswik stope optimizer and scheduler. The LOMP forecasts mining 10.2 Mt of ore



from January 1, 2023 through 2030. Only material identified as Mineral Reserve was included in the LOMP.

### **1.14.2 Geotechnical Considerations**

Geotechnical considerations include cross-cutting fault zones perpendicular or orthogonal to veins, sub-vertical slip planes across veins, faults parallel to MNV contacts and lower intact rock strengths in metamorphic phyllite or shale rock types, which are being incorporated into the mine design and ground support program. Ground support practices are modified in areas at depth where horizons of metamorphic rock increase in waste rock. In areas to be mined with paste backfill, rib and sill pillars are not generally anticipated when mining is bottom-up (overhand). Mining underneath paste backfill will be limited, employ high strength paste, and engage a modified pillar strategy until more site knowledge is gained. The ground support quality control program and implementation of robust mitigation plans to tackle increased seismic activity are maturing.

### **1.14.3 Mine Plan**

The current mine plan uses two variations of longhole stoping: transverse longhole stoping for ore widths greater than 7 m and longitudinal longhole stoping for widths less than 7 m wide. The majority of the longhole stopes will be filled with paste backfill once the underground distribution system is established. These areas will be largely mined overhand and require few pillars to be left behind. Cut-and-fill methods will be used in the upper areas of the mine that are closer to neighboring communities to minimize disturbances caused during blasting operations. The tonnage distribution is approximately 60% longhole and 40% cut-and-fill, to support a planned production rate of 3,780 tpd over the seven-year LOM, from 2023 to 2030.

Cozamin is accessed by two ramp declines, the Guadalupana ramp, used for haulage, and the San Ernesto ramp, typically used by light vehicles. The 430 m deep San Roberto shaft, located centrally between the MNV and the MNFWZ, is used for hoisting ore. A third, internal mine ramp, the San Jose II ramp, extends from the base of the Guadalupana ramp.

Ore is mucked from stopes and in-ore development using load-haul-dump vehicles and then transferred into trucks. Ore is either hauled to surface via the Guadalupana ramp or taken to the San Roberto shaft and dumped on the grizzly-crusher system where it is broken up using a hydraulic rock breaker. Once on surface, ore is stored temporarily at the run-of-mine stockpile.

A paste backfill plant was constructed in 2022 and expected to be commissioned by mid-2023. The nominal design flow rate of the paste plant is 90 m<sup>3</sup>/h.

The underground workings are ventilated using a push pull system with intake and exhaust fans located on surface, and booster fans underground delivering 482 m<sup>3</sup>/s of fresh air through the MNV and MNFWZ. Fresh air enters the mine through the San Roberto shaft, Guadalupana ramp, San Ernesto ramp and several separate ventilation raises. All exhaust air leaves the mine through three principal ventilation raises. Underground booster fans, internal raises, and ventilation doors transport the fresh air to the desired locations.

Mine dewatering is achieved by way of submersible pump stations located on different levels that transfer water to a central pumping station. Water is pumped to surface and used as process water. A small portion of the water is recirculated back into the mine for use by mining equipment and processes.

The equipment fleet is a combination of Capstone-owned and contractor. Capstone personnel concentrate on production and internal mine haulage. Contractors are used on site for haulage and development that exceed the current Capstone fleet capabilities.

## **1.15 Processing Methods**

The plant design was based on metallurgical testwork results and uses conventional equipment and processes. The process plant consists of crushing, grinding, flotation, thickening, and concentrate filtering operations to produce saleable copper, lead, and zinc concentrates. Flotation tailings have historically been pumped to a tailings storage facility (“TSF”). Starting in 2023, tailings will be pumped to a filtration plant and subsequently transported to the dry stack TSF or used to produce paste for mine backfill. The plant average throughput rate is 3,780 tph. Ores are expected to be slightly harder later in the LOMP; planned plant modifications to address this include:

- Installation of a vibrating grizzly to unload the surface primary crusher;
- Installation of peristaltic thickener underflow pumps, and higher pressure filter feed pumps;
- Transitioning to a filtered tailings system in 2023.

The key reagents are lime, xanthate, zinc sulphite and ammonium bisulphate. When producing zinc concentrate, copper sulphate is also used as an activator. Water is sourced from the municipal treatment plant and the mine dewatering system. The power required for the operations averaged 8.5 MW prior to commissioning the tailings filtration and paste backfill plant, and is expected to increase to 12.5 MW once those facilities are fully operational

## **1.16 Infrastructure**

Cozamin currently has all necessary infrastructure in place to support an underground mining and mineral processing operation. Infrastructure in place includes a shaft, access ramps, ventilation system, paste backfill plant, process facility, power, pipelines, crushing and conveying facilities, maintenance facilities, administrative offices, roads, ROM stockpile, tailings filtration plant and a TSF. Personnel reside in adjacent communities and commute to the site.

National grid electrical power is obtained through the Comisión Federal de Electricidad (“CFE”), with a current approval to draw 9.5 MW. Capstone requested a draw increase to 14.0 MW and there are reasonable expectations this will be approved.

Water at Cozamin comes from three sources: fresh water permitted wells, permitted groundwater from nearby underground mines, and discharge water from a local municipal water treatment facility. Existing data and the site water balance indicate that current sources and operational

water management will be sufficient for the current LOMP. Cozamin operates as a zero-discharge facility; process water is not discharged and there are otherwise no direct discharges to surface waters.

Cozamin is transitioning to a filtered (dry stack) TSF that will include a Phase I component located at the toe of the existing TSF, and a Phase II that will be located on top of the existing TSF. Tailings will be deposited for approximately two years in Phase I, after which deposition will transition to Phase II, which has sufficient tailings storage capacity for the current LOMP.

## **1.17 Marketing**

Cozamin Mine has sold metal concentrates since the start of production, and under Capstone ownership since 2006. Cozamin's copper concentrate is considered a high-quality clean concentrate with low impurities (deleterious or penalty elements). The zinc concentrate is lower quality due to high cadmium concentrations, limiting its global marketability. Lead concentrate is considered average quality. Silver is contained in each of the three concentrates and gold in the lead concentrate. The concentrates are sold to reputable Mexican trading companies on annual or multi-year contracts. Three contracts are active and in good standing, with terms, rates and charges of these concentrate contracts are within industry norms.

Metal prices used in Mineral Resource and Mineral Reserve estimation were determined using a combination of analysis of long-term historical pricing, analyst and peer consensus pricing, and specialist consultant reports.

Major in-place contracts other than concentrate sales contracts include drilling, transportation and hauling, and operational and technical services. Contracts are negotiated and renewed as needed.

## **1.18 Environmental, Permitting and Social Considerations**

### **1.18.1 Environmental**

Baseline studies to support the original environmental impact assessments of various regulatory authorizations and their modifications were conducted by independent consultants at different times since Capstone's purchase of Cozamin. Investigations included detailed analysis of soil, water and air quality; vegetation and wildlife; biodiversity; hydrology; cultural resources; and socio-economic impacts.

The studies identified locally elevated heavy metals concentrations in soils, acid rock drainage and metal leaching as possible concerns potentially manageable with appropriate mitigation measures. Static acid-base accounting showed that flotation tailings and some types of waste rock have the potential to generate acidic drainage. However, the country rocks surrounding the deposit have significant neutralizing capacity and show relatively low permeability outside the immediate envelope of the structures hosting the mineralization. In addition, construction activities concluded as part of Cozamin's many expansions were effective in reducing the identified sources

of acidic drainage associated with the historic tailings impoundment, as well as downstream contamination due to tailings dispersal during previous operations. Further, during Capstone's ongoing operation apart from the recent deposition into the waste facility downstream from the TSF, both newly generated waste rock and historic waste rock from prior operations have in large part been deposited underground as backfill.

### **1.18.2 Permitting**

The original Environmental Impact Assessment ("MIA") was approved by Secretaría de Medio Ambiente y Recursos Naturales ("SEMARNAT") on August 29, 2005, valid for ten years with an optional renewal for additional terms of ten years. Capstone received approval for an additional 10 years of operation on June 1, 2015.

As part of the MIA process, various detailed studies of new lands needed for use to accommodate an expanded mining operation, known as ETJs, changed operational conditions and optimized site usage. Various environmental impact assessments for exploration and associated changes of use of forested lands were also completed and approved.

Construction and operation of the tailings filtration and paste plant plus associated infrastructure, was authorized for a 10-year term in 2021. SEMARNAT approved construction and operation of a dry stack tailings facility, and its associated infrastructure, for a 10-year term in 2022.

Cozamin is presently authorized to operate at up to 4,500 tpd of underground production and process plant operation, using two surface ramps and the principal San Roberto shaft, to dispose slurried tailings into the Stage 10 TSF, and with optimization of the paste and backfill plants to distribute filtered tailings underground as backfill, and into a filtered tailings facility atop the existing TSF, which will then become an integrated dry stack facility.

### **1.18.3 Closure**

Closure costs for the Cozamin Mine are currently estimated at US\$16.4 million. A draft closure plan is in place. Assumptions include continued operation at the current average operating rate of 1.5 Mt/a mined to December 2030, followed by an estimated 10-year period of post-closure monitoring.

Much of the area of the Cozamin site has been previously disturbed from historic operations which were never officially closed. In 2015, as part of a state-wide regional scale review of previously identified historic disturbances, the Procuraduría Federal de Protección al Ambiente en el Estado de Zacatecas ("PROFEPA") conducted a site inspection of an area of historic workings known as Chiripa, which is within the Project boundaries, but is located in an entirely separate catchment located north and east of the Cozamin operation. Chiripa was then outside of any of Capstone's permitted MIA, DTU, or other authorized permits. PROFEPA instituted an administrative procedure to have Capstone responsible for remediation and closure at Chiripa in December 2015. Capstone has since remediated a significant portion of the site and expects to complete remediation during 2023. The end result will be subject to verification and confirmatory sampling programs by PROFEPA, and Capstone will be responsible for ongoing post-construction

monitoring and maintenance for up to 20 years. The ultimate scale and scope of required remediation, rehabilitation, restitution, and the post closure land use which will be acceptable to regulators for the longer term remains to be defined.

#### 1.18.4 Social

The Zacatecas region has a strong mining tradition, positioning Cozamin within a community broadly knowledgeable about mining's challenges and operational requirements, and with a supply of workers skilled in mining. Successful engagement with the local communities near the mine has been a cornerstone of the operation.

Capstone has formal community engagement procedures in place. There is a clear priority in working cooperatively to identify and mitigate potential concerns which may arise, and to leverage opportunities to deliver local benefits such as employment and service contracts for operations.

Some mine infrastructure is located on land owned by the directly neighbouring agrarian communities of the Ejido Hacienda Nueva and Ejido La Pimienta. Capstone provides financial support for assistance with education, sporting, and recreation facilities.

There are no habitations within several kilometres of the footprint of the mine or its associated infrastructure, and the mine will not (and has not to date) required the resettlement of any individuals or communities.

### 1.19 Capital Costs

The first five years of the LOMP are detailed in a capital budget plan. Capital expenditures, shown in Table 1-3, include mine equipment, plant upgrades, underground capital development, tailings management and surface infrastructure, with an allowance for the remaining years of the plan based on the average of the preceding five-year plan. Sustaining capital development costs were estimated based on unit rates and the updated mine plan that supports the Mineral Reserve. Capital cost estimates are expressed in Q1-2022 US dollars.

**Table 1-3 : Capital Cost Estimate**

Area	Value (US\$M)
Mine sustaining development	75.3
Mine sustaining	24.8
Site sustaining	13.5
Expansionary	7.6
Exploration	2.7
<b>Subtotal without asset retirement obligations</b>	<b>123.9</b>

Note: All figures have been rounded. Totals may not sum due to rounding.

## 1.20 Operating Costs

Operating cost estimates shown in Table 1-4 are based on actual operating costs used in the budgeting process, which includes escalation for inflationary pressures, additional ground support requirements for geotechnical stability, new mining methods, and the new processes of paste backfill and filtered tailings deposition. Operating cost estimates are expressed in Q1-2022 US dollars.

**Table 1-4: Operating Cost Estimate**

Area	Value (US\$M)	Unit Costs
Mining cost	378.9	US\$37.11/t milled
Processing cost	142.4	US\$13.94/t milled
General and administrative costs	84.9	US\$8.32/t milled
<b>Total</b>	<b>606.2</b>	<b>US\$59.37/t milled</b>

Note: All figures are rounded. Totals may not sum due to rounding.

## 1.21 Economic Analysis

Capstone is using the provision for producing issuers, whereby producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production.

Clay Craig, P.Eng., QP for Section 22 Economic Analysis, confirmed a positive economic outcome for the Mineral Reserves presented in this report.

## 1.22 Interpretation and Conclusions

The Cozamin Mine is a viable mining operation operated continuously by Capstone for 17 years. Based on the findings summarized in this report, the QPs believe that the Cozamin LOMP presented in this report is achievable and that the economic analysis supports the declaration of the Mineral Reserve.

## 1.23 Risks and Opportunities

In addition to the key risks that may affect the Mineral Resource and Mineral Reserve estimates (see Section 1.11 and Section 1.13), specific risks that may affect the LOMP include:

- Changes to the tailings management plan, and increased tailings management costs, may be required if the existing TSF does not provide the expected foundation conditions necessary for construction of the overlying dry stack. This could materially impact capital and operating cost assumptions used in Mineral Reserve estimation.
- Mexican regulatory expectations for environmental and social responsibility continue to evolve. Changes to the assumptions regarding current environmental liabilities, historical liabilities from mining operations prior to Capstone's Project interest, and the ability to source borrow materials, have the potential to increase costs for final

closure and/or post closure monitoring, which would affect capital and operating cost assumptions used in Mineral Reserve estimation.

Opportunities that may impact the LOMP include:

- Upgrade of material currently classified as Inferred Mineral Resource with additional drilling and studies.
- Exploration upside to identify additional copper mineralization at depth below MNFWZ and MNV West Target.
- Exploration upside to identify additional zinc mineralization at MNFWZ and along strike of the MNV east of San Rafael.
- Pillar scavenging and incremental changes to mine designs such as alternative mining techniques, reduction of dilution, and optimizing stope designs.

## 1.24 Recommendations

A single phase work program is proposed, broken out by discipline area in Table 1-5. Work in each area can be conducted concurrently. The total budget estimate to complete the work is US\$3.3 million.

**Table 1-5: Summary of Recommendations**

### Recommendations

As further exploration and infill drilling continues, and empirical understanding of the physical characteristics of the orebody develops, continued revision of mining methods to optimize safety and economics is necessary. (\$200-250K)<sup>1</sup>

Revise the layout and detailed engineering of the underground paste distribution system to ensure that all areas in the mining plan to be backfilled with paste can be serviced. (\$35k)<sup>1</sup>

Complete the next phase of infill drilling from underground; incorporate one deeper cross-cut for precise underground infill drilling. The cost of the combined 2023 infill drilling and cross-cut development is US\$2.7 million.<sup>1</sup>

Cozamin Technical Services and Corporate Resource Estimation should evaluate infill drilling tighter than 50 m spacing, for areas with potential to require transverse mining.<sup>1</sup>

Additional incremental ore could be added to reserves laterally and adjacent to the planned mining areas. The cut off policy should be revisited once the costs for new mining methods and processes are known based on actual performance. Corporate technical services staff should complete this in 2023.<sup>1</sup>

Ongoing geotechnical work, estimated to cost \$350K, including:

- Implementation of a mitigation plan to address increased seismic activities. This might include adjusting the mine sequence to avoid creation of unfavorable geometry. The mitigation plan needs to include the use of dynamic ground support, and enhance the seismic system coverage, to monitor seismic activities, as well as establishing a re-entry protocol following a blast or large seismic event.<sup>4</sup>
- Continued systematic bolting in new headings and adjust ground support in areas of weaker rock mass conditions or in higher ground stress zones, and ensure ongoing ground support QAQC (quality assurance and quality control).<sup>4</sup>



- 
- Continued development of a formal ground control management plan that summarises different mine design (stope and pillar) and ground control requirements in different geotechnical domains, to be updated as performance information becomes available.<sup>4</sup>
  - Continued improvements to recording geotechnical data including mapping of the rock mass conditions underground and in drill core logging, validation of ground support performance, stope and pillar sizes, rock mass characterization, definition of regional field characteristics to aid reliable stress modelling, development of a 3D geomechanical domain model.<sup>4</sup>
  - Continued training of personnel in geotechnical mapping and to identify poor rock conditions and execute remediation ground control work where needed.<sup>4</sup>
  - Define local regional stress field characteristics to develop a reliable geotechnical numerical stress model and provide supporting data to verify geotechnical assumptions used for design are correct.<sup>4</sup>
  - Optimization of paste fill practices including paste fill mix specific to vertical exposure once the paste plant is operational and effectively producing a quality product.<sup>4</sup>
- 

Assess future regional power demands and the need for a backup transformer, and continue to monitor peak power draw and assess means for smoothing demand peaks.<sup>5</sup>

---

Regularly update and calibrate the site water balance model to improve Cozamin's ability to predict and plan for potential periods of water scarcity and periods of potential excess water on site following the transition to filtered tailings storage.<sup>5</sup>

---

Monitor the performance of the existing conventional TSF and Phase I of the filtered TSF once slurry deposition ceases, to ensure that the filtered tailings perform as expected and that the existing TSF will provide adequate foundation strength for the planned Phase 2.<sup>5</sup>

---

It is recommended that, as the time approaches to mine the Pb/Zn ores in the MNFWZ, more test work is conducted to better evaluate the effect of blending copper with Pb/Zn ores. This work could be conducted in house or in a commercial laboratory. If the latter, the cost will likely be in the order of US \$80,000.<sup>3</sup>

---

Maintain and improve understanding of environmental and community impacts:

- Continue to actively engage in community assistance and development programs with surrounding communities to ensure Capstone retains its social licence.<sup>2</sup>
  - Design an effective sampling and monitoring plan to further characterize current conditions of waste and tailings. This will support design of waste and tailings management plans and assist in the evaluation of operational alternatives for tailings and waste rock disposal during operations and into closure.<sup>2</sup>
  - Assess whether buffer zones at the edges of the existing mine property are appropriately sized to ensure design and operational flexibility for proposed ancillary infrastructure with completion of feasibility level design for Phase 2 of the filtered TSF.<sup>2</sup>
- 

Table 1-3 Notes:

1. QP Clay Craig, P.Eng.
  2. QP Jenna Hardy, P.Geo., FGC
  3. QP Peter Amelunxen, P.Eng.
  4. QP Ali Jalbout, P.Eng.
  5. QP Josh Moncrieff, P.Geo.
-



## **2 Introduction**

### **2.1 Introduction**

This Technical Report was prepared by Capstone to disclose updated Mineral Resources and Mineral Reserves at the Cozamin Mine in Zacatecas, Mexico. Cozamin Mine is an operating underground copper-silver-zinc-lead mine with a 3,980 tonne per day milling capacity.

Capstone owns 100% of Cozamin Mine through its subsidiaries Capstone Gold S.A. de C.V. (99.9% ownership) and Capstone Mexico Mining Corp. (0.01% ownership).

This Technical Report was prepared by Capstone employees Peter Amelunxen, P.Eng., Clay Craig, P.Eng., Vivienne McLennan, P.Geo., and Josh Moncrieff, P.Geo, and includes content that is the responsibility of the following firms and consultants: Jenna Hardy, P.Geo., FGC, Nimbus Management Ltd. and Ali Jalbout, ASA Geotech.

### **2.2 Terms of Reference**

The Report supports Capstone's news release dated May 3, 2023 entitled "Capstone Copper Reports First Quarter 2023 Results". This news release disclosed updated Mineral Resources and Mineral Reserves at the Cozamin Mine, summarized changes to the mining method, revised geotechnical assumptions and informed investors of current information.

Preparation of this Technical Report followed National Instrument 43-101, Standards of Disclosure for Mineral Projects ("NI 43-101") and the report was written in accordance with Form 43-101F1. Estimates of Mineral Resources and Mineral Reserves follow industry best practices as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM, 2019). Classification of Mineral Resources and Mineral Reserves conform to CIM Definition Standards (CIM, 2014). The effective date of this Technical Report is January 1, 2023.

## 2.3 Qualified Persons

QPs for this Technical Report are:

- Peter Amelunxen, P.Eng., Vice President Technical Services, Capstone Copper Corp.
- Clay Craig, P.Eng., Director, Mining and Strategic Planning, Capstone Copper Corp.
- Jenna Hardy, P.Geo., FGC, Principal, Nimbus Management Ltd.
- Ali Jalbout, P.Eng., PhD, Principal Geotechnical Engineer, ASA Geotech
- Vivienne McLennan, P.Geo., Manager, Resource Governance, Capstone Copper Corp.
- Josh Moncrieff, P.Geo., Director, Technical Services, Capstone Copper Corp.

## 2.4 Site Visits and Scope of Personal Inspection

Site inspections have been undertaken by each of the QPs as outlined in Table 2-1. Dates listed do not include travel time to and from the Cozamin Mine.

**Table 2-1: Site Inspection Details of Qualified Persons**

Qualified Person	Date (Excluding Travel)	Scope of Site Inspection
Peter Amelunxen	September 13-15, 2022	Reviews of mill, mine, metallurgical model & production plan, paste plant engineering
Clay Craig	October 20-23, 2020 June 22-25, 2021 September 6-7, 2021 October 18-19, 2021 November 29-30, 2021 February 22-23, 2022 May 9-13, 2022 June 21-25, 2022 September 12-16, 2022	Reviews of mine planning, paste implementation, geotechnical, ore control model, underground tours including in situ mineralization in active mining areas and observation of drillcore
Jenna Hardy	August 26-30, 2019	Environmental and regulatory review with site personnel, permit conformance inspection of tailings and historical mines as well as closure and reclamation planning.
Ali Jalbout	September 12-16, 2022 February 6-10, 2023	General geotechnical assessment, includes underground visits, review support standard and performance, and QAQC of support installation, review the mine standard for working in burst ground.
Vivienne McLennan	October 22- Nov 2, 2018 August 27-30, 2019 February 11-Mar 7, 2020 October 19-28, 2021 May 10-19, 2022 January 9-20, 2023	Review of geology, data handling for drilling and exploration information including mineral tenures, drillcore, QAQC, and database verification.

Josh Moncrieff	December 2-6, 2019 September 14-17, 2020 October 12-15, 2020 October 21-23, 2020 January 20, 2021 July 26-30, 2021 February 22-23, 2022 May 9-13, 2022 September 12-16, 2022	Site infrastructure review covering current procedures, proposed tailings storage alternatives and future capacity requirements.
----------------	--	--

## 2.5 Information Sources, Effective Dates and References

The effective date of this report is based on the Mineral Resource and Mineral Reserve estimates dated January 1, 2023.

The technical information used to develop the Mineral Resource and Mineral Reserves estimates was collected over a number of years, dating back to 2004. All sample information was acquired by Capstone personnel.

Sources of data for the report and the corresponding effective dates are as follows:

- Diamond drilling information including collar surveys, downhole surveys, geological and geotechnical logging for holes drilled from 2004 up until October 4, 2022 and assays up to October 21, 2022
- Production and processing information, from historical operators pre-2004 and collected by Capstone from 2004 through December 31, 2022, including the month-end production survey dated December 31, 2022 used in reporting the Mineral Resource and Mineral Reserve estimates
- Mineral Resource and Mineral Reserve estimates: January 1, 2023
- Environmental, regulatory and social or community aspects to December 31, 2022
- Infrastructure information to December 31, 2022
- Maintenance of mining concessions to January 31, 2023
- Metallurgical test work to February 22, 2021
- Geotechnical inputs including stope performance data, geotechnical core logging data, core photographs, laboratory strength testing, geotechnical standard operating procedures and ground control design procedures, 2017 to January 1, 2023.

In addition, other reports, opinions and statements of lawyers and other experts are discussed in Section 3.

The following defined terms are used in this Technical Report.

**Table 2-2: Acronyms**

Acronym	Expanded Form
Acme	Acme Analytical Laboratories Ltd.
Actlabs	Activation Laboratories Ltd.
AIF	Annual Information Form
ALS	ALS Geochemistry
Assayers Canada	Mineral Environments Laboratories Ltd
Bacis	Grupo Minera Bacis S.A. de C.V.
Base Metals	Copper, lead, zinc
C&F	Cut and fill
CAPEX	Capital costs
Capstone	Capstone Copper Corp.
Capstone Gold	Capstone Gold S.A. de C.V.
CCS	Chip-channel sample
CEMEFI	Mexican Centre for Philanthropy
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
Clifton	Clifton Associates Ltd-Natural Environment S.C.
CML	Cozamin Mine Laboratory
COG	Cut-off grade
Contrafrente	Lateral drift system
Copper-Silver Zone	Mala Noche Footwall copper-silver zones Vein 18, Vein 20 and Vein 22
Copper-Zinc Zone	San Roberto and Mala Noche Footwall copper-zinc zones Vein 9, Vein 10 northwest and Vein 19
CoV	Coefficient of Variation
Cozamin	Cozamin Mine
CRIP	Complex Resistivity Induced Polarization
CRM	Certified Reference Material
CSAMT	Controlled Source Audio Magnetotellurics
CuEq	Copper Equivalent
CUSTF	Cambio de Uso de Suelos en Terrenos Forestales
DAP	Delivered at place
DDH	Diamond drillhole
DTU	Documento Técnico Unificado
Eco Tech	Eco Tech Laboratories Ltd.
EDA	Exploratory Data Analysis
EDR	Endeavour Silver Corp.
Ejido	Mexican state-owned communal agricultural lands
ELOS	Equivalent Linear Overbreak Slough
ER	Estudio Riesgo
ETJ	Estudio Técnico Justificativo de Cambio de Uso de Suelos
EW	East-West

Acronym	Expanded Form
FOB	Free on board
G&A	General and Administrative
GPS	Global Positioning System
GU	General Use cement
GGIBFS	Ground Granulated Iron Blast Furnace Slag
HARD	Half Absolute Relative Difference
HDPE	High-density polyethylene
ICP	Inductively coupled plasma method of ionizing sample material
ID <sup>2</sup>	Inverse Distance, squared estimation method
INEGI	Instituto Nacional de Estadística y Geografía
INSECAMI	Ingengeria y Servicios en Control Ambiental Industrial S.A. de C.V.
Inspectorate	Bureau Veritas Inspectorate Laboratory
IRR	Internal Rate of Return
IVA	Value Added Tax (Mexican)
LAU	Licencia Única Ambiental
LGEEPA	Ley General de Equilibrio Ecológico y la Protección al Ambiente
LGGC	Lions Gate Geological Consulting Inc.
LH	Long-hole
LHD	Load-haul-dump mining equipment
LHOS	Long-hole open stope
LME	London Metal Exchange
LOM	Life of mine
LOMP	Life of mine plan
mi	Parameter required to estimate strength of rock materials
M+I	Measured and Indicated Mineral Resources
MEX or MX\$	Mexican Peso
MHS	Material Handling Study
MIA	Manifestación de Impacto Ambiental
Minzone	Mineralized zone
ML/ARD	Metal leaching/acid rock drainage
MNFWZ	Mala Noche Footwall Zone
MNV	Mala Noche Vein
MSO	Maptek Stope Optimizer software
NSAMT	Natural Source Audio Magnetotellurics
NE	Northeast
NI 43-101	National Instrument 43-101 Standards of Disclosure for Mineral Projects
NN	Nearest Neighbour estimation method
NNE	North-North-East
NSR	Net Smelter Return
NW	Northwest
OK	Ordinary Kriging estimation method

Acronym	Expanded Form
OPEX	Operating costs
PAG	Potentially acid generating
Peñoles	Industrias Peñoles S.A. de C.V.
PFS	Preliminary Feasibility Study
Precious Metals	Gold, silver, platinum
PROFEPA	Procuraduría Federal de Protección al Ambiente en el Estado de Zacatecas
Property	Cozamin Mine and the surrounding contiguous block of mining concessions
Q'	Q' value for rock mass classification using Q-system
QAQC	Quality Assurance/Quality Control
RM	Reference Material
RMR	Rock Mass Rating
ROM	Run of Mine
RQD	Rock Quality Designation
SE	Southeast
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales
SGS	SGS Canada Inc.
SMU	Selective Mining Unit
SRK	SRK Mining Consultants
SROB	San Roberto zone (Copper)
SROB-Zn	San Roberto Zinc zone
Supervisor	Snowden Technologies Pty Ltd <i>Supervisor</i> software
SVOL	Search volume, numbered by pass in a multi-pass search strategy
TDIP	Time domain induced polarization
TSF	Tailings Storage Facility
UCS	Uniaxial compressive strength
US\$	United States Dollar
VN	Vein
WNW	West-North-West
X, Y, Z	Cartesian Coordinates, also “Easting”, “Northing”, and “Elevation”
Zinc-Silver-Lead Zone	San Rafael, San Roberto Zinc zone, Mala Noche Footwall Zinc-Silver-Lead zones Vein 8, Vein 10 southeast and Vein 11

**Table 2-3: Abbreviations**

Abbreviation	Unit or Term	Abbreviation	Unit or Term
<b>Distance</b>		<b>Mass</b>	
µm	micron (micrometre)	kg	kilogram
mm	millimetre	g	gram
cm	centimetre	t	metric tonne
m	metre	kt	kilotonne
km	kilometre	lb	pound
" or in	inch	Mt	megatonne or million tonnes
' or ft	foot	oz	troy ounce
<b>Power</b>		wmt	wet metric tonne
MW	megawatt	dmt	dry metric tonne
HP	horsepower	tpd	tonnes per day
		tph	tonnes per hour
<b>Area</b>		<b>Pressure</b>	
m <sup>2</sup>	square metre	psi	pounds per square inch
km <sup>2</sup>	square kilometre	Pa	Pascal
ac	acre	kPa	kilopascal
ha	hectare	MPa	megapascal
<b>Volume</b>		<b>Elements and Compounds</b>	
l	litre	Au	gold
m <sup>3</sup>	cubic metre	Ag	silver
ft <sup>3</sup>	cubic foot	Cu	copper
USg	US gallon	Pb	lead
LCM	loose cubic metre	Zn	zinc
MLCM	million lcm	CaCO <sub>3</sub>	calcium carbonate
BCM	bank cubic metre	ANFO	ammonium nitrate/fuel oil
MBCM	million bcm	<b>Bulk Density and Specific Gravity</b>	
CFM	Cubic feet per minute	BD/SG	g/cm <sup>3</sup>

**Table 2-4: Conversion Factors**

Conversion Factors	
1 tonne	2204.62 lb
1 oz (troy)	31.1035 g



## 2.6 Previous Technical Reports

Capstone has previously filed the following Technical Reports on Cozamin:

- Bush, G., Hardy, J., Jensen, T., Kennard, D., Kirkham, G., Martin, C., McLennan, V., Moncrieff, J., Preciado, H., 2020: NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico: technical report prepared by Nimbus Management Ltd., Golder Associates Ltd., Kirkham Geosystems Ltd., Blue Coast Metallurgy Ltd. and Wood Environment & Infrastructure Solutions, Inc. for Capstone Copper Corp., effective Date: October 31, 2021
- Bush, G., Hardy, J., Jensen, T., Kennard, D., Kirkham, G., Martin, C., McLennan, V., Moncrieff, J., Preciado, H., 2020: NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico: technical report prepared by Nimbus Management Ltd., Golder Associates Ltd., Kirkham Geosystems Ltd., Blue Coast Metallurgy Ltd. and Wood Environment & Infrastructure Solutions, Inc. for Capstone Copper Corp., effective Date: April 30, 2020
- Bush, G., Hardy, J., Jensen, T., Kennard, D., Kirkham, G., Martin, C., McLennan, V., Preciado, H., 2018: NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico: technical report prepared by Nimbus Management Ltd., Golder Associates Ltd., Kirkham Geosystems Ltd., Blue Coast Metallurgy Ltd. and Wood Environment & Infrastructure Solutions, Inc. for Capstone Copper Corp., effective Date: October 24, 2018
- Bush, G., Hardy, J., Jensen, T., Kirkham, G., Martin, C., McLennan, V., Mohseni, P., Preciado, H., 2018: NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico: technical report prepared by Nimbus Management Ltd., Kirkham Geosystems Ltd., Blue Coast Metallurgy Ltd. and Wood Environment & Infrastructure Solutions, Inc. for Capstone Copper Corp., effective Date: July 19, 2018
- Andrieux, P., Hallman, D., Hardy, J., Lawson, M., Major, K., McLennan, V., Schappert, A., Shahkar, A., Sim, R., Skeeles, B., Vincent, J., 2014: NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico: technical report prepared by Itasca Consulting Group, Inc. Tetra Tech, Inc., Nimbus Management Ltd., Stantec Consulting International LLC, KWM Consulting Inc., Lions Gate Geological Consulting Inc. and Sim Geological Inc. for Capstone Copper Corp., effective Date: July 18, 2014
- Doerksen, G., Hardy, J., Sim, R., Woods, J., 2009: Technical Report Cozamin Mine, Zacatecas, Mexico: technical report prepared by SRK Consulting for Capstone Copper Corp., effective date March 31, 2009
- Stone, M.S., Barnes, R.B., and Hardy, J., 2007: Technical Report on the Cozamin Project, Zacatecas State, Mexico, October 31, 2007: technical report prepared for Capstone Copper Corp.

### 3 Reliance on Other Experts

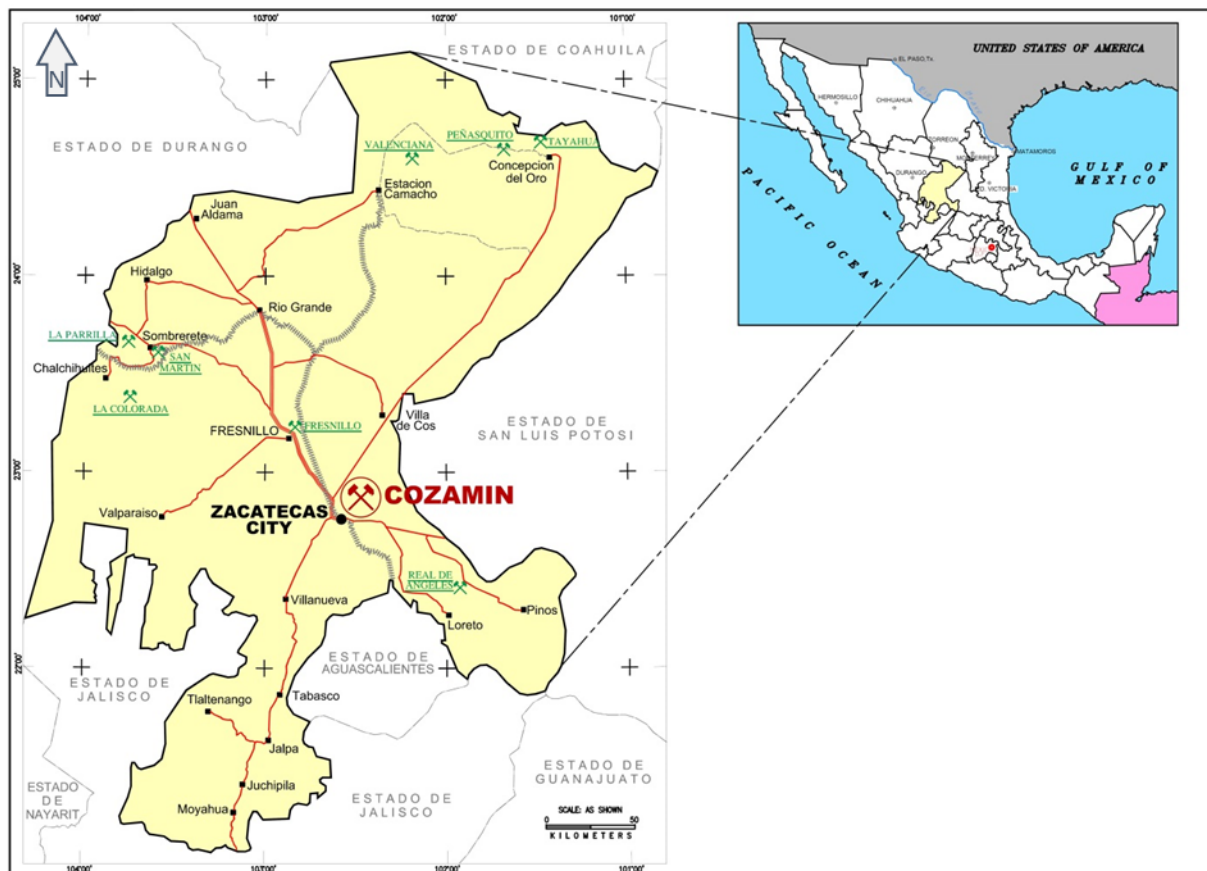
In preparing this Technical Report, the authors have fully relied upon certain work, opinions and statements of lawyers and other experts. The authors consider the reliance on other experts, as described in this section, as being reasonable based on the experts' knowledge, experience and qualifications. The QPs that authored this Technical Report disclaim responsibility for the expert report content used in the following sections:

- Rafael Cereceres Ronquillo, Cereceres Estudio Legal, S.C., for a legal opinion pertaining to the ownership of mining concessions by Capstone Gold S.A. de C.V. and Mining Opco, S.A. de C.V. in Section 4.2 (March 14, 2023) prepared for Capstone Copper Corp.
- L.C. José de Jesús Espino Zapata, Gerente Administrativo, Capstone Gold S.A de C.V., for Mexican taxation information throughout the report, including Section 4.3, and for specialized knowledge of contracts summarized in Section 19 (March 17, 2023).
- Ashley Woodhouse, Marketing Manager of Capstone Copper Corp., for specialized commodity market knowledge summarized in Section 19 (March 22, 2023). The information is also used to support the reasonable prospects for eventual economic extraction in Section 14 and the mineral reserve estimate in Section 15 including the financial analysis.

## 4 Property Description and Location

### 4.1 Introduction

The Cozamin Mine is located in the Municipality of Morelos in the Zacatecas Mining District near the southeastern boundary of the Sierra Madre Occidental Physiographic Province in north-central Mexico (Figure 4-1). The mine and processing facilities are located near coordinates 22° 48' N latitude and 102° 35' W longitude on 1:250,000 Zacatecas topographic map sheet F13-6, approximately 3.5 km to the north-northeast of the city of Zacatecas, the Zacatecas state capital.



**Figure 4-1: Cozamin Mine Location (Source: Capstone, 2014)**

## 4.2 Mining Concessions

Cozamin comprises 94 mining concessions covering approximately 4,260 ha (Figure 4-2 and Figure 4-3). Capstone Gold is the registered holder of 45 mining concessions (with three additional mining concessions which were lawfully transferred to Capstone Gold and are pending registration with the Public Registry of Mining since August 2019, and with an additional pending mining concession) covering approximately 3,485 ha (Table 4-1); Mining Opco, a wholly-owned subsidiary of Capstone, is the registered holder of 45 mining concessions covering approximately 775 ha (Table 4-2). The 90 mining concessions are listed in the Public Registry of Mining. The mining concessions are not subject to any limitations of property, claim or legal proceedings. The mine is 100% owned by Capstone subject to a 3% NSR royalty payable to Grupo Minera Bacis S.A. de C.V. (“Bacis”) and a 1% NSR royalty payable to Endeavour Silver Corp. (“EDR”), based on the concessions where mining occurs.

**Table 4-1: Cozamin Mining Concessions Summary – held by Capstone Gold S.A. de C.V.**

Description / Name	Title Number	Concession Classification	Validity		Area (ha)
			From	To	
001 Plateros	188806	Exploitation	1990-11-29	2040-11-28	9
002 Santa Lucia	195187	Exploitation	1992-08-25	2042-08-24	18.7267
003 San Nicolás	200150	Exploitation	1994-07-15	2044-07-14	5.3697
004 San Jacinto Fracc. 1	202437	Exploitation	1995-11-24	2045-11-23	78.7955
005 San Jacinto Fracc. 2	202438	Exploitation	1995-11-24	2045-11-23	17.7846
006 Santa Bárbara Fracc. 4	202628	Exploitation	1995-12-08	2045-12-07	0.4585
007 Santa Bárbara Fracc. 2	235867	Exploitation	2010-03-24	2060-03-23	16.5589
008 Gabriela II	203364	Exploitation	1996-07-19	2046-07-18	18.9438
009 Plateros Dos	208838	Exploitation	1998-12-15	2048-12-14	50
010 La Liga	217237	Exploitation	2002-07-02	2052-07-01	20.1817
011 San Bonifacio	217858	Exploitation	2002-08-27	2052-07-26	40.8518
012 Santa Bárbara Fracc. 1	218259	Exploitation	2002-10-17	2052-10-16	82.9691
013 La Secadora	219630	Exploitation	2003-03-26	2053-03-25	9
014 La Providencia	223954	Exploitation	2005-03-15	2055-03-14	60
015 Unificación Carlos	235574	Exploitation	2010-01-20	2060-01-19	542.5265
016 Orlando	225620	Exploitation	2005-09-23	2055-09-22	11.7899
017 San Luis I	223325	Exploitation	2004-12-02	2054-12-01	290.6121
018 San Luis II	224466	Exploitation	2005-05-13	2055-05-12	133.8409
019 San Luis II Fracc. I	224467	Exploitation	2005-05-13	2055-05-12	2.1713
020 San Luis II Fracc. II	224468	Exploitation	2005-05-13	2055-05-12	2.4654
021 Acueducto	224469	Exploitation	2005-05-13	2055-05-12	13.559
022 Acueducto Fracc. 1	224470	Exploitation	2005-05-13	2055-05-12	9.598
023 La Parroquia	224471	Exploitation	2005-05-13	2055-05-12	1.2601
024 La Gloria	224474	Exploitation	2005-05-13	2055-05-12	4.1372
025 La Sierpe	224503	Exploitation	2005-05-13	2055-05-12	4.2638
026 La Sierpe Fracc. 1	224504	Exploitation	2005-05-13	2055-05-12	0.0108
027 San Judas	226699	Exploitation	2006-02-17	2056-02-16	14.5989
029 Lorena	227712	Exploitation	2006-07-28	2056-07-27	318.5825
030 Sara	228086	Exploitation	2006-09-29	2056-09-28	231.9436
031 El Ranchito	228343	Exploitation	2006-11-08	2056-11-07	11.2997
032 El Ranchito Fracc 1	228344	Exploitation	2006-11-08	2056-11-07	0.6189

Description / Name	Title Number	Concession Classification	Validity		Area (ha)
			From	To	
033 La Veta	228345	Exploitation	2006-11-08	2056-11-07	1.4533
034 Anabel	229238	Exploitation	2007-03-27	2057-03-26	310.771
035 Cecilia	230921	Exploitation	2007-11-09	2057-11-08	425.6022
036 Ximena	234713	Exploitation	2009-08-04	2059-08-03	400.5854
037 Los Amigos	223270	Exploitation	2004-11-18	2054-11-17	30
038 San Francisco	203270	Exploitation	1996-06-28	2046-06-27	17.2735
039 Santa Rita	183882	Exploitation	1988-11-23	2038-11-22	12.3809
040 La Esperanza	214768	Exploitation	2001-11-29	2051-11-28	29.5678
041 San Benito	239550	Exploitation	2011-12-16	2061-12-15	9
042 Sandra	238171	Exploitation	2011-08-09	2061-08-08	127.3809
043 La Capilla	240517	Exploitation	2012-06-12	2062-06-11	2.198
044 La Fortuna	Pending	Exploitation	-	-	Approx. (9.0000)
045 Unificación El Cobre	170677	Exploitation	1982-06-11	2032-06-10	31.4914
046 Parroquia Dos	165880	Exploitation	1979-12-13	2029-12-12	1
047 Parroquia Tres	175518	Exploitation	1985-07-31	2035-07-30	6.0063
048 Jimena	220242	Exploitation	2003-06-25	2053-06-24	2.999
049 Los Chatos	220816	Exploitation	2003-10-08	2053-10-07	9.2157
050 Portree 1	218209	Exploitation	2002-10-11	2052-10-10	46.1784

**Total** (excl. 044) <sup>1</sup> 3,339.6722 ha

Table 4-1 Notes:

1.La Fortuna (044) was solicited in 2010 and is pending approval.

**Table 4-2: Cozamin Mining Concessions Summary – held by Mining Opco, S.A. de C.V.**

Description / Name	Title Number	Concession Classification	Validity		Area (ha)
			From	To	
051 Diez de Mayo	151926	Exploitation	2019-10-06	2069-10-05	26.5725
052 Aries	194829	Exploitation	1992-07-30	2042-07-29	59.6032
053 Adriana	196151	Exploitation	1993-07-16	2043-07-15	15.0000
054 11 de Mayo	211770	Exploitation	2000-07-28	2050-07-27	29.1756
055 Largo III Fracción III	219050	Exploitation	2003-02-04	2053-02-03	4.3593
056 Largo III Fracción I	219196	Exploitation	2003-02-18	2053-02-17	28.2972
057 Largo III Fracción II	219197	Exploitation	2003-02-18	2053-02-17	1.3226
058 Eureka	116153	Exploitation	1961-12-05	2061-12-04	13.9232
059 Segunda A. al Patrocinio	156645	Exploitation	1972-04-12	2072-04-11	7.6662
060 Cuarta A. al Patrocinio	156646	Exploitation	1972-04-12	2072-04-11	8.0840
061 Lucia Numero Tres	169353	Exploitation	1981-11-11	2031-11-10	31.0000
062 Lucia Numero Dos	185481	Exploitation	1989-12-14	2039-12-13	5.9975
063 Santa Lucia	210729	Exploitation	1999-11-26	2049-11-25	51.4051
064 Los Clarines	210800	Exploitation	1999-11-26	2049-11-25	74.0235
065 Santa Clara	217768	Exploitation	2002-08-13	2052-08-12	4.2124
066 Manuelito	211809	Exploitation	2000-07-28	2050-07-27	22.7023
067 Mexicapan	212562	Exploitation	2000-11-07	2050-11-06	40.9755
068 Nueva Santa Clara	213110	Exploitation	2001-03-16	2051-03-15	0.6141
069 Chicosantos	215669	Exploitation	2002-03-05	2052-03-04	24.4870
070 Santa Fe	216458	Exploitation	2002-05-17	2052-05-16	10.5408
071 Santo Tomas	217327	Exploitation	2002-07-02	2052-07-01	4.9781
072 La Azteca II	211768	Exploitation	2000-07-28	2050-07-27	9.3218

Description / Name	Title Number	Concession Classification	Validity		Area (ha)
			From	To	
073 La Fe 2	218080	Exploitation	2002-10-03	2052-10-02	68.0829
074 Largo V	219199	Exploitation	2003-02-18	2053-02-17	10.8878
075 Emma	220995	Exploitation	2003-11-11	2053-11-10	11.1661
076 Angustias II	222293	Exploitation	2004-06-22	2054-06-21	14.7323
077 Libra	223407	Exploitation	2004-12-10	2054-12-09	11.9969
078 El Descuido	223408	Exploitation	2004-12-10	2054-12-09	4.9761
079 Angustias I	223409	Exploitation	2004-12-10	2054-12-09	7.4914
080 Largo VI Fracción IX	224327	Exploitation	2005-04-22	2055-04-21	1.2270
081 Providencia	227729	Exploitation	2006-08-10	2056-08-09	0.7511
082 La Esperanza 3	238676	Exploitation	2011-10-11	2061-10-10	0.4848
083 La Esperanza 3 Fracc. 1	238677	Exploitation	2011-10-11	2061-10-10	0.0097
084 La Bonanza	178542	Exploitation	1986-08-11	2036-08-10	26.9273
085 La Escondida	179318	Exploitation	1986-12-08	2036-12-07	14.0000
086 San Felipe	190210	Exploitation	1990-12-06	2040-12-05	11.2822
087 San Jorge	196316	Exploitation	1993-07-16	2043-07-15	14.9090
088 El Cristo No. 2	213216	Exploitation	2001-04-06	2051-04-05	11.5746
089 Patrocinio	214120	Exploitation	2001-08-10	2051-08-09	9.0000
090 San Pedro De Hercules	214190	Exploitation	2001-08-10	2051-08-09	18.1049
091 La Chiquita	219104	Exploitation	2003-02-04	2053-02-03	1.1148
092 Largo I	219194	Exploitation	2003-02-18	2053-02-17	3.1148
093 Leo	220455	Exploitation	2003-07-29	2053-07-28	52.3500
094 Ana	220992	Exploitation	2003-11-11	2053-11-10	2.3929
095 San Lazaro 2	235676	Exploitation	2010-02-12	2060-02-11	3.7536
<b>Total 774.5921 ha</b>					

### 4.3 Obligations to Retain the Mining Concessions

Several obligations must be met to maintain a mining concession in good standing, including the following:

- Carrying out the exploitation of minerals expressly subject to the applicability of the mining law;
- Performance and filing of evidence of assessment work; and
- Payment of mining duties (taxes).

The regulations establish minimum amounts that must be invested in the concessions. Minimum expenditures may be satisfied through sales of minerals from the mine for an equivalent amount. A report must be filed each year that details the work undertaken during the previous calendar year.

Mining duties must be paid to the Secretaría de Economía in advance in January and July of each year, and are determined on an annual basis under the Mexican Federal Rights Law. Duties are based on the surface area of the concession, and the number of years since the mining concession was issued. Mining duties totaled \$106,555 in 2022 and the required payments for January 2023 were made.



Permits to conduct mining work at Cozamin have been obtained. Existing permits may require updates or extensions based on the LOMP outlined in this report. The mine is subject to risk factors common to most mining operations in Mexico, and Capstone has an internal process in place to study and mitigate those risks that can reasonably be mitigated. No known factors or unusual risks affect access, title or the ability to conduct mining. Specific surface exploration activities were authorized up to the end of 2022, with authorizations required to continue exploration activities proposed for 2023 reasonably expected to be received.

## **4.4 Royalties and Agreements**

### **4.4.1 Bacis**

In a press release dated October 27, 2003, Capstone announced that it had entered into a Letter of Intent with Bacis to option five advanced exploration projects in Mexico, including Cozamin (Capstone, 2003). On December 1, 2005, Capstone Gold earned a 90% interest in Cozamin wherein Bacis held a 1.5% NSR royalty and 10% carried interest. On June 30, 2006, Bacis converted its 10% interest in Cozamin to an additional 1.5% NSR royalty, leaving Bacis with a 3% NSR royalty on Cozamin (Capstone, 2005).

### **4.4.2 Golden Minerals**

Three mineral claims acquired in September 2009 from Minera Largo S. de R.L. de C.V., a wholly owned subsidiary of Golden Minerals, are subject to future cash payments of 1.5% of NSR on the first one million tonnes of production and cash payments equivalent to 3.0% of NSR on production in excess of one million tonnes from the acquired claims. The payment on production over one million tonnes also escalates by 0.5% for each \$0.50 increment in copper price above \$3.00 per pound of copper.

In 2014, Capstone acquired 45 additional concessions from Golden Minerals totalling 775 ha that surround the Cozamin Mine's existing concessions. Seventeen of the claims are subject to a finder's fee to be paid as 1.0% of NSR, or Gross Proceeds Royalty, to International Mineral Development and Exploration Inc., pursuant to existing agreements on the concessions dating back to October 1994 and August 2000.

### **4.4.3 Endeavour Silver Corp.**

Capstone also entered into a mineral rights sharing agreement with EDR for concessions that abut the southern boundary of the Cozamin Mine property in 2017, summarized in Table 4-3 and shown in Figure 4-2. The mineral rights sharing agreement provides Capstone with exploration and exploitation rights on seven EDR concessions deeper than 2,000 meters above sea level ("masl"), a depth where copper-rich mineralization has been historically found and mined by Capstone, and provides EDR with exploration and exploitation rights on Capstone concessions above 2,000 masl. Exceptions to these rights are as follows:

- If Capstone's exploration suggests possible continuation of a mineralized domain where base metals contribute more than 60% of the estimated NSR value above 2,000 masl, Capstone will be entitled to conduct exploration above 2,000 masl upon a minimum 30



days notice to EDR, provided the exploration does not interfere with EDR's current or future mining activities;

- If EDR's exploration suggests possible continuation of a mineralized domain where precious metals contribute more than 60% of the estimated NSR value below 2,000 masl, Capstone will be entitled to conduct exploration above 2,000 masl upon a minimum 30 days notice to EDR, provided the exploration does not interfere with Capstone's current or future mining activities.

Capstone granted EDR a 1% NSR royalty on its base metal production on EDR property, and EDR granted Capstone a 1% NSR royalty on EDR precious metal production on Capstone property.

**Table 4-3: Capstone-EDR Mineral Rights Sharing Agreement**

Description / Name	Title Number	Concession Classification	Validity		Area (ha)
			From	To	
Capstone-EDR Agreement Concessions held by Capstone Gold, S.A. de C.V.					
Santa Lucia <sup>1</sup>	195187	Exploitation	1992-08-25	2042-08-24	18.7267
Gabriela II <sup>1</sup>	203364	Exploitation	1996-07-19	2046-07-18	18.9438
Capstone-EDR Agreement Concessions held by Mining Opco, S.A. de C.V.					
Libra	223407	Exploitation	2004-12-10	2054-12-09	11.9969
Eureka	116153	Exploitation	1961-12-05	2061-12-04	13.9232
Lucia Numero Dos	185481	Exploitation	1989-12-14	2039-12-13	5.9975
Lucia Numero Tres	169353	Exploitation	1981-11-11	2031-11-10	31.0000
Nueva Santa Clara	213110	Exploitation	2001-03-16	2051-03-15	0.6141
Angustias II	222293	Exploitation	2004-06-22	2054-06-21	14.7323
Mexicapan <sup>2</sup>	212562	Exploitation	2000-11-07	2050-11-06	40.9755
Chicosantos	215669	Exploitation	2002-03-05	2052-03-04	24.4870
Total					181.3970 ha
Capstone-Endeavour Agreement Concessions held by Minera Oro Silver de Mexico, S.A. de C.V.					
Vicochea	169354	Exploitation	1981-11-11	2031-11-10	23.4467
Vicochea Numero Dos	169356	Exploitation	1981-11-11	2031-11-10	1.0565
Calicanto	169355	Exploitation	1981-11-11	2031-11-10	20.1002
Misie	229920	Exploitation	2007-06-29	2057-06-28	18.9952
Misie Fracc, 1	229921	Exploitation	2007-06-29	2057-06-28	6.9572
Missie Fracción 1	229699	Exploitation	2007-06-06	2057-06-05	4.0396
Missie Fracción 2	229700	Exploitation	2007-06-06	2057-06-05	0.3633
Total					74.9587 ha

Table Notes:

1. Santa Lucia and Gabriella II are subject to a 3% NSR royalty held by Compania Minera Basis, S.A. de C.V.
2. Mexicapan II is subject to a 1% NSR royalty held by International Mineral Development and Exploration Inc.
3. Vicochea and Vicochea Numero Dos are subject to a 3% NSR royalty held by Hector Juan Manuel Mayorga Murillo.

#### 4.4.4 Wheaton Precious Metals Corp.

Capstone signed a silver stream agreement with Wheaton Precious Metals Corp., ("Wheaton") effective December 1, 2020. On February 19, 2021, Wheaton paid an upfront cash consideration of US\$150 million for 50% of the silver production until 10 million silver ounces are delivered, then decreasing to 33% of silver production for the remaining life-of-mine (LOM). Wheaton will make

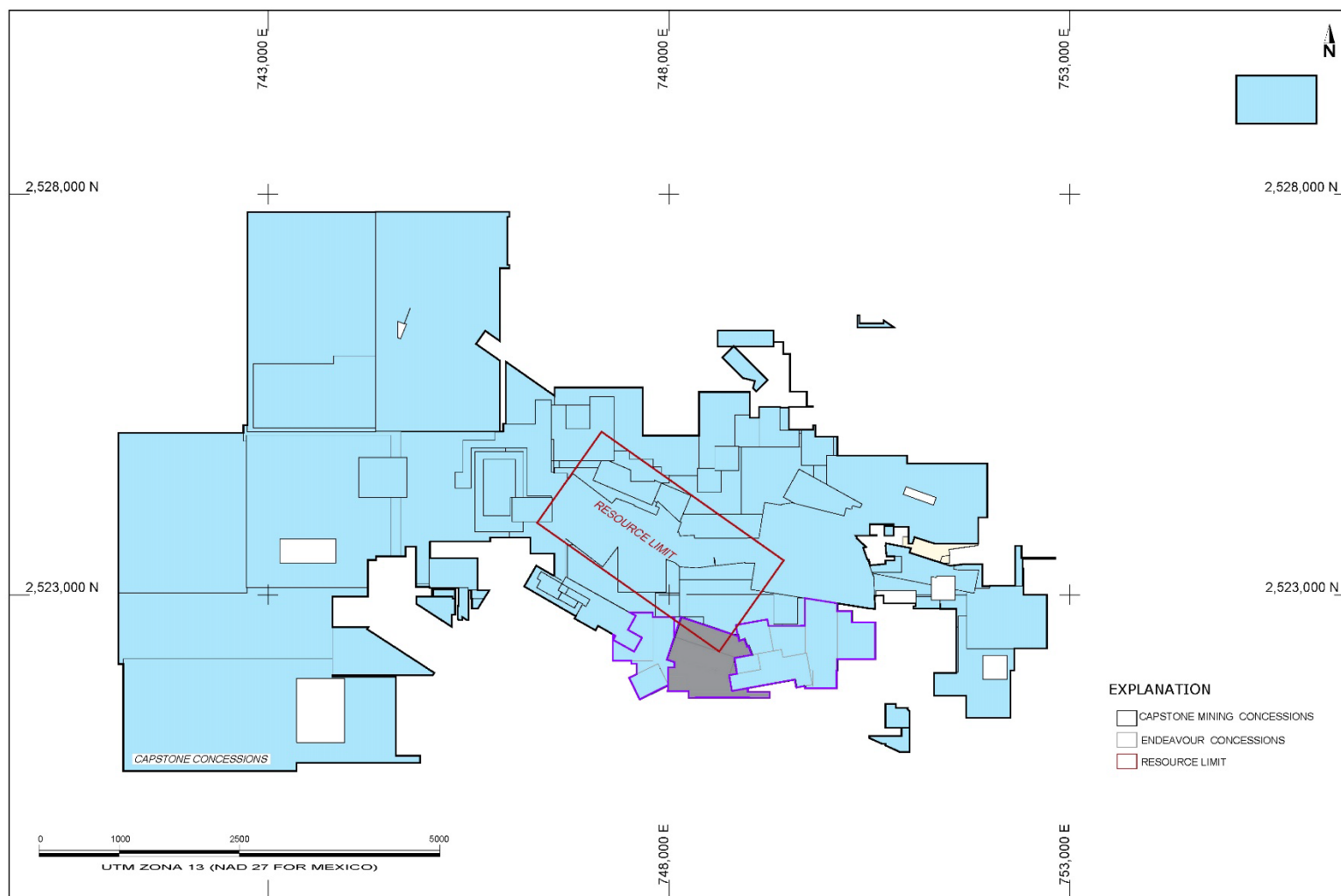
ongoing payments equal to 10% of the spot silver price at the time of delivery for each ounce delivered to them. Capstone was required to have a paste backfill plant in place before the end of 2023 as a condition of the agreement or refund Wheaton up to a maximum of US\$13 million.

#### **4.5 Surface Rights**

Capstone acquired surface rights to the lands required for mining operations and as required for exploration activities (Figure 4-3 and Figure 4-4).

#### **4.6 Environmental Liabilities and Permit Requirements**

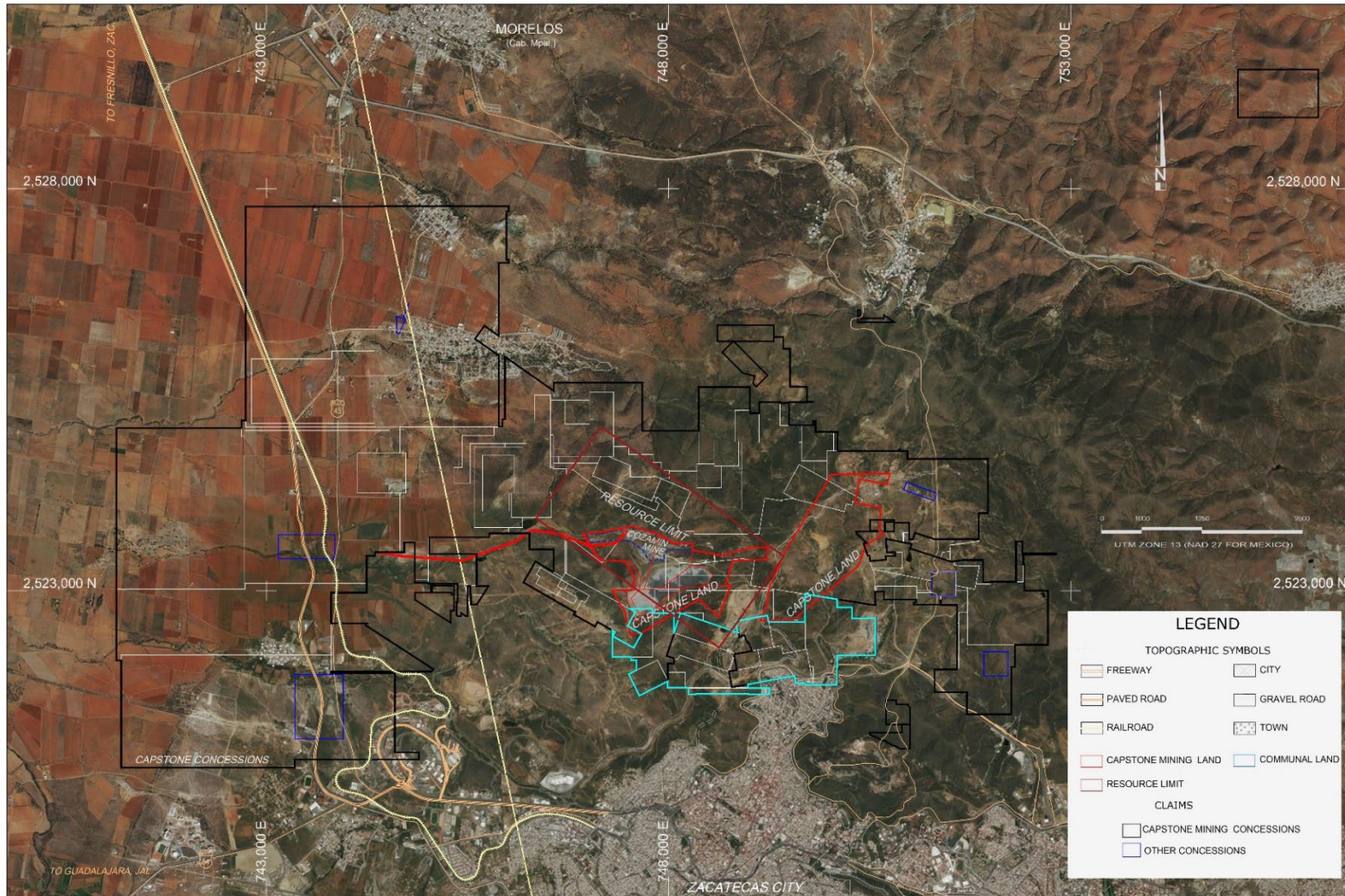
As of the effective date of this Report, environmental liabilities and issues of environmental concern are limited to those that are expected to be associated with an underground base metal mining operation with mineral processing by flotation. Facilities include an underground mine and associated infrastructure, access roads and surface infrastructure, including the process, paste and backfill plants as well as waste and tailings storage facilities situated within an area of extensive disturbance due to historical mining and processing activities. The mine environmental setting, environmental/regulatory considerations, permit requirements and current environmental liabilities are discussed in Section 18 and Section 20.



**Figure 4-2: Cozamin Mining Concessions**

Notes: Capstone Gold and Mining OpCo (blue), EDR agreement claims (purple outline with EDR concessions in grey), approximate area of estimated Mineral Resource models (red) and withdrawn concession in processing (yellow) (Source: Capstone, 2022)

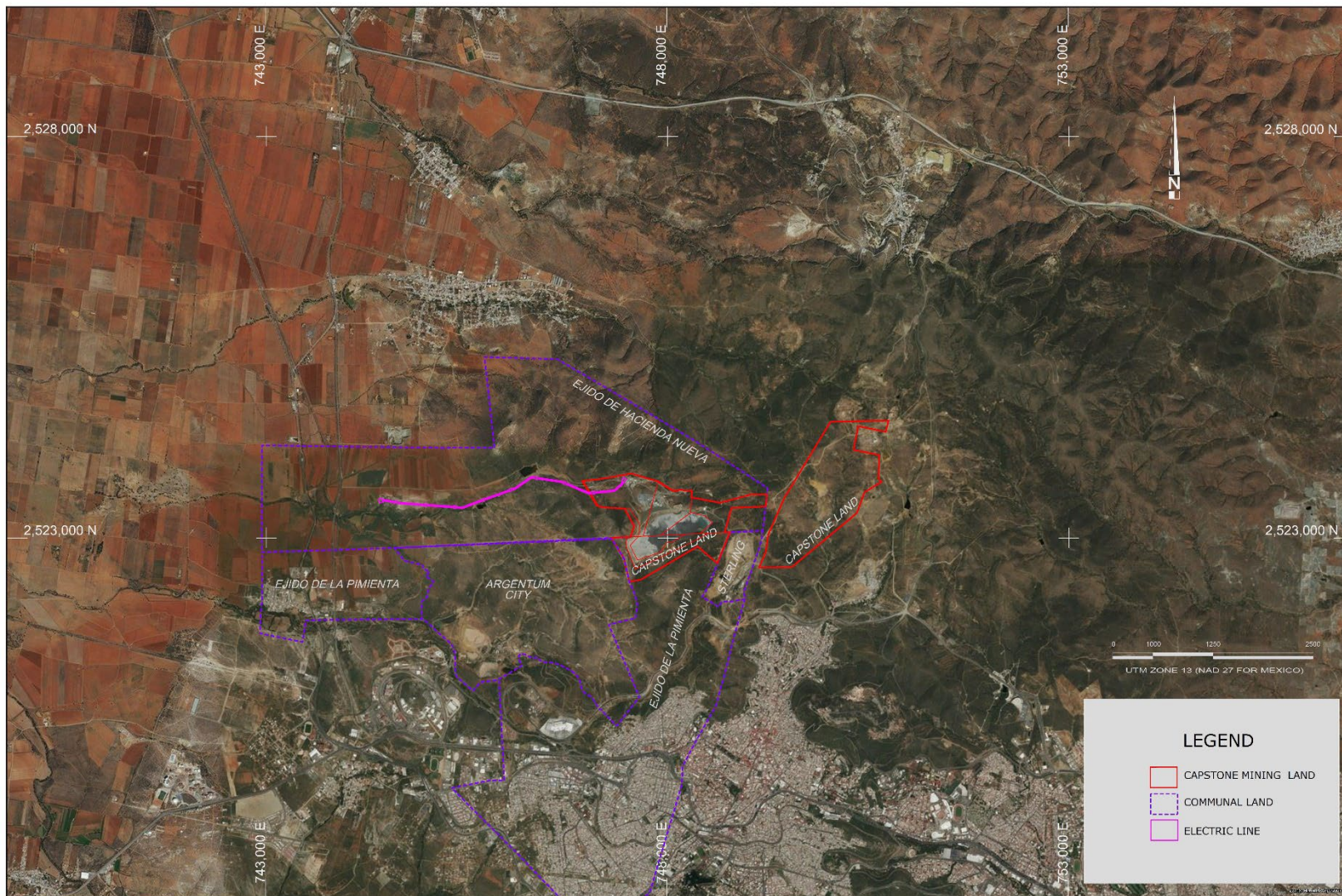




**Figure 4-3: Cozamin Surface Rights**

Notes: Cozamin mining concessions (black) with Endeavour agreement concessions (cyan) and third party concessions (dark blue), Cozamin surface rights (red), Ejido Land (purple), Communal Land (dark blue) Roads, Infrastructure and municipalities (grey) (Source: Capstone, 2022)





**Figure 4-4: Cozamin Surface Rights and Surrounding Ejido Boundaries**  
Source: Capstone, 2022

#### **4.7 Comment on Property Description and Location**

Capstone obtained a legal opinion on the mining concession titles from Rafael Cereceres Ronquillo, Abogado, with a business address of C. Centro Ejecutivo 5500 5°Piso Fracc. Desarrollo el Saucito C.P., 31125, Chihuahua, Chihuahua, dated March 14, 2023, which confirmed the mining concessions are registered in the *Public Registry of Mining* naming Capstone Gold, S.A. de C.V and Mining Opco, S.A. de C.V. as titleholders (or assignment of title to Capstone is in progress for three concessions per binding agreements), the mining concessions are valid and should remain in effect provided the titleholders continue to comply with the required obligations.

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

## **5 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

The Cozamin Mine is located in the Sierra Madre Occidental physiographic province near the boundary with the Mesa Central province (Mexican Plateau). The Zacatecas area is characterized by rounded northwest trending mountains with the Sierra Veta Grande to the north and the Sierra de Zacatecas to the south. Elevations at Cozamin vary from 2,400 masl to 2,600 masl.

Maximum temperatures reach approximately 30°C during the summer and freezing conditions and occasional snow can occur in the winter. The rainy season extends from June until September, with average annual precipitation totaling approximately 500 mm. The Zacatecas area is located between forested and sub-tropical regions to the southwest, and desert conditions to the northeast. The climate in the region is semi-arid. Vegetation consists of natural grasses, mesquite or huizache and crasicaule bushes. Standing bodies of water are dammed as most streams are intermittent. The mine operates year-round and has sufficient water.

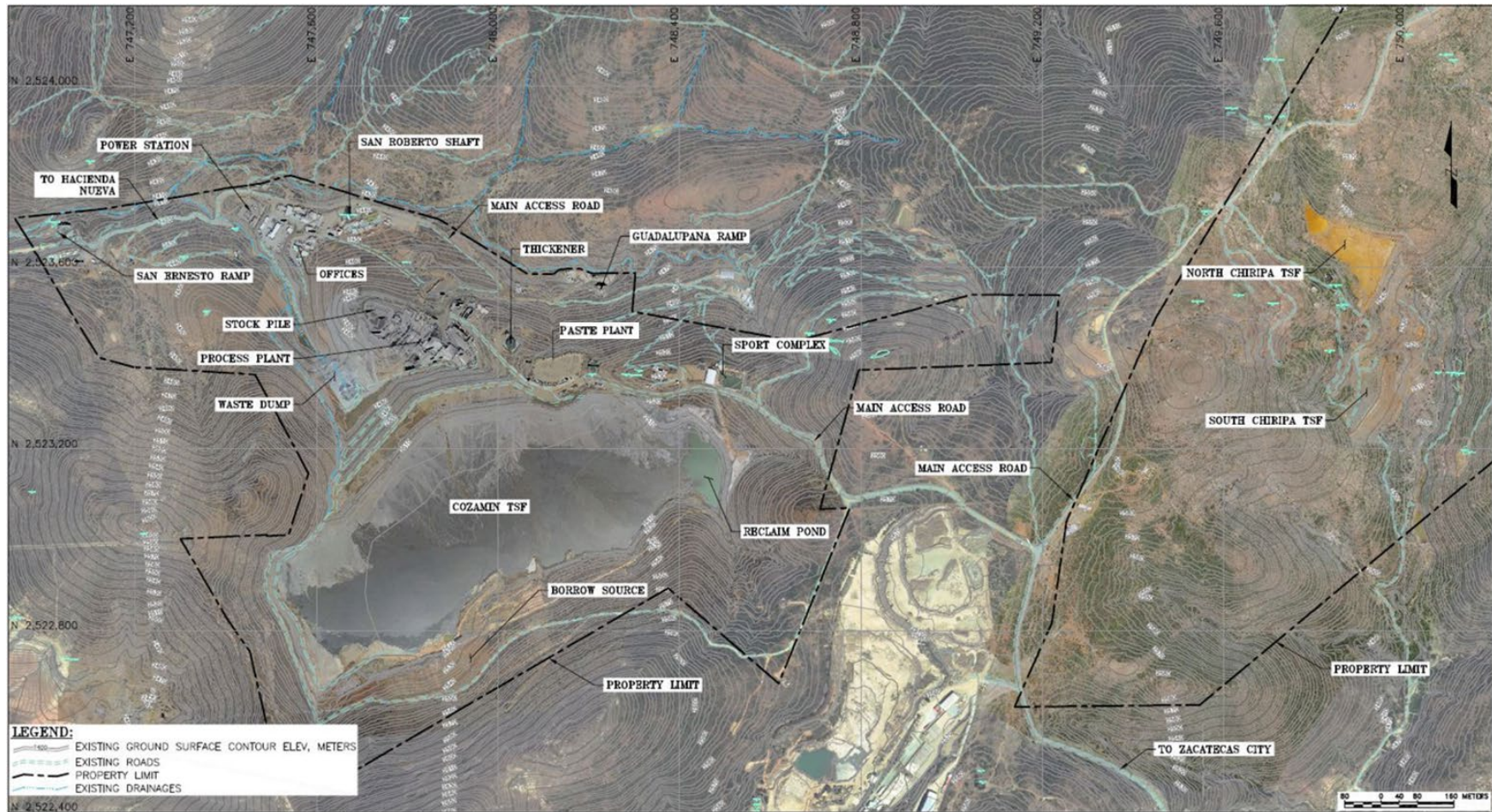
Cozamin is located approximately 3.5 km to the north-northeast of the city of Zacatecas, the Zacatecas state capital, and operates year-round. The municipality of Zacatecas has a population of approximately 146,000 people and, to the east, the adjacent city of Guadalupe has a population of approximately 188,000. Other communities in the immediate vicinity of the mine include Hacienda Nueva (3 km west), Morelos (5 km northwest) and Veta Grande (5 km north). The mine area falls within the Hacienda Nueva and La Pimienta Ejidos. Staff and operators are sourced from Zacatecas and other nearby communities. There is minimal presence of foreign staff at the mine.

Cozamin is accessible via paved roads to the mine area boundary. All-weather roads in good condition continue thereafter to provide access to the mine and most of the surrounding area. Excellent surrounding infrastructure includes schools, hospitals, railroads and electrical power. The Cozamin mine is connected to the national power grid. Figure 5-1 depicts the mine site layout and building infrastructure.

The Cozamin Tailings Storage Facility (“TSF”) is located on the south side of the property. The current slurry tailing deposition system will be transitioned to a filtered tailings system in 2023. The filtered tailings storage facility comprises a Phase I located at the toe of the existing TSF, and a Phase II located on top of the existing TSF. Tailings will be deposited for approximately two years in Phase I, after which deposition will transition to Phase II, See Section 18.3 for more detail.

The mine sources its process mill and mine water supply from seasonal rainfall, permitted wells, groundwater inflow from abandoned mines and a local municipal water treatment plant. The existing baseline information suggests that the current water sources and water conservation/management strategy will provide sufficient water for the LOMP.





**Figure 5-1: Surface Layout of the Cozamin Mine Facilities**  
Source: Capstone, 2022

## 6 History

In pre-Hispanic times, the area was inhabited by the Huichol people, who mined native silver from the oxidized zone of argentiferous vein deposits in the Zacatecas Mining District. In 1546, Juan de Tolosa, guided by a local Huichol person, arrived in Zacatecas (then Lomas de Bracho) to examine argentiferous occurrences. In 1548, production commenced at three mines: the Albarrada mine on the Veta Grande system, and the San Bernabe mine and Los Tajos del Panuco on the MNV system. The initial operations worked only the oxides for silver and some gold, and later the sulphide zones were worked for base and precious metals.

During the Mexican Revolution (1910-1917), mining was essentially halted by numerous floods and cave-ins, limiting access for some time thereafter. Foreign companies worked mines in the district for base metals from 1936 to 1948, but the lack of electric power, labour problems and low metal prices resulted in closure of unprofitable mines. From 1972, Consejo de Recursos Minerales worked mines in the El Bote, La Purisima and La Valencia zones.

A number of old workings are located throughout the mine area, but accurate records of early production are not available. Historical production from the Zacatecas district is estimated by Consejo de Recursos Minerales (Cardenas et al 1992) to be 750 million ounces of silver from 20 million tonnes grading over 900 g/t silver and approximately 2.5 g/t gold. Lead, zinc and copper have also been recovered but neither metal production nor ore grades were estimated at that time.

Minera Cozamin was established in 1982 by Jacek Zaniewicki, who consolidated concession holdings over much of the MNV and operated the San Roberto mine and plant at 250 tpd until October 1996. During this period, Industrias Peñoles S.A. de C.V. ("Peñoles") undertook exploration in the district but did not purchase any significant concessions. In all, it is estimated that 1.2 Mt of ore were mined and processed at Cozamin prior to October 1996.

In October 1996, Zaniewicki sold the Cozamin Mine for US\$6.8 million to Minera Argenta, a subsidiary of Bacis. In 1997, Bacis expanded the mill to a 750 tpd flotation plant, and processed material from 1997 to the end of 1999, mainly from shallow, oxide zone workings (Capstone, 2007). Bacis developed resources principally by drifting along and then raising up on the MNV within the San Roberto mine.

Diamond drilling was only used as an exploration tool to identify areas with mineralization peripheral to the developed mine workings. These results influenced the location of Capstone's 2004 drillhole locations. The sample collection, preparation and analysis procedures followed for these drillholes are unknown and Capstone has not used any data from these drillholes in the Mineral Resources estimated presented herein.

Near the end of 1998, Bacis closed the Cozamin Mine due to low metal prices and under-capitalization of the asset. Poor grade control in the mine and poor recovery in the plant were also contributing factors to the closure. Diamond drillholes completed by Peñoles and Bacis suggested that the average grade of copper in the mine might increase with depth, but these results were not followed up with further exploration.

On December 1, 2005, Capstone Gold earned a 90% interest in Cozamin wherein Bacis held a royalty of 1.5% on NSR and 10% carried interest. On June 30, 2006, Bacis converted its 10% interest in Cozamin to an additional 1.5% NSR royalty, thus leaving Bacis with a 3% NSR royalty regarding Cozamin (Capstone Gold, 2005).

Cozamin Mine declared commercial production August 31, 2006 (Capstone, 2006) and operated continuously since that time. Production is summarized in Table 6-1.

**Table 6-1: Production Summary**

Operating Statistics <sup>1</sup>	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Production (contained metal)</b>															
Copper (klb)	53,904	53,832	37,926	35,841	36,155	36,888	31,542	34,502	43,680	45,515	46,909	41,212	35,552	36,121	26,372
Silver (koz)	1,376	1,531	1,204	1,366	1,164	1,001	1,001	1,287	1,615	1,682	1,576	1,566	1,403	1,521	1,299
Zinc (klb)	1,697	6,238	14,587	18,463	14,900	9,330	9,244	12,919	14,350	17,825	17,221	18,035	17,348	15,476	9,710
Lead (klb)	-	416	-	-	3,150	109	287	1,508	2,531	2,728	2,891	3,960	9,142	10,134	6,442
<b>Mining – Underground</b>															
Ore (kt)	1,354	1,358	1,083	1,143	989	912	996	1,079	1,216	1,209	1,171	1,110	979	973	826
<b>Milling</b>															
Milled (kt)	1,353	1,359	1,079	1,146	986	912	1,001	1,080	1,228	1,206	1,173	1,098	982	976	833
Tonnes per day	3,803	3,724	2,949	3,140	2,702	2,499	2,736	2,958	3,365	3,305	3,205	3,008	2,690	2,673	2,282
Copper grade (%)	1.87	1.86	1.67	1.50	1.75	1.91	1.51	1.56	1.74	1.86	1.95	1.84	1.80	1.84	1.63
Silver grade (g/t)	38	43	43	47	48	43	43	53	58	61	59	61	62	66	65
Zinc grade (%)	0.36	0.56	0.92	1.07	1.04	0.71	0.66	0.84	0.85	1.12	1.03	1.09	1.27	1.17	1.31
Lead grade (%)	-	0.09	-	-	0.28	0.07	0.07	0.14	0.18	0.19	0.20	0.25	0.63	0.69	0.55
<b>Recoveries</b>															
Copper (%)	96.7	96.4	95.4	94.4	95.0	96.1	94.8	93.0	92.7	92.1	93.0	92.8	91.2	91.2	88.3
Silver (%)	82.3	82.4	80.1	77.7	77.2	78.7	72.4	69.6	70.8	71.1	71.0	72.5	71.7	73.1	74.2
Zinc (%)	15.8	37.0	66.4	68.2	65.6	65.5	63.0	64.6	62.0	60.1	64.9	68.2	63.0	61.7	40.3
Lead (%)	-	14.8	-	-	51.1	8.0	18.7	44.2	52.5	54.5	55.8	64.2	67.6	68.4	63.7
<b>Concentrate Production</b>															
Copper (dmt)	91,796	91,652	62,705	61,270	62,949	61,473	53,744	60,826	77,734	81,351	81,305	70,650	64,356	66,977	53,293
Copper (%)	26.6	26.6	27.4	26.5	26.1	27.2	26.6	25.7	25.5	25.4	26.2	26.5	25.1	24.5	22.4
Silver (g/t)	466	511	553	607	508	502	566	598	583	574	540	602	536	571	572
Zinc (dmt)	1,622	5,925	13,548	17,297	14,300	8,919	8,866	12,453	14,100	16,928	16,057	16,720	16,448	15,008	10,610
Zinc (%)	47.4	47.8	48.8	48.4	47.3	47.5	47.3	47.1	46.2	47.8	48.6	48.9	47.8	46.8	41.5
Lead (dmt)	-	295	-	-	2,305	81	222	1,166	1,950	2,205	2,216	2,796	6,282	6,575	4,705
Lead (%)	-	63.9	-	-	62.0	61.7	58.4	58.6	58.8	56.1	59.2	64.2	66.0	69.9	62.1
Silver (g/t)	-	2,636	-	-	1,842	2,996	3,155	3,112	2,504	2,541	2,324	2,216	1,391	1,382	1,801

Notes:

- Source of the operating statistics is Capstone's Form 51-102F1 Management Discussion & Analysis from December 2007 to December 2022.
- From August 2006 to December 2007, Cozamin mined 736 kt tons and milled 723 kt of ore at 1.66% copper, 70 g/t silver, 1.39% zinc and 0.56% lead. Recoveries were 86% copper, 73% silver, 44% zinc and 52% lead.



## **7 Geological Setting and Mineralization**

### **7.1 Geological Setting**

The Zacatecas Mining District covers a belt of epithermal and mesothermal vein deposits that contain silver, gold and base metals (copper, lead and zinc). The district is in the Southern Sierra Madre Occidental Physiographic Province near the boundary with the Mesa Central Physiographic Province in north-central Mexico. The dominant structural features that localize mineralization are of Tertiary Age, and are interpreted to be related to the development of a volcanic centre and to northerly trending basin-and-range structures. (Ponce and Clark, 1988)

The Zacatecas Mining District occurs in a structurally complex setting, associated with siliceous subvolcanic and volcanic rocks underlain by sedimentary and meta-sedimentary rocks.

Geologic units of the Zacatecas area include Triassic metamorphic rocks of the Zacatecas Formation and overlying basic volcanic rocks of the Upper Jurassic or Lower Cretaceous Chilitos Formation. The Tertiary rocks consists mainly of a red conglomerate unit deposited in Paleocene and/or Eocene times and overlying rhyolitic tuff and intercalated flows that were deposited from Eocene to Oligocene times. Some Tertiary rhyolite bodies cut the Mesozoic and Tertiary units and have the appearance of flow domes.

#### **7.1.1 Zacatecas Formation**

The Zacatecas Formation represents the oldest rocks in the district and appears to be equivalent to the Pimienta Metasediments of Ponce and Clark (1988). It is an Upper Triassic marine unit, comprising pelitic sediments and carbonate rock that have been metamorphosed to sericite schists, phyllites, slates, quartzites, metasandstone, flint, metaconglomerate and recrystallized limestone. The unit hosts the El Bote and Pimienta vein systems to the west of the city of Zacatecas, outside of Cozamin's property boundary.

#### **7.1.2 Chilitos Formation**

The Upper Jurassic to Lower Cretaceous Chilitos Formation is composed of andesitic to basaltic volcanic rocks with pillow structures and some limestone lenses deposited in a marine setting. The units are referred to as greenstone of the Zacatecas area and as the Zacatecas microdiorite by Ponce and Clark (1988).

#### **7.1.3 Zacatecas Red Conglomerate**

The red conglomerate contains fragments of Chilitos and Zacatecas Formation rocks and is probably of Early Tertiary (Paleocene-Eocene) age. The unit is deposited south of the La Cantera fault in the structural zone situated in the city of Zacatecas.

#### **7.1.4 Tertiary Volcanic and Volcaniclastic Rocks**

Tertiary volcanic rocks are generally associated with and deposited south of the Zacatecas caldera. They are described by Consejo de Recursos Minerales (Cardenas et al, 1992) as rhyolitic tuffs with flow intercalations of rhyolite composition that were extruded during the Oligocene to

Eocene. The rhyolitic rocks are reported to have moderate to high silica content and high potassium content.

A very small group of epiclastic deposits occur in a road cut near the Bufa flow dome and small areas of chemical sediments are present in the western flank of the Zacatecas caldera (Ponce and Clark, 1988).

### **7.1.5 Rhyolitic Subvolcanic Bodies**

Ponce and Clark (1988) suggest that subvolcanic intrusive phases include silicic subvolcanic bodies, lava-flow domes, tuffs, ignimbrite bodies, pipes and autoclastic breccias. The rhyolitic subvolcanic bodies, generally dikes and subvolcanic bodies, are structurally controlled by radial or concentric faults and fractures of the caldera structure. The subvolcanic rhyolitic bodies are concentrated in the central part of the Zacatecas district in a northwest-southeast trending zone.

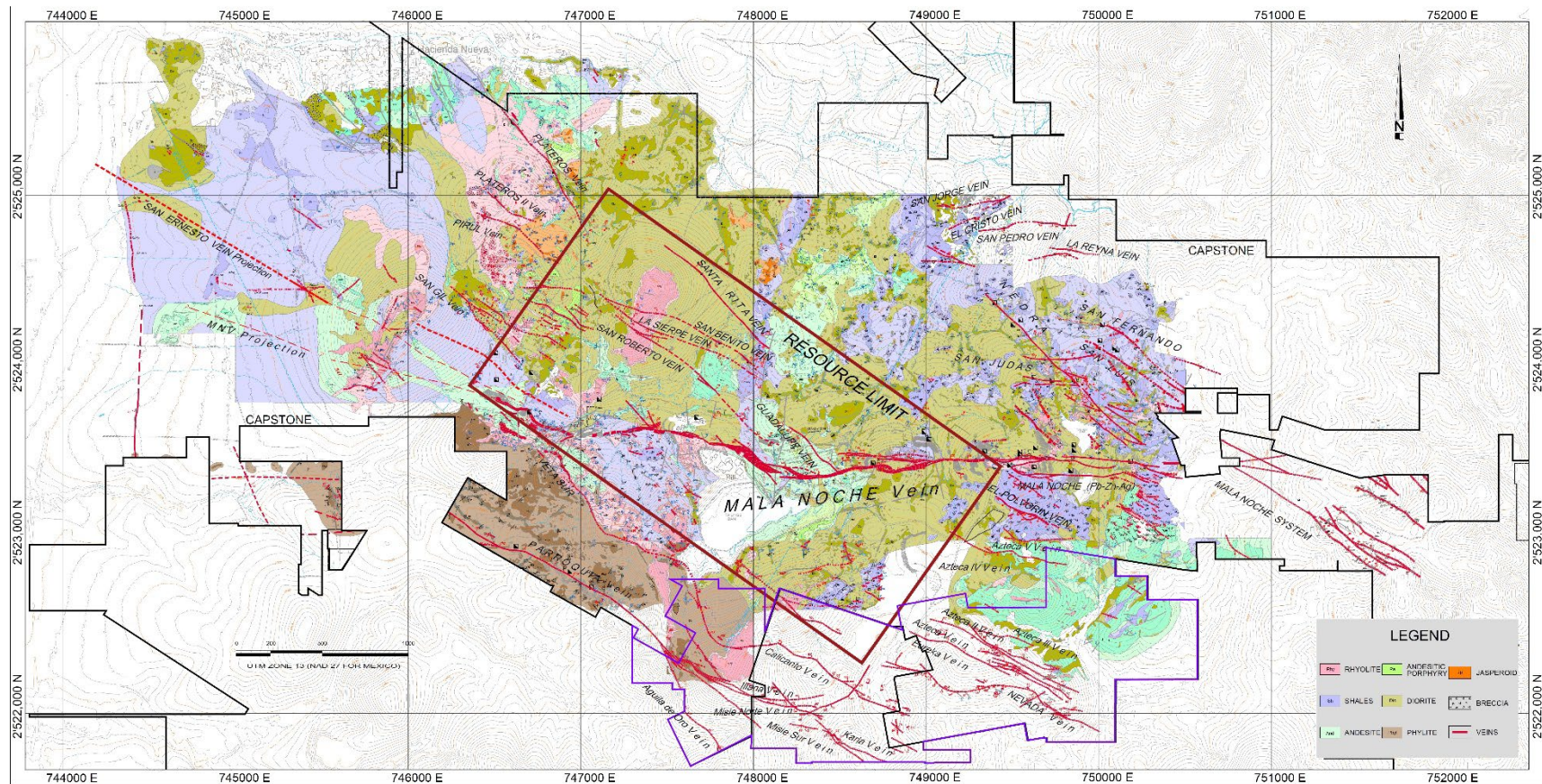
Rhyolite flows and dikes are spatially associated with the San Roberto mine. Cerro La Sierpe (500 m north-northwest of the San Roberto shaft), Cerro San Gil (1.5 km west-northwest of the San Roberto shaft) and Cerro El Grillo (750 m south-southwest of the San Roberto shaft) are all rhyolite flow domes that, together, surround the western third of the MNV. To date, economically significant copper mineralization has only been found within this sector of the MNV system. Rhyolite dikes are difficult to distinguish from massive rhyolite flows, however some of the best cross-cutting quartz veins and veinlets at Cozamin occur within massive rhyolite bodies that do not display the fluidal textures and polymictic inclusions common in most of the other rhyolite bodies.

The host rocks for the MNV are intercalated carbonaceous meta-sedimentary rocks and andesitic volcanic rocks ranging in age from Triassic to Cretaceous, and Tertiary rhyolite intrusive rocks and flows (Figure 7-1). Mineralization in the MNV appears to have been episodic. A copper-silver dominant phase is interpreted as the first stage of mineralization and is considered to be the most important phase of mineralization at Cozamin. In general, this copper-silver phase was emplaced then enveloped, overprinted or brecciated by moderate to strong zinc-lead-silver mineralization. Thus, the host lithology to the vein does not appear to have influenced the strength of the copper-silver phase of mineralization which is typically enveloped by younger vein material. Local rheology contrasts between rock units may have some control on vein emplacement, as well as metal content. For example, the Mala Noche Footwall Zone ("MNFWZ") is intimately associated with several rhyolitic dikes where mineralized veins often crosscut or follow dike contacts with the country rock.

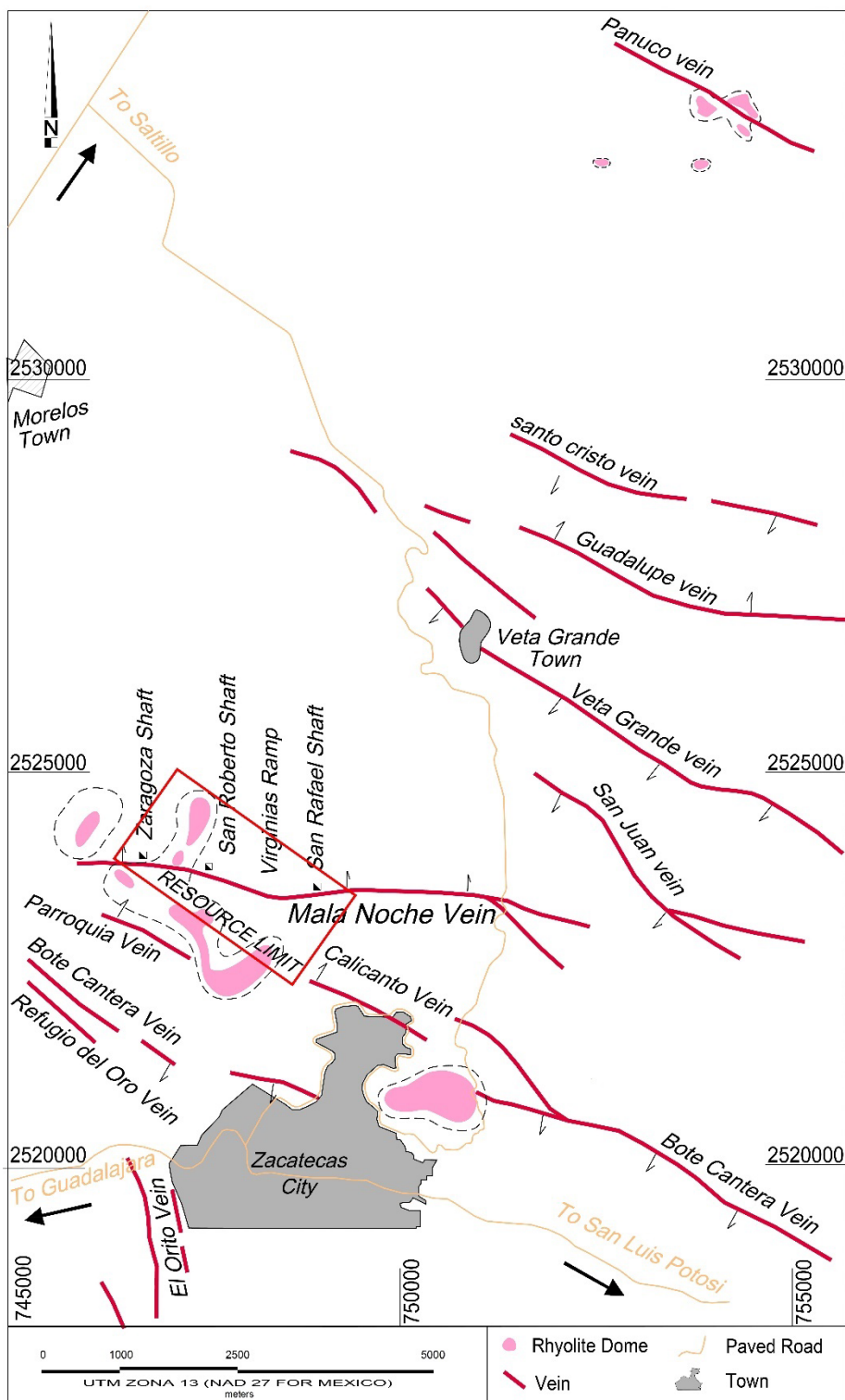
The close association of the western third of the MNV and the entire MNFWZ with rhyolite flow domes and the strength of contained copper mineralization in this sector of the vein support the hypothesis that the copper mineralization in the San Roberto mine at Cozamin is relatively close to volcanic to sub-volcanic magmatic centre(s). Figure 7-2 shows the spatial association of the San Roberto mine with the significant complex of rhyolite flow domes mapped in the area.

Alternatively, other rheology contrasts may localize faulting along the contact of the phyllites with the more competent andesites and shales. One kilometre to the south of the MNV, mineralization in the Parroquia mine, located within the project mining concessions, is hosted by phyllite rocks that are mapped by the Consejo de Recursos Minerales as Upper Jurassic, Zacatecas Formation.





**Figure 7-1: Mapped Geology of the Cozamin mining concessions**  
Source: Capstone, 2022



**Figure 7-2: Plan Showing the Distribution of Mineralized Veins near Zacatecas**

Source: Capstone, 2022



## 7.2 Faulting

Rock textures suggest the MNV is infilling open spaces controlled by brittle faulting along the Mala Noche Fault System. This system of faults is named for the principal fault associated with mineralization at Cozamin but other subsets of faults also host mineralization, including El Abra, Rosita, San Ernesto and the MNFWZ.

In the San Roberto mine, the MNV strikes west-northwest (“WNW”) (N70-80W) and the dip varies from 38° to 90° to the north. There is a clear association of higher copper grades with steeper dips of the Mala Noche fault. Where the MNV is weakly copper mineralized, it appears that the principal style of alteration in the fault is mostly quartz-pyrite.

Mineralized cross faults at Cozamin include:

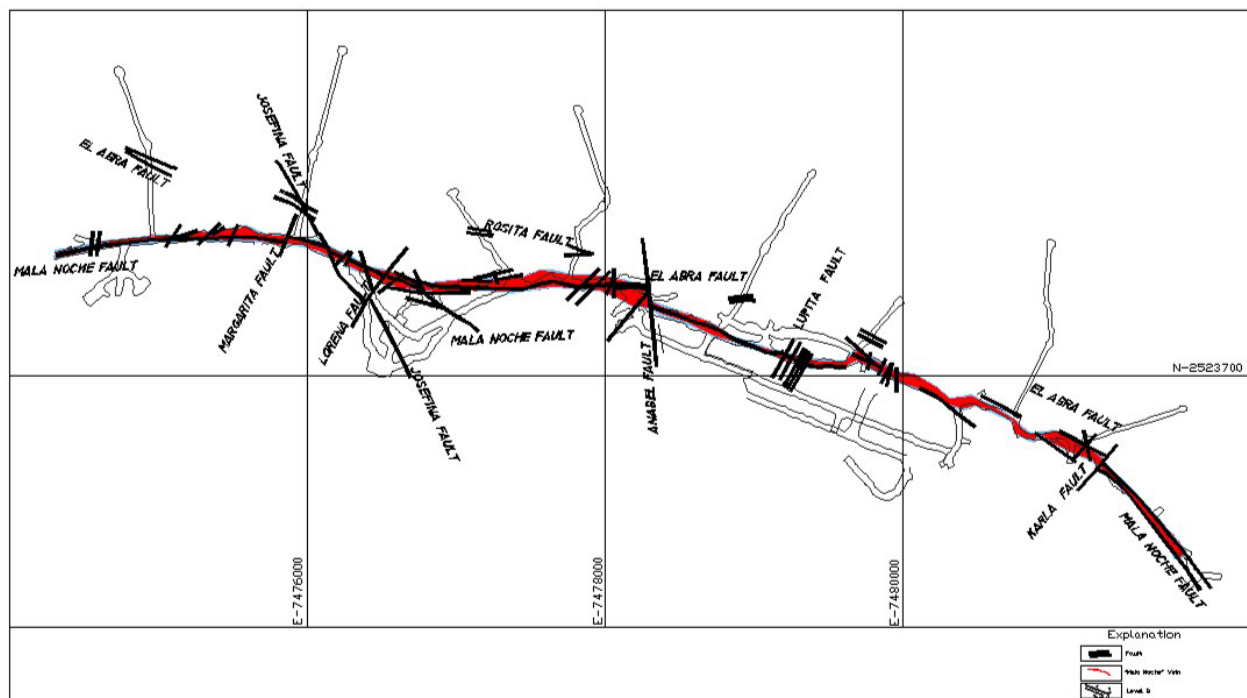
- El Abra fault is closely associated with the Mala Noche fault with which it forms an anastomosing set in both strike and dip directions. Grades in the San Roberto mine are strongest where the two faults coalesce. The dominant alteration associated with the El Abra fault is silica-calcite-pyrite. On Level 8 immediately east of the shaft, the drift roof had to be stabilized where the El Abra fault meets the Mala Noche fault/vein.
- Rosita fault is also sub-parallel to the Mala Noche but mostly lies to the north in the hangingwall on the MNV. The principal alteration associated with the Rosita fault is coarse crystalline calcite, suggesting that this fault is possibly post mineralization and quite open.
- San Ernesto fault is best known in the San Ernesto shaft which was sunk 60 m on the fault in the hangingwall to the Mala Noche at the west end of the San Roberto mine. The fault strikes WNW and dips at about 60° to the north-northeast (“NNE”). Mineralization encountered in the fault to date has been zinc and lead dominant. This fault and associated mineralization may be related to lenses of hangingwall zinc found in the western sector of the San Roberto mine.
- MNFWZ, the principal structure hosting Cozamin Mineral Reserves, is located in a fault-splay off the Mala Noche Fault System, striking approximately 30° oblique to the MNV at approximately 145° with an average dip of 54°. Mineralized veins and rhyolite dikes both exploit and closely follow the structure.

Other cross faults include:

- Margarita Fault is located about 100 m west of the shaft on Level 8., striking NNE and dipping at 70° to the WSW. Minor argillic alteration.
- Josefina fault is found on Level 8 about 50 m west of the shaft. The fault strikes southeast (“SE”) and dips at about 55° to the northeast (“NE”). Minor argillic alteration.
- Lorena fault is located about 25 m west of the shaft on Level 8. This fault strikes NE and dips at about 70° to the SE. The intersection of the Lorena and Josefina faults on Level 8 resulted in poor roof stability in the area of a prior electrical substation 35 m west of the shaft. Weak argillic alteration.

- Anabel Fault is found 155 m east of the shaft on Level 8. The fault strikes NNE and dips east at about 60°. The projection of the MNV is offset about 10 m horizontally along this fault. Mineralization west of this fault is strongly diminished. Alteration is silicification.
- Lupita fault is located 255 m east of the shaft on Level 8. The fault strikes NE and dips at about 65° to the SE. Minor silicification.
- Karla fault is located 465 m east of the shaft on Level 8 and was mapped only on Level 8. Its strike is NE and the fault dips 65° to the SE. No alteration.

The principal cross faults in the San Roberto mine area displayed on Level 8 and are presented in Figure 7-3.



**Figure 7-3: Cross faults (black heavy line) with Mala Noche fault (red) and Level 8 development (fine black lines) at San Roberto area of Cozamin**

Source: Capstone, 2009

### 7.3 Mineralization

Cozamin's dominant mineralized vein systems include the MNV and the MNFWZ. On surface, the MNV was mapped for 5.5 km across the property. It strikes approximately EW and dips on average at 60° to the N. There are several shafts that provide access to the historical workings at Cozamin. The largest historical mined area is San Roberto with a strike length of 1.4 km, and the second largest mined area is San Rafael mine with a strike length of 0.5 km. Mineralization peripheral to these workings was the principal target of Capstone's early exploration programs at Cozamin. The MNV system average thickness is five meters. It has been drill tested to an approximate depth of 1,500m, remaining open at depth. The MNFWZ is not exposed at surface, however based on drill testing to an approximate depth of 1,450m, it strikes approximately 145°

over a length of more than 2.2 km and dips on average 54° to the NE. Thickness of mineralization in the MNFWZ areas most prospective for exploration varies from 0.5m to 15m true width. MNFWZ mineralization remains open locally up-dip, down-dip, and along strike to the east and west.

The MNV system occupies a system of anastomosing faults. The mineralized bodies within the Mala Noche Fault System appear to be strongest where the individual faults coalesce into a single fault zone. Results from exploration and mine development to date indicate that some of the strongest mineralization in the San Roberto mine on the MNV system plunges to the west at approximately -50° within the vein. Post mineralization offsets of the MNV are minimal and occur along high angle, normal faults that strike northeast. The MNFWZ comprises multiple veins in close spatial association with rhyolite dikes and locally cross-cut the intrusions themselves. The strongest mineralization at the MNFWZ plunges to the northwest at approximately -10° within the vein. The relative age of the copper mineralization ranges from contemporaneous with to perhaps slightly post the rhyolite magmatism. Similar to the MNV, post mineralization offsets at the MNFWZ are minimal and occur along high angle normal faults.

Mineralization in the MNV at Cozamin appears to have been episodic. Intermediate sulphidation pyrite-pyrrhotite-chalcopyrite dominant mineralization is enveloped, overprinted or brecciated by younger sphalerite dominant intermediate sulphidation epithermal alteration and mineralization in a telescoped, intrusive related hydrothermal system. Well-banded quartz, or quartz-carbonate veins, best classified as low sulphidation are also observed but are generally volumetrically insignificant in the area of the mine. These veins have open space filling textures with quartz druse vug linings. The MNV in the San Roberto mine workings shows contained sulphides to occur as disseminations, bands and masses. The San Roberto area hosts both the copper dominant and zinc dominant epithermal events, whereas the San Rafael area is only associated with the zinc dominant epithermal event. Both events are also present at MNFWZ. Conclusions about mineralization styles are based on observations in drill core and the exposure of the copper-silver phase of mineralization in mine workings, however a large portion of the upper parts of the mine are not accessible.

Pyrite is the dominant vein sulphide and typically comprises approximately 15% of the MNV in the San Roberto mine. It occurs as fine disseminations and veinlets, coarse crystalline replacements, and pseudomorphs of epithermal textured carbonate minerals and possible barite. Arsenopyrite locally occurs as minor, microscopic inclusions in pyrite. Pyrite content in the MNFWZ veins is typically greater than 20%.

Pyrrhotite is the second most common sulphide mineral but is present only in the intermediate and deeper levels of the San Roberto mine, and the up-dip portion of the MNFWZ. It occurs as replacement masses, pseudomorphs of platy masses and acicular replacements probably after amphibole. Pyrrhotite commonly occurs as an envelope to, or intermixed with, strong chalcopyrite mineralization. Pyrrhotite ranges from monoclinic to hexagonal, or a combination of these polytypes.

Chalcopyrite is the only copper sulphide recognized visually at Cozamin. Like pyrrhotite, it is more common at the intermediate and deeper levels of the mine. It occurs as disseminations, veinlets and replacement masses. These masses appear to be fractured and brecciated at intermediate levels in the mine. Mineralization at the MNFWZ in the copper dominant veins is chalcopyrite dominant in contrast to the polymetallic nature of the main MNV.

Sphalerite is the most common economic sulphide in the zinc-dominant areas of MNFWZ, such as Vein 10-southeast, and in MNV's San Roberto-Zinc zone and San Rafael. Most of the sphalerite is marmatitic. It occurs as disseminations and coarse crystalline masses and is commonly marginal to the chalcopyrite-dominant portion of the vein. Sphalerite is locally present in the MNFWZ copper dominant veins, shifting to the dominant sulphide in the zinc dominant veins.

Franklinite, a zinc oxide in the spinel group of minerals, accounts for some of the zinc mineralization in the MNV. Recovery of zinc is lower in areas of franklinite mineralization.

Galena is less common than sphalerite but is generally associated with it. Where it is abundant, it occurs as coarse crystalline replacement masses. Both coarse and fine crystalline masses of galena are argentiferous.

Argentite is the most common silver mineral. It has been identified microscopically occurring as inclusions in chalcopyrite and pyrite. Assays indicate that silver is also probably present in sphalerite and galena. Bismuth and silver selenides occur as inclusions predominantly in chalcopyrite and pyrite.

At MNV and MNFWZ, moderate propylitic wall rock alteration is generally limited to 3 m into the hangingwall and footwall. The main gangue minerals are quartz and calcite, and in some cases rhodochrosite, gypsum, barite, or ilvaite. The quartz occurs as coarse-grained druse crystalline masses, and cross-cutting quartz veinlets.

## 8 Deposit Types

All mineralization at Cozamin occurs in veins, and fracture-controlled systems of veinlets. Currently mined mineralization at Cozamin is best described as an intermediate sulphidation system. The copper-rich intermediate sulphidation mineralization is an early phase that is enveloped, overprinted or brecciated by zinc-rich intermediate sulphidation mineralization. The copper veins are inferred to be higher temperature, have significantly fewer vugs and can be massive pyrrhotite-pyrite-chalcopyrite with little gangue. Zinc-rich veins also tend to be sulphide rich, like the copper-rich ones, but with slightly more gangue. Well-banded quartz, or quartz-carbonate veins are inferred to be lower temperature and best classified as low sulphidation. They often have open space filling textures with quartz druse vug linings and typically gold and silver rich with lesser base metals and are generally not being mined today, but were historically important.

This transition from intermediate sulphidation copper-dominant mineralization to intermediate sulphidation zinc-dominant mineralization is thought to be the result of an evolving, telescoped hydrothermal system. Blocks or fragments of massive chalcopyrite-pyrite-pyrrhotite mineralization enveloped by zinc-dominant mineralization are observed in drill core and in mine workings. This telescoping system is closely associated with the district's largest center of rhyolite flow domes which may be the shallow expression of a hidden, inferred buried felsic stock.

### 8.1 QP Comments on “Item 8: Deposit Types”

Exploration programs that use an intermediate sulphidation model are considered appropriate for the Project area.



## 9 Exploration

### 9.1 Geological Mapping

Cozamin exploration geologists have systematically mapped a total of 1,694 ha throughout the Cozamin property at scales of 1:1,000 or 1:2,000 since 2004. Mapped Cozamin geology is illustrated in Section 7.1 (Figure 7-1).

### 9.2 Surface Channel Samples and Chip Specimens

At surface, channel sampling was used as part of r exploration along the strike of the MNV system from 2004 to 2013. Channel samples were obtained using a combination of hammer, chisel, and diamond saw cutting. Channel samples total approximately 2 kg in mass and have approximate dimensions of 50-150 cm in length, 5 cm in width and 3 cm in depth. Capstone considers these surface channel samples to be fully representative of the vein material.

The surface chips, by definition, are specimens not samples, and thus are not representative of the material from which they have been extracted. The goal of the surface chip sampling is to quickly ascertain the presence or absence of anomalous geochemical values, which would support the decision to conduct additional exploration. Capstone has collected chip specimens from outcrops on a 25 m by 25 m grid from several areas on the property (Table 9-1). Chipped material is collected on a blanket and split into smaller pieces. The specimen is then split into four parts, with approximately 2 kg placed into the sample bag as the specimen for analysis. The remaining material is left at the sample site.

All surface channel sample and chip specimen locations were obtained using GPS and are stored in Capstone's database. All material is photographed and logged for lithology, alteration and mineralization. Quality control samples including certified reference material, sample blank, or duplicate samples were not inserted into the sample stream. Preparation and analysis procedures for channel samples and chip specimens follow the same procedures described in Section 11 pertaining to the analysis of drill core samples. Details of Cozamin's surface channel and chip sampling programs since 2004 are summarized in Table 9-1. Cozamin used the assay results from these programs to assist with exploration drillhole planning, but they are not included in resource estimation. Exploration drilling after 2014 is guided by 3D geological modelling not surface sampling.

**Table 9-1: Cozamin Surface Channel and Chip Program details**

Year	Surface Channel Samples	Surface Chip Specimens
2004	2,250 from 66 sample lines spaced 15 m apart along 1,000 m of the MNV system.	None
2005	1,350 from 40 sample lines spaced 20 m apart along 800 m of the MNV system.	None
2006	1,200 from 40 sample lines spaced 25 m apart along 1,000 m of the MNV system.	None

Year	Surface Channel Samples	Surface Chip Specimens
2007	1,200 from 40 sample lines spaced 25 m apart along 1,000 m of the MNV system.	None
2008	None	300 from outcrops where veinlets, cross-cutting quartz veins, and alteration were observed. Specific area was not defined.
2009	No exploration conducted.	
2010	708 from 20 sample lines spaced 50 m apart along 1,000 m of the Mala MNV vein system.	1,118 from Rondaneras covering an area of 700 m by 800 m.
2011	135 from 27 sample lines spaced 10 m apart along 300 m of the El Polvorín vein.	276 from El Polvorín, covering an area of 300 m X 400 m.
2012	None	None
2013	185 from 37 sample lines spaced 10 m apart along 400 m of the Parroquia vein. 235 from 15 sample lines spaced 20 m apart along the Manto San Eduardo system.	359 from La Parroquia, covering an area of 500 m X 400 m.
2014 to March 2023	None	None

## 9.3 Geophysical Surveys

### 9.3.1 Ground Magnetic Survey

In the summer of 2004, Zonge Engineering and Research Organization conducted a ground magnetics survey over the MNV system including 24 north oriented lines, 25 m station spacing, for a total of 24.3 line-km. The field data was processed to produce only total magnetic field, however this was sufficient to map the linear east-west orientation of the MNV system as well as other intrusive features.

### 9.3.2 Aeromagnetic Survey

In the summer of 2009, New Sense Geophysics Limited conducted an aeromagnetic survey at Cozamin including a main survey block covering the entire property and an extension block to the northeast. The main block was flown at 50 m line separation with the magnetic sensor draped at 30 m above the terrain at an azimuth of N30°E. This orientation allowed the survey to cross the east-west vein trends as well as the northerly trending basin and range faults. Physical obstructions such as power and telephone lines and small villages required the terrain clearance to be increased locally. Control lines were flown east-west at 1 km spacing. The extension block was flown with the same parameters as the main block but with 600 m line spacing; the extension block was added to the survey to determine the extent of a broad northwest trending magnetic high identified while flying the main block. A total of 1,733 line-km was flown in the main block and 90 line-km in the extension block. New Sense delivered the final leveled magnetic data, while EGC Inc. was responsible for project quality control, development of the processed grids and images (total magnetic field only), and interpretation.

In 2013, the 2009 aeromagnetic survey data was reprocessed in-house to generate first vertical derivative (total field and reduced to pole), analytical signal and magnetic tilt products, as well as a 3D inversion using UBC code. The interpretation of the reprocessed data has been useful for tracking infrastructure such as power lines and pipelines, the general structural and vein trends of the MNV system, and in some cases has been used as a secondary tool to help guide exploration drill planning in new target areas.

### **9.3.3 Resistivity Study and Ground Induced Polarization Surveys**

Zonge Engineering and Research Organization was contracted by Capstone in 2004 to undertake a resistivity study through measurement of magnetic response using CSAMT (Controlled Source Audio Magnetotellurics) over 8 line-kilometres and NSAMT (Natural Source Audio Magnetotellurics) (Zonge, 2004) over 16 line-kilometres. The survey indicated the presence of sulphide mineralization at depth along the MNV structure below known mineralized extents. These were used to assist with exploration drillhole planning.

From October 2009 until January 2010, Zonge conducted a dipole-dipole complex resistivity induced polarization (“CRIP”) survey on 13 lines and 391 stations covering a total of 58.7 line-km (Zonge, 2010). In comparison to conventional induced polarization (“IP”) data, CRIP penetrates deeper into the ground, is able to better discriminate between certain minerals (e.g., sulphide bearing versus barren rock), and provides a higher quality dataset with contaminated data and the effects of coupling removed. Zonge noted the quality of the data to be good despite the proximity of the study to the city of Zacatecas and radiofrequency interference sources (power lines, metal pipelines, metal fences and buildings, etc.). The results from the study however, proved inconclusive with respect to identifying further exploration targets.

In 2010, a pole-dipole time domain induced polarization (“TDIP-resistivity”) geophysical survey was carried out at Cozamin on 39 lines covering a total of 70.3 line-km by in-house staff. The survey was conducted using rental equipment including a TSQ-3 Scintrex transmitter and IPR-12 Scintrex receiver. Interpex and Geosoft software were used to process and evaluate the field data which was then displayed in AutoCAD. The program focused on four specific areas including MNV West, Hacienda Nueva South, MNV North and MNV East. Identified resultant chargeability ( $\pm$  coincident resistivity and/or magnetics) anomalies were tested by diamond drilling spanning from 2010 to 2012 in a total of four surface drillholes (CG-10-153, CG-11-S156, GC-11-S162 and CG-11-S183). These exploration holes returned overwhelmingly negative results intercepting predominantly pyrite-bearing, black shale units. These highly pyritic and graphitic rocks are thought to be the source of the anomalies.

## **9.4 Exploration Potential**

The 2023 exploration program includes a proposed 8,700 metres of infill drilling at the MNV-West target. The cost of the combined 2023 drilling and development of a new deeper cross-cut for more precise infill drilling is US\$2.7M.

Exploration opportunities include priority deep drilling tests for additional copper mineralization below both MNFWZ and MNV West Target, and drilling tests to explore for additional zinc mineralization at both MNFWZ and along strike of the MNV east of San Rafael.

Step-out drilling for additional copper mineralization at MNFWZ and MNV West Target would implement widely spaced drill holes along strike to test 200 to 400 meters below the deepest existing drilling where the main structures and preferred rhyolite host rocks are still present. At MNFWZ, the focus would be specifically on principal copper Vein 20. Drilling would be conducted from both surface and underground.

Exploration for additional zinc mineralization along strike of the MNV east of San Rafael would target two separate areas. Drilling would be conducted from surface. Firstly, stepping out along strike and down-dip of the San Rafael Zinc deposit where historical drilling indicates mineralization is still open. Secondly initial drill tests at MNV Far East, located ~2.5 Km along strike to the east of San Rafael, targeting below prominent historical workings situated at surface. MNV Far East has never been drill tested by Capstone. Also included in the exploration for additional zinc mineralization is drill testing along strike and down-dip of open mineralization at MNFWZ Vein 10SE, which would be conducted from surface.

## 10 Drilling

Capstone commenced exploration drill planning at Cozamin in 2003, along with engineering examinations. Two rock chip samples were collected from the Virginias mine decline and 24 splits of half core from mineralized intervals in diamond drillholes (“DDHs”) previously drilled by Bacis. These samples were submitted to Acme Analytical Laboratories Ltd. in Vancouver for copper, lead, zinc, gold and silver assays, and multi-element analysis by inductively coupled plasma (“ICP”). The assay results confirmed Bacis’ records and the Phase I drilling program commenced in March 2004 under the supervision of Capstone. Preliminary underground sampling was not completed because most of the mineralized underground workings were flooded.

Drilling has been carried out by Capstone almost continuously since March 2004 on the MNV system (San Roberto and San Rafael mines) and related splays such as the MNFWZ. In all, 1,280 surface and underground exploration drillholes have been completed. Drillholes are located by Capstone staff using total station TRIMBLE model S6 or LEICA instruments. Downhole survey readings were recorded using Eastman Single Shot, FLEXIT SensIT or Reflex EZ-Shot instruments (Table 10-1).

The Cozamin mine has been actively producing from the San Roberto and San Rafael zones since 2006 and from the MNFWZ since 2010. Additionally, as previously stated, drilling has been carried out almost continuously since March 2004 on the MNV system (San Roberto and San Rafael zones) and since 2010 at the MNFWZ. For the most part, drilling has been directed toward resource definition, delineation and increasing confidence for classification. It is significant but not unexpected that the success rate for the drilling campaigns is high given that the location of the veins is known and they tend to be continuous.

### 10.1 Drilling Programs

Capstone’s surface and underground drilling programs from 2004 to October 2022 are summarized in Table 10-1. Longitudinal sections of drilling pierce points from surface and underground drilling for the MNV and MNFWZ, from all exploration drilling as of October 2022, are presented in Figure 10-1, Figure 10-2 and Figure 10-3. Figure 14-3 presents an interpretation of the drilling of the MNV in cross section; Figure 14-10 presents an interpretation of drilling of the MNFWZ in plan view. Historical DDH recovery has generally been very good. Recovery from 2018 to October 2022 averages 99.1%. No obvious drilling, sampling or recovery factors materially affect the reliability of the samples.

The drilling database used for mineral resource estimation was closed October 21, 2022. Drilling information including assay results from that date, 7,565m (Phase XXI) primarily at depth in MNV, was not available for use in the mineral resource estimate presented in this Report.

**Table 10-1: Capstone Drilling Program Details from 2004 to March 2023**

Phase	Date	Hole ID	Total (m)	Core Size	Target	Total Program Budget (\$M)
I	Apr 2004 to Aug 2004	Surface: CG-04-01 to CG-04-20	7,849	NQ	MNV	1.0
II	Sep 2004 to Mar 2005	Surface: CG-04-21 to CG-04-37	10,119	NQ	MNV at 1,900-2,050 masl	2.5
III	Mar 2005 to Mar 2006	Underground: CG-U01 to CG-U114	17,750	NQ	MNV	4.5
IV/V	Sep 2006 to Jul 2007	Surface: CG-06-38 to CG-06-39, CG-07-40 to CG-07-42	4,825	NQ/HQ /PQ	MNV at 600 to 700 m below surface	6.0
		Underground: CG-06-U115 to CG-06-U124, CG-07-U125 to CG-07-U177	20,061	NQ	MNV infill and extension of previous holes	
VI	Aug 2007 to Oct 2008	Surface: CG-08-43 to CG-08-150	30,391	HQ/NQ	San Rafael and east San Roberto	5.0
		Underground: CG-07-U178 to CG-08-U217	14,435	NQ	Increase confidence in classification and add resources at depth	
VII	May 2010 to Dec 2010	Surface: CG-10-S151 to CG-10-S158	4,467	HQ/NQ	San Rafael deep exploration and MNV west	3.5
		Underground: CG-10-U218 to CG-10-U253	11,752	NQ	Avoca Extension and MNFWZ	
VIII	Jan 2011 to Dec 2011	Surface: CG-11-S159 to CG-11-S180	20,329	HQ/NQ	MNV infill and MNFWZ	7.3
		Underground: CG-11-U254 to CG-11-U294	21,340	NQ	MNFWZ infill and extension	
IX	Jan 2012 to Nov 2012	Surface: CG-12-S181 to CG-12-S185	5,061	HQ/NQ	Exploration targets along main MNV structure	6.5
		Underground: CG-12-U295 to CG-12-U340	26,825	HQ/NQ	MNFWZ	
X	Jan 2013 to Dec 2013	Underground: CG-13-U341 to CG-13-U373	19,836	HQ/NQ	MNV and MNFWZ infill and extension	4.9
XI	Jan 2014 to Dec 2014	Surface: CG-14-S186 to CG-14-S206	10,422	HQ/NQ	Exploration targets along main MNV	3.0



Phase	Date	Hole ID	Total (m)	Core Size	Target	Total Program Budget (\$M)
					splays or other sub-parallel targets	
XII	Jan 2015 to Dec 2015	Surface: CG-15-S207 to CG-15-S214	4,117	HQ/NQ	MNV infill and extension	5.7
		Underground: CG-15-U374 to CG-5-U415	17,733	HQ	MNFWZ infill and extension	
XIII	Jan 2016 to Dec 2016	Surface: CG-16-S215 to CG-16-S238 and 240	8,601	HQ/NQ	MNV infill and extension	2.9
		Underground: CG-16-U416 to CG-16-U432 and CG-16-UGIN146 to CG-16-UGIN185	12,659	HQ/BQ	MNV and MNFWZ infill and extension	
XIV	Jan 2017 to Dec 2017	Surface: CG-17-S239 and CG-17-S241 to CG-17-S304	29,937	HQ/NQ	MNV and MNFWZ infill and extension	5.9
		Underground: CG-17-U433 to CG-17-U459 and CG-17-UGIN186 to CG-17-UGIN204	19,072	HQ/BQ	MNFWZ infill and extension	
XV	Jan 2018 to Mar 2018	Surface: CG-18-S305 to CG-18-S313	7,544	HQ	MNV and MNFWZ infill and extension	1.3
		Underground: CG-18-U460 to CG-18-U463	2,668	HQ	MNFWZ infill and extension	
XVI	Apr 2018 to Oct 2018	Surface: CG-18-S314 to CG-18-S366 and CG-18-S368 to CG-18-S369	39,288	HQ	MNFWZ infill and extension	5.6
		Underground: CG-18-U464 to CG-18-U481 and CG-18-UGIN205 to CG-18-UGIN224	14,855	HQ/BQ	MNFWZ infill and extension	
XVII	Nov 2018 to Dec 2018	Surface: CG-18-S367, CG-18-S370 to CG-18-S383	9,997	HQ/BQ	MNFWZ infill and extension	1.4
		Underground: CG-18-U482 to CG-18-U487 and CG-18-UGIN225 to CG-18-UGIN230	4,678	HQ/BQ	MNFWZ infill and extension	
XVIII	Jan 2019 to Dec 2019	Surface: CG-19-S384 to CG-19-S457	48,076	HQ	MNFWZ infill and extension	6.1

Phase	Date	Hole ID	Total (m)	Core Size	Target	Total Program Budget (\$M)
		Underground: CG-19-U488 to CG-19-U506 and CG-19-UGIN231 to CG-19-UGIN282	16,474	HQ/BQ	MNFWZ infill and extension	
XIX	Jan 2020 to Dec2020	Surface: CG-20-S458 to CG-20-S527	45,686	HQ	MNFWZ infill and extension	5.3
		Underground: CG-20-U507 to CG-20-U516 and CG-20-UGIN283 to CG-20-UGIN301	8,676	HQ/BQ	MNFWZ infill and extension	
XX	Jan 2021 to Dec 2021	Surface: CG-21-S528 to CG-21-S568	42,325	HQ	MNV West and other exploration targets along main MNV splays or other sub-parallel targets	5.1
		Underground: CG-21-UGIN302 to CG-21-UGIN315	2,032	BQ	MNFWZ infill and extension	
XXI	Jan 2022 to Oct 2022	Surface: CG-22-S569 to CG-22-S579	11,637	HQ	MNV West	3.1
		Underground: CG-22-U517 to CG-22-U533 and CG-22-UGIN316 to CG-22-UGIN326	11,780	HQ/BQ	MNV West	
XXII	Nov 2022 to March 2023, phase will run to Dec 2023	Underground: CG-22-UGIN327 to CG-22-UGIN330, CG-23-UGIN331 to CG-23-UGIN337	1,022	BQ	MNFWZ infill	2.7
		Underground: CG-22-U534 to CG-22-U541, CG-23-U542 to CG-23-U545	6,543	HQ	MNV West	

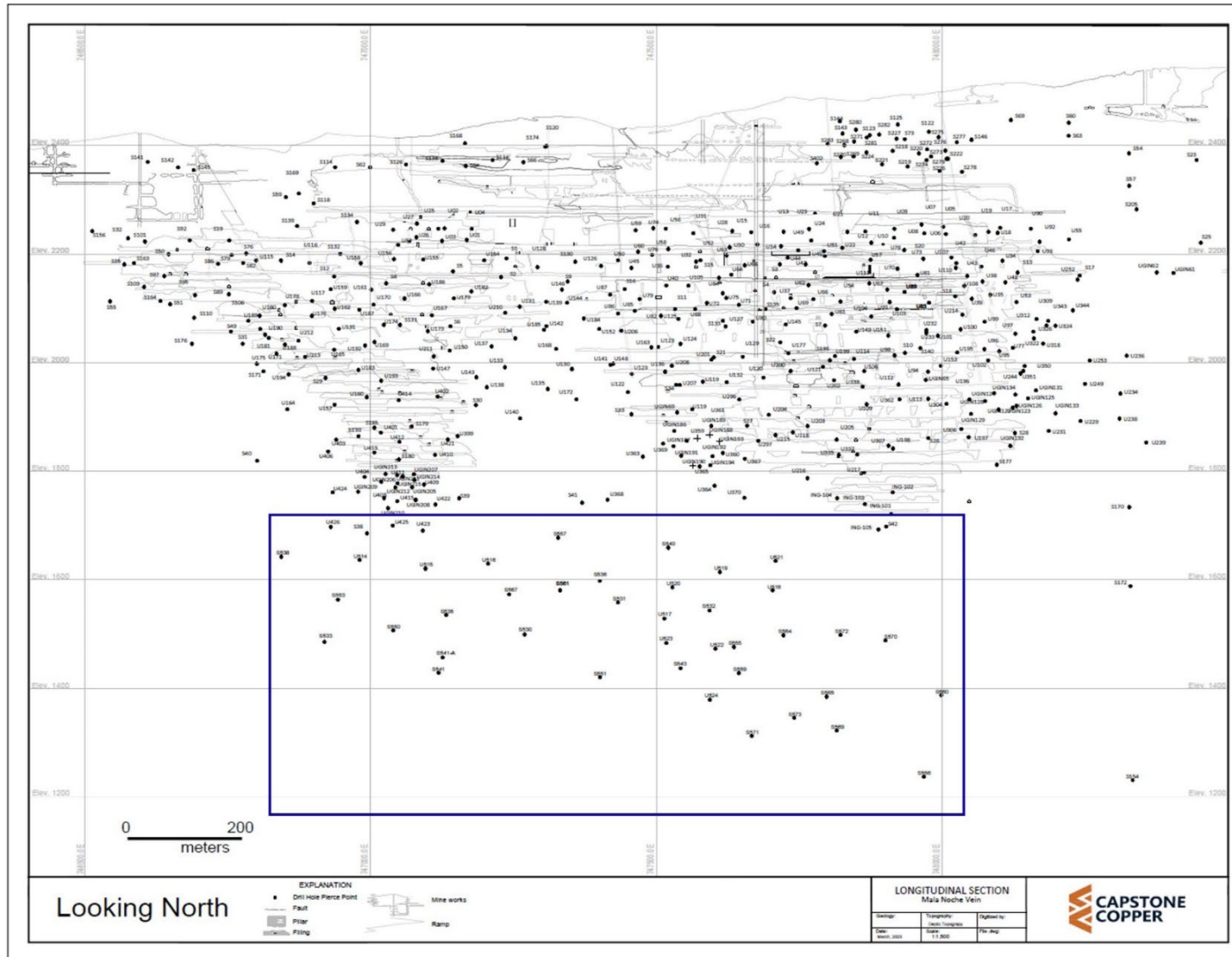
Table Notes:

Core sizes describe the diameter of rock extracted by diamond drilling. PQ core has a diameter of 85mm, HQ core has a diameter of 63.5mm, NQ core has a diameter of 47.6mm and BQ core has a diameter of 36.5mm.

**Table 10-2: Drilling History from 2004 to October 2022**

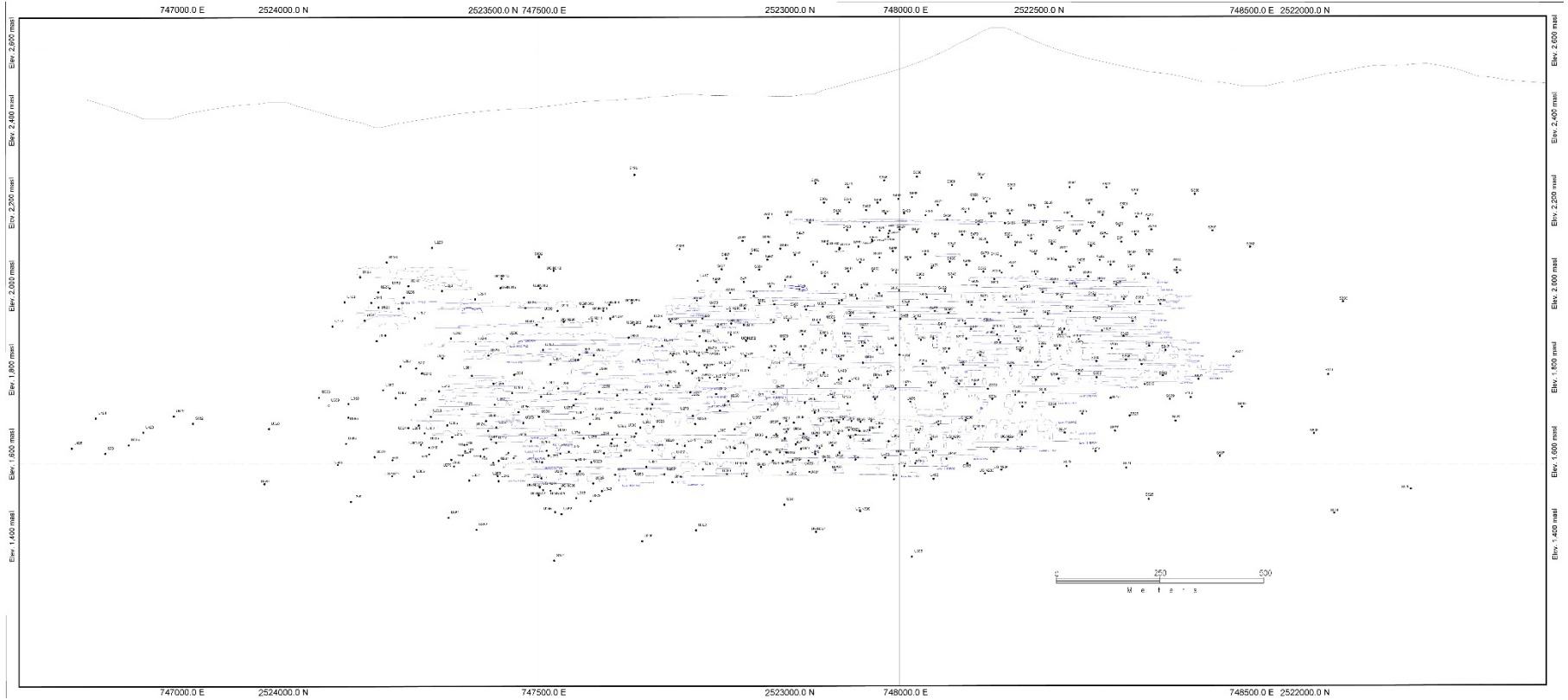
Contractor/Company	Phase	Year	Holes Drilled	Metres Drilled	Downhole Survey Instrument
<b>Surface</b>					
Britton Brothers Diamond Drilling, Ltd. ("Britton Brothers")	I/II	2004-2005	37	17,967	Eastman Single Shot
Major Drilling Group International Inc. ("Major Drilling")	V	2006-2007	5	4,825	FLEXIT SensIT
Major Drilling	VI	2008	108	30,391	Reflex EZ-Shot

Contractor/Company	Phase	Year	Holes Drilled	Metres Drilled	Downhole Survey Instrument
Landrill International Mexico, S.A. de C.V. ("Landrill")	VII	2010	8	4,467	Reflex EZ-Shot
Driftwood Diamond Drilling Mexico S.A. de C.V. ("Driftwood")	VIII	2011	22	20,329	Reflex EZ-Shot
Driftwood	IX	2012	5	5,061	Reflex EZ-Shot
Driftwood	XI	2014	21	10,422	Reflex EZ-Shot
Patpa Distribuciones S. de R.L. de C.V. ("Patpa")	XII	2015	8	4,117	Reflex EZ-Shot
Patpa	XIII	2016	24	8,601	Reflex EZ-Shot
Patpa	XIV	2017	65	29,937	Reflex EZ-Shot
Patpa	XV/XVI/XVII	2018	80	56,829	Reflex EZ-Shot
Patpa	XVIII	2019	74	48,076	Reflex EZ-Shot
Patpa	XIX	2020	70	45,686	Reflex EZ-Shot
Patpa	XX	2021	41	42,325	Reflex EZ-Shot
Patpa	XXI	2022	11	11,637	Reflex EZ-Shot
<b>Underground</b>					
Canrock Drilling Services S.A. de C.V. ("Canrock")	III	2005-2006	77	9,812	Reflex EZ-Shot
Globexplore Drilling S.A. de C.V.	III	2005	1	306	Reflex EZ-Shot
Tecmin Servicios S.A. de C.V. ("Tecmin")	III	2005-2006	36	7,632	Reflex EZ-Shot
Tecmin	IV	2006-2007	80	25,516	Reflex EZ-Shot
Tecmin	VI	2008	20	7,888	Reflex EZ-Shot
Britton Brothers	VI	2008	2	1,092	Eastman Single Shot
Tecmin	VII	2010	25	8,272	Reflex EZ-Shot
Landrill	VII	2010	11	3,481	Reflex EZ-Shot
Tecmin	VIII	2011	5	2,569	Reflex EZ-Shot
Landrill	VIII	2011	3	1,593	Reflex EZ-Shot
Driftwood	VIII	2011	33	17,178	Reflex EZ-Shot
Driftwood	IX	2012	46	26,825	Reflex EZ-Shot
Driftwood	X	2013	34	19,836	Reflex EZ-Shot
Patpa	XII	2015	42	17,733	Reflex EZ-Shot
Patpa	XIII	2016	17	8,397	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XIII	2016	40	4,262	Reflex EZ-Shot
Patpa	XIV	2017	27	17,076	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XIV	2017	19	1,996	Reflex EZ-Shot
Patpa	XV/XVI/XVII	2018	48	21,504	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XVII	2018	6	697	Reflex EZ-Shot
Patpa	XVIII	2019	19	10,567	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XVIII	2019	52	5,907	Reflex EZ-Shot
Patpa	XIX	2020	10	5,666	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XIX	2020	19	3,010	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XX	2021	14	2,032	Reflex EZ-Shot
Patpa	XXI	2022	17	9,748	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XXI	2022	15	2,737	Reflex EZ-Shot
Patpa	XXII, to date	2022-2023	12	6,543	Reflex EZ-Shot
Capstone Gold S.A. de C.V.	XXII, to date	2023	8	870	Reflex EZ-Shot



**Figure 10-1: Longitudinal Section of Drilling Pierce Points in San Roberto and MNV West Target (blue box) zones of the MNV**  
(Source: Capstone, 2023)



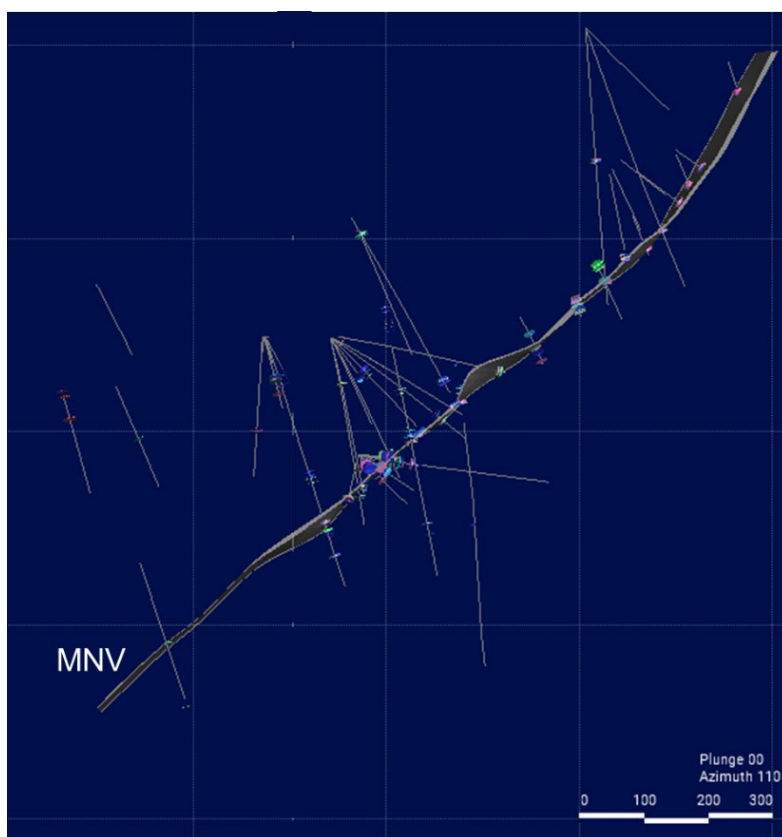


**Figure 10-3: Longitudinal Section of Drilling Pierce Points in Mala Noche Footwall Zone, -59° dip looking 58° azimuth**  
Source: McLennan, 2023

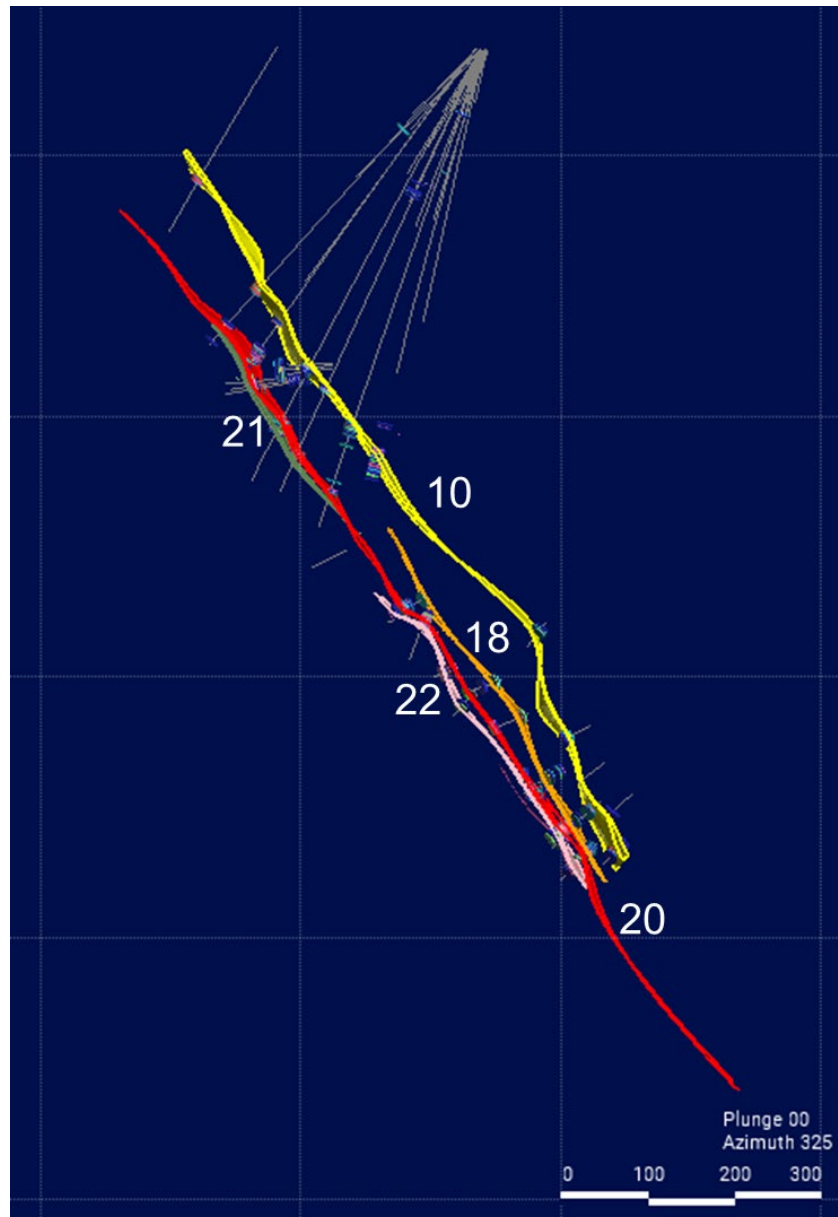


## 10.2 Sample Length and True Thickness

Core is drilled oblique to the target mineralized structure where achievable. However, holes are drilled at multiple angles from each platform to optimize spacing of intercepts while maximizing use of underground services or minimizing surface disturbance. No single method or percentage describes the relationship between downhole core length and the true width of the intersected mineralized structure. Drill hole inclinations vary significantly (from +25° to -90°) and the mineralized structures have locally variable dips from 40° to 70°. Therefore, most holes intersect the zones at an angle, and drillhole intercept widths for Cozamin are greater than true width. True width is measured for each mineralized intersection compared to the interpreted mineralized structure as intercepted. Representative drill sections showing typical vein orientation and drilling inclinations are shown in Figure 10-4 for MNV and in Figure 10-5 for MNFWZ.



**Figure 10-4: Representative Drill Section, MNV with Drill Traces**



**Figure 10-5: Representative Drill Section, MNFWZ with Drill Traces**

### 10.3 Recommendations and Opportunities

The QP recommends that exploration drifts continue to be incorporated into planned mining access for more precise infill drilling from underground, particularly in areas of deep mineralization drilled only from surface.

The 2023 exploration budget of \$2.7 million for 8,700 m of underground drilling will target infill drilling at the MNV West target area. Development of the new deeper west exploration cross-cut began in Q1 2023 with an estimated cost of \$1.1 million included in the drilling program budget.

## 11 Sample Preparation, Analyses and Security

### 11.1 Drill Core Samples

#### 11.1.1 Drill Site Control

Clean core boxes are delivered to the drill site by the drilling contractor. The driller clearly marks the drillhole number on each box. The driller then places a wood block or a plastic ticket in the core box at the end of each core interval. Intervals are marked in feet and inches which the driller converts from metres. The box is covered by the lid and secured using either rubber straps or nylon cord prior to transportation from the drill site. Either Capstone employees or the drillers transport the core from the drill site to the core shack.

#### 11.1.2 Survey Control

In 2009, Capstone contracted PhotoSat Information Ltd. to reference INEGI control points around the Cozamin mine (UTM 13N, NAD 27) and to create other survey reference points, such as the San Roberto headframe. The locations and orientations of the drillholes are checked by a Capstone surveyor after the completion of each drillhole. The driller identifies each drillhole with a wood plug showing the drillhole number labelled with permanent black marker. Drillhole locations are surveyed using either total station TRIMBLE or LEICA instruments.

Downhole surveys are undertaken after completion of each drillhole. Survey points are taken approximately every 50 m to 75 m using a downhole survey instrument (Table 10-2). Survey readings are generally taken every 50 m to 150 m for surface holes and every 50 m to 100 m for underground holes. Survey results were corrected for magnetic declination. The magnetic mineral pyrrhotite is present in deeper levels in the mine and occasionally causes downhole survey anomalies. These are identified by the geologist during the survey measurement process and corrected by taking another survey measurement above or below the point giving the faulty reading. Dip variations in surface drillholes are not more than 21.6°, with an average value of 3.0°. The maximum downhole dip variation in the underground holes is 33.2° with an average variation of 3.3°.

#### 11.1.3 Drill Core Logging, Photography, Sampling and Security

When the drill core arrives at the core shack, the geologist checks the order of the core. If required, the core assistant cleans the core of any contaminants. Boxes are checked for labelled start and end depths. Next, the core is placed three boxes at a time on the ground in natural light to be photographed alongside a scale bar. The core is then logged for recovery, rock quality, lithology, structure, alteration and mineralization prior to marking out sample intervals by the geologist. Cozamin has recorded geological information using an *acquire* database data entry object since late 2014; prior to *acquire* implementation, geological information was collected in Microsoft Excel spreadsheets.

Only Capstone employees are permitted in the core shack when unsampled core is ready to be cut. The geologist marks the saw line along the centre of the core, with each side containing

roughly equivalent mineralization. After the core is cut, one half is placed in a sample bag. The sampler returns the remaining core to the box in its original orientation, which is checked by the geologist. The same side of the core is always taken for sampling.

The drillhole number and sample interval are entered into the sample book. Sample length is selected by the geologist logging the core, typically ranging 1.0 -2.0m, but varied to match mineralization and lithology. One ticket stub is stapled in the corresponding interval in the core box by the geologist and the other two ticket stubs are placed in the sample bag by the sampler. The sample books are archived in the core shack. A minimum of 10 samples are placed in a large sack and secured by a tamper proof seal. The sample number series within the sack are marked on the outside. A transmittal form is then completed, which identifies the batch number, the serial numbers of the seals and the corresponding sample number series, and delivered to the preparation laboratory by a Cozamin representative.

Drill core containing intercepts of the MNV and MNFWZ structure is stored in a secured warehouse near the core shack and other core is stored in a second storage building and laydown on the mine property. Some pre-2014 waste hangingwall and footwall drill core is stored within the mine on Level 8. Access to the warehouse and storage building is controlled by the Cozamin Geology department.

Sample security measures include moving core from the drill site to the core logging area at the end of each drill shift and tracking sample shipments using industry-standard procedures.

#### **11.1.4 Drill Core Sample Preparation and Analysis**

Since 2005, Cozamin has sent DDH samples to multiple accredited laboratories for sample preparation and analysis, as well as for participation in round robin analysis of samples for use as reference material standards (Table 11-1). These laboratories include Bureau Veritas Inspectorate ("Inspectorate", known previously as BSI Inspectorate), ALS Geochemistry ("ALS"), SGS Canada Inc. ("SGS"), Mineral Environments Laboratories Ltd (commonly known as "Assayers Canada", which was acquired by SGS in 2010), Activation Laboratories Ltd. ("Actlabs"), and Acme Analytical Laboratories Ltd. ("Acme", acquired by Bureau Veritas in 2012). In 2010, Cozamin sent samples from one drillhole (CG-10-S151) to Eco Tech Laboratory Ltd. ("Eco Tech", which was acquired by ALS in 2012).

Until December 2013, Capstone analyzed field and pulp duplicate samples at a second laboratory. Capstone now analyzes the duplicate samples at the same laboratory as the original sample to better represent sampling precision, without additional inter-laboratory variability between the samples.

**Table 11-1: Primary and Secondary Laboratories Used for Cozamin DDH Samples**

Principal Laboratory	Secondary Laboratory	Drilling Phase	Sample Count
Inspectorate	ALS	I	1,515
ALS	Inspectorate	II	903
SGS	ALS	III	5,854
ALS	SGS	IV and V	2,581
ALS	SGS	VI	6,774
ALS	SGS	VII	6,842
ALS / Eco Tech <sup>1</sup>	SGS	VIII	14,843
ALS	ALS	IX	6,100
ALS	Actlabs	X	1,301
ALS	Actlabs	XI	898
ALS	-	XII	3,462
ALS	-	XIII	2,422
Cozamin Mine Laboratory	-	XIII	1,007
ALS	-	XIV	4,403
Cozamin Mine Laboratory	-	XIV	438
ALS	-	XV	991
Cozamin Mine Laboratory	-	XVI	292
ALS	-	XVI	6,072
Cozamin Mine Laboratory	-	XVII	0
ALS	-	XVII	1,584
Cozamin Mine Laboratory	-	XVIII	762
ALS	-	XVIII	5,138
Cozamin Mine Laboratory	-	XIX	60
ALS	-	XIX	4,463
ALS	-	XX	2,694
ALS	-	XXI	1,597

Table Notes:

1. Eco Tech used only for drillhole GC-10-S151

ALS sample preparation facilities in Hermosillo, Mexico were used until 2009, when ALS opened a new preparation facility in Zacatecas, Mexico in time for the Phase VII drilling campaign in 2010. After preparation, all ALS samples were sent to the Vancouver, Canada laboratory for analysis. The SGS sample preparation facility is located in Durango, Mexico. Samples were then analysed in the SGS Lakefield laboratory located in Toronto, Canada. The Inspectorate facility in Durango, Mexico conducted the sample preparation before analysis at the Inspectorate laboratory in Sparks, Nevada, USA. The Actlabs sample preparation and analysis facility is in Zacatecas, Mexico. The Eco Tech laboratory facility was located in Kamloops, Canada. Samples remained in the custody of the respective laboratories from arrival at the preparation facility through analysis. Sample preparation and analysis procedures at each of the laboratories utilized by Cozamin are detailed in Table 11-2 and Table 11-3.

**Table 11-2: Sample Preparation Details at Laboratories Utilized by Cozamin**

Laboratory	Accreditation	Crushing	Pulverizing
Inspectorate	ISO 9002, certificate 37925	Dried, weighed, then crushed to 75% passing 2 mm	250 g subsample split pulverized to 90% passing 75 µm
ALS	ISO 9001:2001 and ISO 17025		
SGS	ISO 9002 and ISO 17025 accredited for Specific Tests SCC No. 456.		
Actlabs	ISO 9001:2008, No. MX-11-182, No. Mx11-183	Dried, weighed, then crushed to 90% passing 2 mm	250 g subsample split pulverized to 95% passing 105 microns
Eco Tech	ISO 9001:2008 by KIWA International (TGA-ZM-13-96-00)	Dried, weighed, then crushed to 70% passing 1.8 mm	250 g subsample split pulverized to 95% passing 104 µm
Cozamin Laboratory	ISO 17025 accredited for specific tests, certificate Q-0383-064/12	Dried, weighed, then crushed to 95% passing 6.4 mm	200 g subsample split pulverized to 100% passing 75 µm

**Table 11-3: Sample Digestion and Analysis at Laboratories Utilized by Cozamin**

Laboratory	Cu	Zn	Pb	Ag
Inspectorate	Aqua regia digest with AAS finish. Overlimit samples follow the same procedure with the instrument calibrated for ore grades.			
ALS	Four acid digest with ICP-AES finish. Overlimit Pb samples use a four acid digestion followed by titration (CON02 method).			Four acid digest with ICP-AES finish, and fire assay (50 g charge) with a gravimetric finish.
SGS	Four acid digest with ICP-OES finish. Overlimit samples follow the same procedure but with sodium peroxide fusion.			Multi acid digest (2 g charge), with AAS finish. Overlimit samples analyzed using fire assay (50 g charge) with an AA finish.
Actlabs	Four acid digest with ICP-OES finish. Overlimit samples use an aqua regia digest with ICP-AAS finish.			Four acid digest with ICP-OES finish. Overlimit samples are analyzed using fire assay (30 g charge) with a gravimetric finish.
Eco Tech	Aqua regia digest with ICP-AES finish. Overlimit samples undergo an oxidizing digestion in 200 ml phosphoric flasks with final solution in aqua regia solution and an AA finish.			
Cozamin Laboratory	Three acid digest, with ICP-OES finish. Overlimit samples follow the same sample digestion procedure, but with an AAS finish.			

### 11.1.5 Drill Core Quality Assurance and Quality Control (QAQC)

#### 11.1.5.1 Phase I and II Drilling Programs, 2004

In 2004, splits of 24 previously assayed intervals from five drillholes were sent for independent analysis at the Acme laboratory in Vancouver. The analyses from these check samples agreed



well with the previously analysed results. No other QAQC samples were submitted during this drilling program.

#### **11.1.5.2 Phase III Drilling Program, 2005**

Capstone implemented a formal QAQC program for the 2005 Phase III drilling campaign. Cozamin staff obtained large samples from the dewatered underground workings and made three in-house reference material (“RM”) standards (not certified) that had undergone round robin testing at SGS, ALS, Acme, Assayers Canada and Inspectorate laboratories to determine mean and performance thresholds at two and three standard deviations (Table 11-4).

**Table 11-4: Cozamin Reference Materials used in the Phase II and III Drilling Campaigns, 2005-2006**

RM	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (ppb)
4759	3.45 ± 0.07	2.78 ± 0.065	0.17 ± 0.01	212.46 ± 47.17	109.4 ± 8.3
4757	1.31 ± 0.03	0.86 ± 0.030	0.03 ± 0.01	60.04 ± 3.73	70.2 ± 4.6
4787	0.55 ± 0.03	0.68 ± 0.015	0.01 ± 0.007	24.42 ± 1.37	200.3 ± 5.4

Most RM values plotted within two standard deviations of the mean value. There were seven failed samples that were attributed to sample switching. Overall assay accuracy was acceptable, with no signs of bias.

Duplicate samples comprised a second split of the pulp reject being sent to the SGS laboratory for reanalysis at a rate of approximately one in every 10 samples. A total of 432 samples for copper, zinc and lead, 388 samples for gold, and 422 samples for silver were analysed over the Phase III campaign. No evidence of bias was detected for silver or lead, but there was a weak positive bias observed in copper at higher grades and a weak negative bias for zinc and gold at higher grades. The magnitudes of the biases were not considered to be significant.

Samples of cement were submitted on a regular basis within the sample stream to identify evidence of cross contamination in the laboratory. A total of 144 blanks were submitted. A few samples had anomalous values of zinc, gold, and silver. In these instances, SGS was instructed to reanalyze the samples.

ALS was used as a check laboratory for analysis of 262 pulp samples. No bias between the results of the two laboratories was observed, but significantly lower levels of precision were noted with the ALS results. This was attributed to different analytical procedures followed at the two laboratories.

### 11.1.5.3 Phase IV and V Drilling Programs, 2006-2007

The QAQC program initiated in 2005 for the Phase III drilling program continued through the Phase IV and V drilling programs (Table 11-5).

**Table 11-5: QAQC Program Summary Phase IV and V Drilling Programs, 2006-2007**

Control	No. Samples	Insertion Rate (%)	Comments
RM	103	4.0	Acceptable performance for Cu, Ag, Pb and Zn; most sample values plot within 2 standard deviations from the certified mean. Medium grade RM 4757 shows low bias.
Blank	112	4.3	Acceptable performance for Ag, Au, Cu, Pb and Zn. 4 failures for Ag, 1 failure for Cu, 1 failure Au.
Core Duplicate	106	4.1	Good correlation between original sample and core duplicate for Cu, Ag Pb and Zn. Low correlation between original sample and core duplicate for Au.
Pulp Duplicate	106	4.1	Pulp duplicates show very good correlation for Cu, Ag, Pb, Zn and Au.

### 11.1.5.4 Phase VI Drilling Program, 2008

QAQC continued through 2008 using the same protocols developed in 2005 for Phase III program. Commercially available certified reference materials (“CRM”) and Cozamin sourced RMs were used during the program. Supplies of the Cozamin sourced material created in 2005 were depleted by the end of 2008 (Table 11-6). In 2006 and 2007, Cozamin created new RM using the remainder of the large samples collected from underground in 2005. The certification process was poorly documented and only partial details of the certification process are available. The performance summary of the Phase VI drilling program QC samples is in Table 11-6.

**Table 11-6: Reference Materials used in the Phase VI Drilling Program, 2008**

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (ppb)	# In UG DDH	# In Surface DDH	Insertion Rate (%)
06-4787	0.68 ± 0.003	0.65 ± 0.062	0.176 ± 0.003	35.38 ± 0.310	-	4	23	0.4
4757	1.31 ± 0.03	0.86 ± 0.030	0.03 ± 0.01	60.04 ± 3.73	70.2 ± 4.6	-	30	0.4
06-4759	1.94 ± 0.003	0.74 ± 0.004	0.144 ± 0.002	115.14 ± 0.32	200.3 ± 5.4	3	9	0.2
4787-a	9.49 ± 0.13	1.05 ± 0.07	0.172 ± 0.002	427.6 ± 3.06	-	-	48	0.7
4757-a	1.18 ± 0.03	3.58 ± 0.086	10.6 ± 0.086	138.8 ± 3.75	-	-	34	0.5
4759-a	1.27 ± 0.05	0.14 ± 0.002	0.04 ± 0.006	42.95 ± 2.90	-	-	13	0.2
HLLC <sup>1</sup>	1.49 ± 0.06	3.01 ± 0.17	0.29 ± 0.03	65.1 ± 6.7	830 ± 120	5	113	1.7
HLHC <sup>1</sup>	5.07 ± 0.27	2.35 ± 0.11	0.17 ± 0.01	111.0 ± 8.6	1970 ± 220	18	-	0.3
FCM-2 <sup>1</sup>	0.756 ± 0.046	1.739 ± 0.104	0.479 ± 0.038	73.9 ± 7.3	1370 ± 120	8	-	0.1

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (ppb)	# In UG DDH	# In Surface DDH	Insertion Rate (%)
BLANK	0.01% warning limit	0.011% warning limit	0.01% warning limit	5 g/t warning limit	50 ppb warning limit	66	211	4.1

Table Notes:

1. CRM purchased from CDN Resource Laboratories Ltd., Delta, Canada. HLLC and HLHC are High Lake volcanogenic massive sulphide deposit material. FCM is Campo Morado volcanogenic massive sulphide deposit material.

The results of the Phase VI drilling program QAQC results were summarized by Bruce Davis in a memorandum to Capstone (Davis, 2009). He concluded that copper results from certified and in-house RM standards were under proper analytical control. Results from the CRMs for silver, zinc and lead were under analytical control, but were limited in number. The in-house RMs had not been subjected to homogeneity testing through a proper round robin procedure and were deemed insufficient to serve as controls for gold or silver. In addition, comparisons to ALS results showed there could be significant differences in mean grades determined for silver, zinc and lead, and therefore may not adequately serve as controls for these elements either. Davis (2009) concluded that the in-house RMs were sufficient for laboratory control of copper grades.

Blank results suggested no contamination in the sample preparation process. No coarse reject duplicates were available to validate the sample preparation process. No pulp duplicates were available to further validate the accuracy of the assays.

From the certified standard control information, Davis (2009) concluded the copper, lead, zinc and silver assay processes were producing results that could be used for public reporting, resource estimation and grade control purposes.

#### **11.1.5.5 Phase VII-X Drilling Programs, 2010-2013**

Three new RM standards were created in 2010 using MNV material sourced during active mining operations, CGLG2010, CGMG2010 and CGHG2010. Round robin testing at SGS, ALS, Acme and Assayers Canada was used to determine performance thresholds. In 2012, a new low-grade RM, CGLG2012, was created using material from MNV. Performance thresholds were determined after round robin analysis at three laboratories (Cozamin, ALS and SGS). Typically, RM and blank samples were placed at the start and finish of the mineralized interval within a hole. Approximately two sample intervals per hole were selected to have pulp duplicates prepared and another two intervals per hole were selected for preparation of core duplicates. Additional quality control samples were inserted into the sequence as deemed necessary, for example a blank inserted in the sample sequence after a sample expected to have very high grade to monitor the quality of the sample preparation.

Analytical performance for copper was generally good (Table 11-7). Silver, zinc and lead results were more inconsistent, with periods of high failure rates. Results are summarized respectively in Table 11-8, Table 11-9 and Table 11-10. Graphical results for copper, silver, zinc and lead are

shown in Figure 11-1, Figure 11-2, Figure 11-3 and Figure 11-4, respectively. Less consistent results for silver, zinc and lead suggest the RM standards were not sufficiently homogenized. Sample failures were defined as values greater than three standard deviations from the mean or two (or more) consecutive samples greater than two standard deviations from the mean. Blank performance was mixed, but failed samples were not sufficient in grade to suggest significant cross contamination within samples.

Standards covering low, medium and high-grade ranges were not consistently inserted into the sample stream. The use of LG2012 as the only RM standard between June 2012 and December 2013 did not provide accuracy control in the middle to upper grade ranges for the drillholes completed within this timeframe. Following Lions Gate Geological Consulting Inc.'s ("LGGC") recommendation to provide additional accuracy control on the 2010 to 2013 DDH data, Capstone initiated a resampling program of pulps and drillcore samples from mineralized intercepts of the San Roberto zone and the MNFWZ. These were submitted to ALS with purchased CRM standards and blank material.

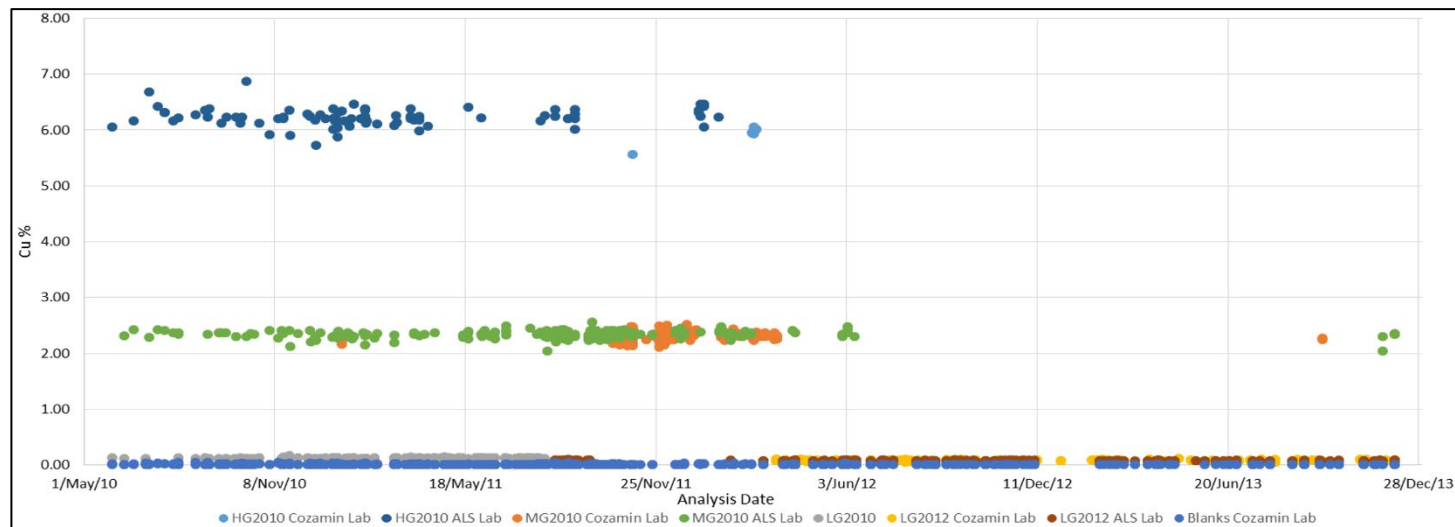
Table 11-11 summarizes the DDH duplicate results for copper, silver and zinc; no bias was observed. Bias in lead values could not be determined; most values were very low grade. Values for copper exceeded the target of 80% or more of the pairs with duplicate values within 20% of the original value. Silver values were very close to the target. Zinc and lead values are below the target threshold, with 67% and 68% of the paired values within 20% of each other, respectively.

Pulp duplicate values for copper, silver and zinc did not show bias. Lead was biased high for values under 0.4% (5% to 10%) and low for values over 0.4% (5% to 17%). Values for copper met the target of 90% or more of the pairs with duplicate values within 20% of the original value. Silver, zinc and lead values are below the target threshold, with approximately 80% of the paired values within 20% of each other.

The use of a secondary laboratory to analyze the duplicate samples introduced an additional source of uncertainty due to inter-laboratory variability. This practice was changed in December 2013 and now duplicate samples are submitted to the same laboratory. Cozamin found better precision between original and duplicate samples when duplicate samples are submitted to the original laboratory.

**Table 11-7: 2010-2013 DDH Reference Material Standards and Blanks Data – Copper**

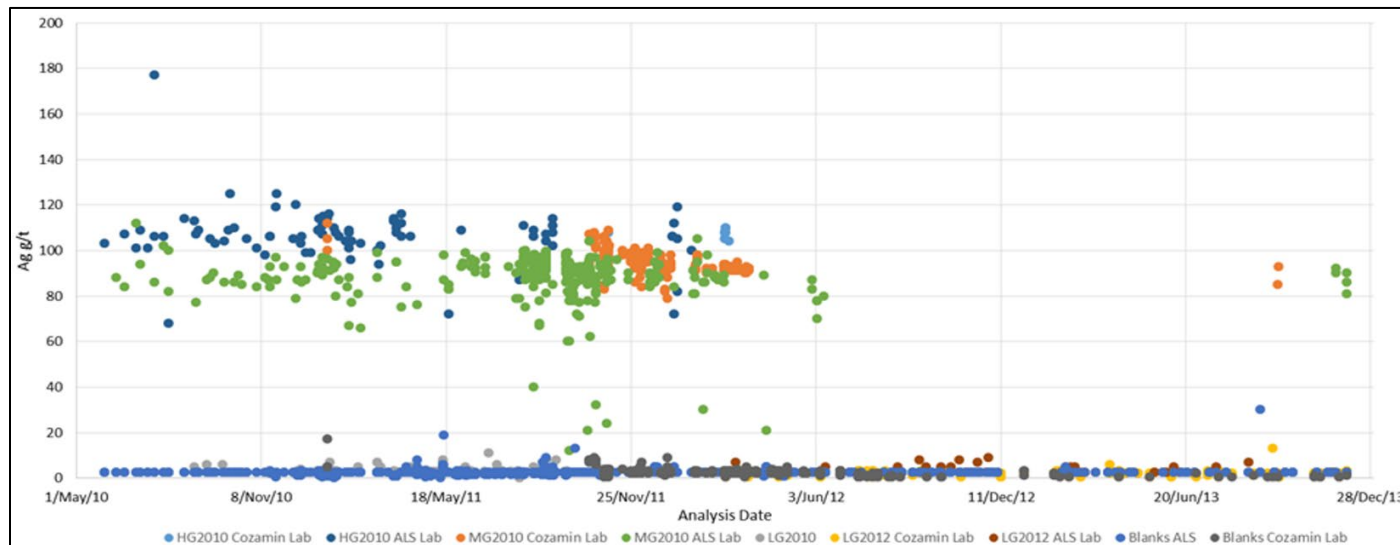
Laboratory	SRM	Reference Value (%)	Mean (%)	No Samples	Total Failures	Failure Rate (%)
ALS	CGHG2010	6.16	6.22	84	7	7
CML			5.92	9	1	11
Eco Tech			5.81	3	3	100
ALS	CGMG2010	2.36	2.33	304	5	2
CML			2.31	154	12	16
Eco Tech			2.20	4	4	100
ALS	CGLG2010	0.12	0.12	268	1	0
CML			-	0	-	-
Eco Tech			3	0	0	0
ALS	CGLG2012	0.079	0.077	258	1	0
CML			0.079	279	60	22
ALS	Blank	0.001	0.007	942	138	15
CML			0.012	316	129	41
Eco Tech			0.006	10	-	-



**Figure 11-1: 2010-2013 DDH Reference Material Standards and Blanks Chart – Copper**

**Table 11-8: 2010-2013 DDH Reference Material Standards and Blanks Data – Silver**

Laboratory	SRM	Reference Value (g/t)	Mean (g/t)	No Samples	Total Failures	Failure Rate (%)
ALS	CGHG2010	109	107	85	15	18
CML			108	7	0	0
Eco Tech			114	3	0	0
ALS	CGMG2010	92	88	296	78	26
CML			95	162	34	21
Eco Tech			95	4	0	0
ALS	CGLG2010	4	3	324	11	3
CML			-	-	-	-
Eco Tech			3	3	0	0
ALS	CGLG2012	2	3	201	18	9
CML			2	282	58	21
ALS	Blank	1	2	974	17	2
CML			2	320	13	4
Eco Tech			2	10	1	0

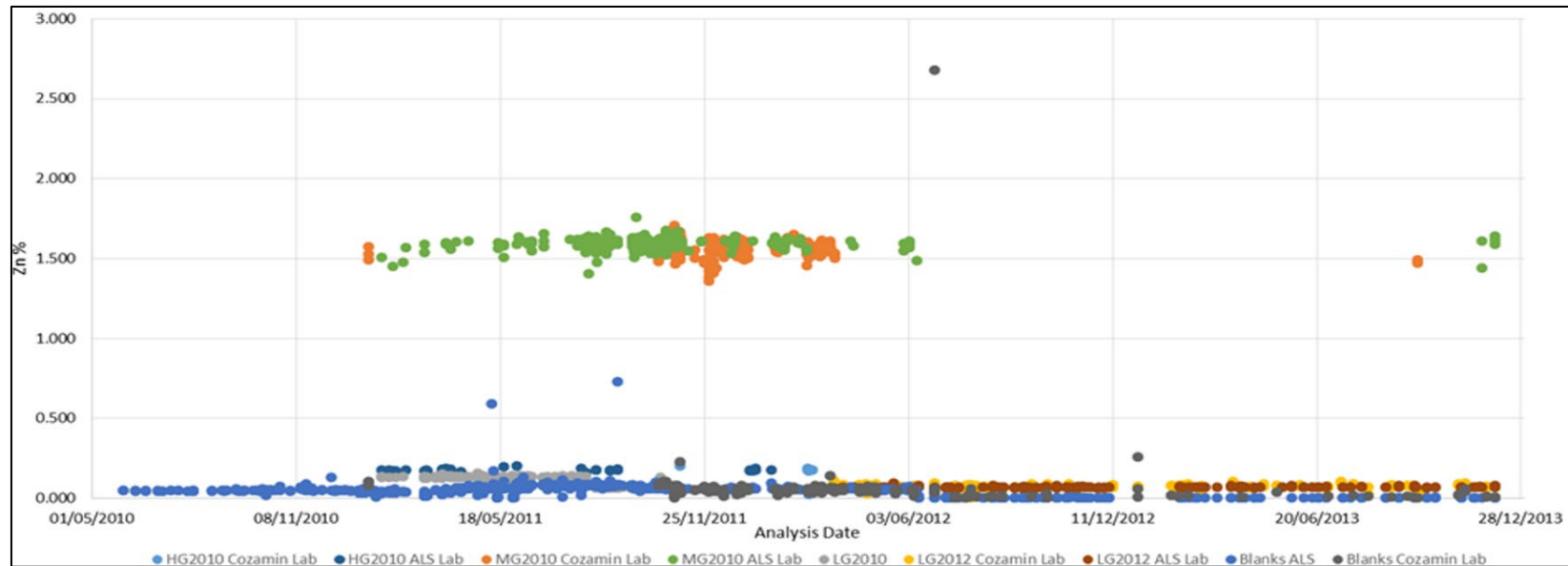


**Figure 11-2: 2010 – 2013 DDH Reference Material Standards and Blanks Chart – Silver**



**Table 11-9: 2010–2013 DDH Reference Material Standards and Blanks Data – Zinc**

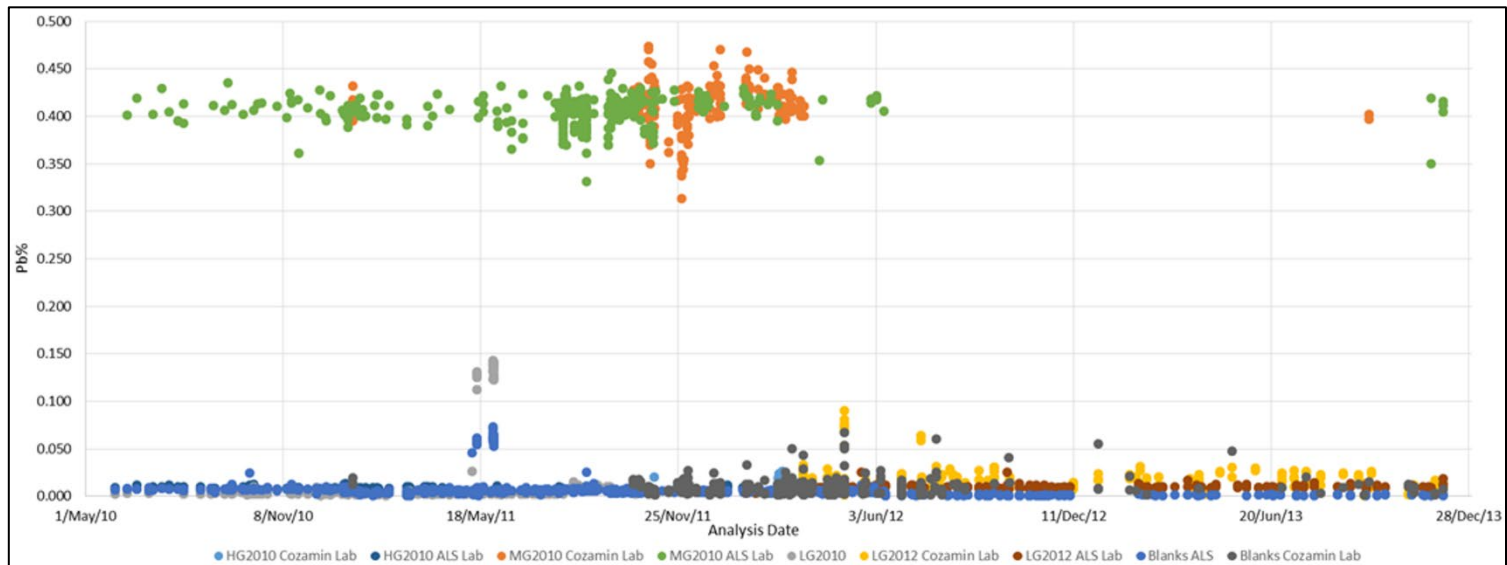
Laboratory	SRM	Reference Value (%)	Mean (%)	No Samples	Total Failures	Failure Rate (%)
ALS	CGHG2010	0.17	0.17	37	9	24
CML			0.15	9	5	36
Eco Tech			0.17	3	0	0
ALS	CGMG2010	1.54	1.59	256	0	0
CML			1.55	162	0	0
Eco Tech			1.85	3	0	0
ALS	CGLG2010	0.13	0.11	258	76	29
CML			-	-	-	-
Eco Tech			0.48	3	1	33
ALS	CGLG2012	0.07	0.07	193	0	0
CML			0.07	278	0	0
ALS	Blank	0.05	0.05	976	584	60
CML			0.05	320	145	45
Eco Tech			0.04	10	2	20



**Figure 11-3: 2010–2013 DDH Reference Material Standards and Blanks Chart – Zinc**

**Table 11-10: 2010–2013 DDH Reference Material Standards and Blanks Data – Lead**

Laboratory	SRM	Reference Value (%)	Mean (%)	No Samples	Total Failures	Failure Rate (%)
ALS	CGHG2010	0.010	0.009	83	0	0
CML			0.017	9	5	56
Eco Tech			0.008	3	0	0
ALS	CGMG2010	0.41	0.41	304	41	13
CML			0.41	162	44	27
Eco Tech			0.43	4	2	50
ALS	CGLG2010	0.002	0.011	324	80	25
CML			-	-	-	-
Eco Tech			0.003	3	0	0
ALS	CGLG2012	0.014	0.010	193	0	0
CML			0.016	280	50	18
ALS	Blank	0.050	0.006	976	26	3
CML			0.009	320	6	2
Eco Tech			0.007	10	0	0



**Figure 11-4: 2010–2013 DDH Reference Material Standards and Blanks Chart – Lead**

**Table 11-11: 2010-2013 DDH Sample Duplicate Performance**

Duplicate Type (Years)	Element	Correlation Coefficient	Ranked HARD	Comments
Field (2012-2013)	Copper	0.973	87% within 20%	No bias observed.
	Silver	0.991	78% within 20%	No bias observed.
	Zinc	0.906	67% within 20%	No bias observed.
	Lead	0.922	68% within 20%	Predominately very low grade; cannot determine bias.
Pulp (2012-2013)	Copper	0.987	92% within 20%	No bias observed.
	Silver	0.974	80% within 20%	No bias observed.
	Zinc	0.981	82% within 20%	No bias observed.
	Lead	0.986	81% within 20%	Weak high bias (5-10%) under 0.4% Pb, low bias of values over 0.4% (5-17%).

Table Notes:

1. Ranked HARD = Ranked Half-Absolute Relative Difference. Target values for field duplicates are 80% or more of duplicate values within 20% of original value. Target value for pulp duplicates is 90% or more of duplicate values within 20% of original value.

#### **11.1.5.6 Reanalysis of DDH Pulp Samples, 2010-2013**

Capstone reassayed all available DDH pulp samples within the 2014 mineralization domains for MNV and MNFWZ (1,491 samples) with QAQC control samples to establish stronger controls on sample accuracy and precision. Results of the pulp reanalysis adequately corroborate the original analysis, thus original analytical values for the samples analyzed during the drilling campaigns were retained in the assay database (Capstone, 2015). Copper values reproduced well, with 90% of the samples within 5.2% of original result (Table 11-12), zinc and lead results performed well, and silver analyses showed more variability. Figure 11-5 illustrates the locations of the drillholes containing reanalyzed pulp samples.

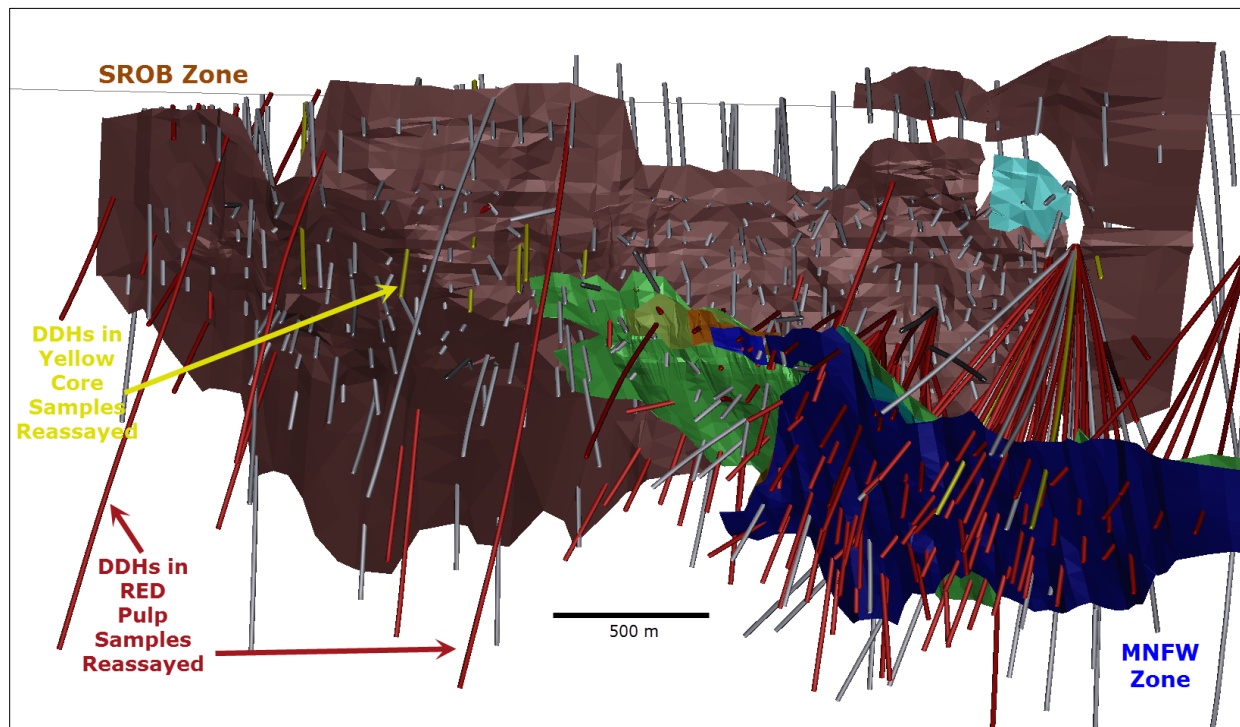
**Table 11-12: Comparison of DDH Pulp Reanalyses to Original Sample Values, 2010-2013**

Element	Correlation Coefficient	Ranked HARD	Comments
Copper	0.995	96% within 10%	Not biased below 14% Cu (low bias 5-20% above 14% Cu, based on very few data points).
Silver	0.976	70% within 10%	Bias not shown.
Zinc	0.963	89% within 10%	Lower grade values below 2.75% Zn are well distributed. Low bias for values between 2.75-8% (3-7%). Overall high bias over 8% Zn, typically 4-8%.
Lead	1.00	70% within 10%	Bias not shown.

Table Notes:

1. Ranked HARD = Ranked Half-Absolute Relative Difference; target values are 90% or more of duplicate values within 10% of the original value (for pulp duplicates submitted to the same laboratory)

QAQC control samples included with the pulp reanalysis submittals included CRM, blanks and coarse and pulp rejects. All QAQC controls performed well for copper and zinc. Silver demonstrated a higher failure in two of four CRM. Silver and lead preparation duplicates were less precise than copper and zinc. All batches with CRM failures were reanalyzed.



**Figure 11-5: Isometric View of Drillholes Containing Reanalyzed Pulp Samples (red)**

Source: Capstone, 2014

#### 11.1.5.7 Phase XI Drilling Program, 2014

The QAQC program initiated in 2014 included CRM, blanks and duplicates (field and preparation). One of each type of control sample was included in every batch of 20 core samples; control sample performance was evaluated upon receipt of the certificate of analysis before results were accepted into the *acQuire* database. Performance of the QAQC control samples is summarized in Table 11-13, with examples of the control charts for copper in blanks (Figure 11-6) and medium-grade CRM “ME-1201” (Figure 11-7). CRM inserted included four commercially available CRM and two CRM created from ore material covered low-grade and medium-grade values. The custom CRM were certified by CDN Resources of Langley, Canada using 15 laboratories. All batches containing failed CRM were reanalyzed and the values replaced in the *acQuire* database. Blank performance demonstrated contamination typically did not occur between samples during preparation in ore grade samples. Preparation duplicates show increasing homogeneity from field duplicates (quarter core) through coarse crush duplicates and finally pulp duplicates, with strong correlation between duplicates for copper and zinc with moderate correlations for silver and lead (Capstone Gold, 2015a).

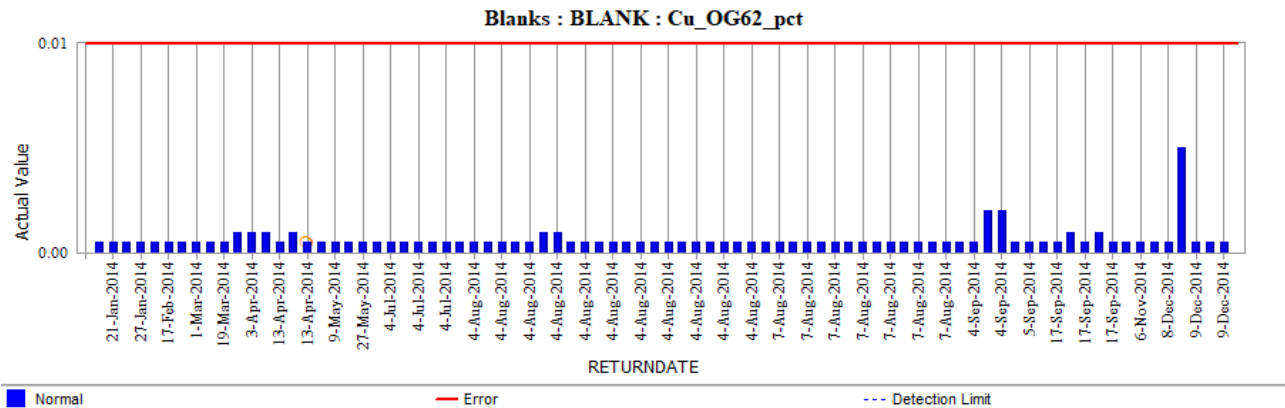
**Table 11-13: 2014 DDH Certified Reference Material Standards and Blank QAQC Performance**

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total #	Failure Rate (%)
						Failures	
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	2.3	2	3
ME-1204 <sup>1</sup>	0.519 ± 0.033	2.36 ± 0.18	0.443 ± 0.036	58.0 ± 9.0	1.4	-	-
CG-LG-14 <sup>2</sup>	0.877 ± 0.057	0.451 ± 0.030	0.052 ± 0.006	27.5 ± 3.6	0.5	-	-
ME-1201 <sup>3</sup>	1.572 ± 0.129	4.99 ± 0.435	0.465 ± 0.048	37.6 ± 5.1	0.7	2	9
CG-MG-14 <sup>2</sup>	1.738 ± 0.099	0.492 ± 0.033	0.112 ± 0.012	53.0 ± 4.05	0.1	-	-
ME-1402 <sup>4</sup>	2.9 ± 0.24	15.23 ± 1.005	2.48 ± 0.165	131.0 ± 10.5	0.4	-	-
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	6.5	2	1

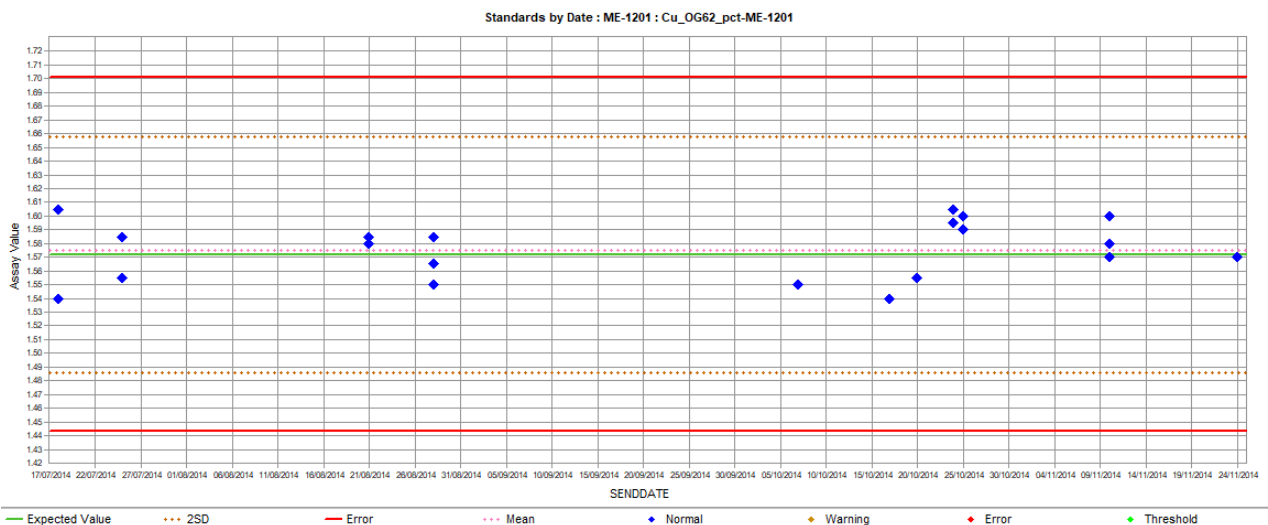
Table Notes:

CRM acceptable ranges are ±3 standard deviations. CRM were purchased from or certified through CDN Resource Laboratories Ltd., Langley, Canada. Blank material was quartz cobbles.

1. Mexico Campo Morado volcanogenic massive sulphide deposit material.
2. Mexico Cozamin Mine ore. “CG-Grade-14” certified using 15 laboratories.
3. Canada Slave structural province volcanogenic massive sulphide deposit material.
4. Mixed ore material with approximate whole rock composition of 36% SiO<sub>2</sub> and 15% Fe<sub>2</sub>O<sub>3</sub>.



**Figure 11-6: 2014 DDH Blanks performance - copper**



**Figure 11-7: 2014 DDH CRM “CG-MG-14” performance – copper**

### 11.1.5.8 Phase XII-XVI Drilling Programs, 2015-October 2022

The QAQC program initiated in 2014 continued to demonstrate that the assay process was in control from 2015 through October 2022. Reporting on QAQC performance includes monthly and annual reports. Blank performance demonstrated that contamination typically did not occur between samples during preparation (Capstone Gold, 2015a, 2016a, 2017a, 2018a, 2019, 2020a, 2021, 2022, 2023a), although increased between-sample contamination was observed in 2017, particularly for zinc. Blank performance shows that cross contamination ranging from 0.01% to 0.04% Zn occurred in 2017 and early 2018, typically at the coarse crushing stage (Capstone Gold, 2018a). The impact of these blank failures on ore-waste classification is considered low but investigation into the root cause and mitigation is part of ongoing quality control activities (Capstone Gold, 2020). Beginning in 2021, Cozamin requested an extra cleaning step after samples that were logged as strongly mineralized, reducing incidences of contamination. CRM inserted included seven commercially available CRM and nine CRM created from ore material



covering low-grade to high-grade values. The custom CRM were certified by CDN Resources of Langley, Canada using 15 laboratories for three CRM created in 2014, 10 laboratories for three CRM created in 2016, eight laboratories for three CRM created in 2018 and nine laboratories for three CRM created in 2021. All batches containing failed CRM were reanalyzed and the values replaced in the *acquire* database. Performance of the QAQC control samples is summarized in Table 11-13, with examples of the control charts for copper in blanks at ALS and CML (Figure 11-8) and medium-grade CRM “CG-MG-14” (Figure 11-9) and “CG-MG-16” (Figure 11-10). Field duplicates show high variability consistent with the vein mineralization at Cozamin, with about 70% of the duplicate value within  $\pm 20\%$  of the original value for copper and zinc, 80% within  $\pm 20\%$  for silver and 65% within  $\pm 20\%$  for lead. Field duplicates after 2019 are more variable than previous drilling campaigns for copper, with 60% of the duplicate values within  $\pm 20\%$  of the original value for copper over 1%. Field duplicates were not taken in SROB-Zn drilling in 2017 and in drillholes from surface in 2018 to preserve material for metallurgical testing. Preparation duplicates demonstrated the expected increasing homogeneity from field duplicates (quarter core until October 2015, the other half of core to present) through coarse crush duplicates and finally pulp duplicates. Correlation between preparation duplicates was strong for copper and zinc and moderate for silver and lead.

**Table 11-14: 2015-2022 DDH Certified Reference Material Standards and Blank QAQC Performance**

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
<b>2015</b>							
ME-1204 <sup>1</sup>	0.519 $\pm$ 0.033	2.36 $\pm$ 0.18	0.443 $\pm$ 0.036	58.0 $\pm$ 9.0	0.1	-	-
CG-LG-14 <sup>2</sup>	0.877 $\pm$ 0.057	0.451 $\pm$ 0.030	0.052 $\pm$ 0.006	27.5 $\pm$ 3.6	2.5	-	-
CG-MG-14 <sup>2</sup>	1.738 $\pm$ 0.099	0.492 $\pm$ 0.033	0.112 $\pm$ 0.012	53.0 $\pm$ 4.05	1.8	-	-
ME-1402 <sup>3</sup>	2.9 $\pm$ 0.24	15.23 $\pm$ 1.005	2.48 $\pm$ 0.165	131.0 $\pm$ 10.5	0.4	-	-
CG-HG-14 <sup>2</sup>	3.553 $\pm$ 0.203	0.604 $\pm$ 0.036	0.094 $\pm$ 0.012	94.1 $\pm$ 7.1	0.1	-	-
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	5.6	14	7
<b>2016</b>							
ME-1306 <sup>4</sup>	0.398 $\pm$ 0.027	3.17 $\pm$ 0.225	1.6 $\pm$ 0.105	104 $\pm$ 10.5	0.3	-	-
ME-1403 <sup>1</sup>	0.448 $\pm$ 0.045	1.34 $\pm$ 0.09	0.414 $\pm$ 0.027	53.9 $\pm$ 8.1	0.3	-	-
CG-LG-14 <sup>2</sup>	0.877 $\pm$ 0.057	0.451 $\pm$ 0.030	0.052 $\pm$ 0.006	27.5 $\pm$ 3.6	2.7	-	-

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
ME-17 <sup>5</sup>	1.36 ± 0.15	7.34 ± 0.555	0.676 ± 0.081	38.2 ± 4.95	0.3	-	-
CG-MG-14 <sup>2</sup>	1.738 ± 0.099	0.492 ± 0.033	0.112 ± 0.012	53.0 ± 4.05	1.3	-	-
CG-HG-14 <sup>2</sup>	3.553 ± 0.203	0.604 ± 0.036	0.094 ± 0.012	94.1 ± 7.1	0.9	-	-
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	5.9	14	11
<b>2017</b>							
ME-1306 <sup>4</sup>	0.398 ± 0.027	3.17 ± 0.225	1.6 ± 0.105	104 ± 10.5	0.9	-	-
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	0.9	-	-
CG-LG-16 <sup>2</sup>	0.751 ± 0.036	0.259 ± 0.015	0.008 ± 0.003	14.0 ± 2.55	2.3	3	4
CG-LG-14 <sup>2</sup>	0.877 ± 0.057	0.451 ± 0.030	0.052 ± 0.006	27.5 ± 3.6	0.6	-	-
ME-17 <sup>5</sup>	1.36 ± 0.15	7.34 ± 0.555	0.676 ± 0.081	38.2 ± 4.95	1.1	-	-
ME-1201 <sup>5</sup>	1.572 ± 0.129	4.99 ± 0.435	0.465 ± 0.048	37.6 ± 5.1	0.4	1	7
CG-MG-14 <sup>2</sup>	1.738 ± 0.099	0.492 ± 0.033	0.112 ± 0.012	53.0 ± 4.05	0.4	-	-
CG-HG-14 <sup>2</sup>	3.553 ± 0.203	0.604 ± 0.036	0.094 ± 0.012	94.1 ± 7.1	0.8	-	-
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	6.9	OG62 Cu= 4 Zn= 2 ICP61 Cu= 20 Zn= 29 Pb= 10 MEMS61 Cu= 12 Zn= 70 Pb= 13	OG62 0.7%  ICP61 35%  MEMS61 12%
<b>2018</b>							
CG-HG-14 <sup>2</sup>	3.553 ± 0.203	0.604 ± 0.036	0.094 ± 0.012	94.1 ± 7.1	0.7	7	3
CG-MG-14 <sup>2</sup>	1.738 ± 0.099	0.492 ± 0.033	0.112 ± 0.012	53.0 ± 4.05	0.02	-	-

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
CG-HG-16 <sup>2</sup>	3.19 ± 0.18	0.532 ± 0.048	0.028 ± 0.003	55.9 ± 3.45	0.3	2	2
CG-MG-16 <sup>2</sup>	1.28 ± 0.063	0.608 ± 0.036	0.032 ± 0.003	30.7 ± 2.4	0.7	6	3
CG-LG-16 <sup>2</sup>	0.751 ± 0.036	0.259 ± 0.015	0.008 ± 0.003	14.0 ± 2.55	3.0	28	3
CG-HG-18 <sup>2</sup>	3.520 ± 0.270	1.410 ± 0.135	0.596 ± 0.045	60.9 ± 6.3	0.01	-	-
CG-LG-18 <sup>2</sup>	0.946 ± 0.056	0.097 ± 0.011	0.032 ± 0.005	19.6 ± 2.1	0.02	-	-
ME-1201 <sup>5</sup>	1.572 ± 0.129	4.99 ± 0.435	0.465 ± 0.048	37.6 ± 5.1	0.1	-	-
ME-1204 <sup>1</sup>	0.519 ± 0.033	2.36 ± 0.18	0.443 ± 0.036	58.0 ± 9.0	0.2	1	2
ME-1306 <sup>4</sup>	0.398 ± 0.027	3.17 ± 0.225	1.60 ± 0.105	104 ± 10.5	0.4	-	-
ME-1402 <sup>3</sup>	2.90 ± 0.24	15.23 ± 1.005	2.48 ± 0.165	131.0 ± 10.5	0.1	-	-
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	0.6	2	1
ME-17 <sup>5</sup>	1.36 ± 0.15	7.34 ± 0.555	0.676 ± 0.081	38.2 ± 4.95	0.3	1	1
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	6.4	OG62 Cu= 3 MEMS61 Cu= 12 Zn=27 Pb = 7 Ag = 1 CML-ICP Zn = 3	OG62 1% MEMS61 2%  CML-ICP 2%
<b>2019</b>							
CG-HG-16 <sup>2</sup>	3.19 ± 0.18	0.532 ± 0.048	0.028 ± 0.003	55.9 ± 3.45	0.4	1	1
CG-MG-16 <sup>2</sup>	1.28 ± 0.063	0.608 ± 0.036	0.032 ± 0.003	30.7 ± 2.4	0.4	1	2
CG-LG-16 <sup>2</sup>	0.751 ± 0.036	0.259 ± 0.015	0.008 ± 0.003	14.0 ± 2.55	1.4	1	0
CG-HG-18 <sup>2</sup>	3.520 ± 0.270	1.410 ± 0.135	0.596 ± 0.045	60.9 ± 6.3	0.9	-	-
CG-MG-18 <sup>2</sup>	1.540 ± 0.135	0.165 ± 0.015	0.053 ± 0.006	28.3 ± 2.7	0.3	3	4

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
CG-LG-18 <sup>2</sup>	0.946 ± 0.056	0.097 ± 0.011	0.032 ± 0.005	19.6 ± 2.1	1.3	4	1
ME-1201 <sup>5</sup>	1.572 ± 0.129	4.99 ± 0.435	0.465 ± 0.048	37.6 ± 5.1	0.02	-	-
ME-1306 <sup>4</sup>	0.398 ± 0.027	3.17 ± 0.225	1.6 ± 0.105	104 ± 10.5	0.3	-	-
ME-1402 <sup>3</sup>	2.90 ± 0.24	15.23 ± 1.005	2.48 ± 0.165	131.0 ± 10.5	0.1	-	-
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	0.7	1	1
ME-17 <sup>5</sup>	1.36 ± 0.15	7.34 ± 0.555	0.676 ± 0.081	38.2 ± 4.95	0.1	-	-
BLANK	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	5.5	OG62 Cu = 1 MEMS61 Cu = 10 Zn = 17 Pb = 1	OG62 0.4% MEMS61 2%
<b>Jan 1 to October 31, 2020</b>							
CG-HG-16 <sup>2</sup>	3.19 ± 0.18	0.532 ± 0.048	0.028 ± 0.003	55.9 ± 3.45	1.2	MEMS61 Ag = 1	1
CG-MG-16 <sup>2</sup>	1.28 ± 0.063	0.608 ± 0.036	0.032 ± 0.003	30.7 ± 2.4	1.1	OG62 Cu = 1 MEMS61 Ag = 1	2
CG-LG-16 <sup>2</sup>	0.751 ± 0.036	0.259 ± 0.015	0.008 ± 0.003	14.0 ± 2.55	3.1	MEMS61 Cu = 1	1
CG-HG-18 <sup>2</sup>	3.520 ± 0.270	1.410 ± 0.135	0.596 ± 0.045	60.9 ± 6.3	2.7	-	-
CG-MG-18 <sup>2</sup>	1.540 ± 0.135	0.165 ± 0.015	0.053 ± 0.006	28.3 ± 2.7	1.1	OG62 Ag = 1 MEMS61 Ag = 2 Pb = 1	OG62 1% MEMS61 3%
CG-LG-18 <sup>2</sup>	0.946 ± 0.056	0.097 ± 0.011	0.032 ± 0.005	19.6 ± 2.1	2.6	MEMS61 Zn = 1	MEMS61 0.6%
ME-1306 <sup>4</sup>	0.398 ± 0.027	3.17 ± 0.225	1.6 ± 0.105	104 ± 10.5	1.2	-	-
ME-1402 <sup>3</sup>	2.90 ± 0.24	15.23 ± 1.005	2.48 ± 0.165	131.0 ± 10.5	0.1	-	-
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	1.2	-	-

Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
ME-1801 <sup>6</sup>	0.284 ± 0.010	7.43 ± 0.30	3.08 ± 0.10	108.0 ± 6.0	0.3	OG62 Zn = 1 Pb = 1	8
BLANK (186)	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	5.1	OG62 Cu = 2 MEMS61 Cu = 7 Zn = 11 Pb = 2	OG62 1% MEMS61 3%
<b>November 1, 2020 to October 21, 2022</b>							
CG-HG-16 <sup>2</sup>	3.19 ± 0.18	0.532 ± 0.048	0.028 ± 0.003	55.9 ± 3.45	0.3	-	-
CG-MG-16 <sup>2</sup>	1.28 ± 0.063	0.608 ± 0.036	0.032 ± 0.003	30.7 ± 2.4	0.4	-	-
CG-HG-18 <sup>2</sup>	3.520 ± 0.270	1.410 ± 0.135	0.596 ± 0.045	60.9 ± 6.3	0.2	-	-
CG-MG-18 <sup>2</sup>	1.540 ± 0.135	0.165 ± 0.015	0.053 ± 0.006	28.3 ± 2.7	1.0	MEMS61 Ag = 1 Pb = 1	MEMS61 4%
CG-LG-18 <sup>2</sup>	0.946 ± 0.138	0.223 ± 0.030	0.052 ± 0.006	19.6 ± 2.1	1.1	MEMS61 Ag = 1	MEMS61 2%
CG-HG-21 <sup>2</sup>	3.89 ± 0.42	1.01 ± 0.09	0.319 ± 0.048	88.3 ± 15.3	0.4	-	-
CG-MG-21 <sup>2</sup>	1.958 ± 0.282	0.207 ± 0.030	0.034 ± 0.015	35.0 ± 6.0	0.1	-	-
CG-LG-21 <sup>2</sup>	1.015 ± 0.282	0.207 ± 0.030	0.034 ± 0.015	28.3 ± 6.0	3.0	MEMS61 Zn = 1	MEMS61 1%
ME-1306 <sup>4</sup>	0.398 ± 0.027	3.17 ± 0.225	1.6 ± 0.105	104 ± 10.5	0.3	-	-
ME-1402 <sup>3</sup>	2.90 ± 0.24	15.23 ± 1.005	2.48 ± 0.165	131.0 ± 10.5	0.04	-	-
ME-1403 <sup>1</sup>	0.448 ± 0.045	1.34 ± 0.09	0.414 ± 0.027	53.9 ± 8.1	0.3	-	-
ME-1801 <sup>6</sup>	0.284 ± 0.010	7.43 ± 0.30	3.08 ± 0.10	108.0 ± 6.0	0.1	-	-
BLANK (186)	0.01% warning limit	0.01% warning limit	0.01% warning limit	10 g/t warning limit	5.2	OG62 Cu = 2 Zn = 1 Pb = 1 MEMS61 Pb = 4 Zn = 12	OG62 2% MEMS61 6%

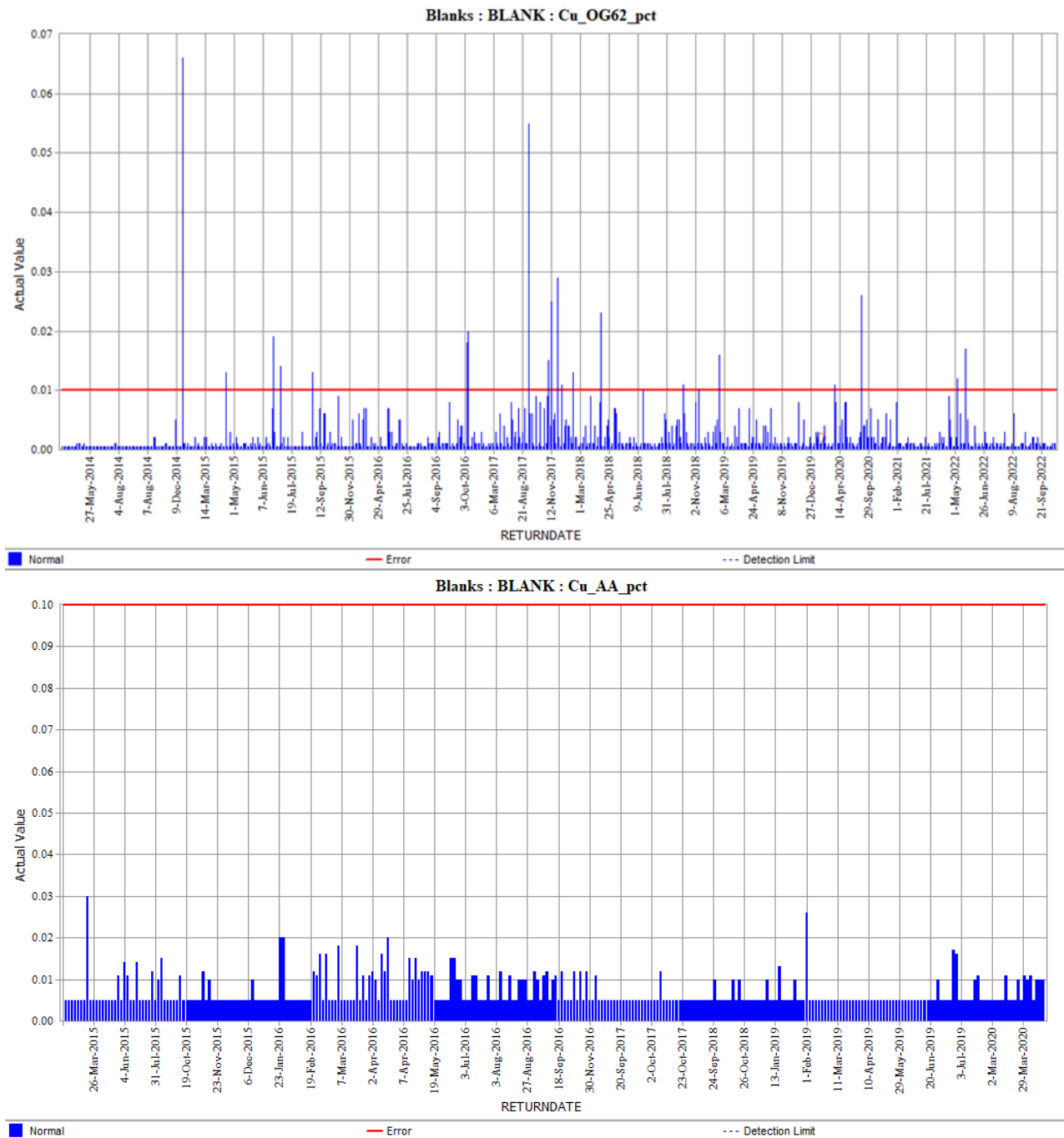
Control	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Insertion Rate (%)	Total # Failures	Failure Rate (%)
---------	--------	--------	--------	----------	--------------------	------------------	------------------

**Table Notes:**

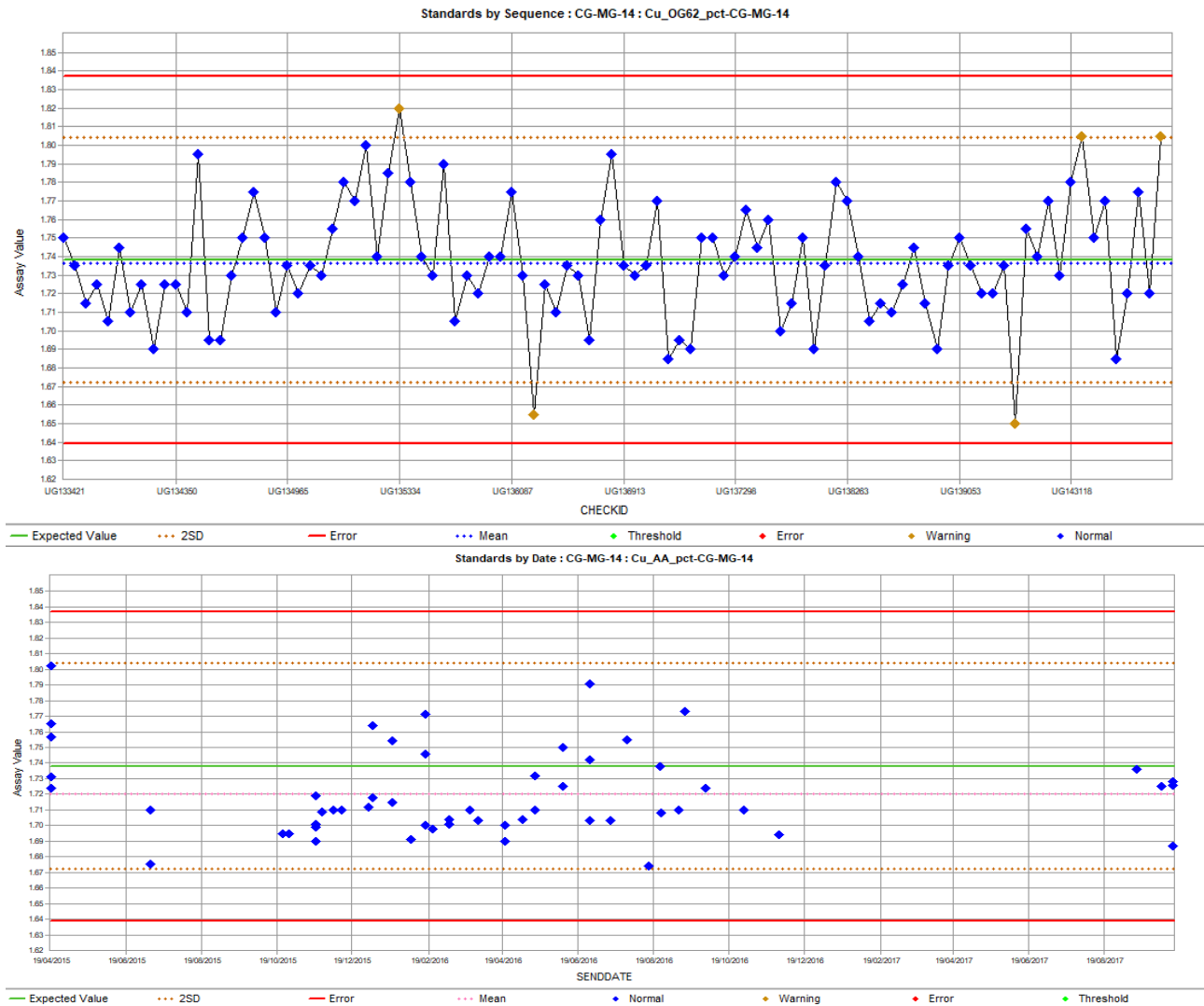
CRM Acceptable ranges are  $\pm 3$  standard deviations. CRM purchased from or certified through CDN Resource Laboratories Ltd., Langley, Canada. Blank material is quartz cobbles.

1. Mexico Campo Morado volcanogenic massive sulphide deposit material.
2. Mexico Cozamin Mine ore. "CG-Grade-14" certified using 15 laboratories, "CG-Grade-16" certified using 10 laboratories, "CG-Grade-18" certified using 8 laboratories and "CG-Grade-18" certified using 9 laboratories.
3. Mixed ore material with approximate whole rock composition of 36%  $\text{SiO}_2$  and 15%  $\text{Fe}_2\text{O}_3$ .
4. Mixed ore material with approximate whole rock composition of 58%  $\text{SiO}_2$  and 13%  $\text{Fe}_2\text{O}_3$ .
5. Canada Slave structural province volcanogenic massive sulphide deposit material.
6. Canada Caribou volcanogenic massive sulphide deposit material (New Brunswick).

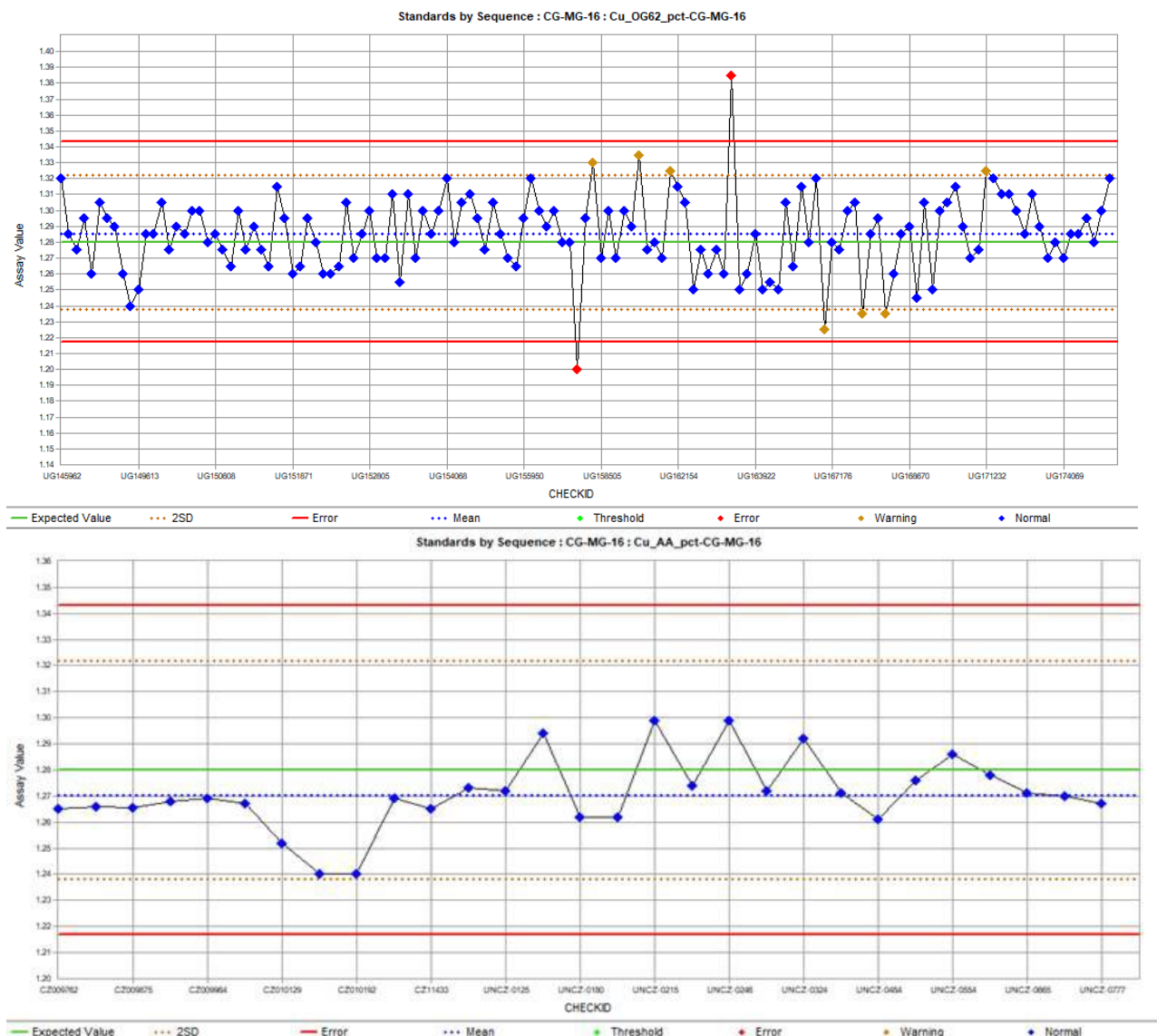




**Figure 11-8: 2015 to 2022 DDH Blanks performance – copper, ALS (upper) and 2015-2020 CML (lower)**



**Figure 11-9: 2015 to 2017 DDH CRM “CG-MG-14” performance – copper, ALS (upper) and CML (lower)**



**Figure 11-10: 2018 to 2022 DDH CRM “CG-MG-16” performance – copper, ALS (upper) and 2018 to 2020 CML (lower)**

## 11.2 DDH QAQC Conclusions

Cozamin’s QAQC program for DDH samples effectively controlled sample accuracy, precision and contamination since its reinstatement in 2014 through October 2022. Reanalysis of available pulps from samples collected from 2010 to 2013 within resource domains, including QAQC controls, confirmed original values.

Vivienne McLennan, P.Geo., Capstone’s Manager, Resource Governance, confirms that the diamond drilling samples are acceptable to support the mineral resource estimation in this Report.

## 11.3 Bulk Density

Capstone collects bulk density measurements from each drillhole, including samples from mineralized and non-mineralized intercepts. As of October 21, 2022, a total of 52,190 bulk density measurements have been collected from most drillholes on the property.

### 11.3.1 Bulk Density Sampling Method and Procedure, 2009-2014

All drillcore pieces greater than 10 cm in length within an assay sample interval were selected from the core box and labelled to retain their order. Bulk density measurements were taken of consecutive assay intervals through mineralized zones. In waste zones measurements are less frequent, comprising a 2 m sample approximately every 20 m to 50 metres downhole. Core pieces were placed on a top loading balance and weighed. Capstone used the weight-in-air weight-in-water technique to determine the bulk density of the drillcore (Equation 11-1).

**Equation 11-1:**

$$\text{Bulk Density} = \frac{\text{weight in air}}{\text{volume of water displacement}}$$

This technique uses a 2,000 mL plastic graduated cylinder that is filled with water to the 2,000 mL graduation line and weighed. The cylinder is then emptied and filled with the drillcore pieces from the sample interval. Water is poured into the cylinder containing the core to the 2,000 mL mark and then weighed. The volume of the displaced water is then divided by the weight in air to determine the bulk density (g/cm<sup>3</sup>). Data were recorded in a *Microsoft Excel®* spreadsheet, along with the drillhole name, from and to depths, and rock type information.

In 2009, Cozamin's bulk density dataset comprised 4,045 measurements, plus an additional 857 repeat samples to assess the precision of the measurement technique. Three anomalous values were removed from the database due to suspected typographic entry errors of the sample weights. The bulk densities in the database ranged from 1.51 g/cm<sup>3</sup> to 6.37 g/cm<sup>3</sup>, with a mean of 2.83 g/cm<sup>3</sup>. Density values were measured in 135 of the 365 drillholes in the database at the time, and their spatial distribution was considered reasonably extensive throughout areas of potential economic interest.

In 2013, a total of 2,354 bulk density values were reanalyzed to correct widely varying values obtained between 2009 and 2012, ranging from 0.31 g/cm<sup>3</sup> to 9.02 g/cm<sup>3</sup>, for quality control and to check extreme values. The extreme high and low values were replaced with results that fell within expected bulk density ranges database.

As of December 31, 2014, there were 18,468 bulk density measurements collected from most drillholes on the property. These bulk density values ranged from 2.05 g/cm<sup>3</sup> to 6.05 g/cm<sup>3</sup>, with a mean of 2.71 g/cm<sup>3</sup>.

### 11.3.2 Bulk Density QAQC 2013-2014

In November 2013, Cozamin implemented a QAQC program for its bulk density determinations. This included the use of an aluminum cylinder, approximately 20 cm in length with a known bulk density of 2.7 g/cm<sup>3</sup>, to act as a reference standard for the measurement method. Measurements of the aluminum cylinder are taken at a rate of 1 in 25 measurements of drillcore. Values of 215 aluminum cylinder measurements ranged from 2.63 g/cm<sup>3</sup> to 2.74 g/cm<sup>3</sup>, with an average of 2.69 g/cm<sup>3</sup>. This represents an average underestimation bias of less than 0.4%.

Repeat measurements were taken to provide an understanding of the precision of the method. Capstone selected vein intercepts from drillholes in the San Roberto, MNFWZ, and San Rafael zones for reanalysis. Repeat measurements from the drillholes showed good levels of precision, with 90% of the 142 sample pairs measuring within 1% of each other (from the Ranked HARD plot). The duplicate samples did not show obvious bias.

The results of the QAQC samples indicate the 2013 to 2014 bulk density dataset is of sufficient quality for use in mineral resources and mineral reserves estimation.

### 11.3.3 Bulk Density Sampling Method and Procedure, 2015-2022

Since 2015, Capstone has used the weight-in-air over weight-in-water technique to determine the bulk density of the drillcore (Equation 11-2). All drillcore pieces greater than 10 cm in length within an assay sample interval are selected from the core box and labelled to retain their order. Bulk density measurements are taken from consecutive assay intervals through mineralized zones. Core pieces are placed on a top loading balance and weighed, then weighed again in a vat of water using a basket suspended from the hook on the scale.

#### Equation 11-2:

$$\frac{\text{weight in air}}{(\text{weight in air} - \text{weight in water})}$$

Data are recorded in an *acquire* data entry object, along with the drillhole name and from and to depths.

At the end of October 2022, Cozamin's bulk density dataset comprised 33,393 measurements collected between 2015 and 2022. Bulk densities in the database range from 1.95 g/cm<sup>3</sup> to 6.46 g/cm<sup>3</sup>, with a mean of 2.72 g/cm<sup>3</sup>.

### 11.3.4 Bulk Density QAQC 2015-2022

The QAQC program for bulk density determinations initiated in 2013 continued through 2022. Measurements of the aluminum cylinder reference material are taken at a rate of 1 in 20 measurements of drillcore. Values of 2,237 aluminum cylinder measurements ranged from 2.66 g/cm<sup>3</sup> to 2.72 g/cm<sup>3</sup>, with an average of 2.70 g/cm<sup>3</sup>. This average estimation matches the density of the aluminum bar reference material.

Repeat measurements are taken to provide an understanding of the precision of the method. Capstone selected vein intercepts from drillholes in the San Roberto, MNFWZ and San Rafael zones for reanalysis. Repeat measurements from the drillholes showed good levels of precision; 90% of the 1,899 sample pairs measure within 0.2% of each other (from the Ranked HARD plot). The duplicate values do not exhibit bias.

The results of the QAQC samples indicate the bulk density dataset from 2015 to 2022 is of sufficient quality for use in mineral resources and mineral reserves estimation.



## 12 Data Verification

### 12.1 Verification of Exploration, Drilling and Sampling Data for input to Mineral Resource Estimate

QP Vivienne McLennan, P.Geo., verified the database checks were completed as part of annual site visits from 2018 to 2023 to confirm exploration, geology and data handling for drilling and exploration information including mineral tenures, drill core and QAQC.

Areas of active drilling were visited underground and at surface, with core observed moving from the drill to core boxes and on to the core logging facility, where logging procedures were verified. Remaining drill core from a selection of intercepts within modelled mineralization domains was compared to assay certificates and recorded geological information. No discrepancies were noted. Written logging procedures and control procedures were accessible to personnel at the core logging facility. The preparation facility at ALS in Zacatecas was visited in 2018, demonstrating a clean, well organized workflow with quality assurance and control procedures in place.

#### 12.1.1 Current Drillhole Database

Cozamin implemented a “Geological Information Management System” *acquire* database in October 2014. Error rates have remained within the typically accepted industry standard of less than 1% since that time, including the data collected between 2004 and 2014.

**Table 12-1: Drillhole Database Validation - Error Rates**

Time Period	Error Rate	Comments on Source of Error	Corrective Actions
November 2020 to October 2022	0.4%	6.1% error rate on collar surveys 1.2% error rate on downhole surveys 1.8% error rate on density readings (Capstone Gold, 2023b)	The monthly checks on 100% of new data identified errors that were corrected before use in the resource estimation.
November 2018 to October 2020	0.2%	1.5 % error rate on collar surveys, 1.9% error rate in downhole surveys (Capstone Gold, 2020b)	Formalized monthly 100% check on collar data, which resulted in elevation corrections ranging from 2.6m-7.5m in 9 drillhole collars (Capstone Gold, 2020c)
April to October 2018	0.8%	2.7% error rate in downhole surveys (Capstone Gold, 2018c)	Discussion regarding automated application of magnetic declination correction in database, rather than in the downhole survey tools.
July 2017 to March 2018	0.6%	downhole surveys (Capstone Gold, 2018b)	Reminded team of requirement to save all downhole survey backups.
January to July 2017	0.6%	collar surveys (Capstone Gold, 2017c)	Implemented 100% check on collar data at close of drilling campaign.

April to December 2016	0.3%	downhole survey (Capstone Gold, 2017b)	None taken.
March 2015 to March 2016	2.6%	4% error rate in downhole survey; 1 error in assay (Capstone Gold, 2016b)	Switched to downloadable Reflex tool.
Re-Built Database 2004-2014	0.3%	1.2% error rate for lithology; 1.5% error rate in downhole survey (Capstone Gold, 2015b-d)	Added lithological core logging data entry object to <i>acQuire</i> ; new workflow required saving of all downhole survey backups.

As noted in Table 12-1, the error rate for the data imported into the newly built *acQuire* database was 0.3% overall, with all errors limited to downhole survey at 1.5% and a new lithology check at 1.5%. To resolve the source of these errors, use of a downloadable *Reflex* downhole survey tool and a data entry object for lithological core logging were established.

Internal verification of drillhole data imported into the *acQuire* database has been completed annually since 2015 and documented in memoranda accessible to all of Capstone's intranet users. A minimum of 10% of surveyed collar coordinates, downhole survey data and analytical values are checked against original source records. As no other source records exist, data entered directly into *acQuire*'s user interfaces, such as lithology, RQD and bulk density are not verified using this method. Functions such as pick-lists and acceptable value ranges set in the *acQuire* data entry object control error for these parameters.

All errors found were corrected immediately and the dataset used for resource estimation included the corrected values.

### 12.1.2 Past Drillhole Database

In 2014, audits of the former dataset collected in spreadsheets revealed an unacceptable error rate greater than the typical industry standard of less than 1%. The April 2014 internal audit demonstrated an error rate of 7.8% for assays checked against the ALS laboratory issued certificates across a random selection of 8% of the assay dataset. A further check by LGGC in May 2014 on 10% of the assays focused on drillholes within areas of Indicated and Inferred Mineral Resources (LGGC, 2014a). Collar location data, downhole survey measurements, and assay values were all checked. No errors were found during the audit of the collar data, the assay error rate was 6.4% for downhole survey data (most errors were decimal values or resulted missing source files) and 2% for assays (typically Zn and Pb switches). In June 2014, an internal audit on 92% of the drillhole database collars, downhole surveys and assays further demonstrated error rates of 2.4%, 1.4% and 3.4%, respectively. The data was considered adequate to support Indicated and Inferred classification of Mineral Resources after corrective actions were completed.

## 12.2 Verification of Inputs into Mineral Resource Estimate

Clay Craig, P.Eng. has performed nine site visits to Cozamin between 2020 and 2022. The visits included several underground tours of development headings as well as an inspection of the

surface core logging, sampling and storage areas. The site visits also included an inspection of the property, offices, underground vein exposures, core storage facilities, tailings dam and tour of areas affected by the mining operation.

The tour of the offices showed a clean, well-organized, professional environment. On-site staff led the author through the chain of custody and methods used at each stage of the logging and sampling process. All methods and processes are to industry standards and reflect best practices, and no issues were identified. The core is accessible and stored in covered racks.

The author inspected four drillholes from the database that were laid out at the core storage area. Site staff supplied the logs and assay sheets for verification against the core and the logged intervals and no issues were identified.

The author is confident that the data and results used to support Mineral Resource estimates are valid based on the site visit and inspection of all aspects of the project. This included methods and procedures used, as well as review of QA/QC results for drilling that supports the Mineral Resource. It is the opinion of the author that all work, procedures, and results have adhered to best practices and industry standards required by NI 43-101. No duplicate samples were taken during the site visit to verify assay results as Cozamin is an operating mine and ongoing QA/QC and block model reconciliation are performed constantly and consistently, however there were no limitations on the author with respect to verification. In addition, there were no limitations with respect to validating the physical data or computer-based data.

The data verification process did not identify any material issues with the Cozamin sample/assay data. The author is satisfied that the assay data is of suitable quality to be used as the basis for this resource estimate.

The author supervised the preceding Mineral Resource estimates for the MNFW zones so no separate data verification was necessary. The MNV Mineral Resource estimate was performed by Capstone personnel which were validated by the author by creating and calculating verification models independent of those supplied. The results showed excellent agreement.

Operational information including mine plans, scheduling, performance, costs, condition of the mining fleet, geotechnical protocols, dilution and ore loss were verified. The Mineral Resource models supporting the Mineral Reserves were compared to drilling, grade control sampling and an evaluation of monthly and annual reconciliations. The Mineral Resource models provided and other data was confirmed as acceptable for use in Mineral Reserve estimation.

Clay Craig, P.Eng., considers the dataset appropriately validated and verified, and adequate for Mineral Resource estimation.

## **12.3 Verification of Mineral Processing and Metallurgical Testing Data**

QP Peter Amelunxen, P.Eng., reviewed the results of the calibration exercise performed over 2 operating days at the Cozamin mill. During the calibration period, laboratory tests on feed samples

were compared to the mill performance, resulting in a calibration factor that has been incorporated into the metallurgical forecast models. The results are described in body of this Report.

The testing laboratory also conducts routine QAQC exercises on its analytical laboratory using round-robin work with a large number of peer laboratories. The assays obtained in this study are routinely checked against expected assays from past analyses of the same samples conducted by Cozamin. To date checks have been consistently good between the two assay sources.

## **12.4 Verification of Inputs into Mineral Reserve Estimate**

QP Clay Craig, P.Eng., worked with Cozamin remotely from 2020 through 2022, with nine visits to site during that time. Underground workings were routinely visited as part of the site visits. Operational information including mine plans, scheduling, performance, costs, condition of the mining fleet, geotechnical protocols, dilution and ore loss were verified. The Mineral Resource models supporting the Mineral Reserves were compared to drilling, grade control sampling and an evaluation of monthly and annual reconciliations. The Mineral Resource models provided and other data was confirmed as adequate for use in Mineral Reserve estimation for this Report.

## **12.5 Verification of Considerations for Geotechnical Factors**

QP Ali Jalbout, P.Eng., carried out geotechnical inspections of the Cozamin underground workings on two occasions including most recently in February 2023. During the site visits, general geotechnical assessments, including underground visits, review of ground support standards and performance, and QAQC of support installation were completed, and assessments of mine standards for working in bursting ground conditions.

## **12.6 Verification of Factors Influencing Recovery**

QP Peter Amelunxen, P.Eng. visited Cozamin in September 2022. Verification of the source data for work described in Section 17 and resulting recommendations is based on review of mill operating data, observation of process circuits and equipment in operation and the resulting realized concentrate sales.

## **12.7 Environmental, Regulatory and Social or Community Data Verification**

Several verification procedures were applied to the information available for the Cozamin Mine to confirm the validity and accuracy of these data for inclusion in Chapter 20 of this Technical Report.

The QP, Jenna Hardy, P.Geo., was given full and transparent access to available data, has visited the operation for field verification inspections numerous times since 2005 in conjunction with ongoing environmental and regulatory work at Cozamin, and has reviewed in detail the site reclamation and closure plan and its costing on an annual basis since 2014. She has conducted site visits in relation to Chapter 20 reporting for previous Technical Reports for the Cozamin Mine since 2007; the date of the most recent site visit is shown in Table 2-2.

These site visits and prior technical reports spanned the original acquisition and early feasibility phases as the project was readied for renewed production and its subsequent expansions. Reviews with operations personnel (particularly the team responsible for site environmental and regulatory management) established information on past work and results, and verified the procedures used to collect, record, store and analyze historical and current environmental and regulatory data. During each site visit the environmental and social management of the mine operation was reviewed, key project areas were physically visited in the field to verify reporting of conditions, conclusions and recommendations made.

Specifically for the review of the permitting and environmental baseline work in Section 20, the QP examined representative documentation available (both physically in print copies and electronically) including baseline and feasibility studies, permits, permit applications and regulatory authorizations, reports of regulatory site visits and inspections, and annual and semi-annual reports submitted by Capstone to its regulators. The review included documents generated by Capstone, its regulators, and by its in-country and international environmental consultants. Written summaries of certain of the most recent meetings with regulators prepared by Capstone which were not otherwise recorded were also reviewed. Follow-up information was also provided directly by Cozamin operational management (both on site interviews/discussions and as follow up emails/telephone calls) to confirm the current environmental and regulatory status.

Capstone has established internal controls and procedures to manage the environmental, regulatory and social or community aspects for Cozamin mining operations and on-site exploration programs which follow mining industry standard approaches, as well as Mexican environmental regulations, regulatory guidelines and best practices recommended for holders of Mexican Clean Industry Certifications. These are periodically reviewed by operational and corporate management for their effectiveness in a corporate culture which follows the principle of continuous improvement. These are considered by the QP to be supportive of the data verification process in these areas.

The QP, who relies on this work, considered the above from the perspectives of consistency and integrity of the data contained, and discussed the summary and conclusions of these documents with the site environmental and operational management teams to understand the implications of the conclusions and recommendations for follow up actions which have been, and are being, implemented. The above considerations support the written summary of information included in Section 20 of this Report.

The QP is of the opinion that a reasonable level of verification has been completed and that no material issues would have been left unidentified from the programs undertaken which are not described in this report. In reaching this opinion, the QP has also relied upon the work of other subject matter experts in the specific project areas in support of this Report. Data review and verification undertaken with respect to the environmental and regulatory aspects of the Cozamin Mine operation and closure adequately support the summary, conclusions and recommendations presented in this Technical Report in these areas.

## **13 Mineral Processing and Metallurgical Testing**

### **13.1 Introduction**

Mr. Peter Amelunxen, Vice President of Technical Services at Capstone Copper Corp. is the Qualified person for mineral Processing and metallurgical testing. He last visited and toured the mill in September 2022, and has been in contact with the mill personnel regularly since then.

Various historical test programs have been conducted on samples representing the Cozamin ores, many of which are not relevant to the current mine plan and mill configuration. Metallurgical test work in support of the original plant design included bulk ore characterization, mineralogy, hardness testing (Bond Work Index), flotation testing, and dewatering testing.

Laboratory test work was performed on a selection of samples taken from the San Rafael and V10SE zones in the Cozamin resource. These lead-zinc rich zones are being included in the mine plan for later in the life of the project. Samples selected for metallurgical testing during feasibility and development studies were representative of the various styles of mineralization within the different deposits. Samples were selected from a range of locations within the deposits. Sufficient samples were taken, and tests were performed using sufficient sample mass for the respective tests undertaken.

Variability assessments are supported by production and extensive open pit and underground exposures.

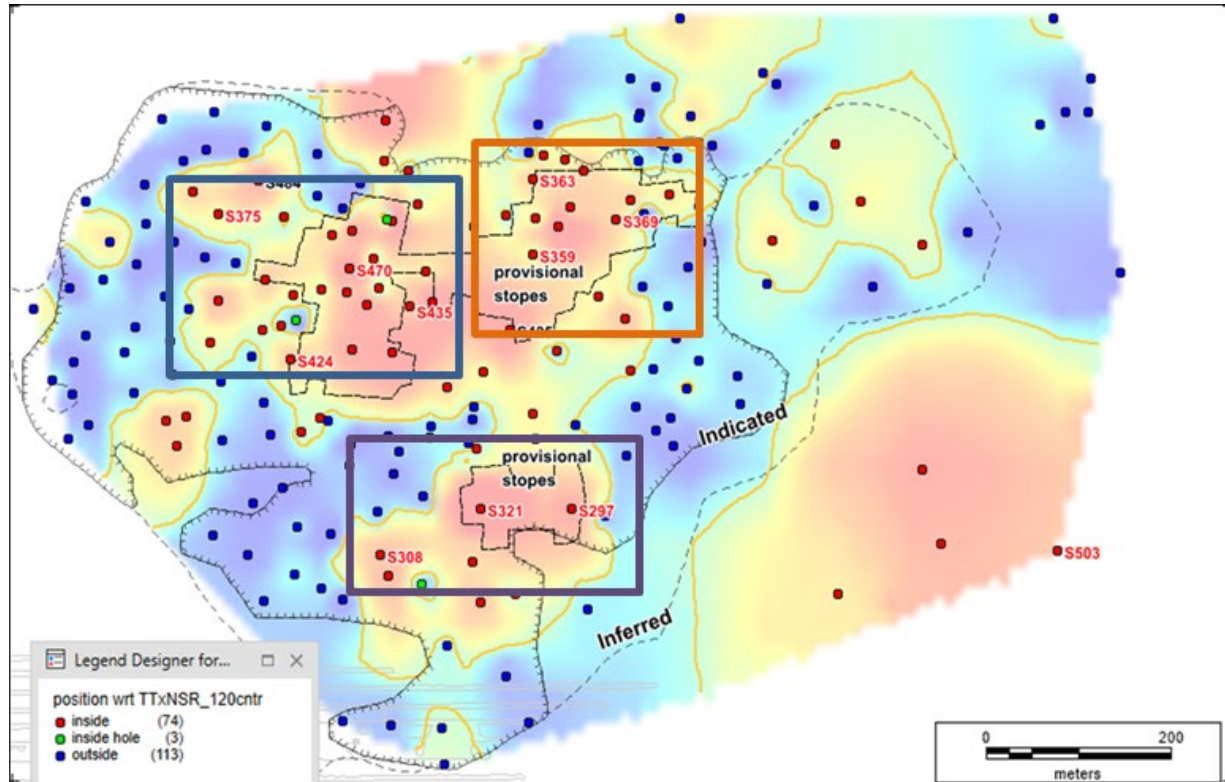
No significant deleterious elements are known from the processing perspective.

### **13.2 Testing of Future Lead-Zinc Ores**

#### **13.2.1 Samples**

Fourteen samples—four from the San Rafael deposit and ten from the V10SE—were shipped to Blue Coast Research Ltd in Parksville, BC, Canada for testing. The source of the V10SE samples is shown in Figure 13-1 below (Indicated and Inferred outlines on this figure have not been updated to reflect the limits that are current in this Technical Report). The view in this figure faces approximately Northeast.





**Figure 13-1: Long section of V10SE Vein with location of samples**

Source: Blue Coast, 2020

Note that the outlier S503 was included as a representation of a recently discovered and highly prospective extension of the V10SE zone. Two master composites were created, one from V10SE samples and one San Rafael samples. Some samples were also tested independently to evaluate the variability of the metallurgical deportment.

### 13.2.2 Ore hardness

A Bond Ball Mill Work Index test was run on the V10SE master composite. This sample, tested to a closing screen size of 212  $\mu\text{m}$  (versus a plant grind of between 200 and 230  $\mu\text{m}$ ), was moderately hard at 15.2 kWh/tonne – however, this is softer than recent work index numbers obtained from V10 and San Rafael samples and 20% softer than the 18.5 kWh/tonne measured on a sample of mill feed, taken when the mill processed an average of 4,053 metric tonnes per day during the two days. Accordingly, based on the composite sample tested it can be expected that mill grinding capacity will be sufficient for the processing of V10SE material.

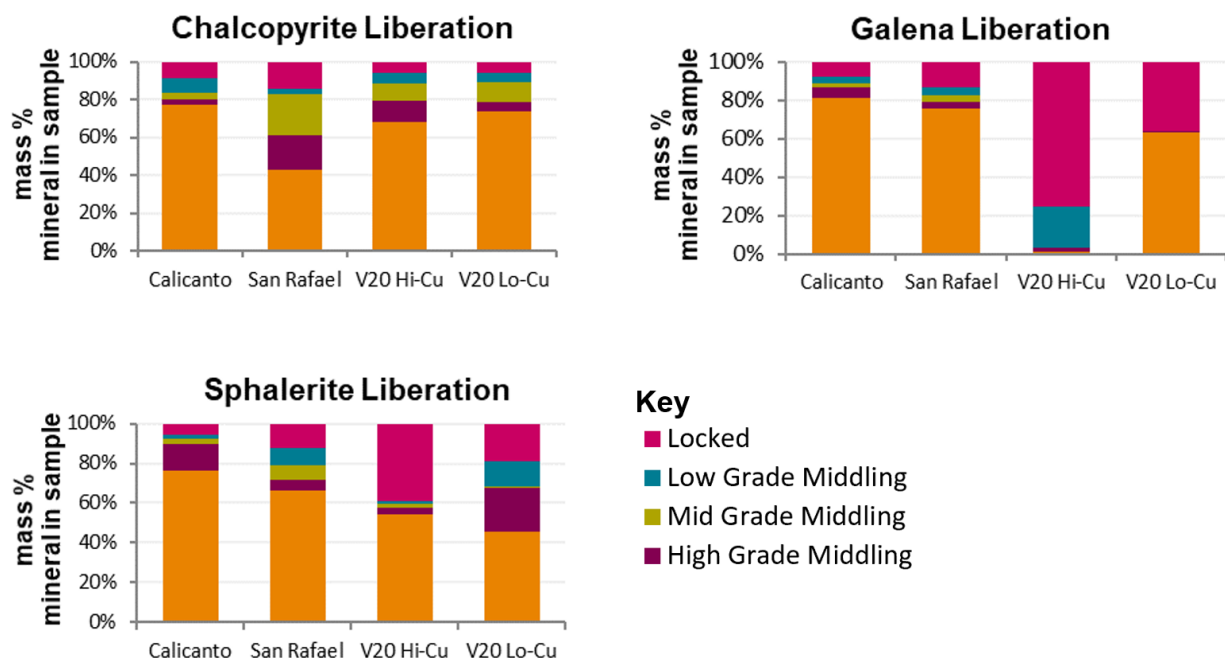
## 13.3 Mineralogy

The bulk modal mineralogy of the San Rafael and V10SE master composites is shown below, compared with high and low grade V20 Cu ores (Table 13-1). Copper, lead and zinc are all present solely as chalcopyrite, galena and sphalerite respectively.

**Table 13-1: Modal Mineralogy of V10SE, San Rafael and V20 Composites**

		V10SE	San Rafael	V20 Hi-Cu	V20 Lo-Cu
Mineral Mass (%)	Chalcopyrite	1.06	1.19	9.74	4.38
	Sphalerite	5.17	8.20	0.38	0.45
	Galena	2.80	0.70	0.02	0.10
	Pyrite	16.06	6.41	16.86	9.04
	Pyrrhotite	0.92	0.31	2.07	2.28
	As-Pyrite Cobaltite	0.43	0.35	0.07	0.13
	<i>Total Sulphides</i>	<i>26.43</i>	<i>17.14</i>	<i>29.14</i>	<i>16.38</i>
	Quartz	36.30	51.01	44.41	57.65
	Feldspar	19.14	7.40	8.84	9.79
	Micas	4.38	2.96	3.42	2.36
	Chlorite	7.48	13.13	5.57	7.62
	Serpentine	0.00	0.06	1.39	0.90
	Carbonates	5.02	7.10	4.85	3.68
	Fe-Oxide	0.23	0.32	1.03	0.69
	Other	1.02	0.88	1.34	0.92
	<i>Total NSG</i>	<i>73.57</i>	<i>82.86</i>	<i>70.86</i>	<i>83.62</i>
	<i>Total</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>

V10SE contains coarse-grained sulphides, favourable for good metallurgy. San Rafael sulphides are less liberated than V10SE for the nominal plant grind size (Figure 13-2).


**Figure 13-2: Liberation of Key Sulphides at the P80 of 230 µm**

Source: Blue Coast, 2020

## 13.4 Flotation Testing

Laboratory tests were run on both V10SE and San Rafael master composites to establish a baseline metallurgical performance on both master composites and on the variability samples. Given the paucity of copper mineralisation in the two zones and the likelihood that they would be processed at least in part in the absence of any copper-rich mineralisation, no assumptions could be made on reagent effects based on past milling experience at Cozamin (which has always been focused on Cu-rich ores). Accordingly, a factorial-designed test program was run to establish the basic rules of processing these lead-zinc resources. Results from this work show:

- Sequential Pb/Zn flotation can be consistently achieved (and Cu/Pb/Zn flotation when enough copper was present to allow for some flotation).
- Zinc sulphate and ammonium metabisulphite were needed to effect sequential Pb and Zn flotation. Higher doses of ammonium metabisulphite, relative to those typically used at Cozamin, were especially beneficial.
- In the absence of copper, the use of cyanide, even at modest doses, showed no benefit and actually reduced flotation kinetics and recoveries of all metals. At higher copper dosages, some cyanide was required.
- The current primary grind size was adequate, and regrinding was not needed to produce typical plant-grade concentrates at current nominal cleaner recoveries.

The basic flowsheet adopted to test the variability composites included grinding to a product size of 80% passing about 230 µm in the presence of lime, 1200 g/t ammonium metabisulphite and 250 g/t zinc sulphate. Copper flotation (where appropriate) employed Solvay AERO®3894 collector and Flottec F-150 frother. Lead flotation was achieved using Solvay Aerophine® 3418A and F-150 frother. Zinc flotation, conducted at pH 8.5-9.5 (adjusted with lime), used copper sulphate as an activator and AERO® 3894 as a collector. Cyanide was not used in any tests containing just V10SE or San Rafael materials, irrespective of copper grade. When the feed was blended with V20 feed, cyanide was used. Seven V10SE variability samples were tested, plus two from San Rafael. The data shown in the tables below also include previous work on a mix of holes 262 and 266 in the San Rafael resource.

In addition, a 50:50 blend of San Rafael and V10SE materials was tested to examine if the metallurgy of the blended feed amounted to the sum of the individual parts. Different proportions of copper feeds were mixed with this V10SE / San Rafael blend for the same reason. The head grades are shown below in Table 13-2. They vary widely, copper assaying from 0.06% to 0.98%, lead from 0.30% to 7.7% and zinc from 1.29% to 10.87%. Accordingly, no single treatment scheme could apply to all the samples and typically two tests were required on each of the variability samples to achieve some degree of optimisation in each case.

**Table 13-2: Head Assays of Tested Composites**

Sample	Head Assays
--------	-------------

	Ag (g/t)	Cu (%)		Pb (%)	Zn (%)
CAL-VAR-1	30	0.71	2.49	2.35	
CAL-VAR-2	57		0.98	2.81	2.92
CAL-VAR-3	35		0.12	3.74	3.43
CAL-VAR-4	60		0.05	2.28	1.29
CAL-VAR-5	166		0.06	2.42	2.33
CAL-VAR-6	21		0.06	1.29	4.63
CAL-VAR-7	56		0.32	7.72	10.87
SR-VAR-1	76		0.37	0.88	5.76
SR-VAR-2	33		0.36	0.30	2.59
SR-262/266	66		0.49	1.64	4.50
SRCC-50/50 Comp	57		0.36	1.70	3.43
V20(50)-SRCC(50)	47		0.96	0.84	1.80
V20(35)-SRCC(65)	52		0.79	1.02	2.39
V20(25)-SRCC(75)	55		0.66	1.26	2.73

Table Notes: CAL refers to V10SE and SR to San Rafael

Only batch flotation was employed, and little focus was applied to optimising concentrate grades. Past work reported in previous technical reports has demonstrated that the mill, equipped with extensive column cleaner flotation capacity, routinely outperforms laboratory mechanical batch test methodologies. Therefore, only evidence of selective upgrading typical of past test work, was sought from the different samples to the different concentrates. Copper flotation was only employed on samples assaying over 0.3% copper in the feed. The V10SE and San Rafael variability composites floated 55-62% of the copper to the copper concentrate. When blended together, recoveries were higher at 66-68% in repeat tests perhaps suggesting that, given the batch test residence times selected for this test program, the chosen flowsheet may work better for the blended feed than individual ores (though the difference may not be statistically significant).

Lead flotation from all but one of the V10SE samples was highly effective, with batch recoveries above 90%. Galena from San Rafael floated somewhat less well but results are typical of what has been seen before. Zinc flotation was also effective with batch recoveries in the high 80's percent in most samples. Concentrate grades were typically over 20% for copper, 30-60% for lead and usually over 40% for zinc (Table 13-3).

**Table 13-3: Key Metallurgical Results from Variability and Blend Testing**

Copper Flotation Sample	Test	Assays				% Distribution			
		Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Ag	Cu	Pb	Zn
CAL-VAR-1	F-43	270	23.8	2.3	6.6	17	62	2	5
CAL-VAR-2	F-44	353	17.0	2.2	2.5	20	57	3	3
CAL-VAR-7	F-58	420	18.9	10.0	12.1	6	50	1	1
SR-VAR-1	F-50	1504	22.1	5.3	7.3	19	57	6	1
SR-VAR-2	F-66	830	23.3	0.7	7.1	21	55	2	2
SRCC-50/50 Comp	F-29	1105	22.5	1.4	5.4	20	66	1	2
V20(50)-SRCC(50)	F-40	554	24.8	0.5	2.1	41	89	2	4
V20(35)-SRCC(65)	F-41	675	24.2	0.7	3.2	36	84	2	4
V20(25)-SRCC(75)	F-42	753	24.1	0.8	3.6	32	84	1	3

Lead Flotation Sample	Test	Assays				% Distribution			
		Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Ag	Cu	Pb	Zn
CAL-VAR-1	F-43	268	2.7	38.4	5.0	54	23	91	13
CAL-VAR-2	F-44	325	3.2	29.8	1.4	42	24	78	3
CAL-VAR-3	F-52	423	1.0	58.2	5.7	72	52	93	10
CAL-VAR-4	F-63	478	0.5	36.2	2.5	47	54	94	11
CAL-VAR-5	F-56	2094	0.6	49.2	3.4	58	48	93	7
CAL-VAR-6	F-57	305	1.2	42.5	6.3	39	52	90	4
CAL-VAR-7	F-58	358	2.1	61.1	7.0	77	79	95	8
SR-VAR-1	F-50	1691	2.7	35.0	12.6	43	14	76	4
SR-VAR-2	F-66	839	4.2	21.4	7.6	28	13	79	3
SR-262/266	F-2179	1128	1.1	58.9	7.3	41	6	87	4
SRCC-50/50 Comp	F-29	787	1.5	50.1	4.2	42	12	89	4
V20(50)-SRCC(50)	F-40	412	1.2	19.2	2.7	34	5	89	6
V20(35)-SRCC(65)	F-41	533	1.8	26.9	3.0	34	8	88	4
V20(25)-SRCC(75)	F-42	586	1.2	31.1	3.4	39	7	91	5
Zinc Flotation Sample	Test	Assays				% Distribution			
		Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Ag	Cu	Pb	Zn
CAL-VAR-1	F-43	25	0.3	0.8	46.9	3	2	1	73
CAL-VAR-2	F-44	50	0.5	4.1	44.2	5	3	8	85
CAL-VAR-3	F-52	67	0.6	1.1	37.7	15	37	2	85
CAL-VAR-4	F-63	89	0.4	1.3	41.5	4	19	1	78
CAL-VAR-5	F-56	153	0.4	0.6	41.7	5	36	1	89
CAL-VAR-6	F-57	19	0.2	0.2	42.8	9	38	2	90
CAL-VAR-7	F-58	17	0.1	0.2	33.1	8	13	1	86
SR-VAR-1	F-50	76	0.3	0.2	38.7	12	11	3	83
SR-VAR-2	F-66	45	0.3	0.2	40.6	7	4	3	77
SR-262/266	F-2179	99	1.7	0.8	43.6	12	29	4	80
SRCC-50/50 Comp	F-29	54	0.3	0.2	44.3	6	6	1	80
V20(50)-SRCC(50)	F-40	49	0.3	0.3	39.2	4	1	1	78
V20(35)-SRCC(65)	F-41	53	0.3	0.2	42.7	5	2	1	80
V20(25)-SRCC(75)	F-42	54	0.3	0.2	42.1	5	2	1	78

Table Notes: CAL refers to V10SE and SR to San Rafael

The recovery of silver to copper concentrates from Cu-bearing V10SE and San Rafael samples was limited to 20%, but this rose when the feed was blended with copper-rich V20 ores. More silver was recovered to the lead concentrate, often rendering this (by value) a silver concentrate. Little silver floated to the zinc concentrates.

## 13.5 Metallurgical Parameters for Resource Estimations

The metallurgical forecast for V20 copper ores are unchanged; they are described below.

### 13.5.1 Metallurgical Parameters for V20

For the most part, the metallurgical data on future-mined material as described above coincided with current mined material of the same metal head grades. There is a risk of poorer zinc recoveries, however copper and silver recoveries appear to track the trends of past mill performance well. For the sake of resource calculations, the use of current mill data to directly predict future copper metallurgy is considered logical and defensible, however an element of conservatism was added to the forecasted zinc metallurgy reflecting what could be more challenging zinc metallurgy in the future.

### **13.5.1.1 Copper**

Copper recovery is primarily linked to copper head grade, however the presence of zinc has an adverse effect on copper recovery owing to the need to depress zinc from the copper concentrate and the resulting slight depressing effect on copper. The algorithm used is therefore a function of copper and zinc head grades:

$$\text{Copper recovery} = 0.05472 \times \ln [\text{Cu head grade}] - 0.8902 \times \text{Zn grade} + 1.1777$$

Copper recovery is assumed to reach a ceiling of 96.5% at 2.1% copper, so recoveries are fixed at this number for very high-grade feed materials.

Copper concentrate grade is also linked to copper head grade, by the formula:

$$\text{Copper concentrate grade} = 2.2383 \times \text{copper feed grade} + 0.2215$$

### **13.5.1.2 Lead**

The lead recovery algorithm, linked to lead head grade, was taken directly from 2018 daily mill performance:

If Pb head grade < 0.1%: *Lead recovery* = 0

If Pb head grade ≥ 0.1%: *Lead recovery* = Minimum of {0.1926 x ln (lead head grade) + 1.6055} or {70%}

The lead flotation circuit operates with a lower grade limit of 0.1%. Lead recovery is capped at 70%.

The lead concentrate grade algorithm is similarly linked to lead grade:

$$\text{Lead concentrate grade} = 0.0767 \times \ln (\text{lead head grade}) + 1.0536$$

### **13.5.1.3 Zinc**

Zinc recovery is linked with zinc head grade. Review of the mill performance data for 2018 revealed that the sensitivity of zinc recovery to head grade was greater for low grade samples and lesser for high grade samples, leading to creation of an algorithm containing two components. Further, immediately prior to preparing the forecast, the mill was experiencing particularly poor metallurgy on a mix of feeds deemed to be representative of near future production. This combined with the somewhat poor zinc metallurgy from the laboratory program on future ores led to the creation of a somewhat conservative set of recovery algorithms for resource estimation.

If Zn head grade > 0.3%: *Zinc recovery* = 0

If Zn head grade ≥ 0.3% and <0.7%: *Zinc recovery* = 50.2000 x zinc head grade + 0.2254

If Zn head grade >0.7%: *Zinc recovery* = Minimum of {7.4849 x zinc head grade + 0.5297} or {75%}



Zinc concentrate is assumed to be constant at 47.3%

#### 13.5.1.4 Silver

The recovery of silver is linked to the copper head grade:

$$\text{Silver recovery} = \text{Minimum of } \{9.8313 \times \text{copper head grade} + 0.5942\} \text{ or } \{85\}\%$$

The silver recovery is capped at 85%.

### 13.5.2 Metallurgical Parameters for San Rafael Vein and V10SE

The parameters described below are for San Rafael and V10SE when processed in isolation. Blending test work has shown that the metallurgical responses between the three ore sources when blended are additive.

#### 13.5.2.1 Copper

No copper flotation is assumed for head grades below 0.3% copper as it is doubtful that a saleable concentrate could be produced at such low head grades.

For mill head grades above 0.3% copper, no algorithm could be established based on the data available for either V10SE or San Rafael, so copper flotation recovery to the copper concentrate is assumed to be the average from the lab test work (V10SE: 63.2%; San Rafael: 59.4%). Similarly, for silver, single point recovery projections have been assumed (V10SE: 16.2%; San Rafael: 20.1%).

The copper concentrate is expected to assay 26% copper.

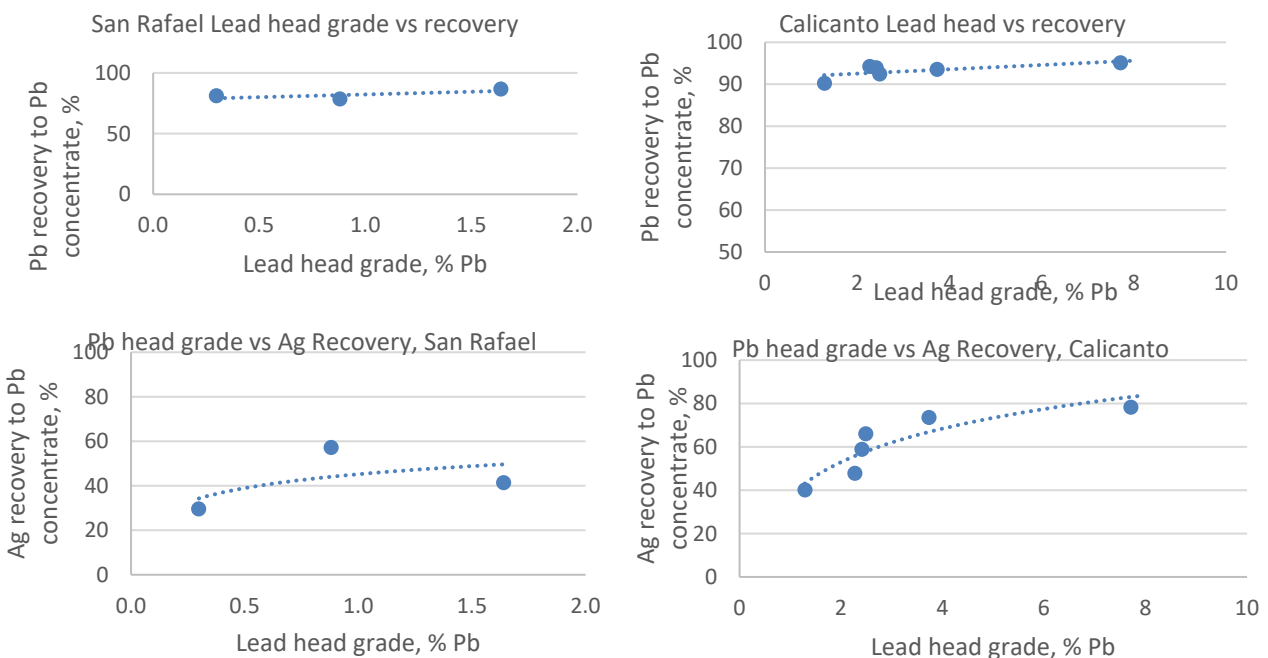
### 13.5.3 Lead and Silver Recovery to Lead Concentrate

As with copper, for both San Rafael and V10SE, where the feed grade is less than 0.3% lead, it is doubtful that an effective lead flotation circuit can be operated, so the algorithms only apply at grades above 0.3% lead. Where a lead concentrate can be made, lead and silver flotation recoveries to the lead concentrates show a connection with lead head grades (Figure 13-3). The data in Table 13-4 was used to create algorithms to predict lead and silver recoveries to the lead concentrate.

**Table 13-4: Forecast Algorithms: Lead and Silver Recovery to Lead Concentrate**

Lead Recovery		
Resource Area	Range of Lead Head Grades	Algorithm
V10SE	<0.3%	0
V10SE	0.3-8%	$(11.2 \times \text{Pb \%} - 0.3) / 0.71 + 81.0$
V10SE	>8%	95.6
San Rafael	<0.3%	0
San Rafael	0.3-2%	$\text{Pb \%} \times 4.46 + 77.8$
San Rafael	>2%	86.7

Silver Recovery		
Resource Area	Range of Lead Head Grades	Algorithm
V10SE	<0.3%	0
V10SE	0.3-8%	$(100 - \text{AgRecCuCon\%}) * (22.3 * \text{LN (Pb \%)} + 37.5)$
V10SE	>8%	$(100 - \text{AgRecCuCon\%}) * 83.8$
San Rafael	<0.3%	0
San Rafael	0.3-2%	$(100 - \text{AgRecCuCon\%}) * (9.0 * \text{LN (Pb \%)} + 45.2)$
San Rafael	>2%	$(100 - \text{AgRecCuCon\%}) * 51.4$



**Figure 13-3: Lead and Silver Recovery to the Lead Concentrate**

Source: Blue Coast, 2020

The lead concentrate is expected to assay 55% lead.

### 13.5.3.1 Zinc and Silver Recovery to Zinc Concentrate

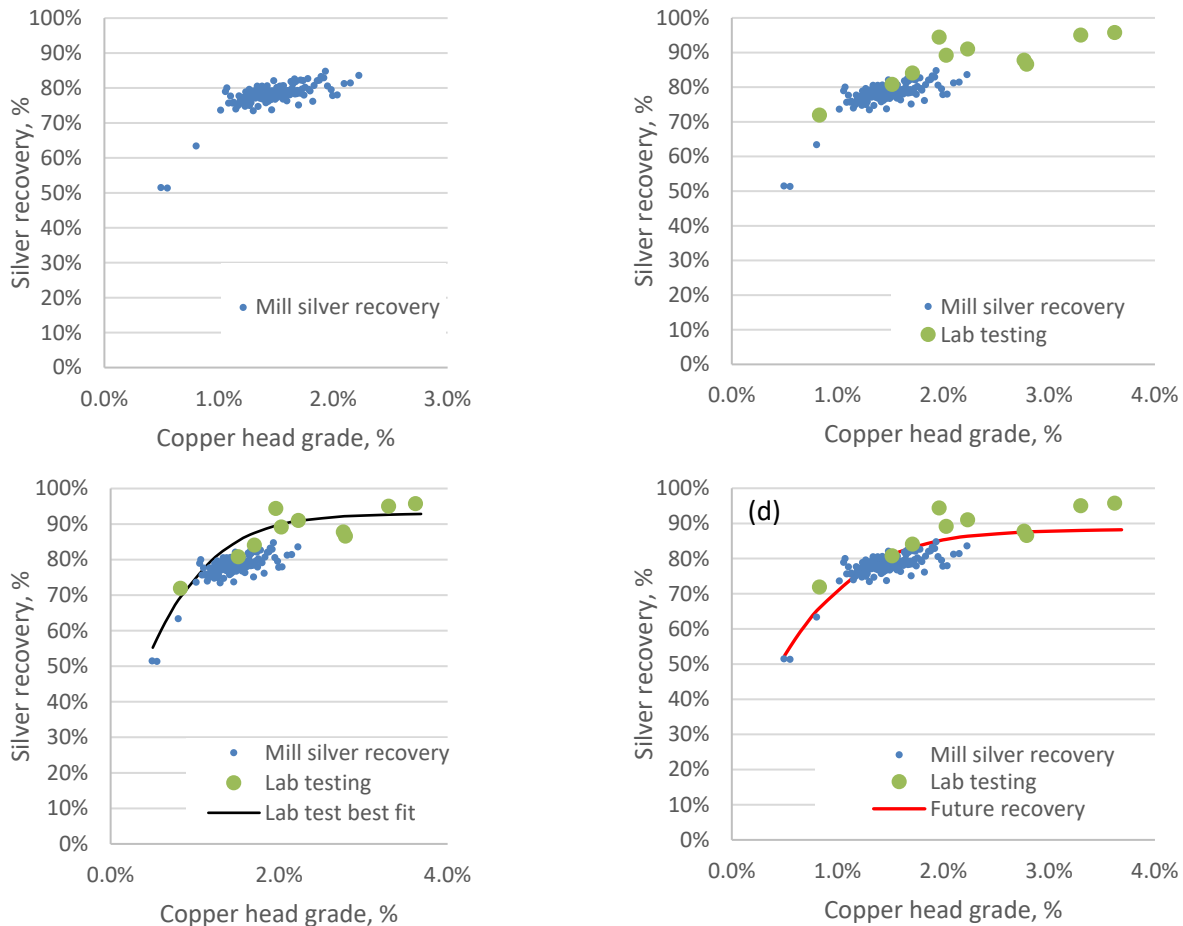
The limited data suggest zinc recovery to the zinc concentrate is linked to zinc head grade (Figure 13-4). Silver recovery (based on the zinc circuit feed) shows no clear relationship with any head grade; it has been fixed at 18% for V10SE and 27% for San Rafael.

Algorithms for zinc and silver recovery to the zinc concentrate are shown in Table 5. Both the lab data and probe data on the sphalerite point to concentrate grades consistent with past performance (46% zinc).

**Table 13-5: Forecast Algorithms: Zinc and Silver recovery to Zinc Concentrate**

Zinc Recovery		
Resource Area	Range of Zinc Head Grades	Algorithm
V10SE	<0.3%	0
V10SE	0.3-5%	$(\text{Zn \%} \times 2.76) + 78.5$
V10SE	>5%	92.3
San Rafael	<0.3%	0
San Rafael	0.3-2%	$(\text{Zn \%} \times 3.59) + 64.9$
San Rafael	>2%	86.4

Silver Recovery		
Resource Area	Range of Zinc Head Grades	Algorithm
V10SE	<0.3%	0
V10SE	>0.3%	$(100 - \text{AgRecCuCon\%} - \text{AgRecPbCon\%}) * 18$
San Rafael	<0.3%	0
San Rafael	>0.3%	$(100 - \text{AgRecCuCon\%} - \text{AgRecPbCon\%}) * 27$



**Figure 13-4: Zinc and Silver Recovery to the Zinc Concentrate**  
Source: Blue Coast, 2020

## 13.6 Recommendations

It is recommended that, as the time approaches to mine the Pb/Zn ores in the MNFWZ, more test work is conducted to better evaluate the effect of blending copper with Pb/Zn ores. This work could be conducted in house or in a commercial laboratory. If the latter, the cost will likely be in the order of US \$80,000.

## 14 Mineral Resource Estimates

At the Cozamin Mine, the Mineral Resource is estimated within the MNV and MNFWZ, a mineralized splay off the Mala Noche fault that contains the MNV. MNV comprises the mineralized zones San Roberto (“SROB”), San Roberto Zinc (“SROB-Zn”) and San Rafael. Capstone commenced production from SROB in 2006, produced from San Rafael from 2006 to 2009 and recommenced in February 2018, commenced production from the MNFWZ in 2010 and from SROB-Zn in early 2018. Most production since 2018 takes place in MNFWZ.

In March 2009, Capstone completed a Mineral Resource estimate for the SROB and San Rafael zones under the supervision of Robert Sim, P.Geol., of Sim Geological Inc. (SGI). Findings of this Mineral Resource estimate were summarized in a NI 43-101 Technical Report (SRK, 2009). In December 2009, the San Rafael zone was again updated by SGI to reflect additional exploration and infill drilling.

SROB and MNFWZ were updated, respectively in November 2012 and February 2013, as two separate Mineral Resource models by Ali Shahkar, P.Eng., of Lions Gate Geological Consulting Inc. (Shahkar, 2013). After completion of the 2013 drilling campaign, which focused on infilling and delineation of additional resources in SROB and MNFWZ, Capstone commissioned LGGC in January 2014 to combine and update the mineral resource models of these two zones.

MNV was the subject of two further internal Mineral Resource estimate updates. The June 2016 update (Capstone, 2016) included 18 infill drillholes at San Roberto. An interim update in February 2017 targeted zinc-rich zones with eight infill holes at SROB-Zn and 14 infill drillholes at San Rafael. The San Roberto zone was separated into the SROB and SROB-Zn mineralization domains (Capstone, 2018a).

The MNV Mineral Resource estimate, comprising the SROB, SROB-Zn and San Rafael zones, was updated effective July 2017, incorporating 27 HQ infill drillholes completed between February 2017 and July 2017, and 60 underground BQ drillholes completed between March 2016 and July 2017 featuring whole core sampling. Further, 28 drillholes were omitted where the vein intercepts did not reasonably fit and there was a concern over spatial data (12), azimuths were sub-parallel to mineralization domains (4), absent logging or sampling information (5) or twinned drillholes (6); nine of the omitted drillholes were rejected in previous mineral resource estimations (Capstone, 2018a).

In 2018, Capstone commissioned Garth Kirkham, P.Geol., of Kirkham Geosystems Ltd. to incorporate new data, models and understandings into the MNFWZ resource estimates. Although interim estimates and models were performed by Capstone internally, which is to be expected considering that Cozamin is an operating mine, none of those internal, not materially different estimates were published in the public domain. In addition, Kirkham Geosystems Ltd. was tasked with updating the MNV Resources reporting to align with current pricing and updated NSR formulae. A Technical Report covering the initial 2018 Resource update was published in July 2018, with an effective date of March 31, 2018. The MNV and MNFW Mineral Resources were then updated effective October 24, 2018.

In 2020, Kirkham Geosystems Ltd. updated the MNFWZ Resource estimate with additional drilling, updated models, revised NSR calculations reflecting new concentrate contracts and metallurgical recoveries and the selection of cut-off grade to reflect current metal prices and mine operating costs to April 2020. Kirkham Geosystems Ltd. updated the MNV Resources reporting using the updated NSR formula. The Resource update was published in a Technical Report effective April 30, 2020.

In 2021, Kirkham Geosystems Ltd. again updated the MNFWZ Resource estimate with additional drilling, updated geological models, revised NSR calculations reflecting new metallurgical studies and concentrate contracts to the end of October 2020, and updated the MNV Resources reporting using the updated NSR formulae.

In 2022, Capstone's Clay Craig, P.Eng., Director, Mining and Strategic Planning, updated the MNFWZ Resource estimate with additional drilling, revised vein wireframes, length and SG weighted composites, updated modeling procedures and revised NSR formulae, along with updated MNV Resources reporting using the revised NSR formulae. This Resource update, effective January 1, 2023 is the subject of this Technical Report.

## **14.1 Modelling of MNV and MNFWZ**

Mineral Resource estimates for the MNV and the Mala Noche Footwall zones, using data from surface and underground DDHs are the subject of Section 14 of this report. The Mineral Resource estimates were built using the commercially available three-dimensional block modelling software, Leapfrog, Maptek Vulcan and MineSight.

### **14.1.1 Geological Modeling**

The drillhole desurveying method was set to the *balanced tangent algorithm* to be compatible with the *tangent* drillhole desurveying method used by Maptek Vulcan and MineSight. This option is accessed in the survey table in Leapfrog.

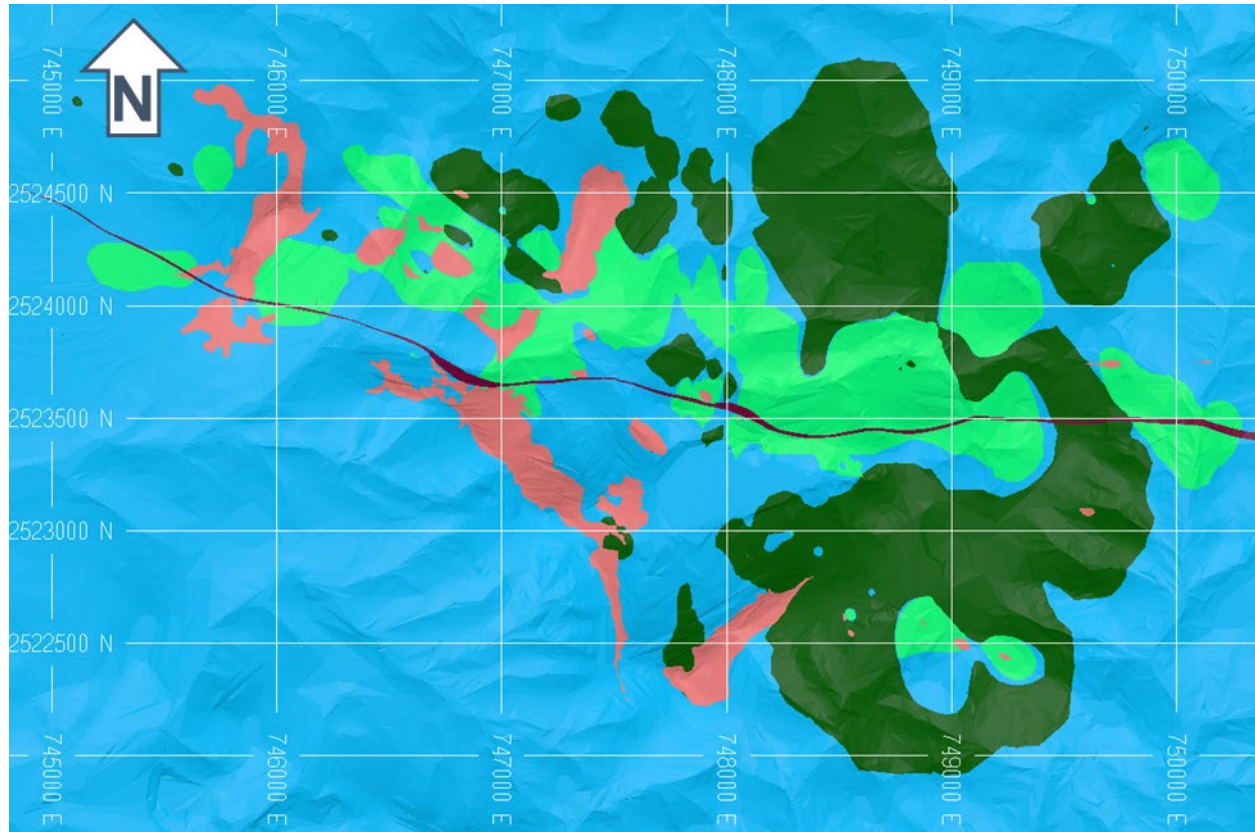
The internal validation tools provided in Leapfrog were used to complete a more thorough validation of the data. No errors were identified in the collar, survey, lithology or assay tables. In the density, mineralization, structure and geotech tables, zero-length intervals (point values) and overlapping intervals were identified. Corrections were addressed as part of the 2017 Mineral Resource estimate.

Strip logs of the drillholes were created to assist with the geological interpretation. These included geochemical, geological, mineralogical, structural and other data. Vein/mineralization contacts were more strongly defined using the strip log interpretation.

A revised lithological model was created due to redefinition and regrouping of lithological logging codes. A simplified lithological model was generated using *Leapfrog®* software to assist with exploration targeting and to provide lithological information for mine planning purposes. Four lithological units were modeled based on DDH logs and surface mapping including shale, andesite, diorite and rhyolite (Figure 14-1). Surface mapping was tied into the sub-surface models using polylines. It should be noted that post-mineral faulting and the absence of a marker



horizon complicated the creation of a robust stratigraphic model, however the models are considered adequate for the purpose created.



**Figure 1414-1: Plan view of modelled shale (grey-blue) displayed with the rhyolite (pink), andesite (light green), diorite (dark green), MNV (red)**  
Source: Capstone, 2020

### 14.1.2 Mineralization Modelling

Mineralization domains for the MNV and MNFWZ were constructed using *Leapfrog®* software. The vein system function was used allowing individual veins to be identified and assigned a priority to manage the relationship of multiple intersecting veins. This was done on a section by section basis using the interval selection tool by manually selecting categorical data from either lithology, structure or vein type. Alternatively, assay data was converted into NSR value ranges to define each individual vein domain. Core photos, DDH strip logs, level plans, and channel sampling were also used to assist in the process of defining the limits of the mineralization domains and polylines were used to help guide the location of the vein position locally. All vein boundary surfaces were manually edited to restrict their extents along strike, up dip and down dip. Finalized mineralized domains were then exported from *Leapfrog®* and imported into *Maptek™ Vulcan* and *MineSight®*.

#### 14.1.2.1 Mala Noche Zone

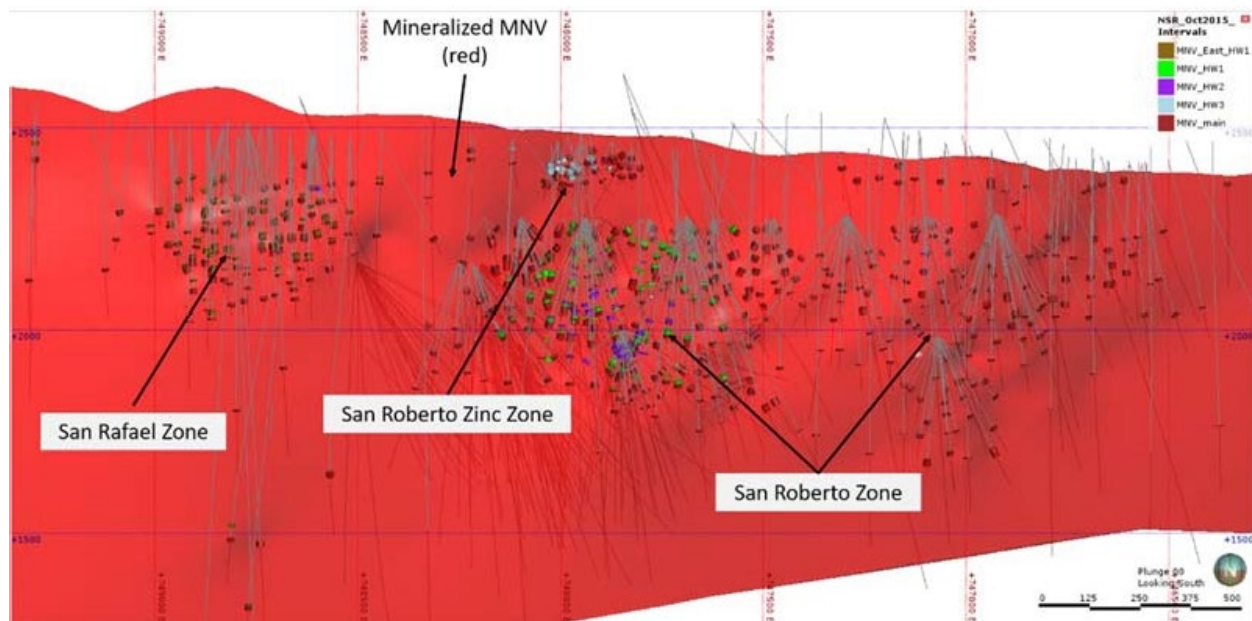
A total of five discrete veins were modelled in the MNV: MNV\_Main, MNV\_HW1, MNV\_HW2, MNV\_HW3 and MNV\_East\_HW1.

Table 14-1 shows the domains and corresponding volumes for each. The MNV\_Main was further subdivided into three sub-domains to spatially segregate high-grade mineralization from surrounding low-grade/unmineralized material. Also, all mineralization wireframes were trimmed against the lithological interpretation of the MNV to ensure mineralization was constrained within the MNV structure.

**Table 14-1: Mineralized Domains within MNV**

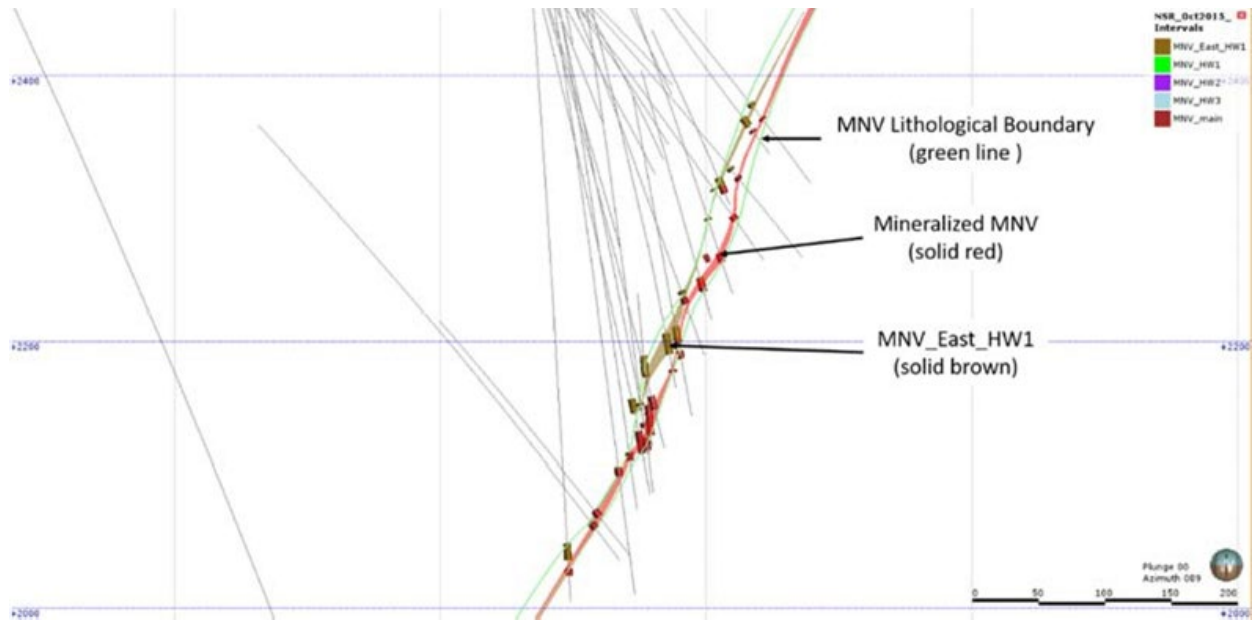
Domain Name	Volume (m <sup>3</sup> )
Main	29,249,252
HW1	318,849
HW2	143,060
HW3	68,396
East_HW1	365,364
<b>Total</b>	<b>30,114,921</b>

The MNV is shown in Figure 14-2 and Figure 14-3.



**Figure 14-2: Long section, looking south, of the mineralized MNV (red)**

Source: Capstone, 2020

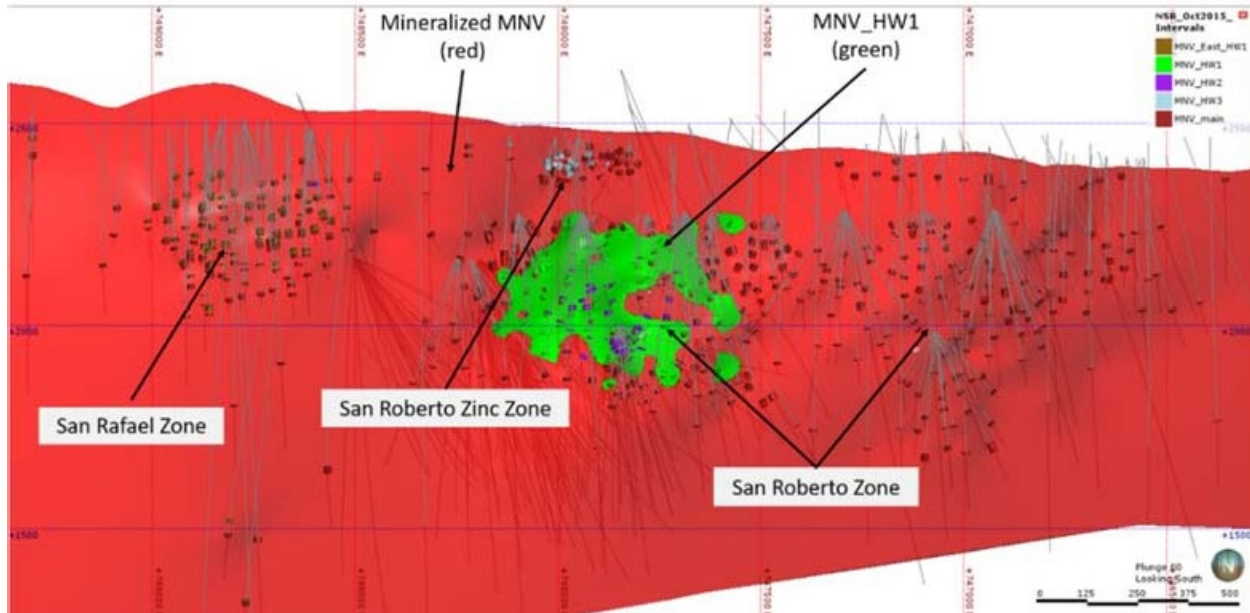


**Figure 14-3: Cross section (San Rafael Zone), looking east, illustrating MNV Main (dark red intercepts and red solid vein) and MNV\_East\_HW1 (brown intercepts and brown solid vein) within the lithological boundary (green line)**

Source: Capstone, 2020

The MNV\_HW1 is a hangingwall structure in the heart of SROB. It terminates against the hangingwall of MNV\_Main (Figure 14-4).

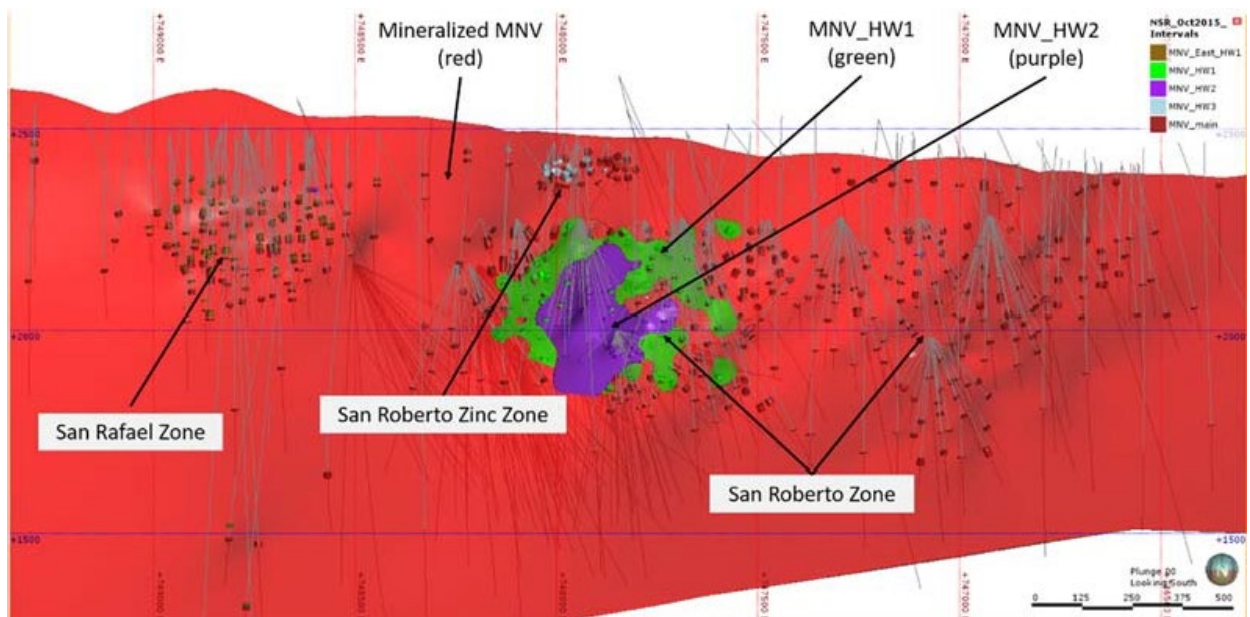




**Figure 14-4: Long section, looking south, of MNV\_HW1 (green) in relation to MNV (red)**

Source: Capstone, 2020

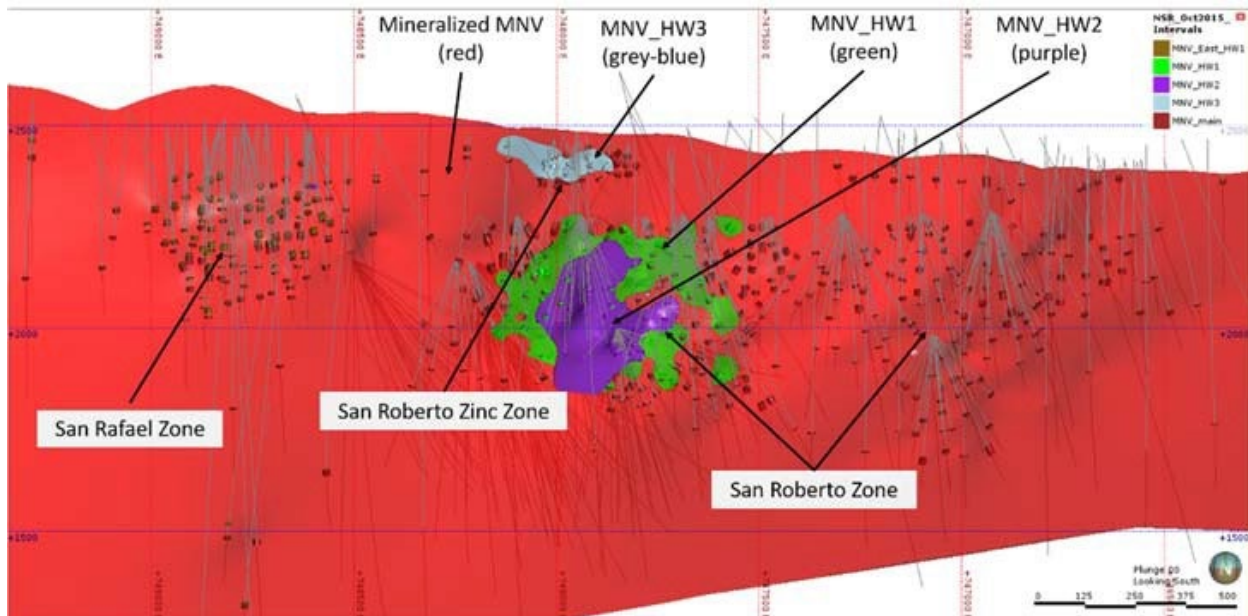
The MNV\_HW2 is another hangingwall structure (in the hangingwall of MNV\_HW1) in SROB. It terminates against the hangingwall of MNV\_HW1 and MNV\_Main (Figure 14-5).



**Figure 14-5: Long section, looking south, of MNV\_HW2 (purple) in relation to MNV\_HW1 (green) and MNV (red)**

Source: Capstone, 2020

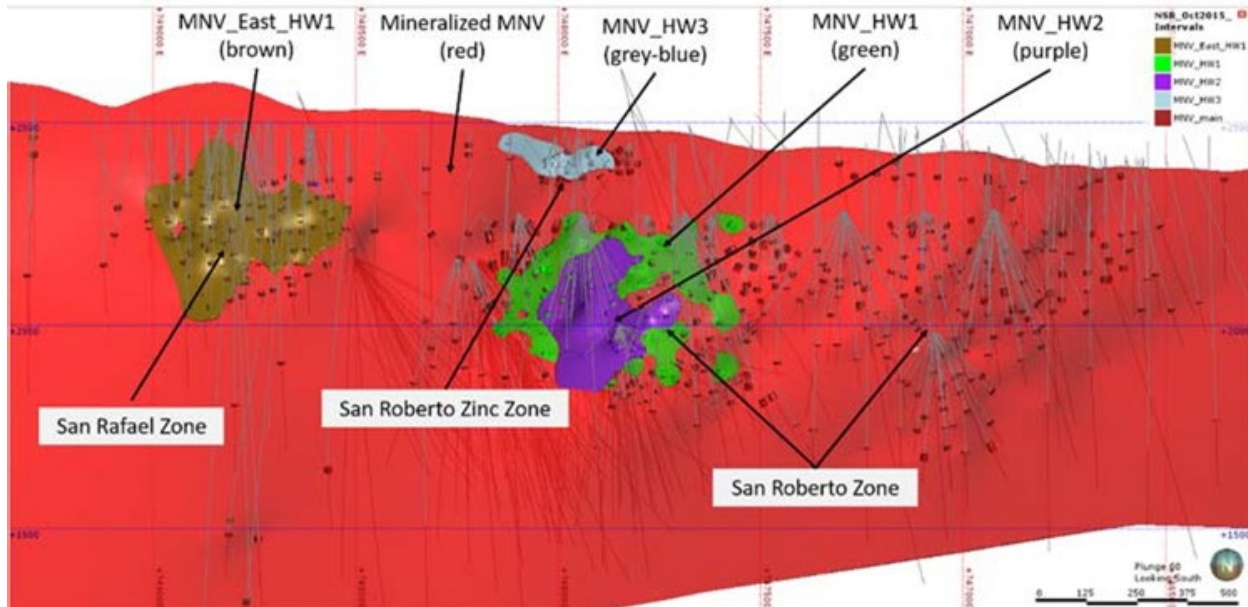
The MNV\_HW3 is a hangingwall structure located in SROB-Zn. It likely represents the up-dip portion of the MNV\_HW1 vein, but there is insufficient drilling information to confirm this. It terminates against the hangingwall of MNV\_Main (Figure 14-6).



**Figure 14-6: Long section, looking south, of MNV\_HW3 (grey-blue) in relation to MNV\_HW2 (purple), MNV\_HW1 (green) and MNV (red)**

Source: Capstone, 2020

The MNV\_East\_HW1 is a hangingwall structure located in the San Rafael zone. It terminates against the hangingwall of MNV\_Main (Figure 14-7).



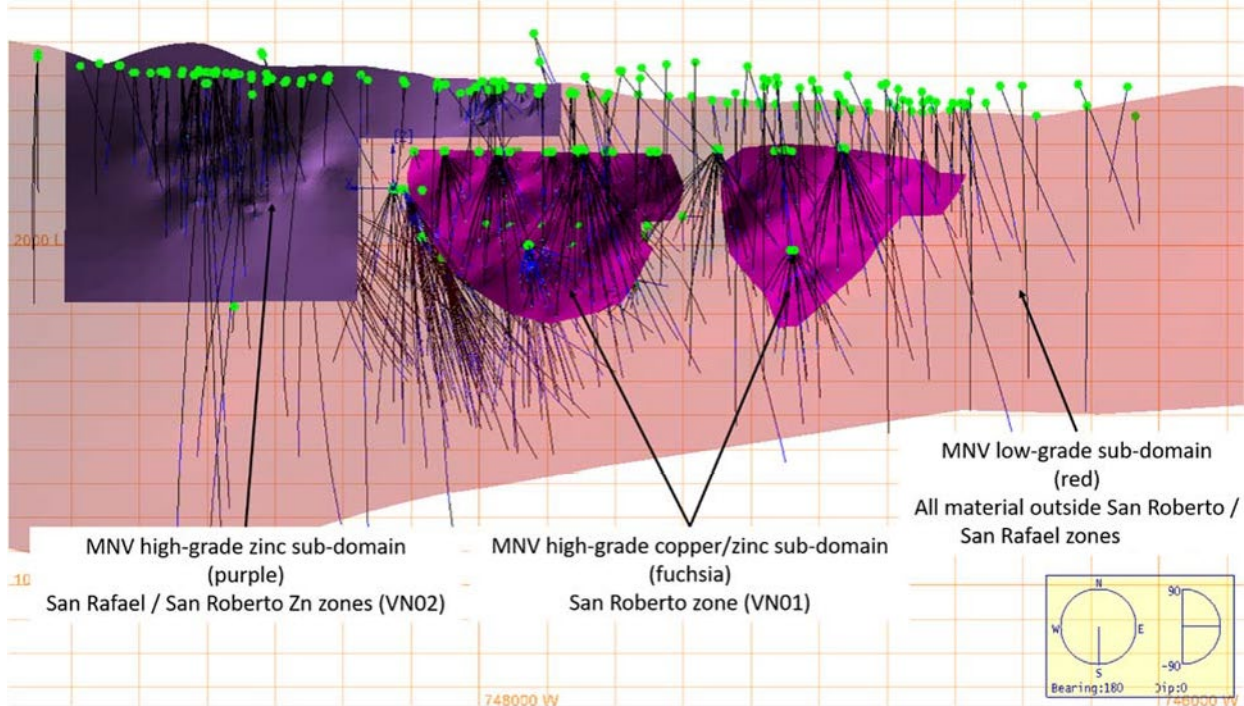
**Figure 14-7: Long section, looking south, of MNV\_East\_HW1 (purple) in relation to MNV\_HW1 (green) and MNV (red)**

Source: Capstone, 2020

SROB and San Rafael zones represent spatially-isolated, high-grade mineralized zones within the mineralized MNV (MNV\_Main). To segregate these zones from lower-grade areas, two sub-domains were defined to isolate the high-grade copper and zinc mineralization. In the San Rafael and SROB-Zn zones, a single polygon was created to isolate the high-grade zinc (low-grade copper) mineralization. (Figure 14-8).

The remaining areas of the MNV\_Main represent low-grade/unmineralized material. The sub-domains VN01 and VN02 are treated as mutually exclusive subsets comprising the entire modelled MNV\_Main vein (Figure 14-8).





**Figure 14-8: Long section, looking south, of sub-domains comprising the MNV\_Main vein: San Roberto (VN01), San Rafael/San Roberto Zinc (VN02) and low-grade/unmineralized (MNV08)**

Source: Capstone, 2020

#### 14.1.2.2 Mala Noche Footwall Model

The Cozamin Mine resource of the Mala Noche Footwall zone in Zacatecas, Mexico, was previously estimated with an effective date of October 31<sup>st</sup>, 2020.

Additional drilling, updated survey of older collar locations and a re-interpretation of existing veins required a resource model update. The MNFWZ now incorporates 13 individual veins compared to 9 in the old report. Besides the re-interpreted old veins 8, 9, 10 (split into 10-NW and 10-SE) 11A, 18, 19, 20, 22, four new veins 21 (footwall splay to Vein 20), 23 (footwall splay to Vein 22), 24A and 24B were added.

A list of the 13 modelled domains at MNFWZ and their volumes reported for each domain solid is shown in the Table 14-2.

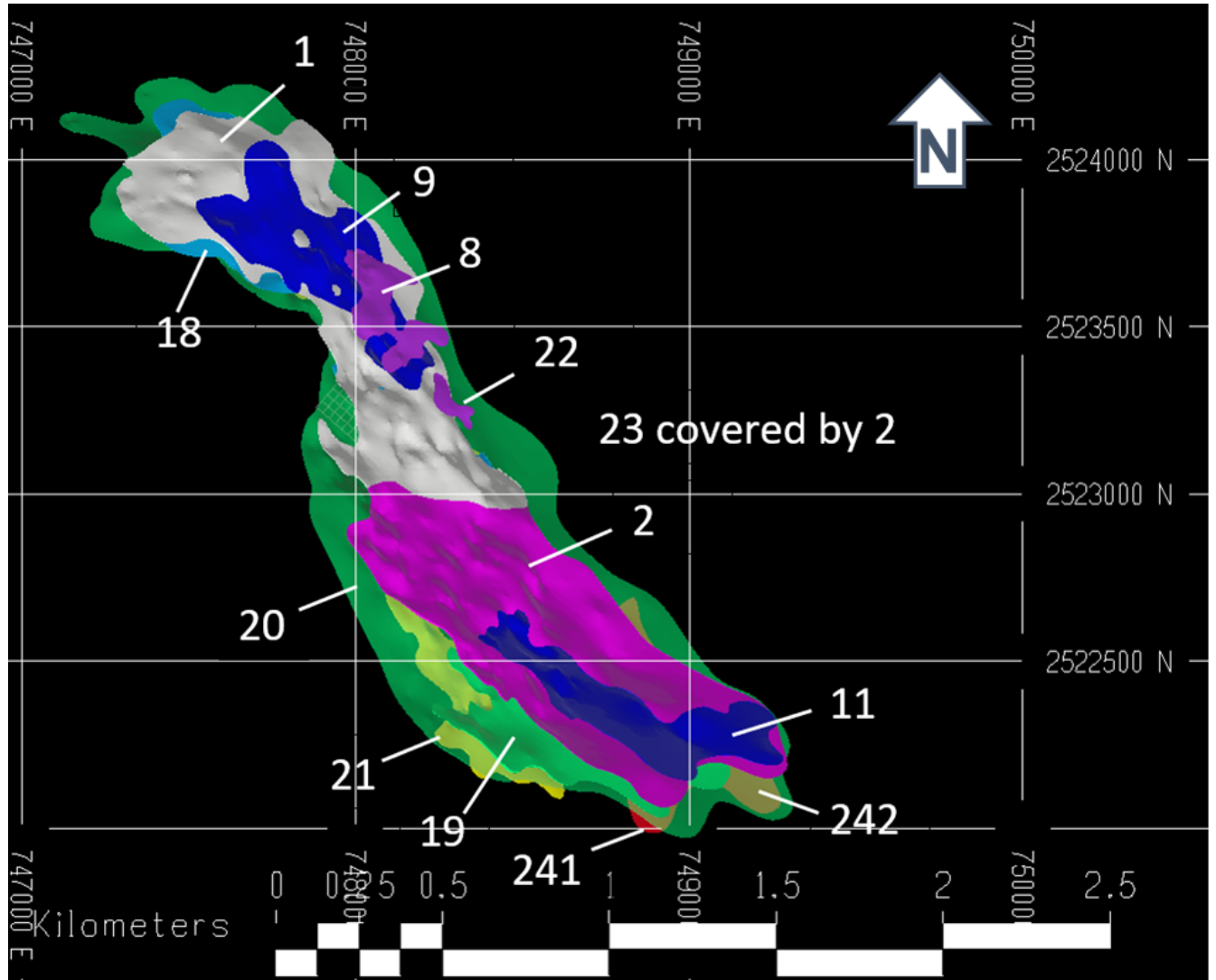
**Table 14-2: Mineralized Domains within Mala Noche Footwall Zone**

2023 model		2020 model	
Domain Name	Volume (m <sup>3</sup> )	Domain Name	Volume (m <sup>3</sup> )
Vein 10 NW	1,661,083	Vein 10 NW	1,673,017
Vein 10 SE	2,754,103	Vein 10 SE	2,828,495
Vein 8	46,390	Vein 8	46,406
Vein 9	348,873	Vein 9	338,221

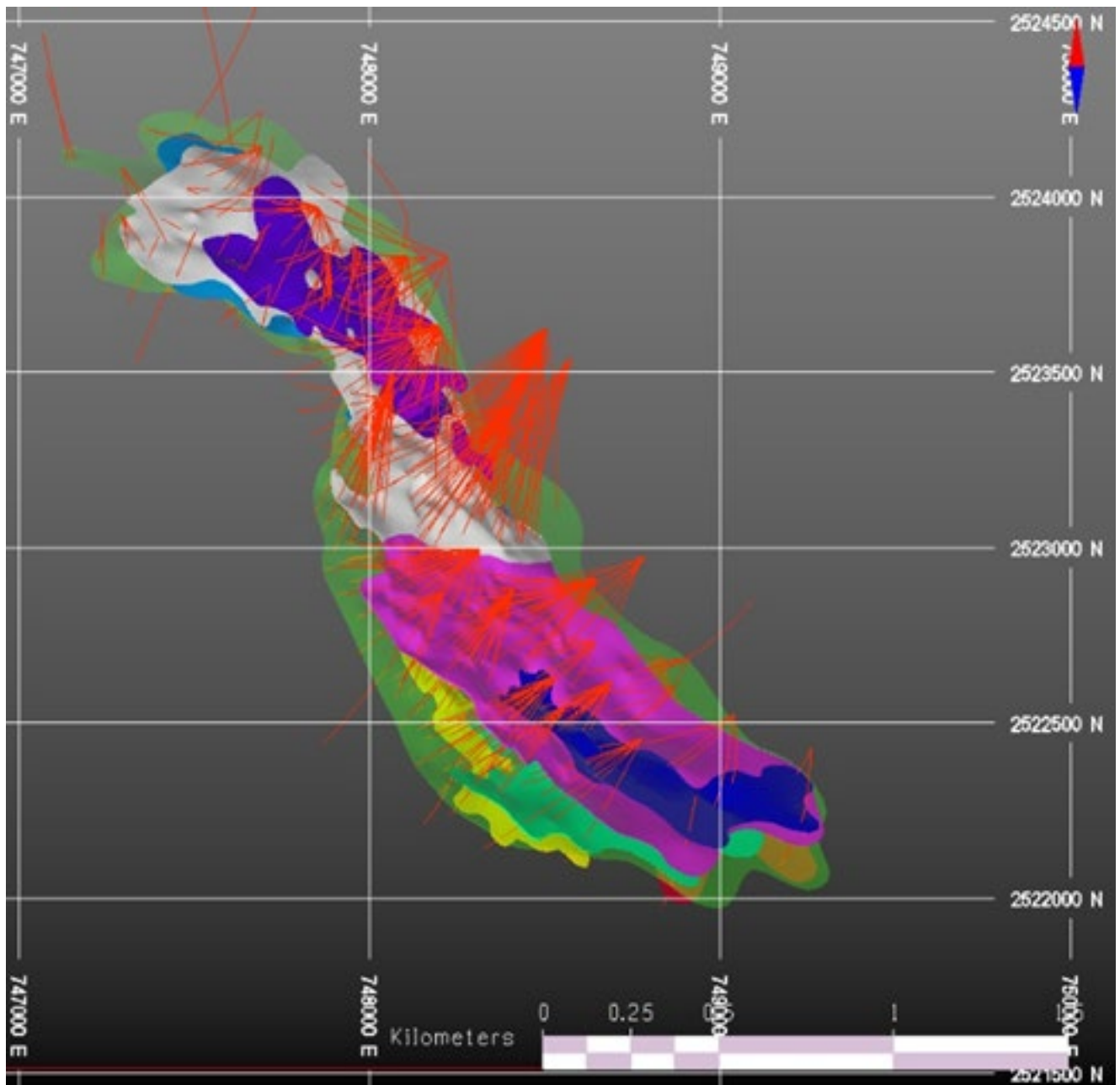
2023 model		2020 model	
Domain Name	Volume (m <sup>3</sup> )	Domain Name	Volume (m <sup>3</sup> )
Vein 11	514,849	Vein 11	330,030
Vein 18	924,493	Vein 18	835,510
Vein 19	740,243	Vein 19	1,392,972
Vein 20	6,661,798	Vein 20	7,787,445
Vein 21	758,600	N/A	
Vein 22	495,762	Vein 22	417,548
Vein 23	35,533	N/A	
Vein 24A	334,656	N/A	
Vein 24B	103,092	N/A	
<b>Total</b>	<b>15,379,475</b>		<b>15,649,644</b>

Overall, the total volume of veins decreased by approximately 3% in the 2023 model compared to the previous model.

The MNFWZ strikes approximately southeast at 145° over its length, but strikes 92° in the western section of the zone, as shown in plan view in Figure 14-9. The veins range in thickness from less than one meter to approximately 10 meters. Drillhole distribution is shown in Figure 14-10.



**Figure 14-9: MNFWZ structural sub-domains with vein labels**  
Source: Capstone Copper, 2023



**Figure 14-10: MNFWZ structural sub-domains with drilling**  
Source: Capstone Copper, 2023

## 14.2 MNV Mineral Resource Estimation

The Mala Noche resource modelling comprises the SROB along with the SROB-Zn and San Rafael zinc zones. The following section details the method and procedures employed to estimate the mineral resources within these zones and the classification of those resources.

### 14.2.1.1 Raw Data

The raw drillhole data were imported into *Maptek™ Vulcan* software version 10.1.1.

#### 14.2.1.1.1 Geochemical Sample Analysis

The raw drillhole sample data were desurveyed and stored. The domain wireframes were used to code the drillhole data within the respective vein domains in the compositing process using the priority sequence defined during geological modelling. Missing and non-sampled data were ignored, while a value of 0.001 was assigned to data not logged. The drillhole selection file was used to exclude the drillholes identified as unsuitable for mineral resource estimation.

The database was exported and viewed within Snowden Technologies Pty Ltd *Supervisor* software version 8.7.0.7 (“Supervisor”). Univariate statistics, by vein domain, are summarized in Table 14-3 through Table 14-8 for the MNV model. The tables use abbreviated forms for statistical measures, including standard deviation (“Std. Dev.”) and coefficient of variation (“CoV”).

**Table 14-3: Cu raw statistics of MNV**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
0	40,952	0.0001	22.00	0.16	0.89	5.61
VN01	5,818	0.0005	16.40	1.92	2.49	1.29
VN02	1,560	0.001	5.50	0.29	0.48	1.69
VN03	535	0.0005	3.48	0.24	0.43	1.78
VN05	579	0.0005	12.35	1.56	2.33	1.49
VN06	314	0.0005	12.40	1.21	1.96	1.62
VN07	87	0.0009	0.53	0.07	0.11	1.46
MNV08	1,171	0.0005	7.39	0.41	0.73	1.77
Lith10	6,327	0.0002	14.2	0.15	0.67	4.34

**Table 14-4: Ag raw statistics of MNV**

Domain	No. Samples	Min (g/t)	Max (g/t)	Mean (g/t)	Std. Dev. (g/t)	CoV
0	40,952	0.001	4,070	5.82	37.5	6.44
VN01	5,818	0.001	1135	67.1	87.4	1.30
VN02	1,560	0.001	650	43.6	54.6	1.25
VN03	535	0.001	1,500	41.7	82.6	1.98
VN05	579	0.001	1,520	59.1	112.6	1.90
VN06	314	0.001	610	44.8	74.8	1.67
VN07	87	0.210	62.0	15.9	14.5	0.91
MNV08	1,171	0.001	737	31.6	53.7	1.70
Lith10	6,327	0.001	3,020	9.15	47.8	5.22

**Table 14-5: Zn raw statistics of MNV**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
0	40,952	0.0001	39.35	0.25	1.15	4.63

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN01	5,818	0.0005	28.30	1.43	2.62	1.84
VN02	1,560	0.0010	36.03	3.91	4.25	1.09
VN03	535	0.0010	19.95	3.67	3.42	0.93
VN05	579	0.0010	30.00	2.14	3.29	1.53
VN06	314	0.0010	11.05	1.46	2.27	1.56
VN07	87	0.1100	21.00	2.97	3.21	1.08
MNV08	1,171	0.0010	28.90	1.83	3.11	1.71
Lith10	6,327	0.0005	43.07	0.61	1.44	2.35

**Table 14-6: Pb raw statistics of MNV**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
0	40,952	0.0010	28.90	0.04	0.30	7.66
VN01	5,818	0.0005	36.85	0.33	1.57	4.69
VN02	1,560	0.0009	29.45	0.60	1.76	2.94
VN03	535	0.0010	20.00	0.56	1.46	2.61
VN05	579	0.0004	32.54	0.82	2.99	3.63
VN06	314	0.0010	13.05	0.84	2.17	2.59
VN07	87	0.0022	1.60	0.22	0.34	1.53
MNV08	1,171	0.0001	20.00	0.26	1.14	4.32
Lith10	6,327	0.0001	13.65	0.11	0.60	5.70

**Table 14-7: Zn oxide composited statistics of MNV**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
0	236	0.005	1.78	0.12	0.20	1.68
VN02	248	0.020	5.52	0.72	0.88	1.22
VN07	56	0.030	2.11	0.59	0.53	0.91
Lith10	165	0.005	1.74	0.22	0.24	1.09

**Table 14-8: Pb oxide composited statistics of MNV**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
0	4	0.010	0.32	0.10	0.15	1.48
VN02	115	0.005	3.09	0.24	0.43	1.83
Lith10	4	0.010	0.13	0.05	0.06	1.26

#### 14.2.1.1.2 Bulk Density Sampling

Bulk density sampling has been undertaken systematically throughout the MNV and MNFWZ veins. Since 2013 samples were taken at the same volume support as the geochemical assay data (i.e., the average bulk density value was generated over the interval length as the assay sample).



The vein domains and lithology wireframes were used to code the drillhole data in the compositing process (populating the domain and lithology fields in the database).

Univariate statistics of the raw, domain-coded bulk-density drillhole sample data within the modelled veins and lithology units are summarized in Table 14-9. A filter was placed on the data during importation into Supervisor, where values less than 1.50 g/cm<sup>3</sup> were excluded (totaling 711). Those greater than 6 g/cm<sup>3</sup> were included and then top cut.

**Table 14-9: Bulk density raw statistics (MNV domains and all lithology units)**

Vein/Litho	No. Samples	Min (g/cm <sup>3</sup> )	Max (g/cm <sup>3</sup> )	Mean (g/cm <sup>3</sup> )	Std. Dev. (g/cm <sup>3</sup> )	CoV
<b>VN01</b>	4,574	2.10	6.05	2.89	0.33	0.11
<b>VN02</b>	973	2.26	4.56	2.76	0.24	0.09
<b>VN03</b>	327	2.28	4.92	2.73	0.22	0.08
<b>VN05</b>	382	2.34	4.81	2.95	0.37	0.12
<b>VN06</b>	208	2.40	4.45	2.83	0.36	0.13
<b>VN07</b>	10	2.64	3.01	2.79	0.11	0.04
<b>MNV08</b>	817	2.15	3.80	2.73	0.19	0.07
<b>Lith 10</b>	2,838	1.60	4.95	2.67	0.22	0.08
<b>Lith 30</b>	4,468	1.50	4.09	2.60	0.15	0.06
<b>Lith 50</b>	3,844	1.75	6.91	2.72	0.16	0.06
<b>Lith 60</b>	2,107	1.50	4.93	2.69	0.16	0.06
<b>Lith 80</b>	5,868	1.50	4.03	2.67	0.14	0.05

#### **14.2.1.1.3 Core Recovery and Rock Quality Data (RQD) Samples**

Core recovery data are recorded from measurements taken by the geologist of the total core length in the box between the blocks demarking the run interval. RQD information involved summing the total length of individual pieces greater than 10 cm in length, divided by the run length. The resulting value is expressed as a percentage. Note that the core recovery and RQD data within the lithological domains should be considered as indicative and not definitive due to grouping of lithologies during the geological modelling process. Individual sub-units within a lithological domain (e.g., andesite tuff) could have significantly different values.

The vein domains and lithology wireframes were used to code the drillhole data in the compositing process (populating the domain and litho fields in the database). The domain-coded, raw statistics for the core recovery and RQD data are summarized in Table 14-10 and Table 14-11.

**Table 14-10: Core recovery raw statistics (MNV domains and all lithology units)**

Vein/Litho	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
<b>VN01</b>	351	18.03	100.0	96.88	8.20	0.08
<b>VN02</b>	371	0.00	100.0	95.88	12.41	0.13
<b>VN03</b>	115	68.40	100.0	98.71	4.19	0.04
<b>VN05</b>	50	31.50	100.0	93.40	14.18	0.15
<b>VN06</b>	66	86.56	100.0	99.09	2.53	0.03
<b>VN07</b>	53	62.15	100.0	96.13	8.25	0.09
<b>MNV08</b>	274	0.00	100.0	98.05	8.03	0.08

Vein/Litho	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
Lith 10	2,231	0.00	100.0	95.96	14.17	0.15
Lith 30	5,886	0.00	100.0	93.45	22.69	0.24
Lith 50	22,805	0.00	100.0	98.51	8.77	0.09
Lith 60	14,089	0.00	100.0	86.26	32.70	0.38
Lith 80	28,687	0.00	100.0	97.41	12.17	0.12

**Table 14-11: RQD raw statistics (MNV domains and all lithology units)**

Vein/Litho	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN01	351	1.0	100.0	62.54	26.34	0.42
VN02	371	0.0	100.0	56.22	33.54	0.60
VN03	115	0.0	100.0	61.06	33.83	0.55
VN05	50	5.0	94.0	64.58	22.72	0.35
VN06	66	25.0	87.0	59.21	16.39	0.28
VN07	53	0.0	100.0	51.92	32.38	0.62
MNV08	274	0.0	100.0	60.53	27.98	0.46
Lith 10	2,231	0.0	100.0	58.31	29.59	0.51
Lith 30	5,886	0.0	100.0	57.20	28.97	0.51
Lith 50	22,805	0.0	100.0	72.07	24.02	0.33
Lith 60	14,089	0.0	100.0	38.24	38.41	1.00
Lith 80	28,687	0.0	100.0	60.97	27.75	0.46

#### 14.2.1.2 Compositing

The raw drillhole samples were composited within the modelled wireframes following the same prioritization rules used as previously stated. A 2.0 m composite length was chosen to match the minimum mining thickness. The run-length composite method with the merge option was used in Vulcan software with a tolerance of “0.5”, as it yielded the most sample intervals with a 2.0 m width and a smaller sample-length variance than the other methods. Domain codes into the domain field of the database and to assign a default of zero (0) for samples in the waste domain.

The undeclustered statistics of the composited data are presented in Table 14-12 through Table 14-18.

**Table 14-12: Cu composited statistics of MNV (undeclustered)**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN01	1,473	0.0005	10.13	1.74	1.89	1.08
VN02	536	0.0020	2.13	0.26	0.35	1.33
VN03	171	0.0010	2.32	0.22	0.34	1.51
VN05	162	0.0043	9.46	1.42	1.76	1.24
VN06	120	0.0090	6.07	1.02	1.39	1.37
VN07	59	0.0010	0.35	0.07	0.09	1.35
MNV08	398	0.0006	4.58	0.37	0.57	1.52
Lith10	2,746	0.0005	8.60	0.11	0.42	3.71

**Table 14-13: Ag composited statistics of MNV (undeclared)**

Domain	No. Samples	Min (g/t)	Max (g/t)	Mean (g/t)	Std. Dev. (g/t)	CoV
VN01	1,473	0.150	634.6	60.1	63.1	1.05
VN02	536	0.611	261.8	39.4	38.7	0.98
VN03	171	2.000	359.9	35.5	40.7	1.14
VN05	162	0.500	543.2	53.5	74.8	1.40
VN06	120	1.250	391.0	37.9	52.5	1.39
VN07	59	0.260	58.7	14.8	13.4	0.90
MNV08	398	0.001	316.6	23.9	35.2	1.48
Lith10	2,746	0.059	758.3	7.3	22.9	3.14

**Table 14-14: Zn composited statistics of MNV (undeclared)**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN01	1,473	0.004	23.14	1.44	2.04	1.41
VN02	536	0.006	22.02	3.68	3.29	0.89
VN03	171	0.001	14.35	3.61	2.51	0.70
VN05	162	0.020	16.00	2.01	2.58	1.29
VN06	120	0.008	10.00	1.39	1.89	1.36
VN07	59	0.190	10.77	2.83	2.27	0.80
MNV08	398	0.001	22.40	1.56	2.32	1.48
Lith10	2,746	0.001	16.84	0.55	0.91	1.65

**Table 14-15: Pb composited statistics of MNV (undeclared)**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN01	1,473	0.001	11.30	0.30	0.78	2.96
VN02	536	0.001	17.31	0.62	1.39	2.26
VN03	171	0.001	11.37	0.61	1.19	1.96
VN05	162	0.003	17.63	0.80	2.41	3.00
VN06	120	0.003	10.00	0.65	1.55	2.39
VN07	59	0.003	1.30	0.20	0.28	1.39
MNV08	398	0.001	6.04	0.21	0.55	2.62
Lith10	2,746	0.001	8.15	0.08	0.36	4.32

**Table 14-16: Zn oxide composited statistics of MNV (undeclared)**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN02	123	0.022	5.33	0.58	0.74	1.27
VN07	40	0.036	1.79	0.56	0.44	0.80
Lith10	118	0.010	1.52	0.22	0.22	0.97

**Table 14-17: Pb oxide composited statistics of MNV (undeclared)**

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
VN02	41	0.005	1.42	0.22	0.34	1.55

Domain	No. Samples	Min (%)	Max (%)	Mean (%)	Std. Dev. (%)	CoV
Lith10	2	0.020	0.02	0.02	-	-

**Table 14-18: Bulk density composited statistics of (MNV domains and all lithology units)**

Vein Domain	No. Samples	Min (g/cm <sup>3</sup> )	Max (g/cm <sup>3</sup> )	Mean (g/cm <sup>3</sup> )	Std. Dev. (g/cm <sup>3</sup> )	CoV
VN01	1,469	2.42	5.21	2.87	0.27	0.10
VN02	452	2.26	4.03	2.76	0.19	0.07
VN03	164	2.42	3.38	2.72	0.15	0.06
VN05	124	2.52	3.96	2.92	0.30	0.10
VN06	88	2.46	3.94	2.82	0.34	0.12
VN07	8	2.65	3.01	2.80	0.11	0.04
MNV08	334	2.41	3.45	2.71	0.14	0.05
Lith 10	1,391	1.79	4.22	2.66	0.17	0.06
Lith 30	2,656	1.54	3.95	2.59	0.13	0.05
Lith 50	3,150	1.53	6.91	2.73	0.15	0.05
Lith 60	1,673	1.50	4.93	2.70	0.15	0.06
Lith 80	4,119	1.55	3.67	2.67	0.11	0.04

Since core recovery and RQD are calculated on a “per core run” basis of 3.05 m, compositing is not necessary.

#### 14.2.1.3 Exploratory Data Analysis (EDA)

An exploratory data analysis (“EDA”) was undertaken in Supervisor on the composited drillhole data. The objectives of this study are as follows:

- Identify spatial trends in grade data and verify domaining strategy (data orientation, data population distributions).
- Characterize geochemical associations through a regression analysis of the high-grade domains, VN02, VN03 and VN07 (Table 14-19).
- Understand sample distributions within the domains and select the appropriate grade estimation method and estimation strategy.
- Assess top-cutting and search-restriction requirements for outlier samples.

**Table 14-19: Regression analysis of composited sample data in domains VN02, VN03 and VN07**

Element	Ag	Cu	Zn	Pb	ZnOx	PbOx
SROB-Zn / San Rafael (VN02/03/07)						
Ag	1	0.69	0.33	0.36	-0.10	0.17
Cu	-	1	0.14	0.04	-0.13	0.00
Zn	-	-	1	0.31	0.32	0.20
Pb	-	-	-	1	0.03	0.60

Element	Ag	Cu	Zn	Pb	ZnOx	PbOx
<b>ZnOx</b>	-	-	-	-	-	0.26
<b>PbOx</b>	-	-	-	-	-	-

The following observations were made based on geochemical correlations:

- Cu and Ag are well correlated. The same estimation search parameters will be used for both elements to attempt to maintain their relationship in the block model.
- Cu is uncorrelated with Zn and Pb and their oxide species. It will be estimated independently of these elements.
- Ag is weakly correlated with Zn and Pb and uncorrelated with their oxide species. It will be estimated independently of these elements.
- Zn and Pb are weakly correlated, so they will be estimated independently. They are uncorrelated with Cu and Ag.
- Pb is moderately correlated with its oxide species, so estimation of PbOx will use the same estimation parameters.
- Zn is weakly correlated with its oxide species, so estimation of ZnOx is independent of Zn.

The data in the high-grade mineralization domains (VN02, VN03, VN07) were reviewed graphically and spatially and the following observations were made with respect to grade distribution and continuity:

- The boundary between the high-grade sub-domains and low-grade sub-domain (MNV08) will be treated as “soft” for grade estimation.
- The boundary between the high-grade sub domains within the modelled lithological vein structure (Lith10) will be treated as “hard” for grade estimation.
- Domains VN02 and VN03 show similar grade distributions for each element, so these will be combined and estimated together.
- Domain VN07 is lower in grade than VN02 and VN03 for each element, so it will need to be estimated separately. There are too few samples (57) to estimate using Ordinary Kriging (“OK”), so this vein domain will be estimated using inverse distance weighting.
- The modelled veins are sinuous along strike. Grade estimation will utilize a search ellipse that changes orientation to match the locally varying strike and dip of the vein to ensure the correct samples are selected (Section 6.6).
- The COV is between 0.7 and 1.6 for elements in the mineralization domains (VN02, VN03, VN07) except lead, which is generally higher than 2. OK will be used for grade estimation, with top-cuts used to manage outlier values.

Copper:

- San Rafael contains significantly lower copper grades (~10x) than San Roberto zone, with only minor top cutting required.
- There is a central “core” area of higher-grade copper values in the central part of the San Rafael zone reaching as high as 2% Cu.

**Silver:**

- San Rafael is lower in grade (~30%) than the San Roberto zone, but minor top cutting will be required to control outlier grades that are dispersed throughout the zone.
- Higher-grade silver values are located in the eastern part of the San Roberto Zinc zone, with lower grades situated in the western part.

**Zinc:**

- San Rafael contains the highest average grade of zinc of all zones (3.7%), almost double the grade encountered in San Roberto and almost six times higher than the grade of the MNFWZ.
- The highest-grade samples are generally spatially associated with other high-grade samples, so top cutting would unfairly discount contained metal value. Instead, a search restriction will be employed to limit the influence of these samples on neighbouring blocks.

**Lead:**

- The lead distribution in the MNV deposit is strongly positively skewed, meaning that most of the lead metal value is contained within a few percent of the total distribution. This is supported through underground observations, where lead tends to occur in small, localized patches of higher grade material that is not continuously distributed. Due to this, OK is not the optimal estimation technique because it tends to oversmooth these types of distributions and leads to overestimation of tonnage and contained metal. A non-linear estimation technique (e.g., multiple indicator kriging, conditional simulation, etc.) would be more appropriate, but given the very small percentage of total economic value lead represents in the unmined portions of Cozamin (<5%), the additional time required to estimate using one of the suggested techniques is not justified.
- More restrictive top cutting and search restrictions will be used to mitigate over-estimation of lead using OK. The consequence will be a reduced amount of available metal in the drillhole file during estimation and lower confidence in the estimated lead grades (they will likely still be oversmoothed), but this trade-off is considered reasonable given lead's economic contribution to the total value of the ore.
- Historical mine reconciliation has shown lead to be overestimated with respect to mine production. This will be considered during validation of the grade estimation, with the aim of having grades that slightly underestimate the input sample data.

**Zinc Oxide:**

- All samples are located in SROB-Zn, with the highest grades reaching 5% ZnOx in the central part area. The grades decrease outward to the western and eastern limits.
- Grades in the hanging wall vein (VN07) are approximately double those in the main MNV structure (VN02), however, it is noted that the VN07 domain are only located in the eastern edge of the zone.
- Top cuts and search restrictions will be needed to limit the influence of the high-grade samples in the VN02 domain.

**Lead Oxide:**

- All samples are located in SROB-Zn.



- The available data are sparse (49 in total) and will only provide a high-level indication of lead- oxide mineral concentrations. Inverse-distance weighting will be used to estimate the grades.
- The estimation parameters from lead (search orientation, sample numbers, etc.) will be borrowed to estimate lead oxide.

#### **14.2.1.3.1 Bulk Density Data**

SROB vein domains have higher average bulk density (2.82-2.91 g/cm<sup>3</sup>) than those in San Rafael (2.72-2.76 g/cm<sup>3</sup>). This implies there is a higher concentration of sulphide mineralization in the SROB and could be due to a higher amount of brecciation observed in the San Rafael mineralization.

#### **14.2.1.3.2 Core Recovery and RQD Data**

- Core recovery in the mineralization domains is greater than 95%, except for VN05, which is 93%. These are very good results and demonstrate the sample quality to be acceptable for use in mineral resource estimation.
- Lower recovery (< 90%) values do not appear to be spatially isolated or grouped, and they will not be factored into mineral resource confidence classification.
- RQD data are highly variable across the deposit. Rocks appear to have better RQD values at deeper depths (below 2,150 m).
- Rocks in VN02 (San Rafael) have a slightly lower average RQD (56%) than those in VN01 (62%). This could be due to the observed brecciated nature of the rocks in the San Rafael zone versus the San Roberto zone.

#### **14.2.1.4 Outlier Analysis and Top Cutting**

Grade distributions in each vein were assessed graphically and spatially for the presence of outlier samples, which can have a disproportionate impact during grade estimation and can lead to overestimated grades. Top-cut selection and search distance restrictions considered the locations of the outlier samples relative to other data. If high grade samples were isolated from other samples, top cuts and/or search restrictions were stricter to mitigate against grade overestimation, and conversely, they were relaxed if spatially associated with other high-grade samples. Determination of appropriate top-cut values was undertaken through identification of population breaks in histograms, and inflection points in log-probability plots and in mean-and-variance plots. The impact of the selected top cut was assessed by reviewing the change in the mean grade and CoV of the composited samples before and after the top cut (Table 14-20 through Table 14-25).

The samples from domains VN02 and VN03 were combined for grade estimation. For proper comparison to the block model estimates, the tables below present the combined domain statistics. For domain Lith10, top-cut selection for silver and copper considered the samples around the San Rafael and San Roberto Zinc zones only, and not the San Roberto zone. Estimate quality is focused in the San Rafael and San Roberto Zinc zones because the San Roberto zone is nearly mined out. It is noted that these zones have far fewer high-grade outlier values than the San Roberto zone, so the top cut is appropriate.

**Table 14-20: Cu top-cut, composited statistics of MNV**

Vein Domain	Mean (%)	CoV	Top Cut (%)	Top Cut Mean (%)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN01	1.74	1.08	8.75	1.74	1.08	9	≥ 6.0 25×25×10
VN02/03	0.25	1.37	1.57	0.25	1.31	10	-
VN05	1.42	1.24	No TC	-	-	-	-
VN06	1.02	1.37	5.20	1.00	1.33	3	≥ 4.0 25×25×10
VN07	0.07	1.35	No TC	-	-	-	-
MNV08	0.37	1.52	1.70	0.34	1.26	14	-
Lith10	0.11	3.71	3.80	0.11	3.20	8	≥ 1.24 24×18×6

**Table 14-21: Ag top-cut, composited statistics of MNV**

Vein Domain	Mean (g/t)	CoV	Top Cut (g/t)	Top Cut Mean (g/t)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN01	60	1.05	350	60	1.00	8	≥ 200 15×15×10
VN02/03	38	1.02	158	38	0.94	10	-
VN05	54	1.40	350	51	1.22	2	≥ 118 25×25×10
VN06	38	1.39	250	37	1.25	1	≥ 140 25×25×10
VN07	15	0.90	No TC	-	-	-	-
MNV08	24	1.48	150	24	1.17	5	-
Lith10	7	3.14	30	6	1.13	76	-

**Table 14-22: Zn top-cut, composited statistics of MNV**

Vein Domain	Mean (%)	CoV	Top Cut (%)	Top Cut Mean (%)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN01	1.44	1.41	12.0	1.43	1.35	6	≥ 10.0; 25×25×10
VN02/03	3.67	0.85	14.0	3.60	0.79	11	≥ 9.0 24×18×6
VN05	2.01	1.29	10.0	1.95	1.20	2	≥ 7.8; 10×10×10
VN06	1.39	1.36	No TC	-	-	-	-
VN07	2.83	0.80	6.7	2.69	0.70	2	-
MNV08	1.56	1.48	11.0	1.52	1.36	5	-
Lith10	0.55	1.65	2.5	0.50	1.25	79	-

**Table 14-23: Pb top-cut, composited statistics of MNV**

Vein Domain	Mean (%)	CoV	Top Cut (%)	Top Cut Mean (%)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN01	0.30	2.96	5.6	0.29	2.72	7	-
VN02/03	0.61	2.19	7.8	0.58	1.86	5	≥ 5.8; 24×18×6
VN05	0.80	3.00	9.5	0.70	2.58	2	≥ 8.0; 10×10×10
VN06	0.65	2.39	5.95	0.60	2.17	2	-
VN07	0.20	1.39	0.80	0.18	1.22	3	-
MNV08	0.21	2.62	2.4	0.19	2.26	6	-
Lith10	0.08	4.32	2.6	0.08	3.04	8	≥ 1.4 24×18×6

**Table 14-24: Zn oxide top-cut, composited statistics of MNV**

Vein Domain	Mean (%)	CoV	Top Cut (%)	Top Cut Mean (%)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN02/07	0.58	1.27	No TC	-	-	-	≥ 2.5; 24×18×6
Lith10	0.22	0.97	0.85	0.22	0.87	2	-

**Table 14-25: Pb oxide top-cut, composited statistics of MNV**

Vein Domain	Mean (%)	CoV	Top Cut (%)	Top Cut Mean (%)	Top Cut CoV	No. Samples Cut	Rest. Search Threshold (%) and distance (m)
VN02	0.22	1.55	No TC	-	-	-	-
Lith10	0.02	-	-	-	-	-	-

The composited bulk-density data were assessed graphically and spatially for outlier values in each vein domain. In general, top cuts were not harsh and only capped a minor number of samples in the mineralization vein domains. Top cuts were harsher in the waste lithology domains in order to mitigate the impact of isolated mineralized samples outside of the vein mineralization (Table 14-26). Search restrictions for higher bulk density values were not used.

**Table 14-26: Bulk density top-cut, composited statistics (MNV)**

Vein Domain	Mean (g/cm <sup>3</sup> )	CoV	Top Cut (g/cm <sup>3</sup> )	Top Cut Mean (g/cm <sup>3</sup> )	Top Cut CoV	No. Samples Cut
VN01	2.87	0.10	3.80	2.87	0.07	9
VN02	2.76	0.07	3.37	2.76	0.07	4
VN03	2.72	0.06	2.73	2.72	0.05	6
VN05	2.92	0.10	3.60	2.91	0.10	3
VN06	2.82	0.12	3.60	2.82	0.11	4
VN07	2.80	0.04	No TC	-	-	-

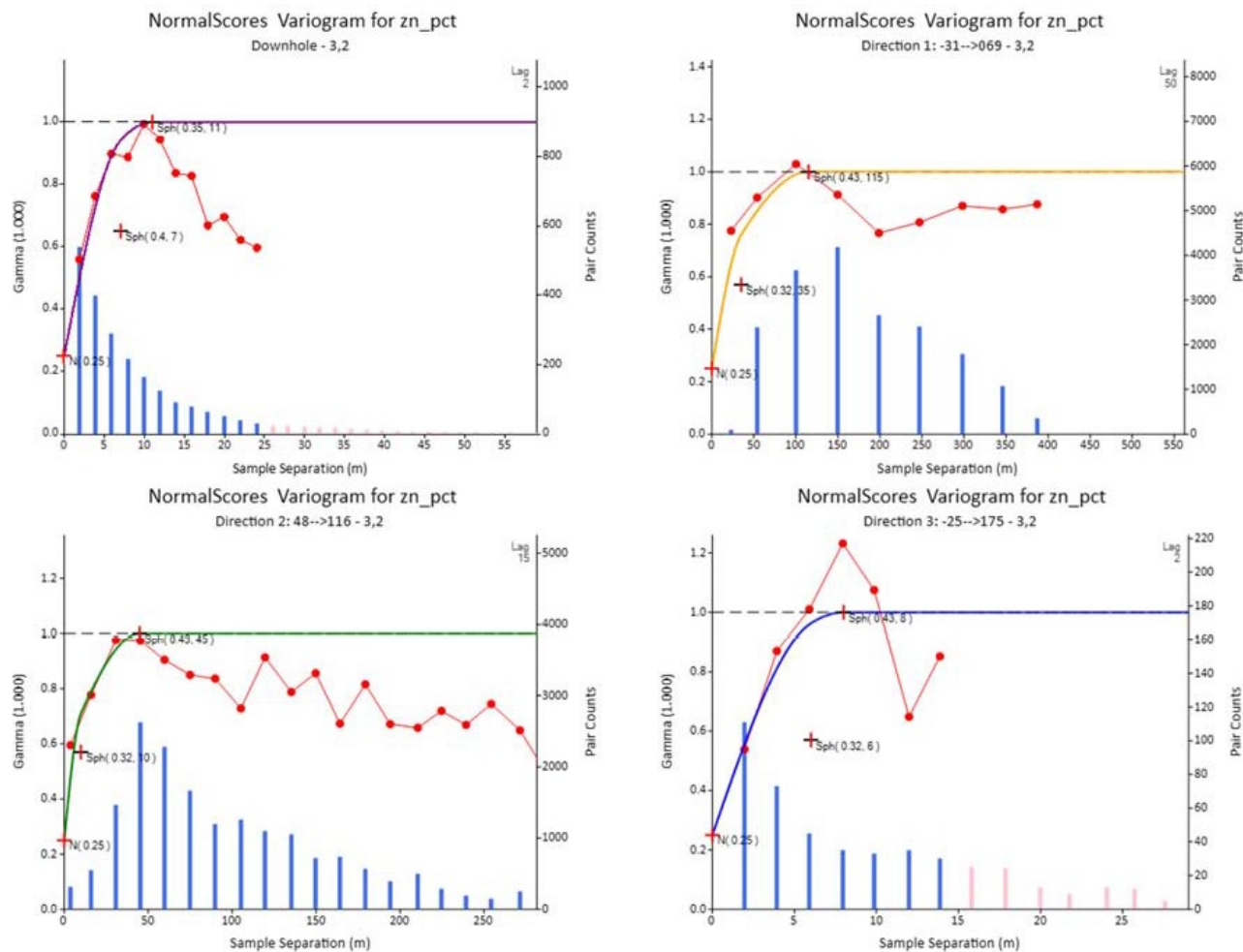
Vein Domain	Mean (g/cm <sup>3</sup> )	CoV	Top Cut (g/cm <sup>3</sup> )	Top Cut Mean (g/cm <sup>3</sup> )	Top Cut CoV	No. Samples Cut
<b>MNV08</b>	2.71	0.05	3.02	2.71	0.05	11
<b>Lith 10</b>	2.66	0.06	3.53	2.66	0.06	10
<b>Lith 30</b>	2.59	0.05	3.10	2.59	0.04	18
<b>Lith 50</b>	2.73	0.05	3.07	2.73	0.05	8
<b>Lith 60</b>	2.70	0.06	3.05	2.70	0.05	17
<b>Lith 80</b>	2.67	0.04	3.18	2.67	0.04	8

There were no outlier values identified in the RQD data. No top cuts or bottom cuts were applied.

#### **14.2.1.5 Variography**

Spatial relationships of the top-cut, composited sample data were analyzed in Supervisor to define continuity directions of the mineralization. For copper and silver, a weak, shallow plunge to the east-southeast was modelled (-36=>285az). For lead, a weak plunge was modelled steeply dipping down the vein (-65=>355az), while for zinc, a weak, shallow plunge was observed in an orthogonal direction to copper and silver (-31=>069az). This was visually confirmed by reviewing the grade distribution spatially above a variety of cut-offs. These observations “fit” geologically, as copper and silver show a strong correlation, while lead and zinc are not correlated with copper/silver or with each other.

After establishing the orientation of the continuity ellipse, experimental semi-variograms were generated in the downhole direction (to establish the nugget effect) and in each of the three axis directions of the continuity ellipse (Figure 14-11). Spherical models were used to model the directional experimental semi-variograms with variance contributions normalized to a total 1.0.



**Figure 14-11: Zinc semi-variogram models (top left: downhole; top right: major axis – direction 1; bottom left: semi-major axis – direction 2; bottom right: minor axis – direction 3**

Source: Capstone, 2020

After modelling, the semi-variogram models were back-transformed into regular space for use in grade estimation. Projecting the data onto a flat plane through data “unfolding” would improve the quality of the experimental semi-variogram and should be explored in the future. Table 14-27 through Table 14-30 show the correlogram models for Cu, Ag, Zn and Pb, respectively.

**Table 14-27: Cu back-transformed, semi-variogram parameters – Domains VN02 and VN03**

Continuity Direction	Axis Direction	Variance	Range (m)		
		Nugget/Sill	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
HC: 00°265	D <sub>1</sub> : 36°285	C <sub>0</sub> : 0.05	-	-	-
AS: -65°355	D <sub>2</sub> : -44°058	C <sub>1</sub> : 0.54	35	35	10
DP: 36°105	D <sub>3</sub> : -25°175	C <sub>2</sub> : 0.41	130	130	10

Axis Rotation Angles (Vulcan ZXY): {284.525, -35.631, 121.330}

\*Note: HC = Horizontal Continuity; AS = Across Strike Continuity; DP = Dip Plane Continuity; C<sub>0</sub> = Nugget; C<sub>x</sub> = Structure X

**Table 14-28: Ag back-transformed, semi-variogram parameters – Domains VN02 and VN03**

Continuity Direction	Axis Direction	Variance	Range (m)		
		Nugget/Sill	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
HC: 00°265	D <sub>1</sub> : 36°285	C <sub>0</sub> : 0.07	-	-	-
AS: -65°355	D <sub>2</sub> : -44°058	C <sub>1</sub> : 0.41	25	15	6
DP: 36°105	D <sub>3</sub> : -25°175	C <sub>2</sub> : 0.25	85	70	14
		C <sub>3</sub> : 0.27	375	150	14

Axis Rotation Angles (Vulcan ZXY): {284.525, -35.631, 121.330}

\*Note: HC = Horizontal Continuity; AS = Across Strike Continuity; DP = Dip Plane Continuity; C<sub>0</sub> = Nugget; C<sub>x</sub> = Structure X

**Table 14-29: Zn back-transformed, semi-variogram parameters for MNV – Domains VN02 and VN03**

Continuity Direction	Axis Direction	Variance	Range (m)		
		Nugget/Sill	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
HC: 00°265	D <sub>1</sub> : -31°069	C <sub>0</sub> : 0.28	-	-	-
AS: -65°355	D <sub>2</sub> : 48°116	C <sub>1</sub> : 0.34	35	10	6
DP: -27°071	D <sub>3</sub> : -25°175	C <sub>2</sub> : 0.38	115	45	8

Axis Rotation Angles (Vulcan ZXY): {68.515, -31.321, -119.651}

\*Note: HC = Horizontal Continuity; AS = Across Strike Continuity; DP = Dip Plane Continuity; C<sub>0</sub> = Nugget; C<sub>x</sub> = Structure X



**Table 14-30: Pb back-transformed, semi-variogram parameters for MNV – Domains VN02 and VN03**

Continuity Direction	Axis Direction	Variance	Range (m)		
		Nugget/Sill	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
HC: 00°265	D <sub>1</sub> : -65°355	C <sub>0</sub> : 0.32	-	-	-
AS: -65°355	D <sub>2</sub> : 00°085	C <sub>1</sub> : 0.50	35	20	7
DP: 65°175	D <sub>3</sub> : -25°175	C <sub>2</sub> : 0.18	175	100	8

Axis Rotation Angles (Vulcan ZXY): {355.000, -65.000, 180.000}

\*Note: HC = Horizontal Continuity; AS = Across Strike Continuity; DP = Dip Plane Continuity; C<sub>0</sub> = Nugget; C<sub>x</sub> = Structure X

#### 14.2.1.6 Block Model

The selective mining unit (“SMU”), has been revised to 12 m east × 2 m north × 10 m elevation. It was previously 4 m East × 2 m North × 5 m Elevation. The updated size matches the model parent-block size and much more closely approximates the volume of a single long-hole stope blast that represents the volume of material that must be physically selected (mined).

The existing MNV block model parameters remain unchanged with respect to its origin and block sizes. It is sub-blocked and non-rotated and was updated to represent the modelled geology and vein domain wireframes generated in Leapfrog®. The model origin is defined as the lower, southwest edge of the model and the origin coordinates are in the Cozamin local mine grid (Table 14-31). A total of 45 model variables were created, comprising domain codes, grade/density/RQD fields, classification, density, estimation parameters and search angles used by the dynamic anisotropy. Waste grades and waste density values were also estimated into the block model to provide additional information regarding local dilution grades and tonnages.

As a part of the July 2017 update, new variables were added to capture the zinc oxide and lead oxide data, as well as their ratios to total zinc and total lead. These data are limited to SROB-Zn.

**Table 14-31: MNV Block model origin and parameters**

	X	Y	Z
Origin* (local grid)	746,400	2,523,350	1,500
Parent Block Size (m)	12.0	2.0	10.0
Sub-Block Size (m)	4.0	0.5	2.0
Extents (m)	2,604	1,050	1,120

\*Note: Model origin is defined as lower, southwest edge of the model.

#### 14.2.1.7 Grade, Density and RQD Estimation

Grades were estimated using OK, with inverse-distance-squared weighting (“ID2”) and nearest neighbour (“NN”) techniques used as checks of the OK estimate for global mean-grade unbiasedness (inverse-distance-weighting was set to the power of nine to generate the NN estimate). The OK grade estimation strategy was defined through an assessment of variogram shapes and ranges, and a review of the estimation parameters used in the previous estimates. A multi-pass search strategy was used (“SVOL”).

For all domains, silver estimates used the same parameters as the copper estimates to maintain their spatial correlation. Lead and zinc were estimated independently of each other and of copper and silver.

Due to local changes in strike and dip of the veins, a search strategy employing a dynamic search ellipse was employed to match the strike and dip of the veins during estimation (dynamic anisotropy) to allow for better sample selection.

Vein limits were treated as hard boundaries. In the case of the high-grade sub-domains comprising SROB (VN01) and San Rafael (VN02), within the principal MNV structure, these limits were treated as soft boundaries to permit the correct interaction of low-grade samples from the lower-grade sub-domain comprising the rest of the structure (MNV08). The lithological unit representing the entire MNV fault/vein system (Lith10) was estimated separately from the mineralization vein domains and used hard boundaries.

Top cuts and grade restrictions were applied within the individual estimation profiles. Block discretization was set to  $3 \times 3 \times 3$  to take into account the change of support (volume increase/reduction in sample variance) moving from a point sample volume (i.e., drillhole) to the block volume.

Final estimation and search parameters for the MNV model are in Table 14-32.

**Table 14-32: MNV estimation and search parameters**

Element (Est. Method)	Vein Domain	SVOL	Min Samp.	Max Samp.	Max Samp./DH	Search Distance D1, D2, D3 (m)	Soft Boundary Dist. (m)
Cu (OK)	01/05/06/08	1	8	12	3	120, 60, 30	VN01/08: 50×50×25
Cu (OK)	02/03/08	1	8	16	3	90, 90, 30	VN02/08: 24×18×6
Cu (OK)		2	6	16	4	240, 120, 30	VN01/02/08: 50×50×25
		3	6	16	3	360, 180, 30	
Cu (ID <sup>2</sup> )	01/02/05/06/08	1	6	16	4	240, 120, 30	No
Cu (NN)		1	1	1	1	240, 120, 30	No
Cu (ID <sup>2</sup> )	07	1	8	16	3	130, 100, 15	No
Cu (ID <sup>2</sup> )	Lith10	1	2	16	3	300, 300, 30	No
Ag (OK)	01/05/06/08	1	8	12	3	120, 60, 30	VN01/08: 20×20×25
Ag (OK)	02/03/08	1	8	16	3	90, 90, 30	VN02/08: 24×18×6
Ag (OK)		2	6	12	4	240, 120, 30	VN01/02/08: 20×20×25
		3	6	12	3	360, 180, 30	
Ag (ID <sup>2</sup> )	01/02/05/06/08	1	6	12	4	240, 120, 30	No
Ag (NN)		1	1	1	1	240, 120, 30	No
Cu (ID <sup>2</sup> )	07	1	8	16	3	130, 100, 15	No
Ag (ID <sup>2</sup> )	Lith10	1	2	16	3	300, 300, 30	No

Element (Est. Method)	Vein Domain	SVOL	Min Samp.	Max Samp.	Max Samp./DH	Search Distance D1, D2, D3 (m)	Soft Boundary Dist. (m)
Zn (OK)	01/05/06/08	1	8	VN01: 16 VN05: 20 VN06: 12	3	120, 60, 30	VN01/08: 40×40×25
Zn (OK)	02/03/08	1	8	16	3	60,30, 15	VN02/08: 24×18×6
ZN (OK)	01/02/05/ 06/08	2	8	VN01: 16	4	240, 120, 30	VN01/02/08: 40×40×25
		3	6		3		
Zn (ID <sup>2</sup> )		1	6	VN05: 20 VN06: 12	4	240, 240, 30	No
Zn (NN)		1	1	1	1	240, 240, 30	No
Zn (ID <sup>2</sup> )		1	12	24	3	120, 60, 15	No
Zn (ID <sup>2</sup> )		1	2	16	3	300, 300, 30	No
Zn (ID <sup>2</sup> )	02/10	1	8	16	3	85, 45, 25	No
Pb (OK)	01/05/06/08	1	8	20	3	120, 60, 30	VN01/08: 50×50×30
Pb (OK)	02/03/08	1	12	20	3	50, 35, 15	VN02/08: 24×18×6
Pb (OK)	01/02/05 /06/08	2	6	20	4	240, 120, 30	VN01/02/08: 50×50×30
		3	6	20	3	240, 120, 30	No
Pb (ID <sup>2</sup> )		1	6	20	4	240, 120, 30	No
Pb (NN)		1	6	20	4	240, 120, 30	No
Pb (ID <sup>2</sup> )	07	1	12	24	3	175, 100, 15	No
Px (ID <sup>2</sup> )	02	1	8	16	3	50, 35, 15	No
Bulk Density (ID <sup>2</sup> )	01/02/03/05/ 06/07/08	2	12	24	4	330, 300, 30	No
Bulk Density (ID <sup>2</sup> )	Lith10	2	12	24	4	300, 300, 30	No
RQD (ID <sup>2</sup> )	01/02/03/05/ 06/07/ 08/Lith10	2	6	20	4	300, 300, 30	No

#### 14.2.1.8 Model Validation

Block model validation after grade estimation involved the following steps:

- Visual inspection of block grades against the input drillhole data.
- Declustering of the top-cut, input drillhole data for:
  - Assessment for global unbiasedness.
  - Evaluation of block grades against declustered, top-cut, input drillhole data in swathe plots.

- Global change of support to assess smoothing above a specified cut-off.
- Review of element correlations in the blocks compared to input drillhole correlations.

#### **14.2.1.9 Mineral Resource Confidence Classification**

Mineral Resources classification conforms to the definitions provided in the CIM Definition Standards for Mineral Resources and Reserves (CIM, 2014). Previously, nearly all material contained within the modelled veins was given a default classification of Inferred, as the extents of the vein boundaries were limited during geological modelling (except the MNV). This methodology was changed during this update to eliminate the upper reaches of the MNV where previous mining has occurred. There is no available drilling information in these areas, meaning the grades estimated in these blocks are extrapolations of the grades directly below. Given the grade variability of copper, silver, zinc and lead in the MNV, confidence in these estimates is low.

Classification of Indicated Mineral Resources in the San Rafael and SROB-Zn zones considered the following factors:

- QAQC data: There is accurate and repeatable performance of external certified reference material and duplicate samples. There is also an established bulk density QAQC data set. The QAQC data are of sufficient quality to support classification of Measured Mineral Resources.
- Drillhole spacing: The high-level drillhole spacing study completed by Davis (2014) recommended a 40 m × 40 m drillhole spacing grid to have sufficient confidence in grade continuity for Indicated Resources. This was the primary constraint used during classification, but areas with wider spacing were reviewed on a case-by-case basis. Measured Resources require a drillhole spacing of about 25 m × 25 m, or they must be located proximally to underground development. Inferred Resources require a drillhole spacing of about 100m x 200m.
- Confidence classification boundaries: The existing boundaries were used as a guide for classification of Indicated resources, which were then adjusted to account for new drilling.
- Underground development and mined stopes: There is a development drive into the San Rafael zone along Level 10 that extends eastward from the San Roberto zone. Blocks around this development were left as Indicated resources and not classified as Measured.

#### **14.2.1.10 Grade-Tonnage Reporting**

Mineral Resources were reported above a US\$59/t NSR cut-off and consider depletion from mining until December 31, 2022. The NSR cutoff is based upon historical costs at site, plus escalation related to input costs and the new process of paste backfill.

Mineral Resources were evaluated using the NSR formula with metallurgical recoveries based on zone mineralization. Metal prices used were US\$3.75/lb Cu, US\$22.00/oz Ag, US\$1.35/lb Zn, US\$1.00/lb Pb. For copper-zinc zones, assumed metal recoveries were 95% Cu, 84% Ag and 67% Zn. For zinc zones in MNV, assumed metal recoveries were 55% Ag, 80% Zn, and 80% Pb. Confidential smelter contract terms were incorporated into the formula and royalties on ground covered by the Bacis agreement were deducted.

The SROB zone uses the copper-zinc NSR formula:

$$\text{Cu-Zn NSR} = (\text{Cu}\% * \$69.739 + \text{Ag g/t} * \$0.498 + \text{Zn}\% * \$12.956) * (1 - \text{NSRRoyalty}\%)$$

The San Rafael and SROB-Zn zone uses MNV-zinc NSR formula:

$$\text{MNV-Zn NSR} = (\text{Ag g/t} * \$0.241 + \text{Zn}\% * \$15.511 + \text{Pb}\% * \$12.993) * (1 - \text{NSRRoyalty}\%)$$

Mineral Resources for all three zones within the MNV are summarized in Table 14-33 through Table 14-36. They are reported above a US\$59/t NSR cut-off value using the copper-zinc NSR formula and MNV-zinc NSR formula and account for mining activities until December 31, 2022.

**Table 14-33: MNV – SROB-Zn Mineral Resources above US\$59/t NSR cut-off as at January 1, 2023**

Classification	Tonnes (kt)	Cu (%)	Ag (g/t)	Zn (%)	Pb (%)	Contained			
						Cu Metal (kt)	Ag Metal (koz)	Zn Metal (kt)	Pb Metal (kt)
Zinc Zone: MNV – SROB-Zn									
Measured	-	-	-	-	-	-	-	-	-
Indicated	210	0.15	27.6	4.67	0.71	0	186	10	1
<b>Total M + I</b>	<b>210</b>	<b>0.15</b>	<b>27.6</b>	<b>4.67</b>	<b>0.71</b>	<b>0</b>	186	10	1
Inferred	445	0.08	22.1	3.80	0.36	0	317	17	2

Table 14-33 Notes:

1. Clay Craig, P.Eng., is the Qualified Person responsible for the disclosure of Cozamin Mineral Resources. Mineral Resources in SROB-Zn are reported at a cut-off of NSR US\$59/tonne using the MNV-Zn NSR formula:  $(\text{Ag} * 0.241 + \text{Zn} * 15.511 + \text{Pb} * 12.993) * (1 - \text{NSRRoyalty}\%)$  based on metal price assumptions (in US\$) of Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb, Pb = \$1.00/lb, metal recoveries of 55% Ag, 80% Zn and 80% Pb, confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.
2. The last date for drilling sample data and mining activities is December 31, 2022.
3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.
4. Mineral Resources are reported inclusive of the Mineral Reserves.
5. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

**Table 14-34: MNV – San Rafael Mineral Resources above US\$59/t NSR cut-off as at January 1, 2023**

Classification	Tonnes (kt)	Cu (%)	Ag (g/t)	Zn (%)	Pb (%)	Contained			
						Cu Metal (kt)	Ag Metal (koz)	Zn Metal (kt)	Pb Metal (kt)

Zinc Zone: MNV – San Rafael									
Measured	-	-	-	-	-	-	-	-	-
Indicated	633	0.27	47.1	3.95	0.55	2	958	25	4
<b>Total M + I</b>	<b>633</b>	<b>0.27</b>	<b>47.1</b>	<b>3.95</b>	<b>0.55</b>	<b>2</b>	<b>958</b>	<b>25</b>	<b>4</b>
Inferred	1,908	0.162	39.7	3.95	0.38	3	2,434	75	7

Table 14-34 Notes:

1. Clay Craig, P.Eng., is the Qualified Person responsible for the disclosure of Cozamin Mineral Resources. Mineral Resources are reported at a cut-off of NSR US\$59/tonne using the MNV-Zn NSR formula:

$(Ag \times 0.241 + Zn \times 15.511 + Pb \times 12.993) \times (1 - NSR \text{ Royalty} \%)$  based on metal price assumptions (in US\$) of Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb, Pb = \$1.00/lb, metal recoveries of 55% Ag, 80% Zn and 80% Pb, confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.

2. The last date for drilling sample data and mining activities is January 1, 2023.

3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.

4. Mineral Resources are reported inclusive of the Mineral Reserves.

5. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

**Table 14-35: MNV – Total Zinc Zone mineral resources above US\$59/t NSR cut-off as at January 1, 2023**

Classification	Tonnes (kt)	Cu (%)	Ag (g/t)	Zn (%)	Pb (%)	Contained			
						Cu Metal (kt)	Ag Metal (koz)	Zn Metal (kt)	Pb Metal (kt)
Total Zinc Zones: MNV – SROB-Zn and San Rafael									
Measured	-	-	-	-	-	-	-	-	-
Indicated	843	0.25	42.2	4.13	0.59	2	1,145	35	5
<b>Total M + I</b>	<b>843</b>	<b>0.25</b>	<b>42.2</b>	<b>4.13</b>	<b>0.59</b>	<b>2</b>	<b>1,145</b>	<b>35</b>	<b>5</b>
Inferred	2,353	0.15	36.4	3.92	0.38	3	2,751	92	9

Table 14-35 Notes:

1. Clay Craig, P.Eng., is the Qualified Person responsible for the disclosure of Cozamin Mineral Resources. Mineral Resources are reported at a cut-off of NSR US\$50/tonne using the MNV-Zn NSR formula:

$(Ag \times 0.241 + Zn \times 15.511 + Pb \times 12.993) \times (1 - NSR \text{ Royalty} \%)$  based on metal price assumptions (in US\$) of Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb, Pb = \$1.00/lb, metal recoveries of 55% Ag, 80% Zn and 80% Pb, confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.

2. The last date for drilling sample data and mining activities is January 1, 2023.

3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.

4. Mineral Resources are reported inclusive of the Mineral Reserves.



5. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

**Table 14-36: MNV – San Roberto Copper-Zinc Zone mineral resources above US\$59/t NSR cut-off as at January 1, 2023**

Classification	Tonnes (kt)	Cu (%)	Ag (g/t)	Zn (%)	Pb (%)	Contained			
						Cu Metal (kt)	Ag Metal (koz)	Zn Metal (kt)	Pb Metal (kt)
Copper-Zinc Zone: MNV – San Roberto									
Measured	400	1.25	54	1.23	0.40	5	692	5	2
Indicated	2,262	1.01	45	1.50	0.36	23	3288	34	8
<b>Total M + I</b>	<b>2,663</b>	<b>1.05</b>	<b>46</b>	<b>1.46</b>	<b>0.37</b>	<b>28</b>	<b>3980</b>	<b>39</b>	<b>10</b>
Inferred	3,376	0.74	38	1.57	0.14	25	4159	53	5

Table 14-36 Notes:

1. Clay Craig, P.Eng., is the Qualified Person responsible for the disclosure of Cozamin Mineral Resources. Mineral Resources are reported at a cut-off of NSR US\$59/tonne using the Copper-Zinc NSR formula:

$(Cu \times 69.739 + Ag \times 0.498 + Zn \times 12.956) \times (1 - NSR \text{ Royalty} \%)$  based on metal price assumptions (in US\$) of Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb, Pb = \$1.00/lb, metal recoveries of 95% Cu, 85% Ag and 67% Zn, confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.

2. The last date for drilling sample data and mining activities is January 1, 2023.

3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.

4. Mineral Resources are reported inclusive of the Mineral Reserves.

5. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

## 14.3 MNFWZ Mineral Resource Estimation

The Mala Noche Footwall zone resource modelling comprises the thirteen veins outlined in Section 14.1.2.2. The following description details the method and procedures employed to estimate the mineral resources within these veins and the classification of those resources.

### 14.3.1 Raw Data

The raw drillhole data were imported into Hexagon MineSight® software. A total of 622 holes or roughly half of all available 1,270 holes in the database intercepted the veins and were the only ones used to interpolate model grades. A comparison of hole numbers to previous reports is not attempted as all available drillholes had been used in the past.

The database used included results from a bulk density sampling program that has been undertaken systematically throughout the MNV and MNFWZ veins since 2013.

### 14.3.1.1 Assay Data

The raw drillhole sample data were desurveyed and stored. The vein domains and lithology wireframes were used to code the drillhole data populating the ZONE and LITH fields in the database using the priority coding defined during geological modelling. Very rarely, vein wireframes did not fall on an assay endpoint, and so at least half of the drillhole interval length needed to fall into the domain to receive the code. Statistics of assay intervals used in the modelling process is depicted in Table 14-37.

**Table 14-37: MNFWZ – Assay Lengths**

Vein	No. Samples	Total Sample lengths (m)	Min (m)	Max (m)	Mean (m)
10 NE	945	732.03	0.01	8.56	0.77
10 SW	966	754.58	0.01	8.96	0.78
8	52	34.18	0.02	1.67	0.66
9	293	228.02	0.02	2.00	0.78
11	109	74.70	0.05	2.00	0.69
18	595	474.00	0.01	9.41	0.80
19	141	101.96	0.03	2.00	0.72
20	3,352	2,438.78	0.01	13.04	0.73
21	457	328.11	0.03	2.39	0.72
22	395	284.33	0.01	2.00	0.72
23	31	24.15	0.03	2.00	0.78
24A	29	19.24	0.03	1.34	0.66
24B	14	8.55	0.02	1.46	0.61
Outside veins	88,482	330,128.42	0.01	254.57	3.73
<b>Total</b>	<b>95,861</b>	<b>335,631.05</b>			

Univariate element statistics of Cu, Ag, Pb, and Zn per vein domain are summarized in Table 14-38 for the MNFWZ model.

**Table 14-38: MNFWZ – Univariate Assay Statistics**

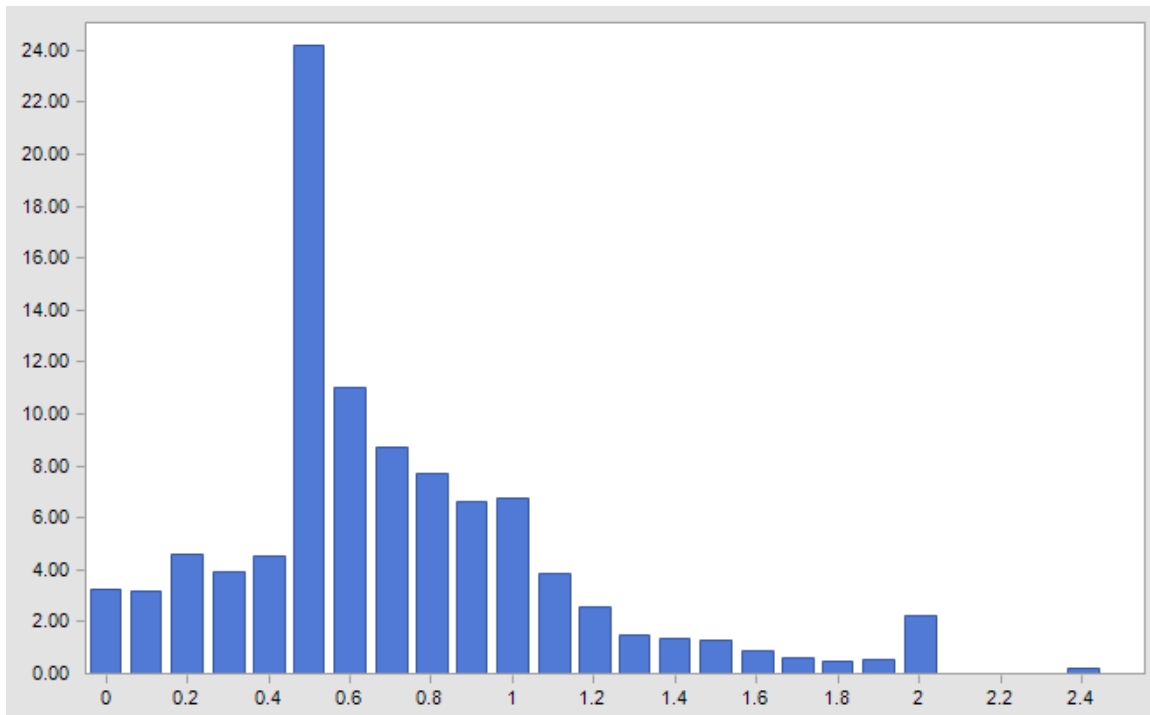
Vein	No. Samples	Cu		Ag		Pb		Zn	
		Mean	CV	Mean	CV	Mean	CV	Mean	CV
10NW	918	1.72	1.32	40.5	3.56	0.06	5.74	0.77	2.28
10SE	961	0.19	3.05	43.73	2.19	1.57	2.26	2.88	1.33
8	52	0.59	2.57	24.72	2.31	0.50	2.91	3.00	1.36
9	293	1.35	1.51	39.53	1.59	0.04	1.56	0.80	2.42
11	109	0.09	1.64	28.6	1.35	2.18	1.47	3.46	1.08
18	585	1.59	1.49	38.64	4.02	0.02	2.83	0.24	2.43
19	141	0.72	2.46	23.55	1.59	0.36	2.77	2.27	1.63
20	3347	2.42	1.31	53.47	1.66	0.07	8.60	0.44	2.53
21	454	2.96	1.27	68.63	1.25	0.03	4.14	0.37	2.46
22	394	1.55	1.49	35.48	2.06	0.05	4.72	0.34	3.00
23	31	0.55	0.85	15.16	1.65	0.02	1.22	0.04	1.25
24A	29	0.55	0.96	26	1.23	0.07	1.78	1.73	1.26
24B	14	0.39	0.73	58.94	1.46	0.06	1.10	1.62	1.19

#### 14.3.1.1.1 Bulk Density

Since 2013 bulk density samples were taken at varying lengths generally dissimilar to assay sample length. Therefore, the density database was merged with the assay database breaking the assays at density intercepts. In those cases, assays lengths were split at density interval boundaries. This process artificially increased the sample numbers of the database. 6,211 assay intervals within the veins were broken into 7,379 assay intervals after breaking by density intercepts.

#### 14.3.1.2 Compositing

The density-split drillhole intervals were composited to nominal 2m lengths. Assay intervals were coded by vein number according to majority rules described above, and new composites were begun wherever changes in the coded vein value occurred. In the case of composites with only a portion of the interval containing assays or density measurements, the missing values were excluded from calculation of the composite grade or density.



**Figure 14-12: Histogram of Assay Interval Lengths within the Vein Models**

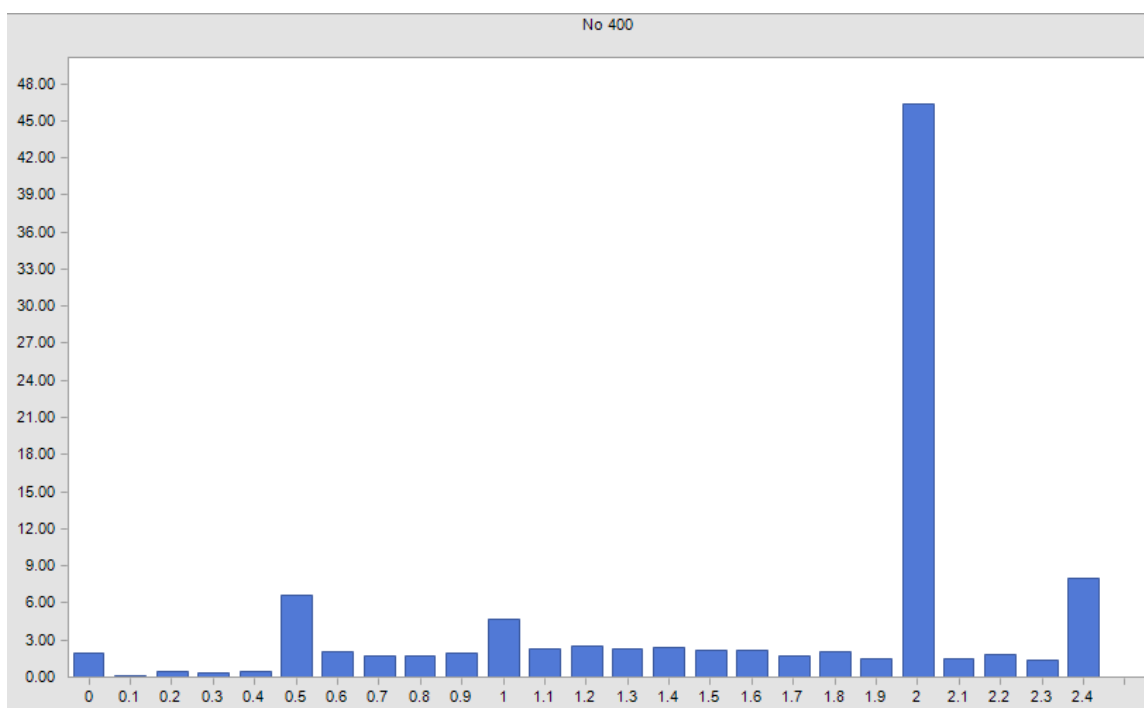
Source: Capstone, 2023

Although 2.0 m is the target composite length, any residual composites of length greater than 1.0 m and less than 2.0 m remained to represent its own composite whilst any composites residuals less than 1.0 m were combined with the uphole-composite. However, about 10% of the composites are shorter than 1m because:

- many vein widths are less than 1 m wide so these composites could not be combined with neighbours,

- The “assayed length” in a composite may be shortened if only a portion of the underlying assay interval has been assayed,
- a composite was generated if a density was present and no assay interval existed.

To compare the composite length to the assay lengths above the distribution of the 2m composites is shown in Figure 14-13 below.



**Figure 14-13: Histogram of Composite Lengths within the Vein Models**

Source: Capstone, 2023

Rarely, wireframes did not snap to an assay interval endpoint. In these cases, the resulting assay was required to fall a minimum of 50% within a given vein wireframe to be assigned its domain code.

The ‘weighting’ item to be used during grade estimation was populated by multiplying the density by the assayed composite length. Vein composites without density value were coded with the vein average density (Table 14-39).

**Table 14-39: MNFWZ – Average Density by Vein**

Vein	Average Density
10NW	2.725
10SE	3.096
8	2.770
9	2.706
11	3.004
18	2.683
19	2.942

Vein	Average Density
20	2.837
21	3.055
22	2.712
23	2.669
24A	2.718
24B	2.784

The composite length statistics per vein are presented in Table 14-40. Composites without grade were omitted.

**Table 14-40: Composite length statistics of MNFWZ (undeclared)**

Vein	No. Samples	Total sample lengths (m)	Min	Max	Mean
10NW	417	687.47	0.25	2.98	1.65
10SE	399	739.82	0.5	2.99	1.85
8	41	34.18	0.25	2.07	0.83
9	155	228.02	0.23	2.91	1.47
11	51	74.70	0.23	2.91	1.46
18	317	452.48	0.17	2.97	1.43
19	64	101.96	0.5	2.83	1.59
20	1,298	2,420.96	0.3	2.98	1.87
21	185	325.27	0.16	2.99	1.76
22	192	284.13	0.17	2.99	1.48
23	16	24.15	0.55	2.93	1.51
241	15	19.24	0.5	2.03	1.28
242	6	8.55	0.5	2.04	1.43
400	25,618	46,873.82	0.01	2.99	1.83
<b>Total</b>	<b>28,774</b>	<b>52,274.75</b>			

Univariate composite element statistics of Cu, Ag, Pb, and Zn per vein domain are summarized in Table 14-41 for the MNFWZ model.

**Table 14-41: Cu, Ag, Zn and Pb composited statistics of MNFWZ (undeclared)**

Vein	No. Samples	Cu		Ag		Pb		Zn	
		Mean	CV	Mean	CV	Mean	CV	Mean	CV
<b>10NW</b>	417	1.55	1.08	37.29	2.47	0.06	5.20	0.77	1.93
<b>10SE</b>	399	0.16	2.65	37.97	1.89	1.35	1.65	2.58	1.03
<b>8</b>	41	0.35	2.12	17.97	1.77	0.45	2.12	2.52	1.27
<b>9</b>	155	1.17	1.25	33.13	1.26	0.04	1.28	0.77	1.85
<b>11</b>	51	0.07	1.51	26.67	0.98	2.12	1.36	3.30	1.10
<b>18</b>	317	1.35	1.28	33.44	2.64	0.02	2.69	0.24	2.30
<b>19</b>	64	0.79	2.22	24.2	1.44	0.30	2.11	2.13	1.54
<b>20</b>	1298	2.26	1.06	50.16	1.2	0.06	8.14	0.41	2.04
<b>21</b>	185	2.76	1.09	64.78	1.11	0.04	4.31	0.35	2.02
<b>22</b>	192	1.32	1.22	29.31	1.33	0.04	3.02	0.30	2.28
<b>23</b>	16	0.53	0.83	15.86	1.09	0.02	1.14	0.04	1.36
<b>24A</b>	15	0.50	1.20	28.27	1.2	0.07	1.06	1.58	1.16
<b>24B</b>	6	0.28	0.71	57.93	1.71	0.05	0.82	1.77	1.31

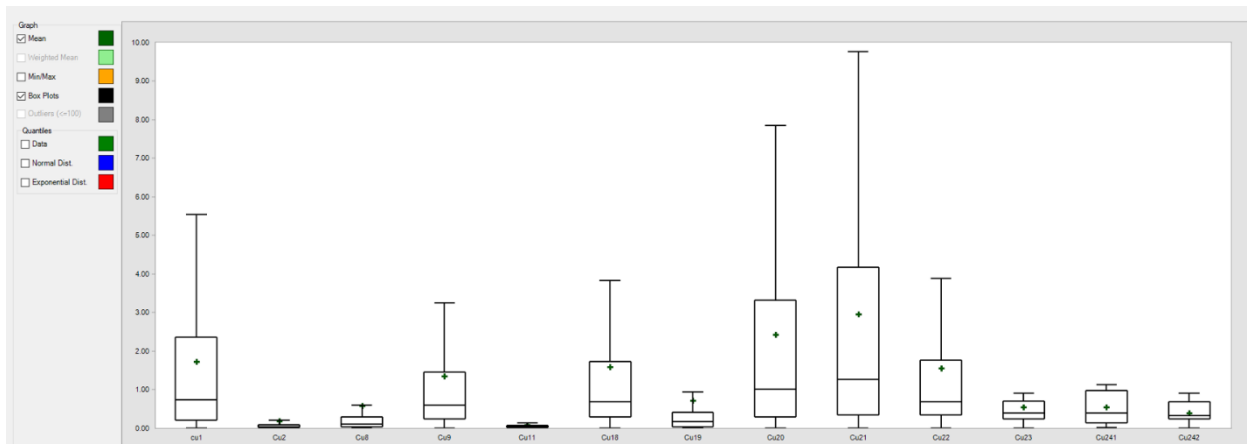
To test the validity of the compositing process, for both the assays and composites, Cu grades were multiplied by the sample or composite length for each vein and the totals were compared. The resulting divergence between assays and composites was typically less than 0.001% which verified the compositing procedure.

### 14.3.2 Exploratory Data Analysis

Exploratory data analysis (“EDA”) was undertaken on the composited drillhole data. The objectives were:

- Identify spatial trends in grade data and verify domaining strategy (data orientation, data population distributions).
- Understand sample distributions within the domains and select the appropriate grade estimation method and estimation strategy.
- Assess top-cutting and search-restriction requirements for outlier samples.
- Histograms and probability plots were used for exploratory data analysis (“EDA”) on the composited drillhole data. Histograms showed all veins and metals demonstrated log-normal distributions which is to be expected. Cumulative probability plots depicted potential breaks in grade continuity which were then used as top cutting and outlier restriction breaks.

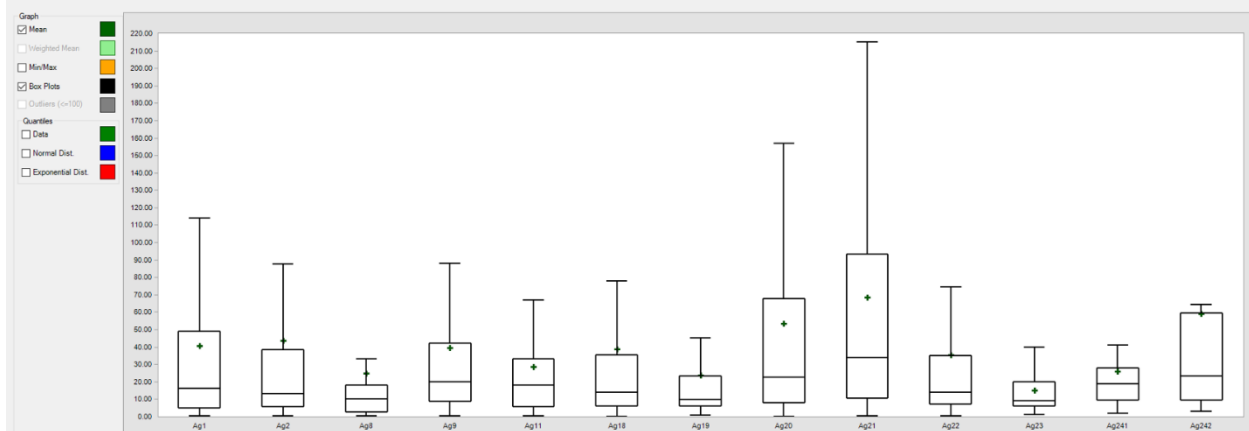
Box plots of Cu, Ag, Pb, and Zn are shown in Figure 14-14 to Figure 14-17 below which are visual representations of the univariate statistics table above (Table 14-41).



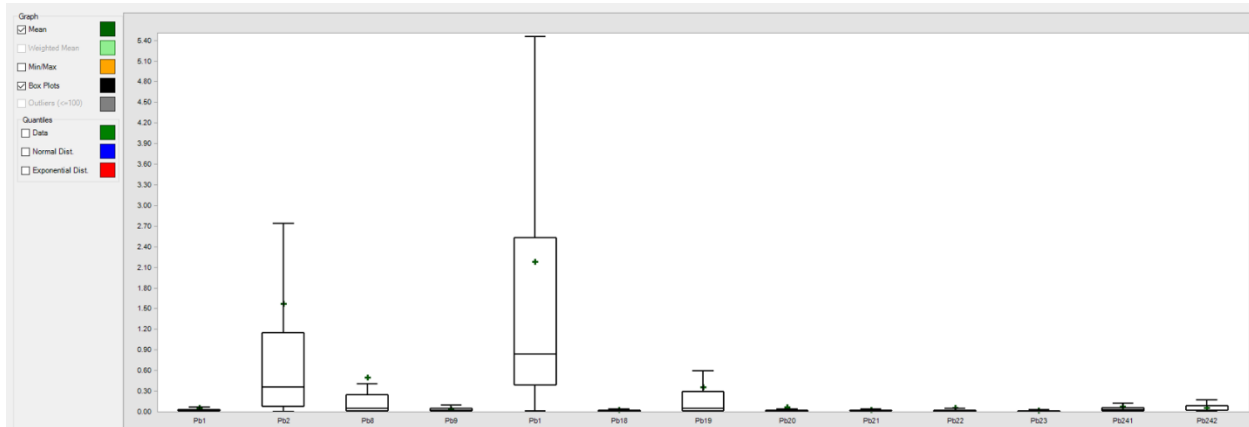
**Figure 14-14: Box Plots of Cu Grade in Composites, by Vein**

Source: Capstone, 2023

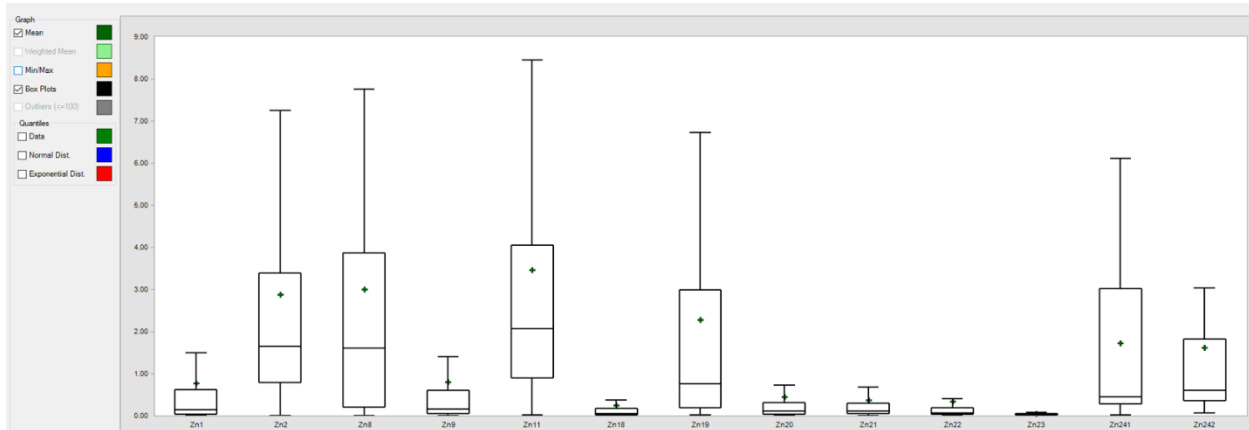




**Figure 14-15: Box Plots of Ag Grade in Composites, by Vein**  
Source: Capstone, 2023



**Figure 14-16: Box Plots of Pb Grade in Composites, by Vein**  
Source: Capstone, 2023



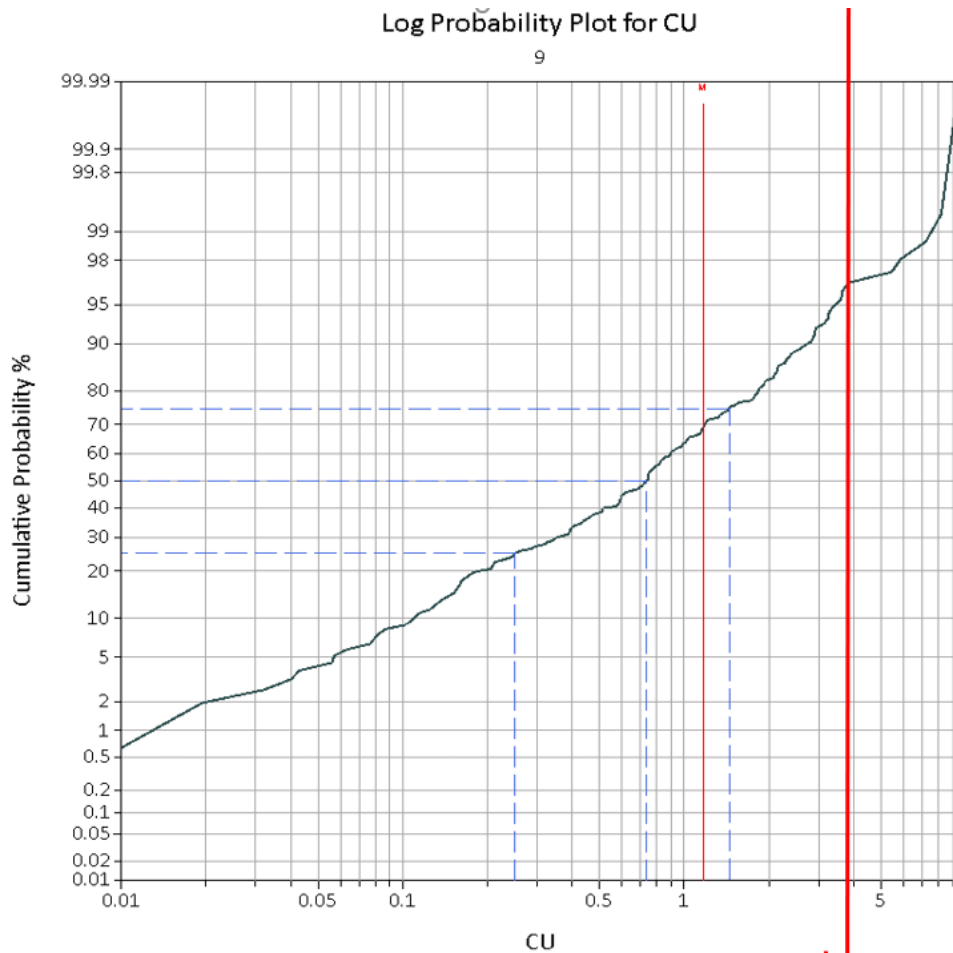
**Figure 14-17: Box Plots of Zn Grade in Composites, by Vein**  
Source: Capstone, 2023

The data in the vein domains were reviewed and the following observations were made with respect to grade distribution and continuity:

- Vein domains are generally spatially distinct, and each vein was treated as a hard boundary for grade estimation. The exception was a soft boundary between Veins 10NW and 10SE.
- Three vein “groups” were created based upon similarities in grade statistics, and within each group the same estimation parameters were applied. These groups were veins 10NW and 09; veins 10SE, 11, 19, 24A and 24B; and veins 8, 18, 20, 21, 22, and 23. The first group used parameters based upon vein 10NW properties, the second group based upon vein 10SE; and the third group based upon vein 20.

#### **14.3.2.1      *Outlier Analysis***

Grade distributions in each vein were assessed graphically and spatially for the presence of outlier samples, which can have a disproportionate impact during grade estimation and can lead to overestimated grades. Determination of appropriate top-cut values was undertaken through identification of outliers in box plots and for outlier restriction by inflection points in log-probability plots. An example of a log plot for Cu is shown in Figure 14-18 below:



**Figure 14-18: log Plots of Zn Grade in Composites, by Vein**

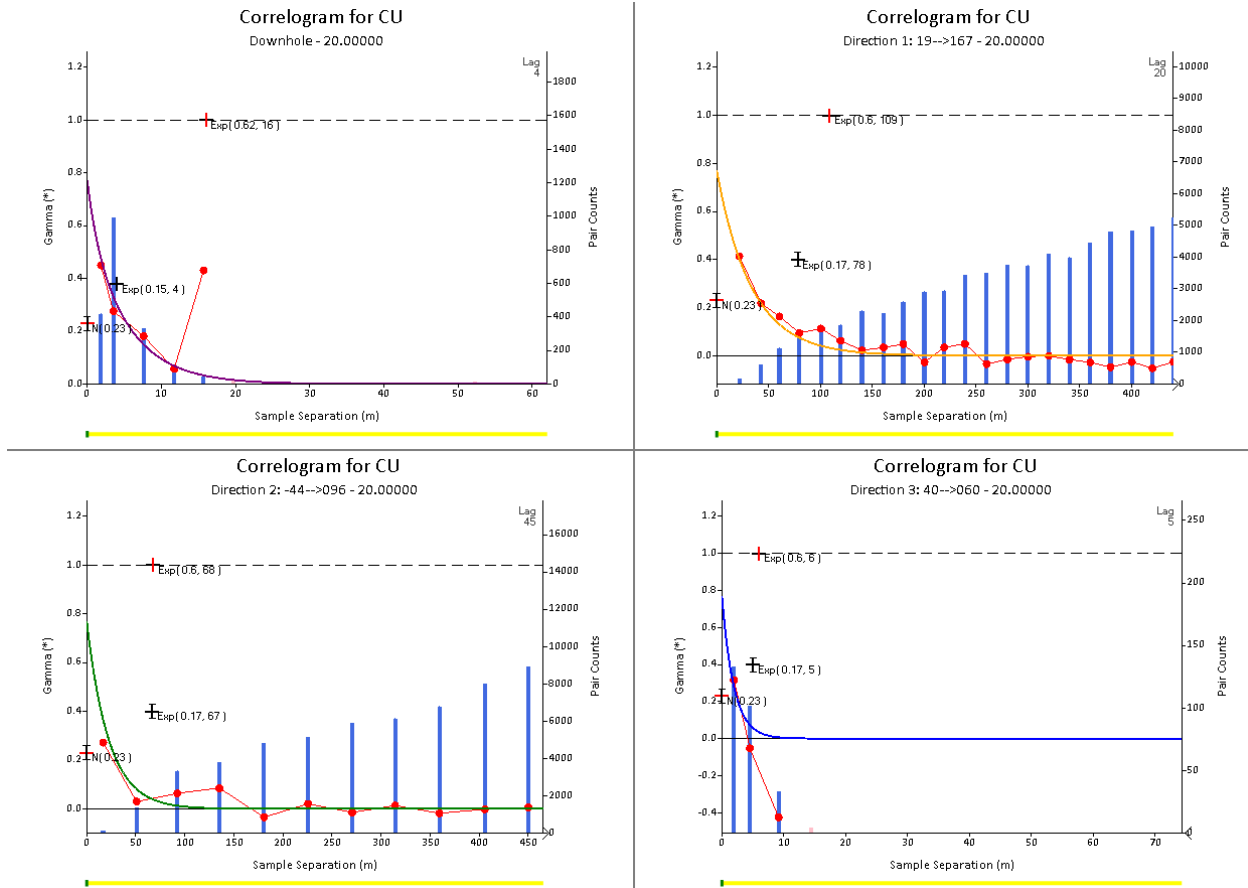
Source: Capstone, 2023

Example of top-cut values for Cu. Grades above 9% Cu were top cut in the composite database while outlier restrictions at lower thresholds were applied to grades in each vein. An example limit of 3.8% Cu is indicated by the red line.

### 14.3.2.2 Variography

Spatial relationships of the top-cut, composited sample data were analyzed in Datamine's Snowden Supervisor Version 8.14 to define continuity directions of the mineralization. Experimental variograms and variogram models in the form of correlograms were generated for Cu, Ag, Zn and Pb grades.

The definition of the nugget effect for each of the metals was taken from the downhole variograms. An example of the Cu variogram for vein 20 is shown in the figure below. The first plot depicts the downhole variography while the other three show the variography in the three vein directions. The fourth plot represents the variography perpendicular to the vein attitude and is defined by very few samples because of the sheet-like thickness of the vein.



**Figure 14-19: Example Correlograms of Copper for Vein 20**

Source: Capstone, 2023

The correlogram models for each of copper, silver, zinc and lead are shown in the Table 14-42. All rotations use the GSLIB convention.

**Table 14-42: Correlogram models**

Correlogram Model		Veins 10NW, 9						
		Gamma	Dist1	Dist2	Dist3	Rot1	Rot2	Rot3
Cu	Nugget	0.24						
	C1	0.56	62	26	7	137	-13	59
	C2	0.2	75	77	13	137	-13	59
Ag	Nugget	0.42						
	C1	0.57	24	32	7	136	-12	54
	C2	0.01	25	33	13	136	-12	54
Pb	Nugget	0.44						
	C1	0.09	37	24	1	118	-38	51
	C2	0.74	50	24	2	118	-38	51
Zn	Nugget	0.24						
	C1	0.67	39	28	5	122	-34	53
	C2	0.09	40	28	5	122	-34	53
Correlogram Model		Veins 10SE, 11, 19, 24A, 24B						
		Gamma	Dist1	Dist2	Dist3	Rot1	Rot2	Rot3

Cu	Nugget	0.17						
	C1	0.74	16	9	2	123	-16	53
	C2	0.09	32	25	2	123	-16	53
Ag	Nugget	0.34						
	C1	0.65	25	68	7	88	-52	36
	C2	0.01	25	69	13	88	-52	36
Pb	Nugget	0.14						
	C1	0.85	25	31	10	126	-12	54
	C2	0.01	25	31	10	126	-12	54
Zn	Nugget	0.38						
	C1	0.44	13	13	4	144	12	54
	C2	0.18	64	40	5	144	12	54
Correlogram Model		Veins 8, 18, 20, 21, 22, 23						
		Gamma	Dist1	Dist2	Dist3	Rot1	Rot2	Rot3
Cu	Nugget	0.23						
	C1	0.76	28	22	2	167	19	47
	C2	0.01	28	22	5	167	19	47
Ag	Nugget	0.08						
	C1	0.76	17	10	2	-159	48	31
	C2	0.16	58	57	13	-159	48	31
Pb	Nugget	0.47						
	C1	0.36	14	15	3	135	-20	52
	C2	0.17	14	15	3	135	-20	52
Zn	Nugget	0.20						
	C1	0.38	16	12	7	176	32	48
	C2	0.42	45	31	7	176	32	48

#### 14.3.2.3 Block Model

The “parent” block dimensions are 12 m East × 2 m North × 10 m Elevation. This is considered acceptably close to the selective mining unit (“SMU”) size, and is roughly one-third to one-quarter the average drillhole spacing supporting Indicated mineral resources (about 40 m × 40 m). The MNFWZ block model is sub-blocked and rotated to the southeast at 145° and was updated to represent the modeled geology and vein domain wireframes generated in Leapfrog®. The model origin is defined as the lower, southwest edge of the model and the origin coordinates are in the Cozamin local mine grid. Model variables comprised domain codes, grades, classification, density, estimation parameters, and search angles used by the anisotropy. Waste density values were coded into the block model to provide additional information regarding local dilution grades and tonnages. The table below depicts the block model origin and sub-block parameters.

**Table 14-43: MNFWZ Block model origin and parameters**

	X	Y	Z
Origin* (local grid)	746,884.125	2,523,943.25	1,200
Parent Block Size (m)	12.0	2.0	10.0
Sub-Block Size (m)	4.0	0.5	2.0
Extents (m)	2,964	1,050	1,420

\*Table Note: Model origin is defined as lower, southwest edge of the model.

#### 14.3.2.4 *Grade and Density*

The estimation plan consisted of these steps:

- Coding the mineralized zone code of modelled veins into each block as well as lithology into waste blocks applying the 50% rule.
- Estimated bulk specific gravity based on an inverse distance squared method for the veins and coding specific gravity of waste blocks as an average of SGs in each lithology unit.
- Estimated block Cu, Ag, Zn and Pb grades by ordinary kriging with outlier restriction using three estimation passes for each.

The OK grade estimation strategy was defined through an assessment of variogram shapes and ranges, and a review of the estimation parameters used in the previous estimates. A multi-pass search strategy was used. The search ellipsoids were oriented based upon variogram model anisotropy. The ellipsoidal search distances in the major and intermediate direction were based upon multiples of “D80” (distance at which 80% of the correlogram variance is reached) as follows

- Largest estimation pass used 10-times the D80
- Medium estimation pass used 5-times the D80
- Short estimation pass used 3-times the D80

For the direction of “minor” continuity (perpendicular to the veins), used double the distances listed above. Dynamic anisotropy was not employed during estimation of MNFWZ grades, and this wider search in the direction of minor continuity allowed improved capture of composites that otherwise would have been missed when the veins turned sharply. The short estimation pass was given the highest priority, followed by the medium pass, and the largest pass was given the lowest priority.

Copper, silver, lead and zinc were estimated independently of each other. Vein limits were treated as hard boundaries except for vein 1 and 2 which were soft. Outlier restriction was applied within the individual estimation profiles. The search parameters for all runs are shown in Table 14-44, using the GSLIB rotation convention, and with each pass using a maximum of 2 composites per hole. Using 2 max composites per holes limits the impact of the “string effect” during kriging.

**Table 14-44: Estimation Search Parameters**

Estimation	Veins 10NW, 9								
	Pass	Rot1	Rot2	Rot3	Dist1	Dist2	Dist3	Min Comps	Max Comps
Cu	1	137	-13	59	800	450	300	1	8
	2	137	-13	59	400	225	150	5	10
	3	137	-13	59	240	135	90	7	12
Ag	1	136	-12	54	250	350	100	1	8
	2	136	-12	54	125	175	50	5	10
	3	136	-12	54	75	105	30	7	12
Pb	1	118	-38	51	490	240	100	1	8
	2	118	-38	51	245	120	50	5	10



	3	118	-38	51	49	24	10	7	12
Zn	1	122	-34	53	530	370	150	1	8
	2	122	-34	53	265	185	75	5	10
	3	122	-34	53	159	111	45	7	12
Estimation	Vein 10SE, 11, 19, 24A, 24B								
	Pass	Rot1	Rot2	Rot3	Dist1	Dist2	Dist3	Min Comps	Max Comps
Cu	1	123	-16	53	240	150	100	1	8
	2	123	-16	53	120	75	50	5	10
	3	123	-16	53	72	45	30	7	12
Ag	1	88	-52	36	290	800	200	1	8
	2	88	-52	36	145	400	100	5	10
	3	88	-52	36	87	240	60	7	12
Pb	1	126	-12	54	360	450	200	1	8
	2	126	-12	54	180	225	100	5	10
	3	126	-12	54	36	45	20	7	12
Zn	1	144	12	54	220	200	100	1	8
	2	144	12	54	110	100	50	5	10
	3	144	12	54	66	60	30	7	12
Estimation	Vein 8, 18, 20, 21, 22, 23								
	Pass	Rot1	Rot2	Rot3	Dist1	Dist2	Dist3	Min Comps	Max Comps
Cu	1	167	19	44	380	300	150	1	8
	2	167	19	44	190	150	75	5	10
	3	167	19	44	114	90	45	7	12
Ag	1	-159	48	31	370	280	150	1	8
	2	-159	48	31	185	140	75	5	10
	3	-159	48	31	111	84	45	7	12
Pb	1	135	-20	52	130	150	50	1	8
	2	135	-20	52	65	75	25	5	10
	3	135	-20	52	13	15	5	7	12
Zn	1	176	32	48	400	290	150	1	8
	2	176	32	48	200	145	75	5	10
	3	176	32	48	120	87	45	7	12

During estimation, composites were weighted by the product of length x specific gravity.

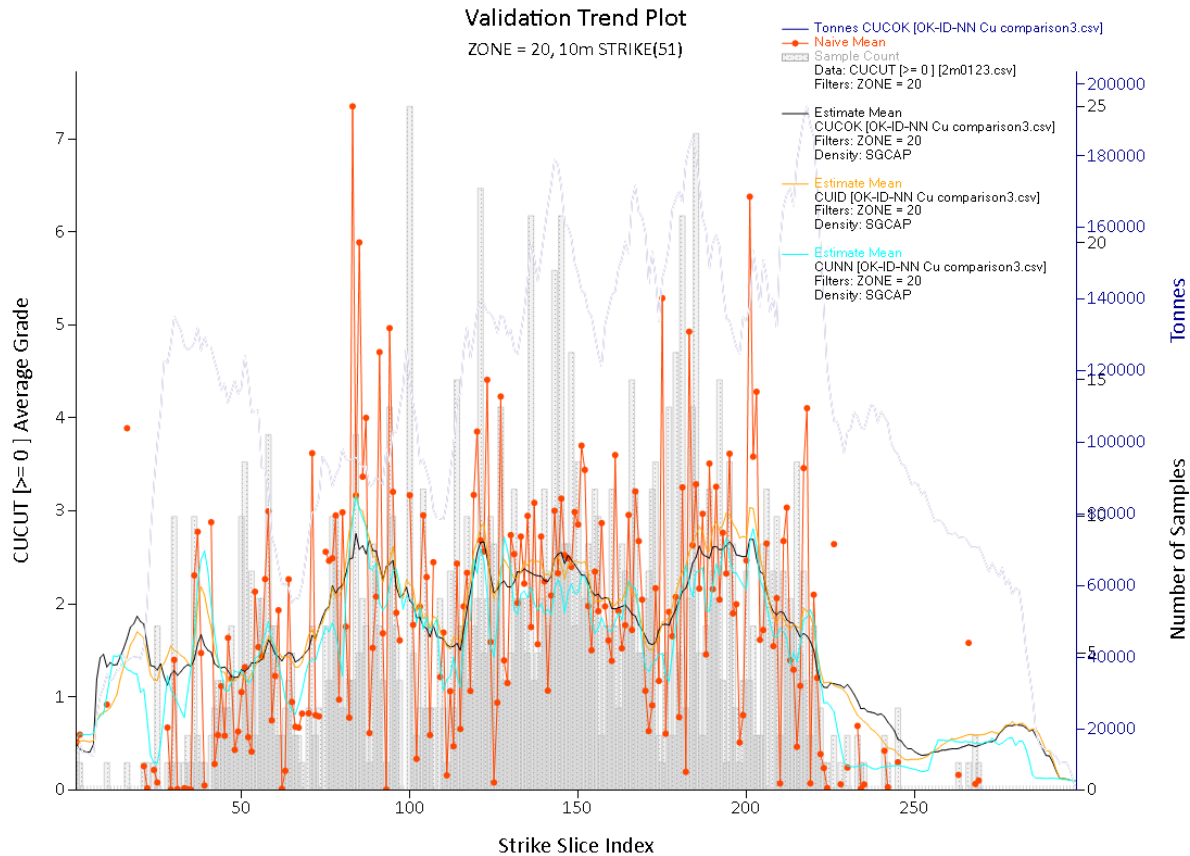
#### 14.3.2.5 Model Validation

Block model validation after grade estimation involved the following steps:

- Visual inspection of block grades against the input drillhole data.
- Histogram and Grade-Tonnage curve evaluation.
- Evaluation of block grades estimates (Ordinary kriged vs. inverse distance vs. nearest neighbor) in swath plots.
- Statistical analysis

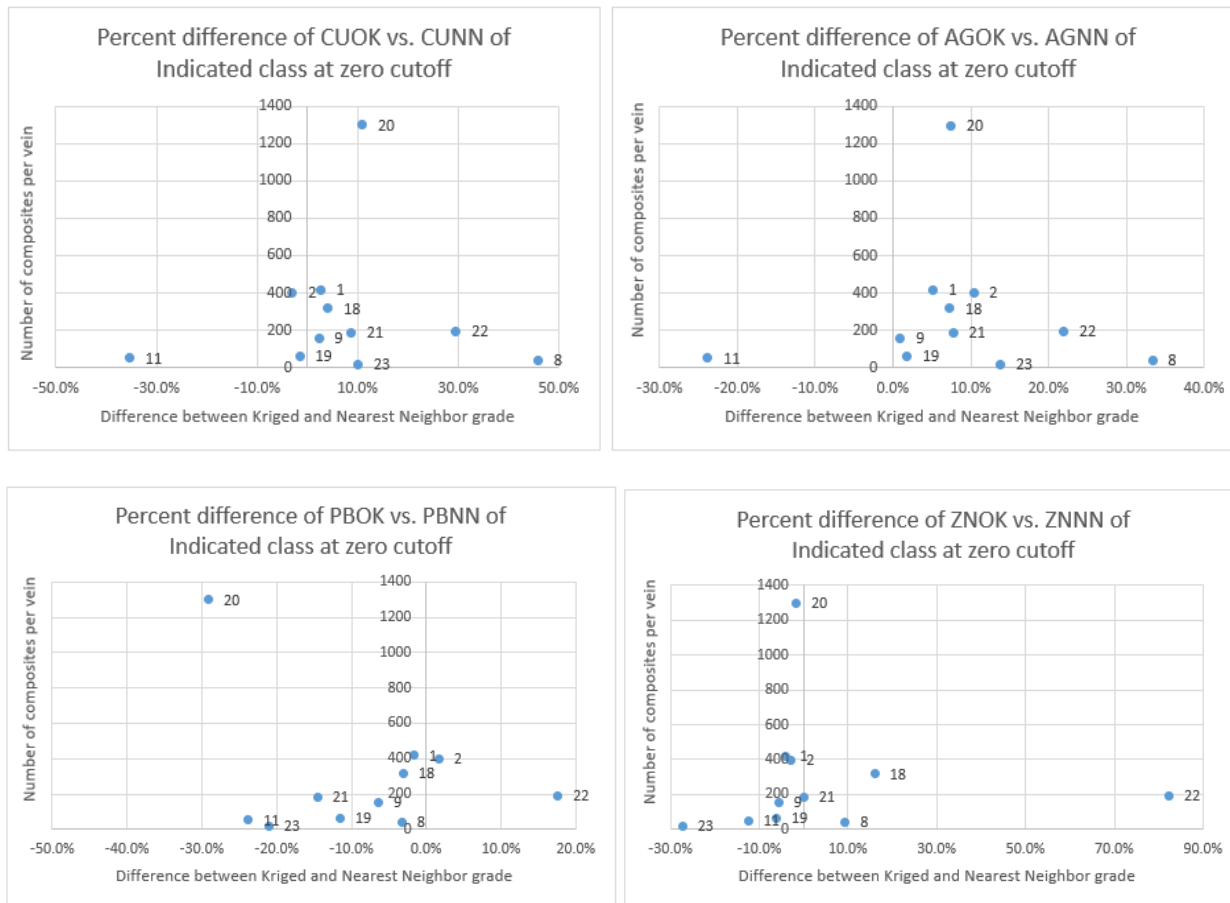
An example swath plot is shown in Figure 14-20, comparing CUOK (black), CUID (orange), and CUNN (declusterd population = cyan). This example is for Cu in vein 20, for swaths oriented along

the strike direction. Also shown are the average composite grades in red with their shaded frequency per slice.



**Figure 14-20: Example Swath Plot for Copper in Vein 20 along Strike Direction**  
Source: Capstone, 2023

Figure 14-21 compares OK grades with NN grades for Indicated blocks in each vein. The formula applied to calculate the percent difference is  $(OK-NN)/NN$ . The data labels identify the vein number. For the more significant veins, Cu and Ag show elevated OK grades compared to NN, whereas Pb and Zn show lower OK grades compared to NN. The results are within the tolerances generally expected from Indicated Resources.



**Figure 14-21: Comparison of Ordinary Kriged grades versus Declustered Composites (NN)**

Source: Capstone, 2023

#### 14.3.2.6 Mineral Resource Classification

Mineral Resources classification conforms to the definitions provided in the CIM Definition Standards for Mineral Resources and Reserves (CIM, 2014). Classification of mineral resources in the Mala Noche Footwall zone considered the following factors:

- QAQC data: There is accurate and repeatable performance of external certified reference material and duplicate samples. There is also an established bulk density QAQC data set. The QAQC data are of sufficient quality to support classification of Measured mineral resources.
- Drillhole spacing: The high-level drillhole spacing study completed by Davis (2018) recommended a 50 m × 50 m drillhole spacing grid to have sufficient confidence in grade continuity for Indicated resources. This was the primary constraint used during classification, but areas with wider spacing were reviewed on a case-by-case basis. No Measured resources were assigned in the Mala Noche Footwall Zone. Inferred Resources initially required the closest composite within 140m, and after application

of a resource categorization wireframe to remedy the “spotted dog” effect, generally resulted in a 100m x 200m drill spacing to satisfy Inferred Resource classification.

- Confidence classification boundaries digitized taking into account number of composites informed, distance to nearest composite, and average distance of the closest two composites used.
- Underground development and mined stopes.

#### **14.3.2.7 Grade-Tonnage Reporting**

Mineral Resources were reported above a US\$59/t NSR cut-off and consider depletion from mining prior to January 1, 2023. The NSR cutoff is based upon historical costs at site, plus escalation related to input costs and the new process of paste backfill.

Mineral Resources at MNFW were evaluated using three NSR formula with coefficients based metallurgical recovery of mineralization in different zones. Metal prices used were US\$3.75/lb Cu, US\$22.00/oz Ag, US\$1.35/lb Zn, US\$1.00/lb Pb.

- The assumed metallurgical recoveries at MNFW **copper-silver** zones were 96.16% Cu and 85.83% Ag.
- Assumed metal recoveries in **copper-zinc** zones across Cozamin were 94.82% Cu, 83.82% Ag, 66.95% Zn, and 0% Pb.
- MNFW-**zinc** zones use assumed metallurgical recoveries of 66.50% Ag, 86.79% Zn, and 92.86% Pb.

Confidential smelter contract terms were incorporated into the formula and royalties on ground covered by Bacis and EDR agreements were deducted. The resulting NSR formulae are listed below.

Vein 09, Vein 18, Vein 20, Vein 21, Vein 22, Vein 23 use the copper-silver NSR formula:

$$\text{Cu-Ag NSR} = (\text{Cu}\% * \$70.72 + \text{Ag g/t} * \$0.53) * (1 - \text{NSRRoyalty}\%)$$

MNFWZ domains Vein 8, Vein 10 NW and Vein 19 use the copper-zinc NSR formula:

$$\text{Cu-Zn NSR} = (\text{Cu}\% * \$69.74 + \text{Ag g/t} * \$0.50 + \text{Zn}\% * \$12.96) * (1 - \text{NSRRoyalty}\%)$$

MNFWZ domain Vein 10 SE and Vein 11, Vein 24a, Vein 24b use the MNFWZ zinc-silver NSR formula:

$$\text{MNFWZ-Zn NSR} = (\text{Ag g/t} * \$0.35 + \text{Zn}\% * \$16.80 + \text{Pb}\% * \$15.11) * (1 - \text{NSRRoyalty}\%)$$

The Mineral Resources are not particularly sensitive to the selection of NSR cut-off. Table 14-45 shows global quantities and grade in the MNFWZ at different NSR cut-offs. The reader is cautioned that these values should not be misconstrued as a Mineral Reserve. The reported quantities and grades are only presented to show the sensitivity of the resource model to the selection of cut-off.

**Table 14-45: MNFWZ mineral resources at various cut-off as at January 1, 2023**

NSR COG	Tonnes (kt)	NSR (US\$)	Cu (%)	Ag (g/t)	Zn (%)	Pb (%)	Contained			
							Cu (kt)	Ag (koz)	Zn (kt)	Pb (kt)
Indicated										
>=70	14,505	167.06	1.881	49.85	0.80	0.40	273	23,250	116	58
>=65	15,243	162.24	1.814	48.70	0.83	0.41	277	23,866	126	62
>=59	16,159	156.56	1.737	47.23	0.86	0.41	281	24,538	139	66
>=55	16,743	153.08	1.690	46.33	0.88	0.41	283	24,938	147	69
>=50	17,424	149.16	1.638	45.30	0.89	0.41	285	25,374	156	71
>=45	18,121	145.25	1.588	44.24	0.91	0.41	288	25,774	164	74
Inferred										
>=70	5,277	120.14	0.946	41.05	1.56	1.52	50	6,966	82	80
>=65	5,669	116.51	0.910	40.25	1.56	1.48	52	7,336	89	84
>=59	6,122	112.46	0.874	39.15	1.55	1.44	53	7,704	95	88
>=55	6,479	109.40	0.848	38.40	1.54	1.40	55	7,999	100	91
>=50	6,954	105.49	0.816	37.37	1.54	1.34	57	8,355	107	93
>=45	7,474	101.45	0.784	36.27	1.54	1.29	59	8,714	115	97

Table Notes:

1. Mineral Resources are reported at a cut-off of NSR US\$59/tonne using three formulae for NSR based on mineralization.

- Copper-silver dominant zones use the NSR formula:  $(Cu\% \times \$70.72 + Ag\ g/t \times \$0.53) \times (1 - NSR\ Royalty\%)$ .
- Copper-zinc zones use the NSR formula:  $(Cu\% \times \$69.74 + Ag\ g/t \times \$0.50 + Zn\% \times \$12.96) \times (1 - NSR\ Royalty\%)$ .
- MNFWZ zinc-silver dominant zones use the NSR formula:  $(Ag\ g/t \times \$0.35 + Zn\% \times \$16.80 + Pb\% \times \$15.11) \times (1 - NSR\ Royalty\%)$ .

Metal price assumptions (in US\$) used to calculate the NSR are: Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb and Pb = \$1.00/lb. Recoveries used in the NSR formulae are based on mineralization. Copper-silver dominant zones use the following recoveries: 96.16% Cu and 85.83% Ag. Copper-zinc zones use the following recoveries: 94.82% Cu, 83.82% Ag, 66.95% Zn, and 0% Pb. MNFWZ zinc-silver dominant zones use the following recoveries: 66.50% Ag, 86.79% Zn, and 92.86% Pb. The NSR formulae include confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by long-hole stoping and post-pillar cut-and-fill and mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.

2. The last date for drilling sample data and mining activities is December 31, 2022.

3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.

4. Mineral Resources are reported inclusive of the Mineral Reserves.

CIM Definition Standards for Mineral Resources and Mineral Reserves (2014) defines a mineral resource as:

*“...a concentration or occurrence of solid material of economic interest in or on the earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.*

*The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge,*

*including sampling.”*

The “reasonable prospects for eventual economic extraction” requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade taking into account the likely extraction scenarios and process metal recoveries. It is the opinion of the Qualified Person that the Mala Noche Footwall zone, as classified, has a reasonable expectation of economic extraction.

Table 14-46 presents the mineral resource statement for the Mala Noche Footwall Zone at a US\$59/t NSR cut-off.

**Table 14-46: MNFWZ mineral resource above US\$59/t NSR cut-off as at January 1, 2023**

Classification	Tonnes (kt)	Copper (%)	Silver (g/t)	Zinc (%)	Lead (%)	Cu Metal (kt)	Ag Metal (koz)	Zn Metal (kt)	Pb Metal (kt)
<b>Copper-Silver Zone: MNFWZ VN20</b>									
Measured	-	-	-	-	-	-	-	-	-
Indicated	7,286	2.32	54	0.29	0.03	169	12,574	21	2
<b>Total M + I</b>	<b>7,286</b>	<b>2.32</b>	<b>54</b>	<b>0.29</b>	<b>0.03</b>	<b>169</b>	<b>12,574</b>	<b>21</b>	<b>2</b>
Inferred	2,516	1.39	48	0.63	0.09	35	3,882	16	2
<b>Other MNFWZ Copper-Silver Zones (VN09, VN18, VN21, VN22)</b>									
Measured	-	-	-	-	-	-	-	-	-
Indicated	3,710	2.01	46	0.26	0.03	75	5,472	10	1
<b>Total M + I</b>	<b>3,710</b>	<b>2.01</b>	<b>46</b>	<b>0.26</b>	<b>0.03</b>	<b>75</b>	<b>5,472</b>	<b>10</b>	<b>1</b>
Inferred	461	1.40	37	0.34	0.04	6	556	2	0
<b>Total MNFWZ Copper-Silver Zones (VN09, VN18, VN20, VN21, VN22)</b>									
Measured	-	-	-	-	-	-	-	-	-
Indicated	10,996	2.22	51	0.28	0.03	244	18,046	31	3
<b>Total M + I</b>	<b>10,996</b>	<b>2.22</b>	<b>51</b>	<b>0.28</b>	<b>0.03</b>	<b>244</b>	<b>18,046</b>	<b>31</b>	<b>3</b>
Inferred	2,977	1.39	46	0.59	0.08	41	4,438	17	2
<b>MNFWZ Copper- Zinc Zones (VN01, VN08, VN19)</b>									
Measured	-	-	-	-	-	-	-	-	-
Indicated	2,049	1.61	34	0.64	0.04	33	2,215	13	1
<b>Total M + I</b>	<b>2,049</b>	<b>1.61</b>	<b>34</b>	<b>0.64</b>	<b>0.04</b>	<b>33</b>	<b>2,215</b>	<b>13</b>	<b>1</b>
Inferred	858	1.46	37	0.58	0.05	13	1,014	5	0
<b>MNFWZ-Zinc Zones (VN02, VN11)</b>									
Measured	-	-	-	-	-	-	-	-	-
Indicated	3,114	0.12	43	3.04	2.00	4	4,277	95	62
<b>Total M + I</b>	<b>3,114</b>	<b>0.12</b>	<b>43</b>	<b>3.04</b>	<b>2.00</b>	<b>4</b>	<b>4,277</b>	<b>95</b>	<b>62</b>
Inferred	2,718	0.21	32	2.73	3.13	6	2,762	74	85



MNFWZ All Zones (Copper-Silver + Copper-Zinc + MNFWZ-Zinc)									
Measured	-	-	-	-	-	-	-	-	-
Indicated	16,159	1.74	47	0.86	0.41	281	24,538	139	66
<b>Total M + I</b>	<b>16,159</b>	<b>1.74</b>	<b>47</b>	<b>0.86</b>	<b>0.41</b>	<b>281</b>	<b>24,538</b>	<b>139</b>	<b>66</b>
Inferred	6,553	0.91	39	1.48	1.34	59	8,213	97	88

Table Notes:

1. Mineral Resources are reported at a cut-off of NSR US\$59/tonne using three formulae for NSR based on mineralization.

- Copper-silver dominant zones use the NSR formula:  $(\text{Cu}\% \times \$70.72 + \text{Ag g/t} \times \$0.53) \times (1 - \text{NSR Royalty}\%)$ .
- Copper-zinc zones use the NSR formula:  $(\text{Cu}\% \times \$69.74 + \text{Ag g/t} \times \$0.50 + \text{Zn}\% \times \$12.96) \times (1 - \text{NSR Royalty}\%)$ .
- MNFWZ-zinc dominant zones use the NSR formula:  $(\text{Ag g/t} \times \$0.35 + \text{Zn}\% \times \$16.80 + \text{Pb}\% \times \$15.11) \times (1 - \text{NSR Royalty}\%)$ .

Metal price assumptions (in US\$) used to calculate the NSR are: Cu = \$3.75/lb, Ag = \$22.00/oz, Zn = \$1.35/lb and Pb = \$1.00/lb. Recoveries used in the NSR formulae are based on mineralization. Copper-silver dominant zones use the following recoveries: 96.16% Cu and 85.83% Ag. Copper-zinc zones use the following recoveries: 94.82% Cu, 83.82% Ag, 66.95% Zn, and 0% Pb. MNFWZ-zinc zones use the following recoveries: 66.50% Ag, 86.79% Zn, and 92.86% Pb. The NSR formulae include confidential current smelter contract terms, transportation costs and royalty agreements from 1 to 3%, as applicable, are incorporated. All contained metals are reported at 100%. Totals may not sum exactly due to rounding. The NSR cut-off of US\$59/tonne is based on operational mining and milling costs plus general and administrative costs. The Mineral Resources consider underground mining by longhole stoping and post-pillar cut-and-fill with mineral processing by flotation. Mineral Resource estimates do not account for mining loss and dilution.

2. The last date for drilling sample data and mining activities is December 31, 2022.

3. Mineral Resources that have not been converted to Mineral Reserves do not have demonstrated economic viability.

4. Mineral Resources are reported inclusive of the Mineral Reserves.

## 14.4 Risk factors that may affect the Mineral Resource Estimate

The QP notes certain risk factors could materially impact the Mineral Resource estimate, such as:

- Changes in continuity of grade and in interpretation of mineralized zones after further exploration and mining
- Uncertainty of assumptions underlying the consideration of reasonable prospects of economic extraction, such as commodity price, exchange rate, geotechnical and hydrogeological aspects, operating and capital costs, metal recoveries, concentrate grade and smelting/refining terms
- Significant changes to land tenure or the permitting requirements.

There are no environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant factors other than as discussed in this Report that are expected to affect the Mineral Resource estimates.

## 15 Mineral Reserve Estimates

Clay Craig, P.Eng., Director, Mining and Strategic Planning at Capstone Copper Corp., is the Qualified Person for the Cozamin Mineral Reserve Estimate. The estimate is based on the mineral resource block models, with the MNFWZ model update and NSR update for MNV being prepared under direct supervision of Clay Craig, P.Eng.

The Cozamin Mineral Reserve estimate effective as of January 1, 2023 is listed in Table 15-1. The Mineral Reserves are estimated based on longitudinal longhole stoping, transverse longhole stoping and cut and fill mining methods primarily using paste backfill. Tabulations are from the interrogations of development and stope triangulations generated in *Deswik* mining software (“DSO”). These triangulations were applied to both Mineral Resource block models listed above after the models had been depleted of past mining production and areas of geotechnical sterilization. Mining losses and dilution are also factored for in the Mineral Reserve estimate.

Capstone considers that the classification and reporting of the Mineral Reserves is in accordance with CIM Definition Standards (CIM, 2014) and CIM Estimation of Mineral Resources and Mineral Reserves Best Practices Guidelines (CIM, 2019). The effective date of this Technical Report is January 1, 2023. Capstone is not aware of any other mining, metallurgical, infrastructure, permitting, or other relevant factors not covered in this NI 43-101 Technical Report that could materially affect the Mineral Reserve estimate.

**Table 15-1: Cozamin Mineral Reserve Estimate at January 1, 2023**

Classification	Tonnes	Copper	Silver	Zinc	Lead	Copper Metal	Silver Metal	Zinc Metal	Lead Metal
	(kt)	(%)	(g/t)	(%)	(%)	(kt)	(koz)	(kt)	(kt)
<b>MNFWZ + MNV Mineral Reserve Summary</b>									
Proven	-	-	-	-	-	-	-	-	-
Probable	10,210	1.65	43.44	0.54	0.29	168	14,258	55	29
<b>Proven + Probable</b>	<b>10,210</b>	<b>1.65</b>	<b>43.44</b>	<b>0.54</b>	<b>0.29</b>	<b>168</b>	<b>14,258</b>	<b>55</b>	<b>29</b>

Table Notes:

- The Mineral Reserve is reported at the point of delivery to the process plant, using the 2014 CIM Definition Standards, and has an effective date of January 1, 2023.
- The Qualified Person for the estimate is Mr. Clay Craig, P.Eng., a Capstone employee.
- The Mineral Reserve is reported within fully diluted mineable stope shapes generated by the Deswik Mineable Shape Optimiser software. Mining methods include long-hole stoping and cut-and-fill methods.
- The Mineral Reserve is reported at or above a blended cut-off of \$60.54/t NSR for long-hole stoping and \$65.55/t NSR for cut-and-fill mining.
- The NSR cut-off is based on operational mining and milling costs plus general and administrative costs. The NSR formulae vary by zone. Three separate NSR formulae are used based on zone mineralization and metallurgical recoveries. Copper-silver dominant zones use the NSR formula:  $(Cu*66.638 + Ag*0.484)*(1-NSRRoyalty\%)$ . MNFWZ zinc-silver zones use the NSR formula:  $(Ag*0.290 + Zn*13.723 + Pb*13.131)*(1-NSRRoyalty\%)$ . MNV zinc-silver dominant zones use the NSR formula:  $(Ag*0.228 + Zn*12.121 + Pb*11.363)*(1-NSRRoyalty\%)$ . Metal price assumptions (in USD) of Cu \$3.55/lb, Ag = \$20.00/oz, Pb = \$0.90/lb, Zn = \$1.15/lb and metal recoveries of 96% Cu, 86% Ag, 0% Pb and 0% Zn in copper-silver dominant zones, 0% Cu, 61% Ag, 93% Pb and 88% Zn in MNFWZ zinc-silver dominant zones, and 0% Cu, 56% Ag, 80% Pb and 77% Zn in MNV zinc-silver dominant

zones. The formulae include consideration of confidential current smelter contract terms, transportation costs and 1–3% net smelter return royalty payments. Royalties are dependent on the mining concession, and are treated as costs in the Mineral Reserve estimates.

6. Totals may not sum due to rounding.

## 15.1 NSR Formula

The primary metal concentrate produced at Cozamin is copper concentrate, but significant amounts of zinc and lead concentrates are also produced. All three concentrate products contain marketable silver. Due to the polymetallic nature of the mine, a formula is generated for each ore type that considers all sold concentrate products, which is used to estimate the revenue generated by the mining, processing, and marketing of a block of ore. This formula, called the Net Smelter Return (NSR), is an estimate of the net revenue received from the sale of the concentrates generated by processing a tonne of ore, calculated by subtracting any applicable payability, treatment charges, refining charges, and any other marketing or selling costs from the value of the contained metal in concentrate. The formula considers the metal price assumptions, the metallurgical recovery relationships, and the smelter (or trader) terms and costs in the estimate of the net revenue.

The NSR formulae reflect the following updated metal price forecasts and smelter terms since the previous Mineral Reserve estimate effective October 31, 2020 (Capstone, 2021).

### 15.1.1 Metal Price and FX Assumptions

Metal price and foreign exchange rate assumptions used in the Mineral Reserve estimate were determined using best practice techniques suggested in the 2020 CIM Guidance on Commodity Pricing (CIM, 2020). Analysis of long-term historical pricing, analyst and peer consensus pricing, and specialist consultant reports were used to forecast long term metal price and foreign exchange assumptions in the context of the expected life of the Cozamin Mine.

### 15.1.2 Metallurgical Recovery Assumptions

The expected metallurgical recovery performance as detailed in Section 13 was used to estimate the recoveries of a representative tonne of ore from the copper-dominant, zinc-dominant, and copper-zinc zones.

### 15.1.3 2022 Mineral Reserve NSR Formulae

The metal recoveries and prices used in the Mineral Reserve NSR formulae calculations are summarized in Table 15-2. USD:MXN exchange rate was assumed to be 20.

**Table 15-2: Metal Recoveries and Selling Prices Used in the Mineral Reserve NSR Calculations**

Metal & Price	Recovery Copper Dominant	Recovery Calicanto Zinc	Recovery San Rafael Zinc
Copper @ \$3.55/lb	96.16%	0.00%	0.00%
Silver @ \$20.00/oz	85.85%	61.06%	55.56%
Zinc @ \$1.15/lb	0.00%	87.54%	77.32%
Lead @ \$0.90/lb	0.00%	92.51%	80.05%

Table Note: Reserve Copper-dominant zones comprise of San Roberto Cu zone in the MNV, and V09, V10NW, V18, V20, V21, V22 and V23 of the MNFWZ; the Reserve portion of V19 is included in this grouping.

Table 15-3 lists the final NSR formulae ("NSR23RSV") used for the Mineral Reserve estimate. Note that no value was ascribed to zinc or lead for the Copper-dominant ores, and no value was ascribed to copper for the Zinc-dominant ores. Copper-zinc ores formed an immaterial portion of the Reserves and so were not assigned a unique NSR formula.

**Table 15-3: Final Mineral Reserve NSR Formulae**

Ore Type	NSR Formula ("NSR23RSV")
Copper-Silver Dominant MNFWZ	$(\text{Cu}\% * \$66.638 + \text{Ag g/t} * \$0.484) * (1 - \text{Royalty}\%)$
Calicanto Zinc (MNFWZ V10 SE, V8, V11A)	$(\text{Ag g/t} * \$0.290 + \text{Zn}\% * \$13.723 + \text{Pb}\% * \$13.131) * (1 - \text{Royalty}\%)$
San Rafael Zinc (in MNV)	$(\text{Ag g/t} * \$0.228 + \text{Zn}\% * \$12.121 + \text{Pb}\% * \$11.363) * (1 - \text{Royalty}\%)$

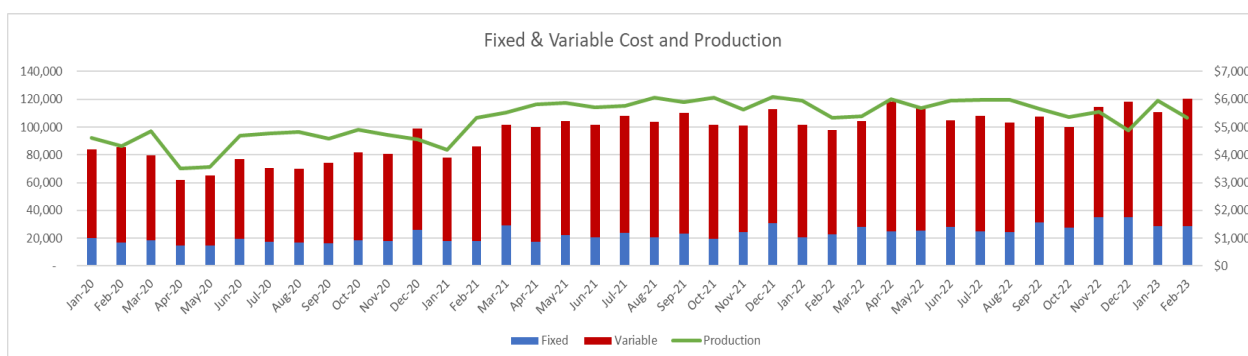
## 15.2 Cut-off Strategy and Mineral Reserve Cut-off Value

An NSR cut-off value is used at Cozamin to differentiate between ore and waste before other modifying factors are applied. The mining methods at Cozamin will result in sterilized material if that material is not mined in sequence with the active level and panel, so the mine has been designed to provide access flexibility, allowing mine planners to prioritize high grade stoping areas without including a substantial amount of lower grade ore that would reduce net present value by delaying cashflows. Accordingly, an elevated cut-off cost strategy was employed with iterative tests to ensure that all ore was fully costed to cover all operating and sustaining capital costs (including capital development) as a first test for economic viability in the Mineral Reserve estimation. A second iterative step with all costs included in the first test less the cost of sustaining capital development tested for marginal ore that would add to reserves on a level, typically resulting in vein extensions laterally and adjacent to the fully costed reserves. This cut-off value is the minimum net revenue generated from the sale of the concentrate contained within the mined solid that produces a profit after accounting for all applicable costs. Cut off costs were provided by the two primary mining methods; longhole stoping and mechanized cut and fill with and without capitalized development. The cut & fill mining method was chosen in the upper areas of the Cozamin Mine to minimize disturbances to the community caused by blasting operations, and to provide sufficient storage for the waste generated from the development program, without affecting the dilution and recovery of the longhole stoping reserves. The appropriate longhole stoping methods were applied based on vein width (transverse for ore widths greater than 7 meters and longitudinal for ore widths less than 7 meters) to ensure that the extraction ratio would be maximized.

The applicable operating costs include all mining, milling, and general and administrative ("G&A") costs and the sustaining capital costs related to periodic refurbishment or replacement of mine equipment (including light-fleets), mill equipment, or major site infrastructure. Capital costs related to expansion and exploration, are not considered costs in support of the current mineral reserve and have been omitted. Additionally, as described above, the capital costs related to mine development for longitudinal longhole stoping and cut and fill mining methods have also been

included and were estimated based on the mine design. Allowance for additional development to mine the wider transverse longhole zones were made in the cut off cost value for this method. A previous mining study for cut and fill completed by Stantec in 2022 formed the basis of estimate for this mining method. The 2021 feasibility study cost estimate completed by Paterson & Cook for the paste and filtering plant, updated for inflationary cost pressures was the basis of estimate for these new processes.

As Cozamin is an operating mine with stable operating history and cost control, actual operating costs were used to forecast future unit costs. Figure 15-1 shows the total OPEX costs (mine + mill + G&A) over each month since January 2020. A strong correlation between the total operating cost and monthly mill throughput is visible and supports the cut-off strategy.



**Figure 15-1: Actual Total Fixed and Variable OPEX Costs (US\$'000's) and Milled Tonnes**  
Source: Capstone, 2023

Figure 15-2 shows actual unit costs per tonne milled over the same period,



**Figure 15-2 : Actual Cost per Tonne Milled (US\$/tonne milled)**  
Source: Capstone, 2023

Table 15-4 shows the cut off costs calculated by mining method and backfill type. The basis of estimate for these operating costs were described above.

**Table 15-4: Cut off costs by Mining method**

Cozamin LOMP Cut-off Costs	Units	Longhole Stopping w/ Waste Backfill	Longhole Stopping w/ Paste Backfill	Cut & Fill w/ Waste Backfill	Cut & Fill w/ Paste Backfill
Stope / Drift Mining (Drill, Blast, Bolt, Muck)	US\$/t-mill	\$11.62	\$11.62	\$20.66	\$20.66
Ore Handling (U/G Trucking, Rockbreaking, Hoisting, Crushing & Haul to Mill)	US\$/t-mill	\$7.67	\$7.67	\$7.67	\$7.67
Paste Backfill	US\$/t-mill	\$0.00	\$6.25	\$0.00	\$6.25
On-Site General Mine Expenses	US\$/t-mill	\$9.75	\$9.75	\$9.75	\$9.75
Transverse Cross-Cut Development	US\$/t-mill	\$1.50	\$1.50	\$0.00	\$0.00
<b>Underground Mining Costs</b>	<b>US\$/t-mill</b>	<b>\$30.54</b>	<b>\$36.79</b>	<b>\$38.08</b>	<b>\$44.33</b>
Beneficiation Plant Costs	US\$/t-mill	\$11.05	\$11.05	\$11.05	\$11.05
Filter Plant & Dry Stack Tailings	US\$/t-mill	\$2.80	\$2.80	\$2.80	\$2.80
<b>Milling Costs</b>	<b>US\$/t-mill</b>	<b>\$13.85</b>	<b>\$13.85</b>	<b>\$13.85</b>	<b>\$13.85</b>
General Costs	US\$/t-mill	\$4.47	\$4.47	\$4.47	\$4.47
Administrative Costs	US\$/t-mill	\$3.85	\$3.85	\$3.85	\$3.85
<b>General &amp; Administrative Costs</b>	<b>US\$/t-mill</b>	<b>\$8.32</b>	<b>\$8.32</b>	<b>\$8.32</b>	<b>\$8.32</b>
Capitalised Development & Paste Distribution	US\$/t-mill	\$7.78	\$7.78	\$9.25	\$9.25
Mine Sustaining & Site Sustaining Capital	US\$/t-mill	\$2.54	\$2.54	\$2.54	\$2.54
<b>Sustaining Capital Costs</b>	<b>US\$/t-mill</b>	<b>\$10.32</b>	<b>\$10.32</b>	<b>\$11.79</b>	<b>\$11.79</b>
<b>Incremental Cut-off Cost</b>	<b>US\$/t-mill</b>	<b>\$55.25</b>	<b>\$61.50</b>	<b>\$62.80</b>	<b>\$69.04</b>
<b>Fully-Costed Cut-off Cost</b>	<b>US\$/t-mill</b>	<b>\$63.04</b>	<b>\$69.28</b>	<b>\$72.04</b>	<b>\$78.29</b>

The 2022 5-year sustaining capital plan (excluding capital development) formed the basis of estimate for the Sustaining Capital – equipment and is shown in Table 15-5.

**Table 15-5: Sustaining Capital - Equipment**

Sustaining Capital - Equipment	Units	Total
Mine Sustaining – Equipment	US\$k	\$12,706
Site Sustaining	US\$k	\$10,993
<b>Total Sustaining CAPEX - Equipment</b>	<b>US\$k</b>	<b>\$23,699</b>
<b>Cost per Tonne Milled</b>	<b>US\$/t-mill</b>	<b>\$2.54</b>

The Capital Development meters required to access the stope design shapes in the DSO files were estimated using the access strategy utilizing the three main ramping systems that access the sublevels in each stopping blocks. An allowance has been included for the capitalized portion of the Paste underground distribution system based on the Patterson and Cooke feasibility study,



escalated for inflationary pressures. The unit rates were based on budgeted costs and the resulting development cost per tonne and is shown in Table 15-6.

**Table 15-6: Sustaining Capital - Development**

Cut and Fill Area CAPEX Development	Type	Metres	Unit Cost (US\$/m)	Sub-Total (US\$K)
Level Access	LatDev	1,350	\$2,200	\$ 2,970
Sump	LatDev	211	\$2,200	\$ 464
Stockpile / Remuck	LatDev	1,978	\$2,200	\$ 4,351
Haulage Drive	LatDev	1,286	\$2,200	\$ 2,828
Ventilation Access	LatDev	522	\$2,200	\$ 1,149
Decline / Incline	LatDev	7,715	\$2,200	\$ 16,973
Ventilation Raise	VrtDev	977	\$1,100	\$ 1,074
<b>Grand Total</b>		<b>14,039</b>		<b>\$ 29,810</b>

C&F Area CAPEX per Tonne	Units	Value
Ore Tonnes from C&F Stopes	t-milled	3,483,676
Ore Tonnes from Ore Drives	t-milled	32,201
<b>Total Ore Tonnes Milled</b>	<b>t-milled</b>	<b>3,515,876</b>
Development CAPEX Costs	US\$K	\$ 29,810
<b>DEV CAPEX Costs per Tonne</b>	<b>US\$/t-mill</b>	<b>\$8.48</b>
Paste UDS Costs per Tonne	US\$/t-mill	\$0.77
<b>Total DEV &amp; UDS Costs per Tonne</b>	<b>US\$/t-mill</b>	<b>\$9.25</b>

Longhole Stopping Area CAPEX Development	Type	Metres	Unit Cost (US\$/m)	Sub-Total (US\$K)
Level Access	LatDev	3,842	\$2,200	\$ 8,453
Sump	LatDev	539	\$2,200	\$ 1,185
Stockpile / Remuck	LatDev	1,682	\$2,200	\$ 3,700
Haulage Drive	LatDev	2,540	\$2,200	\$ 5,587
Ventilation Access	LatDev	642	\$2,200	\$ 1,413
Electrical Cutout	LatDev	219	\$2,200	\$ 481
Decline / Incline	LatDev	8,821	\$2,200	\$ 19,406
Ventilation Raise	VrtDev	509	\$1,100	\$ 560
<b>Grand Total</b>		<b>18,792</b>		<b>\$ 40,783</b>

LHS Area CAPEX per Tonnes	Units	Value
Ore Tonnes from LHS Stopes	t-milled	5,115,713
Ore Tonnes from Ore Drives	t-milled	701,108
<b>Total Ore Tonnes Milled</b>	<b>t-milled</b>	<b>5,816,821</b>
Development CAPEX Costs	US\$K	\$ 40,783
<b>DEV CAPEX Costs per Tonne</b>	<b>US\$/t-mill</b>	<b>\$7.01</b>
Paste UDS Costs per Tonne	US\$/t-mill	\$0.77
<b>Total DEV &amp; UDS Costs per Tonne</b>	<b>US\$/t-mill</b>	<b>\$7.78</b>

The mine plan was analysed, and a blended cost approach was applied based on the estimated quantities of paste/waste rock backfill quantities as shown in Table 15-7.

**Table 15-7: Cost Distribution**

Cut & Fill Cost Distribution	Distribution
Cut & Fill w/ Waste Backfill	56%
Cut & Fill w/ Paste Backfill	44%
Cut & Fill Cut-Off Cost for DSO	<b>100%</b>
Longhole Stopping Cost Distribution	Distribution
Longhole Stopping w/ Waste Backfill	15%
Longhole Stopping w/ Paste Backfill	85%
Longhole Cut-Off Cost for DSO	<b>100%</b>

Costs with and without the capital development were applied for the iterative approach described previously. Table 15-8 shows the cut off costs by mining method used in the reserve calculation.

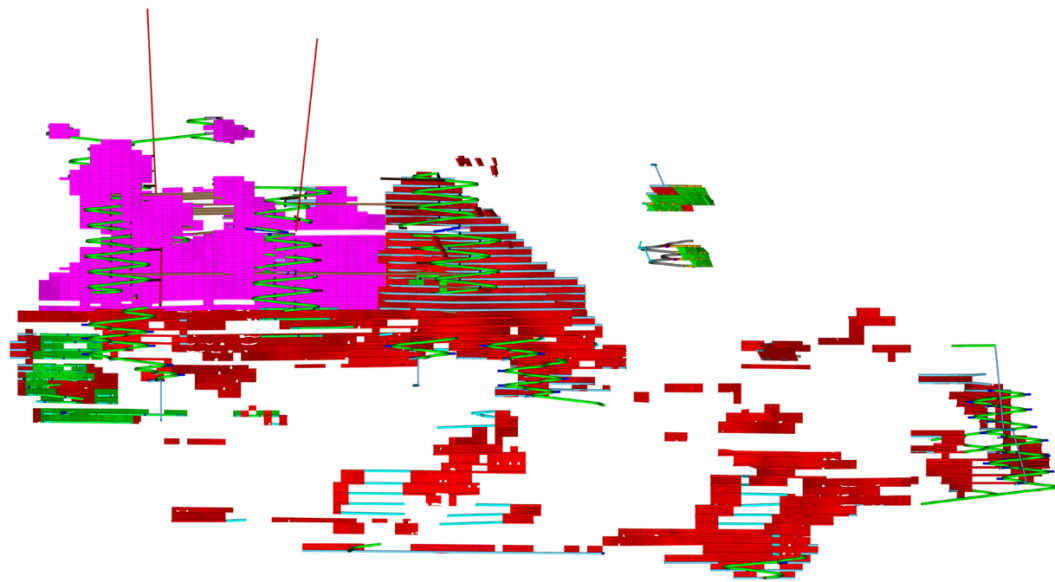
**Table 15-8: Final Cut off costs by mining method used in the reserve calculation.**

Cut-Off Costs for DSO	Units	Cut-off Costs w/o Development CAPEX	Cut-off Costs w/ Development CAPEX
Longhole Cut-Off Cost for DSO	US\$/t-mill	\$60.54	\$68.33
Cut & Fill Cut-Off Cost for DSO	US\$/t-mill	\$65.55	\$74.79

### 15.3 Mining Methods

The Cozamin Mine is an underground mining operation that commenced in 2006, with a nominal production capacity of 3,780 tpd. Ore has been extracted primarily using longitudinal longhole open stoping methods with unconsolidated waste fill. With the introduction of paste fill in 2023, several mining methods will be employed, including longitudinal and transverse longhole stoping and mechanized cut and fill as shown in Figure 15-3. Transverse longhole stoping will be used in areas that are greater than 7 metres wide. The cut and fill mining method will be used in the upper areas of the mine which are closer to the neighboring communities to minimize disturbances caused during blasting operations. Backfill methods in the longhole stoping areas will primarily be paste fill. Waste generated from development activities will be placed in cut and fill stopes and in the secondary transverse longhole stopes.

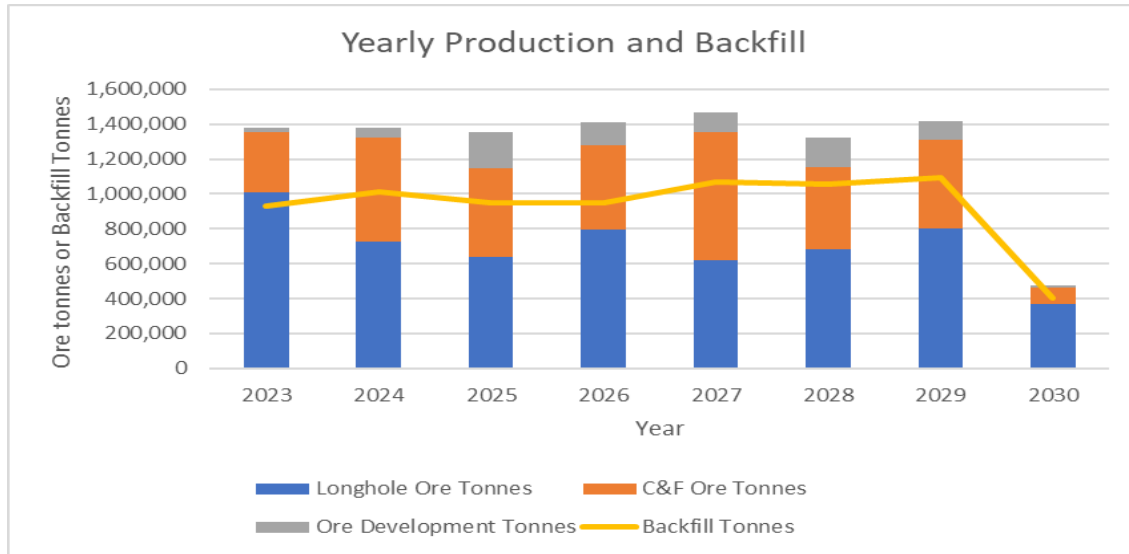
	Cut and Fill
	Longitudinal Longhole
	Transverse Longhole



**Figure 15-3: Mining Methods, longitudinal view looking south at 235° (not to scale)**

Source: Stantec LOMP update, 2023

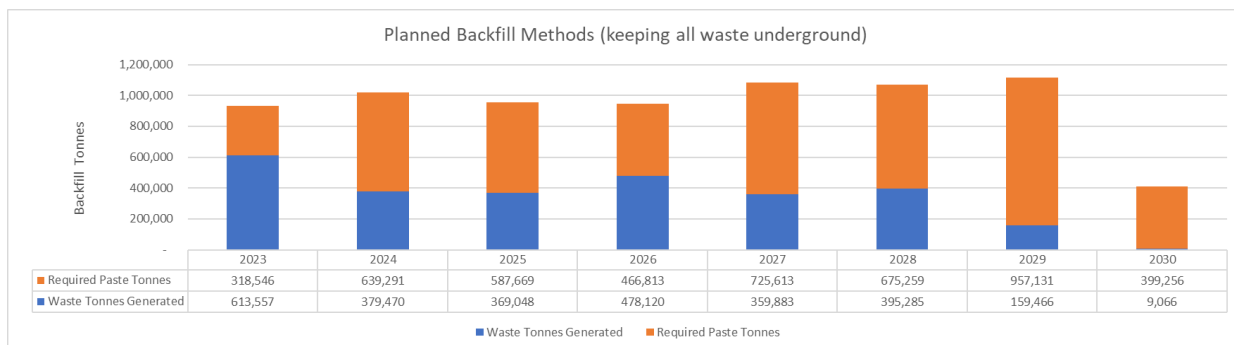
The OPEX costs presented in Section 15.2 are based on historical costs at Cozamin Mine adjusted for inflationary cost pressures, and estimated costs for the new processes of paste backfill and dry stack tailings. Longhole stoping represents approximately 60% of the reserve tonnes and mechanized cut and fill represents 40% of the reserve tonnes. This production ratio is targeted through the Life of Mine Plan to achieve the nominal production rate of 3,780 tpd (As shown in Figure 15-4)



**Figure 15-4: Ore Source by Mining Method**

Source: Stantec LOMP update, 2023

Longhole stoping and mechanized cut and fill are appropriate methods for the Cozamin Mine given the geometry of the vein domains and the desired extraction rate. In recent years, stopes were backfilled with unconsolidated waste rock, and geotechnical stability was maintained with rib and sill pillars. This Technical Report incorporates the planned use of paste backfill to improve stability and improve the extraction ratio of the Mineral Reserves. Figure 15-5 shows the planned backfill materials by year. Paste backfill is limited in 2023 as the underground distribution system is currently being constructed. All development waste is planned to remain underground and will be placed primarily in the cut and fill stopes and secondary transverse longhole stopes. The mining methods in this Technical Report have incorporated the waste/paste balance requirements to ensure that all rock remains underground. In the Longhole stoping and cut and fill stopes, mining proceeds upwards (overhand mining) with each subsequent level mining on top of paste or waste backfill.



**Figure 15-5: Planned Backfill Methods**

Source: Stantec LOMP update, 2023

## 15.4 Dilution and Mining Losses

The stope shapes generated in the Deswik Stope optimizer include both planned and unplanned dilution.

### 15.4.1 Planned Dilution

Planned (internal) dilution is included interior to the walls of designed stope wireframes. This planned dilution is a result of the natural undulation and curve of the narrow vein deposits found at Cozamin when employing the longhole stoping and cut and fill mining method. Planned dilution internal to each stope wireframe is minimized by varying the strike and dip of the hangingwall and footwall planes, however only 4-point planes are considered in this reserve estimate. Since a considerable amount of the reserve volume is planned to be mined using fan drilling in the stoping procedure, further optimizations of reserve shapes may be possible by adding additional plane points where applicable.

Additional planned dilution in longhole stope solids presents in some areas of relaxed dip, where stope walls are intentionally mined including additional waste dilution to establish steeper hangingwall and footwall angles that allow for broken ore to flow to the extraction level and to maintain geotechnical stability with limited overbreak or sloughage. The minimum longhole stope width was set to 1 m for stope creation.

Planned dilution in development and cut and fill shapes is accounted for in the development drives where either the mineralized domain is narrower than the development or the development is placed along the footwall and a part of the excavated development volume is outside of the mineralized domain. The minimum C&F width was set to 4.0 m, which aligns with the current fleet size.

### 15.4.2 Unplanned Dilution

Unplanned (external) dilution was included in stope wireframes as a linear expansion into the hangingwall and footwall by an expected distance. The expansion distance for unplanned dilution for cut and fill was set to 0.3 m (0.15 m hanging wall (HW) and 0.15 m footwall (FW)). The expansion distance for longhole stopes was based on HW and FW dilution variables set in the block model which were created based on actual observations and geotechnical assessments of the vein dip and rock quality. The grades from these HW/FW dilution assumptions were taken directly from the block model.

For longhole stopes, an additional dilution at zero grade was added to consider blasting adjacent to a paste filled stope (end wall dilution). Longitudinal longhole assumed additional 0.15 m of endwall dilution every 30 m along strike length, and 0.3 m of additional dilution was assumed for transverse secondary stopes (equating to 0.15 m paste dilution each side of secondaries).

The Qualified Person for this section considers the dilution estimates an accurate reflection of actual operating performance at Cozamin as compared to recent reconciliation efforts. Although the dilution parameters for the Reserve Estimate are consistent with operating data and similar to

other narrow-vein long-hole open-stoping operations, improvements in engineering, planning, long-hole drill control, and explosives use and design should be investigated by the Cozamin technical staff to better control overbreak and reduce dilution.

#### **15.4.3 Backfill Dilution**

An additional but minor source of dilution is backfill mucked during stope cleanout. Backfill dilution is encountered in longhole benches and in cut and fill stopes that are mucked out on a floor of gob backfill, or waste rock placed as a running surface on top of paste backfill. Additionally, “endwall” dilution from the sides of paste backfill stopes will be encountered as mining retreats laterally. Both forms of dilution are considered insignificant and have been included in the mineral reserve estimate.

#### **15.4.4 Mining Losses**

Approximately 60% of Cozamin’s Life-of-Mine tonnage is planned for backfill with paste. Most paste areas will be mined overhand, allowing for nearly complete extraction while improving geotechnical performance. On select levels, mining below high-strength paste will occur. Crown pillars are not anticipated when mining below paste though may be left behind during the ramp-up period whilst confidence in the paste design is gained through experience.

In areas planned to be mined with unconsolidated rockfill, the design of the Cozamin Mine considers both horizontal (sill) and vertical (rib) unrecoverable geotechnical support pillars that remain in-situ after the mining extraction process. These areas are limited to where mining will occur in 2023 before the paste fill plant and distribution system is operational.

The volume occupied by sill pillars is variable and depends on host rock quality, vein thickness, depth, and open stope strike. The extraction ratio is inclusive of rib and sill pillars required to maintain sufficient workplaces to achieve the nominal production rate. Cemented rockfill will be used in select areas in 2023 to increase the extraction ratio, but this is planned to be phased out with the expansion of the underground paste distribution system.

Pillars are planned to be left in the cut and fill stopes. Maximum ore drives are planned at 7 meters wide with 5 meter wide pillars. The primary drive will follow the footwall contact, with x-cuts driven to the H/W contact. In the longhole stoping areas, paste backfill will eliminate the need for rib pillars. Mucking ore losses inside longhole stopes and cut and fill stopes have been accounted for with a recovery factor of 95%.

### **15.5 Risks to Mineral Reserve Estimate**

Capstone considers that the classification and reporting of the Mineral Reserve is in accordance with CIM (2014). Cozamin is an operating mine with experience utilizing the current mining methods throughout the metal price cycle. The modifying factors that impact the Mineral Reserve estimate are well understood and are based on operating and historical data where possible and appropriate. Risks to the Mineral Reserve estimate as outlined in this section include, but may not be limited to:

Factors and uncertainties that may affect the Mineral Reserve include:

- Changes to long-term metal price and exchange rate assumptions;
- Changes to assumed treatment and refining charges ("TC/RCs");
- Changes to the input assumptions used to derive the stope shapes and development designs applicable to the underground mining methods used to constrain the estimates;
- Local vein variability caused by model smoothing;
- Changes to metallurgical recovery assumptions;
- Changes to the forecast dilution and mining recovery assumptions;
- Unanticipated deviation of performance or assumptions during the transition to paste backfill and new mining methods.
- Changes to the NSR cut-offs applied to the estimates;
- Variations in geotechnical (including seismicity), hydrogeological and mining method assumptions;
- Changes to environmental, permitting and social license assumptions.

The QP is not aware of any other mining, metallurgical, infrastructure, permitting, or other relevant factors not covered in this NI 43-101 Technical Report that could materially affect the Mineral Reserve estimate.

## 15.6 Recommendations and Opportunities

### Recommendations:

- As further exploration and infill-drilling continues, and empirical understanding of the physical characteristics of the orebody develops, continued revision of mining methods and drilling and blasting practices to optimize safety and economics may be necessary. This recommendation should be overseen by Cozamin and Corporate technical staff as part of their regular duties, however mining and geotechnical engineering consultants may be required by 2024 to review new approaches at an anticipated cost of approximately US\$200,000 to \$250,000.
- Stopes mined by longhole are largely planned to be backfilled with paste, which will require an extensive underground delivery system ('UDS'). The existing design of the UDS will need to be updated to capture all new areas that will require paste fill. The revised layout of the UDS should be overseen by Cozamin technical staff with consultant support for detailed engineering, hydraulic analysis, and transient pressure analysis at an anticipated cost of US\$35,000.
- Cozamin Technical Services and Corporate Resource Estimation should evaluate infill drilling tighter than 50m spacing, for areas with potential to require transverse mining.

### Opportunities:

- Additional incremental ore could be added to reserves laterally and adjacent to the planned mining areas. The cut off policy should be revisited once the costs for new mining



methods and processes are known based on actual performance. This opportunity should be completed by the corporate technical services staff in 2023.

- A trade-off study should be conducted on drift and fill to eliminate the pillars in the cut and fill stopes to increase recovery after experience has been gained with paste fill.
- Further refinement of longhole reserve shapes may be possible to optimize planned dilution or capture additional material using fan drilling. This opportunity should be completed by the Cozamin technical staff as part of their regular duties.

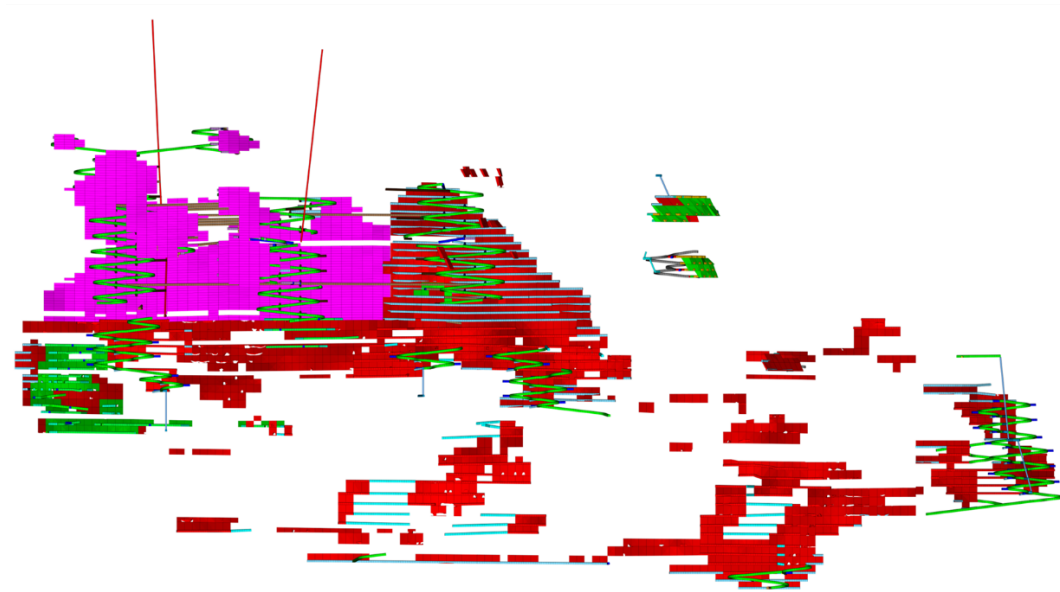
## 16 Mining Methods

The Cozamin Mine is entirely mined using underground mining methods. The mine has been operated by Capstone since 2006 and has almost exclusively employed the longitudinal long-hole open stoping (LHOS) mining method for bulk ore extraction over the period. As an operating mine with experience in the LHOS method, the procedures, mine designs, and all required mining equipment and infrastructure required to support the extraction of ore are well understood. A primary component of this Technical Report is to describe the introduction of paste backfill, with delivery of paste underground planned in 2023. With the introduction of paste backfill, rib pillars between longhole stopes will be eliminated. Two variations of longhole stoping will be employed: transverse longhole stoping for ore widths greater than 7 meters and longitudinal longhole stoping for widths less than 7 meters wide. This will maximize the recovery of the reserves for the longhole stoping methods. A primary consideration of this mine plan is to ensure that all waste generated from mining operations remains underground, and this will be achieved by disposing of the waste in the cut and fill stopes, and secondary transverse longhole stopes. The cut and fill mining method will be used in the upper areas of the mine which are closer to the neighboring communities to minimize disturbances caused during blasting operations.

### 16.1 Mining Method and Design

The Cozamin mineral reserve estimate is comprised of several mining methods. The mining methods are longhole stoping (longitudinal and transverse) and mechanized cut and fill (refer to Figure 16-1). The tonnage distribution is approximately 60% longhole and 40% cut and fill (refer to Table 16-1 ). This ratio will allow the mine to achieve the nominal production rate of 3,780 tpd over the life of mine plan.

	Cut and Fill
	Longitudinal Longhole
	Transverse Longhole



**Figure 16-1: Mining Methods, longitudinal view looking south at 235° (not to scale)**  
Source: Stantec LOMP update, 2023

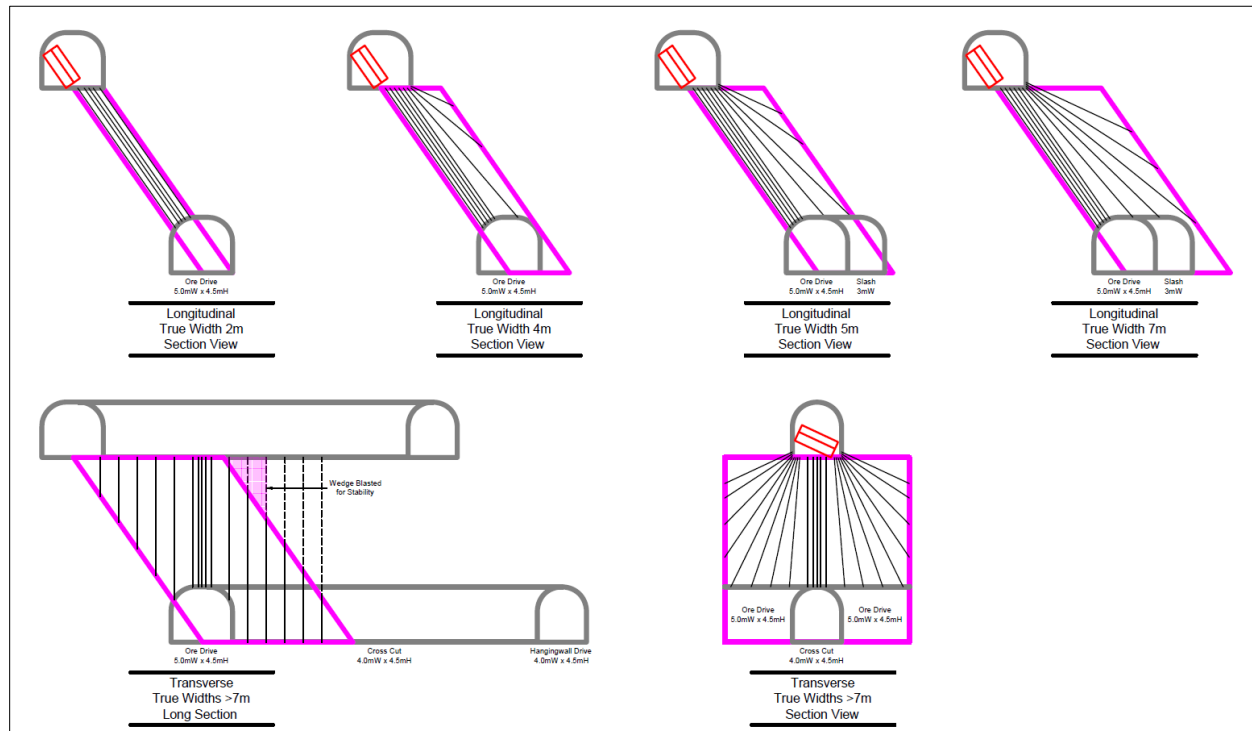
**Table 16-1: Distribution of Mining Methods**  
Source: Stantec LOMP update, 2023

Ore Source	Ore Tonnes (kt)	% of Tonnes
Cut and Fill Stopes	3,735	37%
Longhole Stopes	5,650	55%
Ore Development	825	8%
<b>Total Mineral Reserve</b>	<b>10,210</b>	<b>100%</b>

Longhole Stopping methods will either be longitudinal or transverse (refer to Figure 16-2 for typical design). Longitudinal longhole stopping will be employed in areas where the ore is less than 7 meters wide. This method places an overcut and undercut parallel to the strike of the ore and the mining sequence retreats from the end of level, back to the ramp system. Nominal stope sizes are planned to be 30 meters along strike of the ore, widths varying from 2 to 7 meters, and stope heights of 15 meters (sill to sill).

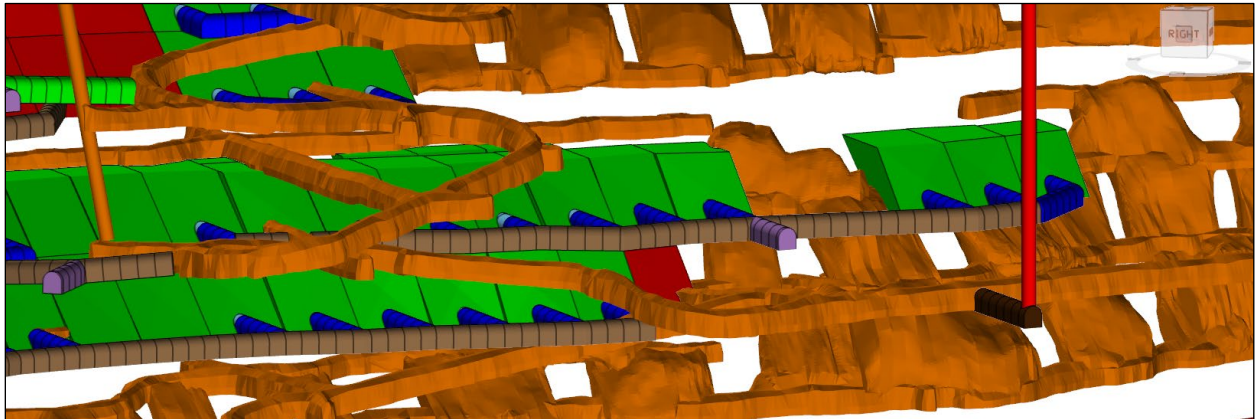
Transverse longhole stopping will be employed in areas greater than 7 meters wide. Transverse longhole stopping has an access drift placed parallel to the orebody in the hangingwall, nominally 15 meters from the ore contact with x-cuts perpendicular to the strike of the ore (refer to Figure 16-3). Stopping widths are planned to be 15 meters (along strike of the orebody), mining the full width from footwall to hanging wall, and stope heights of 15 meters, measured from the floor of

the undercut level to the floor of the overcut level. Sequencing of the transverse longhole zones will be primary/secondary. In most cases, transverse longholes stopping areas are situated near the ramp system, which allows for the longitudinal and transverse sequencing to proceed together in a chevron fashion (refer to Figure 16-4). Transverse mining fronts will utilize a primary and secondary sequence to allow for rock disposal in the secondary stopes without impacting recovery and dilution.



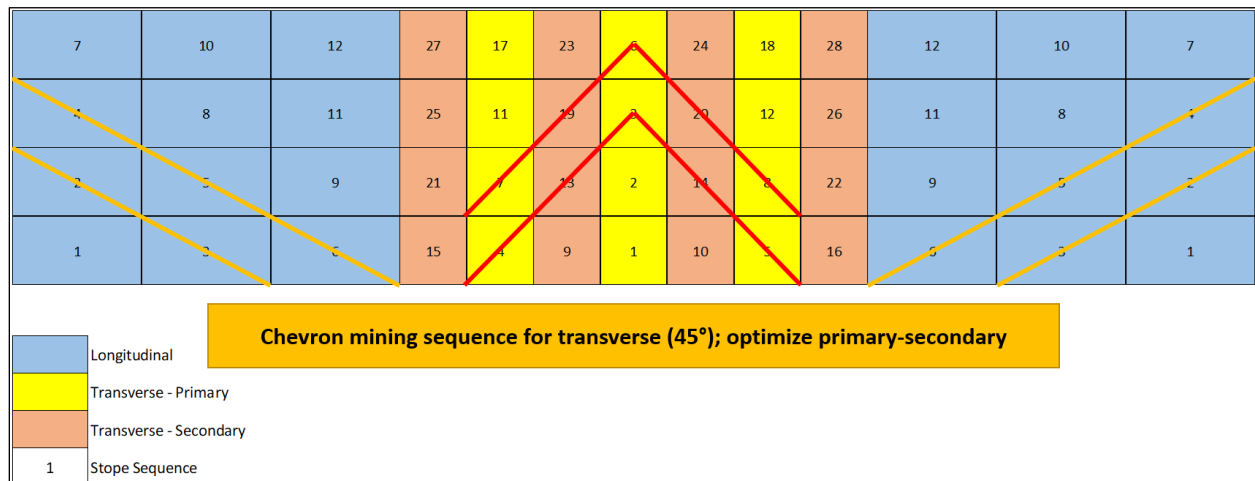
**Figure 16-2: Typical Longhole Stopping Design**

Source: Capstone, 2023



**Figure 16-3: Typical Transverse Longhole design**

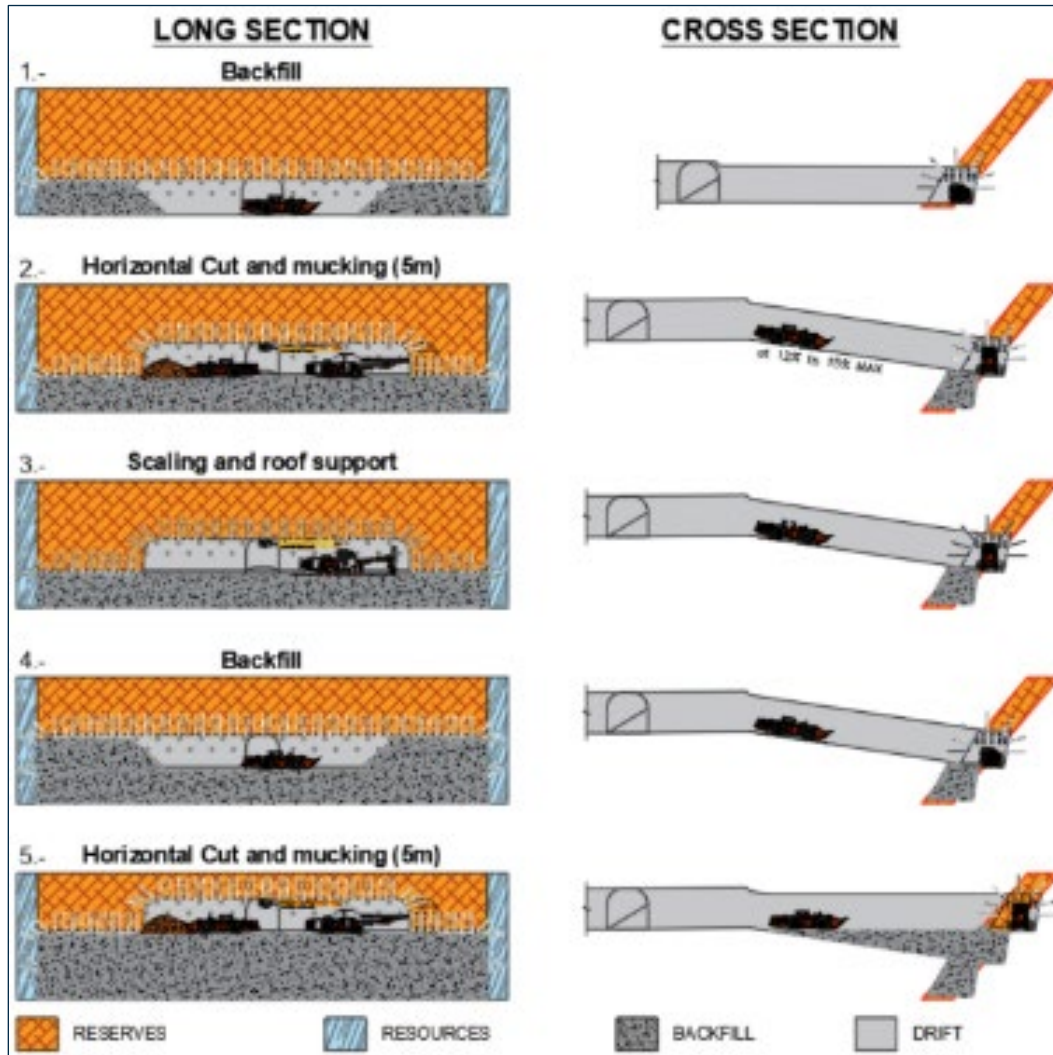
Source: Stantec LOMP update, 2023



**Figure 16-4: Longitudinal view of the Longhole Mining Sequence with Paste Backfill**

Source: Capstone, 2023

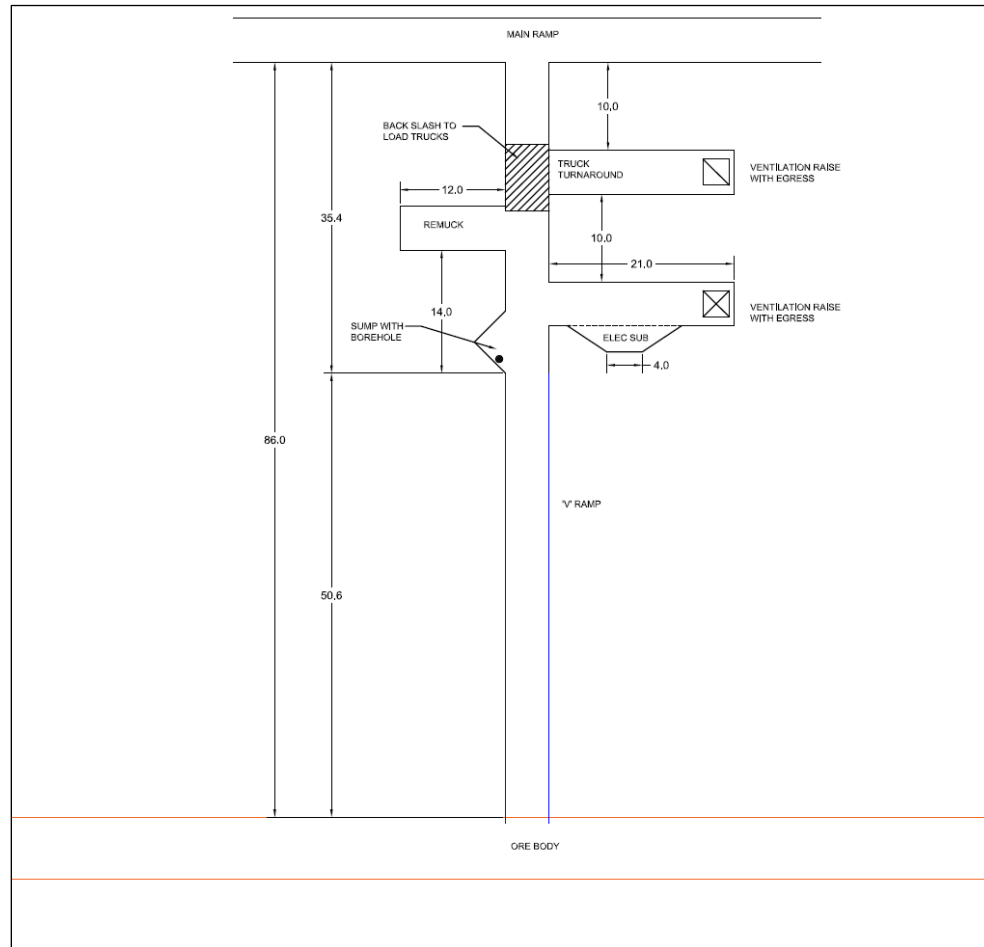
Mechanized cut and fill mining method will be reintroduced into the mine plan, accounting for nearly 40% of the reserves (refer to Figure 16-5 for typical x-section). As previously described, this method will be employed in the upper areas of the mine which are closest to the communities, to minimize disturbances caused during blasting operations. The design utilizes the same equipment used in the development process at Cozamin. The level spacing is the same as the longhole design, which can allow for seamless conversion back to longhole stoping methods. The level standoff distance has been adjusted to allow for vramps to access the planned 5-meter-high cuts (refer to Figure 16-6). Minimum mining width is 4.0 meters and the ore drives will follow the footwall contact to a maximum width of 7 metres. Secondary x-cuts will be driven to the hangingwall contact leaving 5 meter by 5 meter pillars. Once the cut is fully developed to the end of the ore reserves, the stope is tightfilled with unconsolidated waste rock or paste fill if rock is not available. The overall development requirements are expected to be within the historical capability of the Mine and steady state over the life of the operation (refer to Figure 16-7).



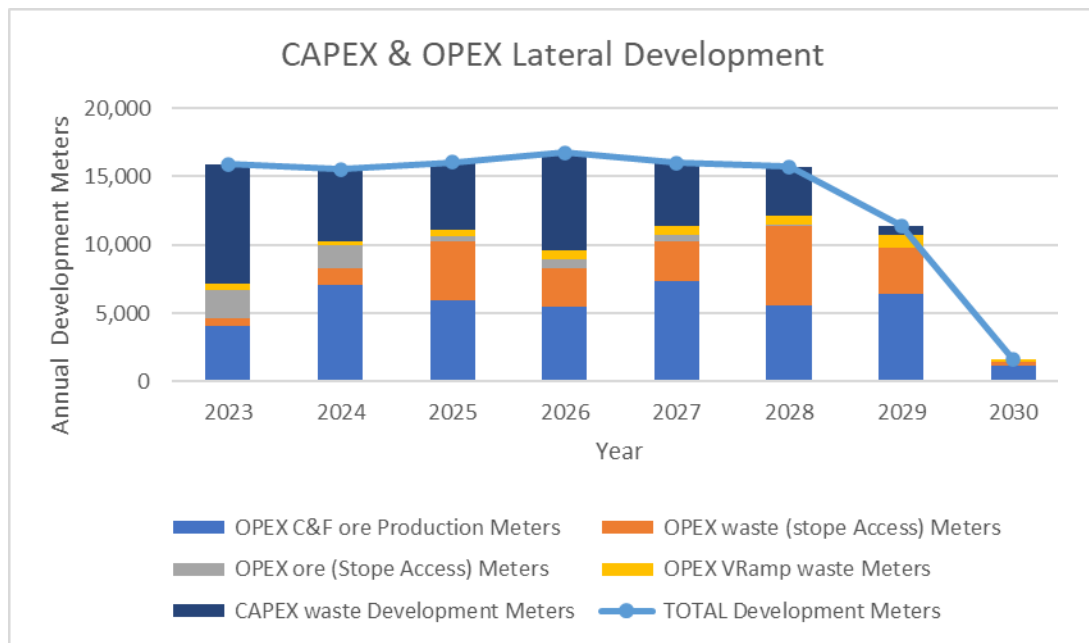
**Figure 16-5: typical x-section of mechanized cut and fill mining method**

Source: Capstone, 2022





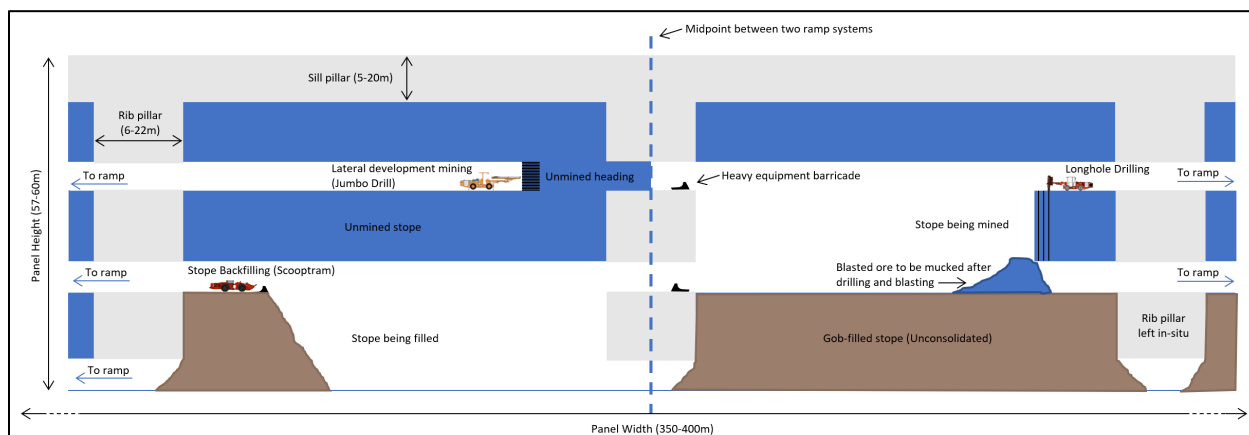
**Figure 16-6: Typical level layout of cut and fill mining method.**  
Source: Stantec LOMP update, 2023



**Figure 16-7: LOMP Development requirements**

Source: Stantec LOMP update, 2023

Historically, stopes were backfilled with unconsolidated waste rock without the addition of binding agents. With the planned commissioning of filtration and paste plant in 2023, approximately 60% of the reserves volume will be filled with paste backfill, with the remainder being unconsolidated waste rockfill. The rockfill will be placed in cut and fill stopes and secondary transverse longhole stopes, such that it does not impact the dilution and recovery estimates in the reserves. Figure 16-7 illustrates the LHOS mining method with waste rockfill as it is applied to the longitudinal longhole open stoping mining method at Cozamin Mine. Shown below is a section of one major level, split into three sub-levels. Major levels are separated by sill pillars and extend along strike to each extent of the vein domain being mined. It is expected that this mining method will be phased out as the paste fill distribution system is expanded in 2023.



**Figure 16-8: Single Vein Longitudinal LHOS Mining Method Diagram using Conventional Backfill**

Source: Capstone, 2021

The production schedule was created using the Deswik Scheduler software. All stope shapes and development required to access the reserves have been designed in Deswik. The constraints provided for development, longhole drilling, blasting, mucking and waste backfilling are based on historical performance at Cozamin. Paste backfill rates have been established based on the design of the paste fill plant. The scheduler uses a general rule set of mining-based dependencies. When ramp development reaches stoping levels, in-vein production development begins expanding from the access along strike in both directions, allowing for longhole production to start following the sequence provided previously in Figure 16-4.

The majority of the longhole stopes will be filled with paste backfill once the underground distribution system is established. These areas will be largely mined overhead and require few pillars left behind. The strength characteristics and distribution system of the paste are described in section 16.5. Barricades are engineered for each pour to ensure stability while the paste cures and attains strength sufficient for mining to continue laterally in the direction of mining retreat. A limited number of areas have been planned to mine under high strength paste, the characteristics of which are described in section 16-5.

Detailed mine development layouts are prepared by Cozamin for the LOMP. The general dimensions of the various development headings are detailed in Table 16-3.

**Table 16-2: Standard LOMP development dimensions**

Development	Dimensions
Ramps	5.0 m wide x 5.0 m high
Sublevels (usually mined to the extent of the ore)	4.0 m wide x 4.5 m high
Access cross-cuts, draw points	4.0 m wide x 4.5 m high
Raises	3.1 m/3.6 m bore diameters

## 16.2 Geotechnical Considerations

### 16.2.1 Lithology

The geotechnical model outline at Cozamin mine can be divided into lithology description for different types of rock, and the description of the different geotechnical domains in different zones at the mine.

Lithological units are broken into the following groupings:

**Diorite:** The diorite is green and coarse-grained igneous rock, slightly weathered, hard to very hard (R4 to R5) and with moderate discontinuity spacing (200 to 600 mm). Discontinuities lack filler (opening less than 1 mm), its mostly flat to wavy in shape and the surface is slightly rough, the most predominant alteration in this lithology is chlorite-calcite.

**Rhyolite:** The rhyolite is a cream-colored igneous rock, aphanitic, massive, altered only in the contact zones, hard to very hard (R4 to R5). The discontinuities lack filling (opening less than 1 mm), its flat in shape and the surface is slightly rough.

**Lutite:** The lutite is a dark gray sedimentary rock, fine-grained, thin to medium bedding, moderately hard (R3) and with low discontinuity spacing (60 to 200 mm), the filling of the discontinuities is quartz-calcite (opening less than 5 mm), it has flat shape and smooth surface.

**Filita (Phyllite):** The phyllite is a dark gray and light green metamorphic rock, its usually a soft rock (R2).

**Vein:** Corresponds mainly to quartz veins. Hard to very hard (R4 to R5) and with massive sulfides chalcopryrite, sphalerite, galena, pyrite.

The Cozamin underground mine comprises a series of sub-parallel copper and lead-zinc rich veins typically dipping north at 45° to 70° and striking approximately east-west at the MNV and northwest-southeast at the MNFWZ. The mining width can vary between 2 m and 15 m, depending on the vein thickness.

The main one is the vein MNV San Rafael area with a dip to the north of 65° MNV San Rafael area, composed of sulfides of sphalerite, galena, pyrite and some small zones of chalcopryrite, the alteration that accompanies this vein is mostly a propylitic. The host rock of the MNV vein is composed mostly of diorite. The other veins are in the FWZ zone, with the most significant consisting of vein 10, vein 18, and vein 20. Vein 10 is composed of a quartz chalcopryrite breccia with sphalerite veins, and some chlorite epidote alteration, this vein is located at the contact of the FWZ Fault, phyllite is the host material at the top and the rhyolite at the bottom. It strikes NW-SE with dip to NE 55° average. V18 is composed of chalcopryrite quartz, encased in rhyolite with epidote chlorite alteration. V20 is composed of chalcopryrite massive sulfides, with some zones of chalcopryrite quartz breccia and pyrite accompanied by chlorite and epidote, rhyolite is the host rock at the top part of the vein, and phyllite at the bottom. The vein strikes NW-SE, dipping to the NE with angles varying from 58° to 65° and some zones dip at 45°. Its average width ranges between 3 m and 6 m and some zones can reach up to 20 m.

The hangingwall horizon generally is composed of rhyolite with some local shale and phyllite. The vein material is competent, being a mix of quartz and massive sulphides. The shale is locally

metamorphosed to phyllite. The footwall material is generally volcanic, including rhyolite and andesite with some local diorite.

Exposed igneous rocks are typically competent and exhibit similar geotechnical characteristics and therefore can be lumped into the same broad geotechnical domain. The sedimentary and metamorphic rocks, shale and phyllite, are similar geotechnically and are included as a single geotechnical domain although localised reduced rock mass quality in the phyllite is observed and special ground control considerations are often required, particularly below 750 m depth. The veins are assigned the strength of the rock type they are hosted in for purposes of geotechnical assessment.

The igneous rocks exhibit high intact rock strengths of up to 150 MPa but the presence of micro-defects in rocks near the veins reduce the unconfined compressive strength (“UCS”) values to approximately 100 MPa. The veins themselves exhibit similar intact rock strengths to the igneous rocks. The metamorphosed sedimentary rocks (shale and phyllite) are typically foliated and exhibit lower intact rock strengths than the igneous rocks with unconfined compressive strength of typically 50 MPa. Rock mass quality in the igneous rocks and the veins are higher than in the shale and phyllite.

The mine continues to advance the understanding of the mechanical properties for each of the main rock units, sub-divided by geomechanical domains. Extensive core logging and underground mapping have been conducted to derive rock mass rating (“RMR”) and Q values for these domains. In terms of geological structures, Cozamin geologists map all significant occurrences encountered underground and include them in the three-dimensional model.

### 16.2.2 Ground support system

Systematic ground support is installed in all underground excavations such as drifts, and ramps. Ground support consists of various combinations of resin and cemented bolts, friction bolts, cables, screen and shotcrete. The support is chosen depends on several parameters including the planned lifetime of the openings (i.e., permanent versus temporary excavation), local geology; stress, and opening span, and other factors that might be encountered.

For static support types, the support pattern is calculated using the load capacity, and the anchoring capacity/meter of the support considered. These elements, in conjunction with the type of excavation, are used to determine the type of support. Below is a Table 16-3 describing the different types of static support for different drift sizes.

**Table 16-3: Summary of static rock support standard for different lithologies at Cozamin**

Drift size (Height x Width)	Lithology	Back Support	Wall Support
4.5x4.5m	Rhyolite	2.4m cemented rebar, 3/16 gauge size screen	2.4m cemented rebar, 3/16 gauge size screen, the support is installed at up to 2m from the floor

Drift size (Height x Width)	Lithology	Back Support	Wall Support
4.5x4.5m	Phyllite	2.4m cemented rebar, 3/16 gauge size screen, 2.5" shotcrete layer in complete section.	2.4m cemented rebar, 3/16 gauge size screen, 2.5" shotcrete layer in complete section, the support is installed at up to 1m from the floor
5x5m	Rhyolite	2.4m cemented rebar, 3/16 gauge size screen	2.4m cemented rebar, 3/16 gauge size screen, the support is installed at up to 2m from the floor
5x5m	Phyllite	2.4m cemented rebar, 3/16 gauge size screen, 2.5" shotcrete layer in complete section	2.4m cemented rebar, 3/16 gauge size screen, 2.5" shotcrete layer in complete section, the support is installed at up to 1m from the floor
5x6m	Rhyolite	2.4m cemented rebar, 3/16 gauge size screen	2.4m cemented rebar, 3/16 gauge size screen, the support is installed at up to 2m from the floor
5x6m	Phyllite	2.4m cemented rebar, 3/16 gauge size screen, light frames + 20 x 2.4 cemented rebar, 2.5" shotcrete layer in complete section	2.4m cemented rebar, 3/16 gauge size screen, light frames + 20 x 2.4 cemented rebar, 2.5" shotcrete layer in complete section, the support is installed at up to 1m from the floor
5x7m	Rhyolite	2.4m cemented rebar, 3/16 gauge size screen, 7m cable bolts in 2m x 2m pattern	2.4m cemented rebar, 3/16 gauge size screen, 7m cable bolts in 2m x 2m pattern, the support is installed at up to 2m from the floor
5x7m	Phyllite	2.4m cemented rebar, 3/16 gauge size screen, 7m cable bolts in 2m x 2m pattern, light frames + 20 x 2.4 cemented rebar, 2.5" shotcrete layer in complete section	2.4m cemented rebar, 3/16 gauge size screen, 7m cable bolts in 2m x 2m pattern, light frames + 20 x 2.4 cemented rebar 2.5" shotcrete layer in complete section, the support is installed at up to 1m from the floor

For drifts over 7 m width, additional ground support will be required to ensure long term stability. Increased drift dimensions also carry an increased risk of exposure to ground fall. Should underground opening need to exceed 7m width, special deep anchorage should be installed in cycle as directed by site geotechnical personnel.

As development progresses and poor rock masses are exposed, a testing program specific to validating current ground support standards should take place (e.g., bolt pull testing, increased inspections, overbreak/underbreak review). This testing program should be aimed at validating design standards and proper support installation procedures, particularly in zones of poor rock mass quality. If deemed ineffective, modifications to the current ground support standards should

be implemented for the poor rock masses (e.g., different bolt type, shotcrete, tighter bolts spacing, shorter round lengths).

In early 2023, the mine started using dynamic bolts to mitigate some of the risks associated with increased seismicity. The dynamic support elements are divided in different categories, each category of dynamic ground support has a combination of surface support (heavy mesh and shotcrete), and tendon (dynamic bolt, cable bolts).

### **16.2.3 Seismicity**

Prior to 2021, seismic activity had been low. However, in 2021, there was an increase in seismic activity, and the mine had some large seismic events that caused damage to some areas. The increase of seismic activity is interpreted to be related to the mining of different stopes near the sill elevations and to mining some of the remnant diminishing pillars. There is also an interpreted link between the seismic activity, the fault systems, and the geology contact in the footwall as well the existence of the infrastructure in the footwall.

The seismic activity is monitored by the seismic system, that consists of different underground seismic sensor installations, including uniaxial and triaxial geophones, and strong ground motion sensors. These sensors are connected to a data acquisition unit with specialist software that reads and monitors seismic activity continuously. Starting late 2022, extensive work is in process to enhance the seismic system underground, with the plan including additional seismic sensors underground and near surface.

### **16.2.4 Backfill Requirements**

Backfilling methods utilized at Cozamin mine have historically been unconsolidated waste rock. This practice required leaving rib and sill pillar behind to contain the loose rock placed in the voids, and to support the hanging wall and prevent instabilities within the vein, resulting in a low extraction ratio. With the implementation of a paste backfill system in 2023, the extraction ratio is expected to significantly improve, as the paste fill removes the necessity of rib and sill pillars for vein stability. Critical to the planning for implementation of paste backfill is incorporating delays due to cure time of the paste fill, which have been included in the LOMP schedule. Due to the vein characteristics and proposed mining method, only two faces of exposure are possible at Cozamin. These include vertical faces and underhand faces. Vertical faces will be exposed due to the longitudinal and transverse longhole stoping sequence. An underhand face of the stope fill will be exposed as mining fronts converge. There are several mining fronts planned to provide sufficient workplaces to achieve the nominal production rate. High strength paste backfill will be placed as the underground distribution system is constructed in these zones to allow for mining under the paste. If the paste system is not available when mining commences in these zones, unconsolidated rockfill will be used and a sill pillar will be left as per existing practices.

### **16.2.5 Recommendations**

The QP recommends the following studies, anticipated to cost approximately US\$ 350,000:

- Implementation of a mitigation plan to tackle increased seismic activities. This includes adjusting the mine sequence to avoid creation of unfavorable geometry. The mitigation



plan needs to include the use of dynamic ground support, enhance the seismic system coverage, in order to monitor seismic activities, as well as establishing a re-entry protocol following a blast or big seismic event.

- Continued systematic bolting in new headings and adjust ground support in areas of weaker rock mass conditions or in higher ground stress zones and ensure ongoing ground support QAQC.
- Continued development of a formal ground control management plan that summarises different mine design (stope and pillar) and ground control requirements in different geotechnical domains, to be updated as performance information becomes available.
- Continued improvements to recording geotechnical data including mapping of the rock mass conditions underground and in drill core logging, validation of ground support performance, stope and pillar sizes, rock mass characterization, definition of regional field characteristics to aid reliable stress modelling, development of a 3D geomechanical domain model.
- Continued training of personnel in geotechnical mapping and to identify poor rock conditions and execute remediation ground control work where needed.
- Define local regional stress field characteristics to develop a reliable geotechnical numerical stress model and provide supporting data to verify geotechnical assumptions used for design are correct.
- Optimization of paste fill practices including paste fill mix specific to vertical exposure once the paste plant is operational and effectively producing a quality product.

### 16.3 Mining Shapes and Stope Designs

Identification of the mineable portions of the MNV and MNFWZ Mineral Resources was aided by the iterative use of *Deswik Stope Optimizer* (“DSO”). The resource block models for the MNV and MNFWZ used in the stope optimization process are found in Table 16-4.

**Table 16-4: Resource Block Models Used in Stope Optimization**

Vein System	Block Model File
Mala Noche Vein (MNV)	MNV_17Jul31_RESERVES_TechRep23.bmf
Mala Noche Footwall Zone (MNFWZ)	mnf wz_RESERVES_jan2023.bmf

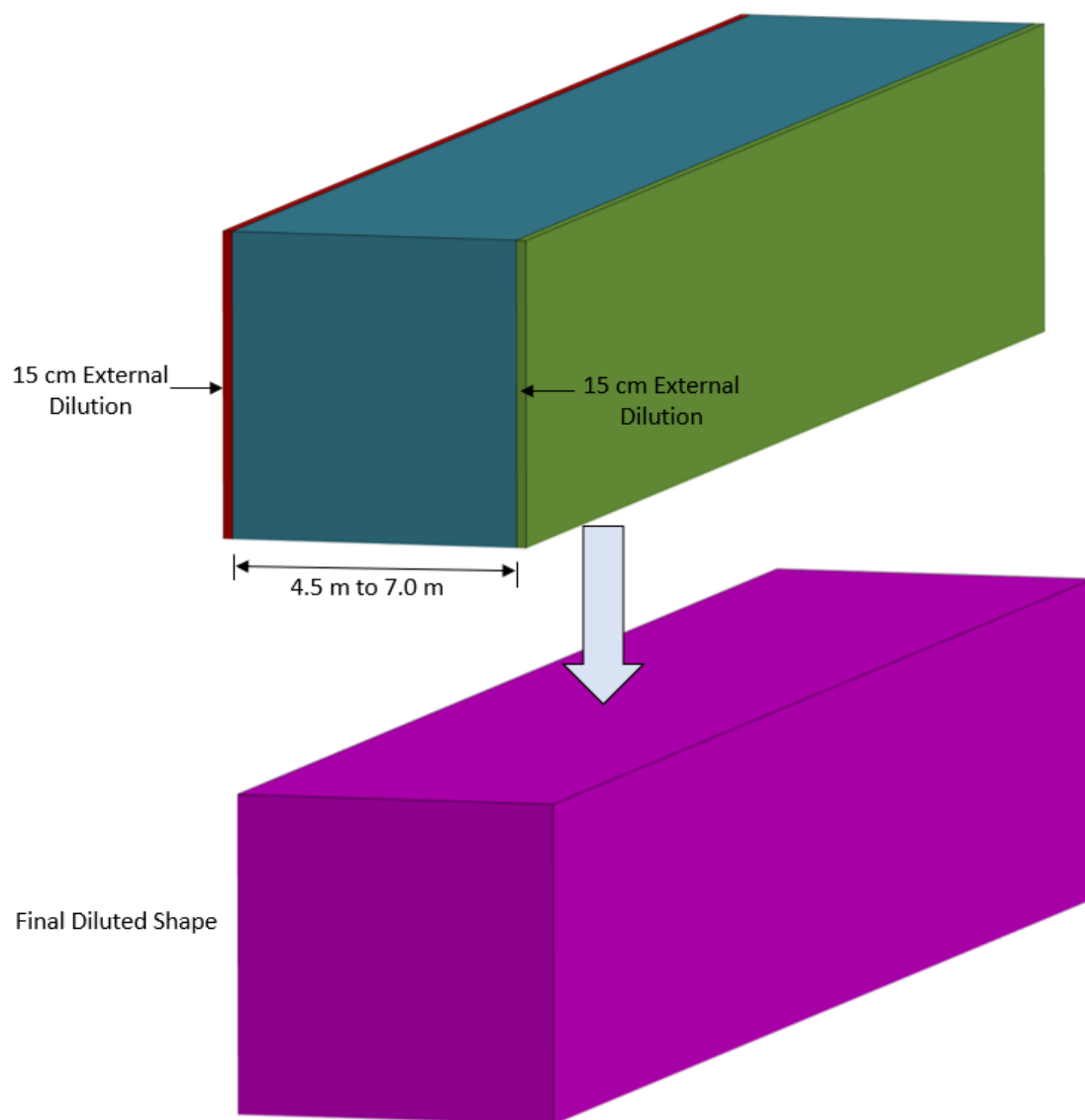
Stope designs were significantly updated for both the MNV and MNFWZ, described in the following paragraphs. The MNV and MNFWZ models were prepared for use in DSO by importing the *Vulcan* BMF format, converting to *Datamine* DM format, and validating in *Deswik.CAD* mining software by performing spot block value checks, spot stope interrogation checks, and by reproduction of grade-tonnage reports. Fields required for use by DSO were added to the model, including fields to store NSR values, geotechnical domains, vein dip, and royalty payability. Mining shapes created with the models located in mined out areas were manually removed from plan.

Unplanned dilution parameters for MNV were assumed as a fixed ELOS (Equivalent Length of Slough) of 1.0m in the hangingwall and 0.5m in the footwall. Unplanned dilution estimates in

MNFWZ varied as a function of dip and geotechnical domain and was written as a model parameter to inform DSO stope creation. ELOS parameters were provided by Golder Associates and validated by Ali Jalbout, P.Eng. ELOS for cut and fill mining was assumed to be constant.

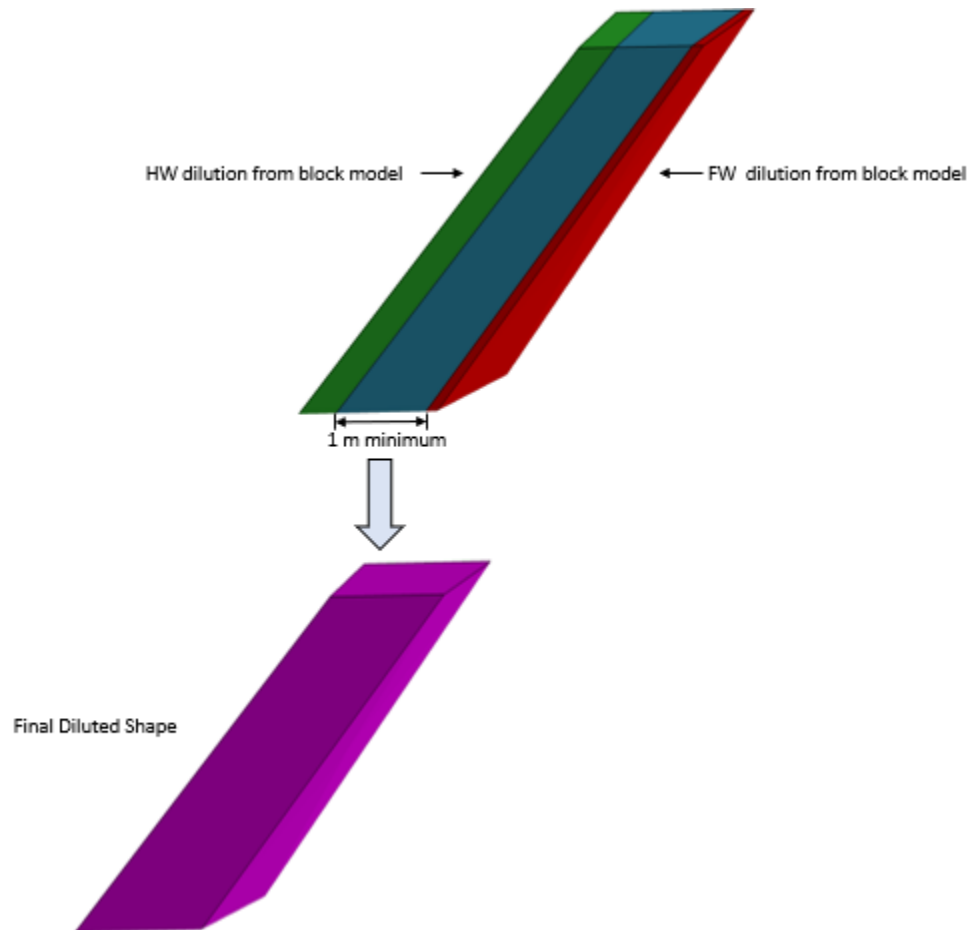
Stope geometries were constrained by a framework of two-dimensional polygons perpendicular to the general strike of the orebody that was generated by Cozamin staff. These polygons represented actual or planned mining levels spanning the entirety of each zone. Sublevel drives were commonly designed at a 1% to 2% positive gradient for drainage and generally follow standard development dimensions. Longhole stopes were created with a 15 m strike length in DSO and cut and fill shapes were set to 20 m strike length, with the ability to have multiple cuts on a level, up to 7 m wide (hanging wall to footwall distance) each.

Stope dimensions were constrained by both practical limits of the mining method, such as minimum 40 degree wall angle; minimum 1m stope width for longhole; and 4.5 m minimum width for cut and fill. The limitations used are consistent with industry best practices and reflect the methods currently in use at the Cozamin mine. Figure 16-9 and Figure 16-10 shows minimum width requirements and representative dilution input into the DSO setup.



**Figure 16-9 : Cut and Fill Dilution Assumption.**

Source: Stantec LOMP update, 2023



**Figure 16-10: Longhole Dilution Assumption**

Source: Stantec LOMP update, 2023

The DSO runs were performed at \$68.33/tonne NSR cut-off for longhole, with \$60.54 NSR cut-off used for longhole incremental cutoff value. Cut and fill used \$74.79 NSR cut-off, with a \$65.55 incremental cutoff value. The incremental cutoff value was used only where stopes could be generated next to fully costed cut-off stopes and where no additional capital development is required for access. Stopes created using incremental cut-off values that would require additional mining levels or infrastructure were removed from the mining plan.

The results of the DSO included shapes generated in previously depleted areas containing unmineable remnants, as well as areas of Inferred resource classification. In these areas, the DSO shapes were removed manually.

The expected zero-grade linear dilution and calculated diluted tonnes, diluted volume, diluted metal grades, and diluted NSR value for each strike length selection were then added as attributes to each stope. These attributes were validated manually using spot checks and by visualizing regions colorized by value ranges.

Rib pillars were removed by applying a mining loss factor to the longhole stopes planned on being mined prior to paste availability in 2023. These stopes received an unrecovered 5 m rib pillar until paste availability.

Passing stopes were finally assessed for capital access costs. Calculated value in excess of the NSR cut-off, for isolated levels or islands of stopes, were compared to the capital access cost of reaching those areas. If the excess above cut-off was not sufficient to pay for the access, the entire volume was removed from the Mineral Reserve estimate.

The resultant shapes were reviewed manually, considering any possible disqualifying site-specific modifying factor not included in the resource block model.

## **16.4 Mine Access and Material Handling**

The Cozamin Mine is accessed by two ramp declines. The approximately 430 m shaft is located centrally between the MNV and the MNFWZ and is used for ore hoisting only. Ore is brought to the crusher at the mill by means of haulage through the Guadalupana Ramp decline and through the hoist. The second decline, the San Ernesto Ramp is smaller in section than the Guadalupana Ramp and is used primarily for light vehicle passage, however the smallest of the three truck sizes used at Cozamin can utilize this decline when it is beneficial to do so. Waste generated by development activities in the mine is sometimes also brought to surface by means of truck haulage when insufficient backfilling capacity is available.

Ore is mucked from stopes and in-ore development using LHD vehicles and then transferred into trucks. Ore is either hauled to surface via the Guadalupana Ramp or taken to the San Roberto shaft and dumped on the grizzly-crusher system. Oversized material left on the grizzly is broken up using a hydraulic rock breaker. Hoisted material from the San Roberto shaft is loaded into surface trucks and is transported to the truck scales. Trucks are weighed on a truck scale located near the mill, after which the material is dumped into the Run of Mine (“ROM”) stockpile. Ore is then re-handled from the ROM stockpile to the primary jaw crusher by a loader. Oversized material is broken by a mobile hydraulic rock breaker.

Historically, the mine has been the bottleneck for production at Cozamin. The processing plant was operated intermittently, starting up when the ROM stockpile is full and shutting down when the remainder in the stockpile and the inflow from ongoing mining operations is insufficient to continue to feed the processing circuits at capacity. An internal Material Handling Study (“MHS”) in 2018 concluded that the under-utilized processing plant is estimated to be capable of crushing, grinding and beneficiating an additional annual average of 842 tpd if such feed were available. The MHS then studied a variety of material handling solutions to close the gap between current mine production levels and mill capacity.

The first stage of the MHS identified the current hoisting and haulage resources as the limiting factor in mine production. The hoist is utilized at capacity and production from the shaft rarely exceeds 2,000 tpd. A traffic study concluded that truck haulage capacity was limited by the bi-

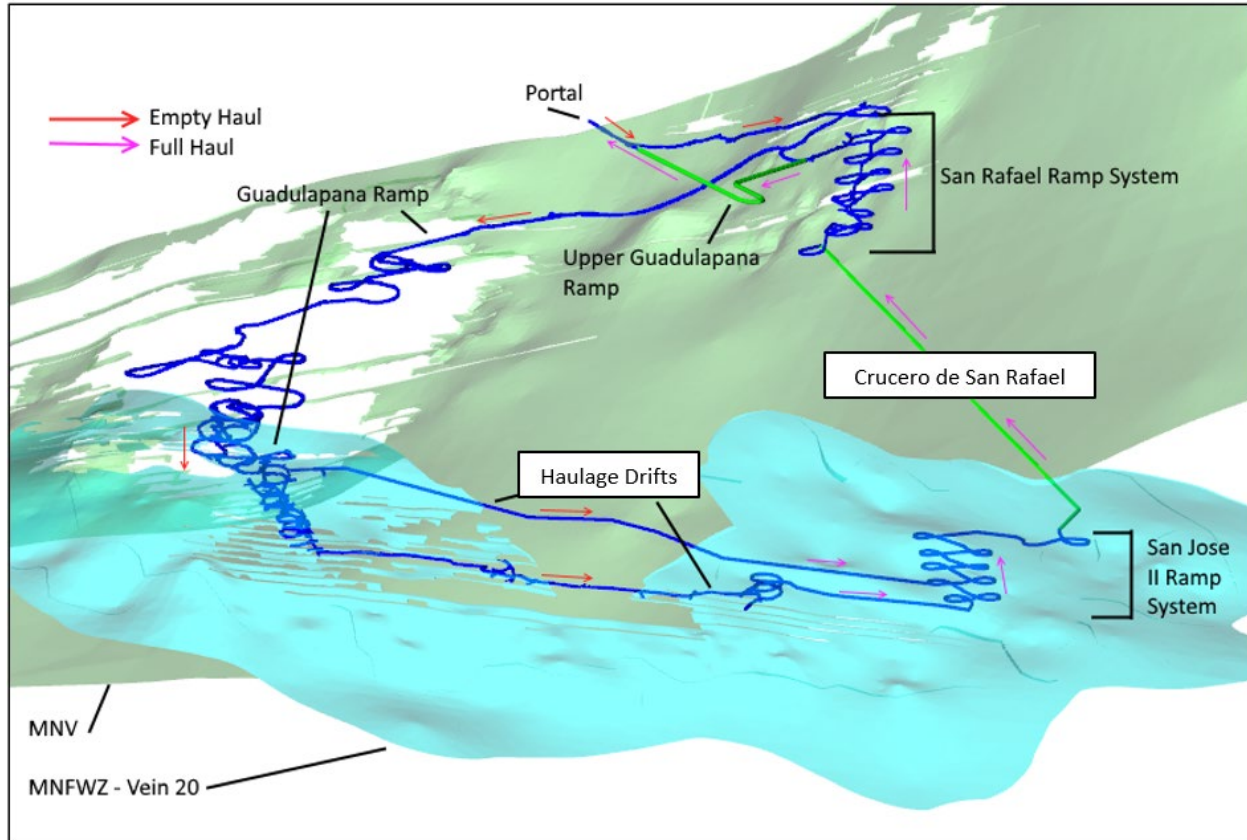
directional use of the Guadalupana Ramp for ore haulage. The estimated impact of this traffic to the current truck fleet was a reduction of approximately 35% of the potential truck haulage system capacity. The compartmental nature of the LHOS mining method used at Cozamin allows multiple mining areas to be accessed simultaneously, as long as sufficient development has been completed. Cozamin Mine has a long history of stable relationships with mining contractors, which account for the entire truck haulage efforts and the bulk of development efforts. The scalable nature of contract mining, along with unused capacity for development and ore production using the current equipment fleet provides the foundation that mine production would be capable of matching the rate of a new haulage, hoisting or novel ore movement solution.

Solutions considered in the MHS included hoist upgrades, new hoisting infrastructure, vertical conveyors, standard conveying in steep decline and innovative solutions such as the *Railveyor* technology. The final recommendation from the study leveraged the geometry of the Cozamin orebodies and ramp systems to propose a design for a one-way truck haulage loop that greatly eliminates the impact of traffic stemming from both uphill and downhill traffic in the current Guadalupana Ramp.

Capital expenditure considered in this design included the development of approximately 1,600 m of decline between the lowest part of the San Rafael ramp system to the top of the planned San Jose II ramp system. Connecting these two ramp systems (approximately 1 km @ -12% gradient) plus approximately 600 m of development at -12% gradient from approximately 100 m down-ramp from the Guadalupana portal to the top of the San Rafael ramp system (The Upper Guadalupana Ramp), combined with the haulage drift system in the MNFWZ, provides the opportunity to eliminate bi-directional traffic in all but the active mucking areas and the first 600 m of the Guadalupana Ramp.

The combined effort to develop both the San Rafael and San Jose II ramp systems and develop the 1,600 m considered in the MHS required approximately 5.3 km of capital development, including approximately 500 m of off-centerline support development (i.e. muckbays, electrical substations, pump stations, etc.).

Construction of the one-way ramp (refer to Figure 16-11) started in January 2018 and was completed in December of 2020. During the construction period, development of intra-mine accesses and preparation of ready-to-blast mineral inventory was prioritized to allow a production increase of approximately 30% to 3,780 tpd upon the completion of the Crucero de San Rafael and the Upper Guadalupana Ramp. Since the completion of the haulage loop, the mine has been maintaining the nominal production rate of 3,780 tpd.



**Figure 16-11: One-way Haulage Loop, view looking down with plunge of +20° and azimuth of 35° (Not to scale)**

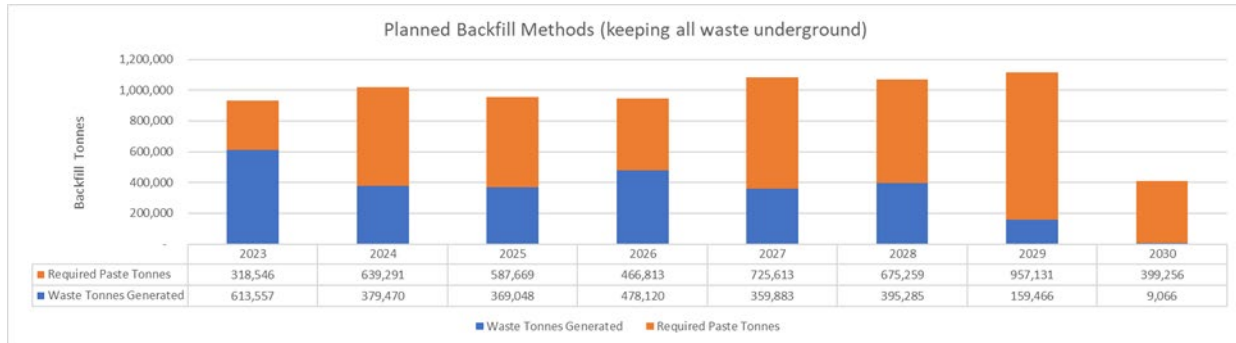
Source: Capstone, 2021

## 16.5 Paste Backfill

A pre-feasibility study and a feasibility level study of a tailings dewatering and paste backfill system were completed in December 2020 and April 2021 (Paterson & Cooke). The information in this section is based on these studies. The capital project was approved in 2021, and the construction of the plant was largely completed in 2022. The commissioning and start up of the plant is expected in Q1 2023, with increasing volumes of paste backfill being delivered to stopes as the underground distribution system is expanded to the mining zones. The objective of the paste backfill system is to utilize paste as a ground support medium to increase the mine's extraction ratio by eliminating the need for most pillars. The nominal design flow rate of the paste plant is 90 m<sup>3</sup>/h.

With the completion of this technical report, a new mining plan has been developed, with updated development waste volumes which are required to be disposed of in the underground stopes. Most of the development waste will be placed in the cut and fill stopes, with some material being disposed of in secondary transverse longhole stopes. The total backfill requirements – waste and paste fill is presented in Figure 16-12 and is well within the design criteria of the plant.



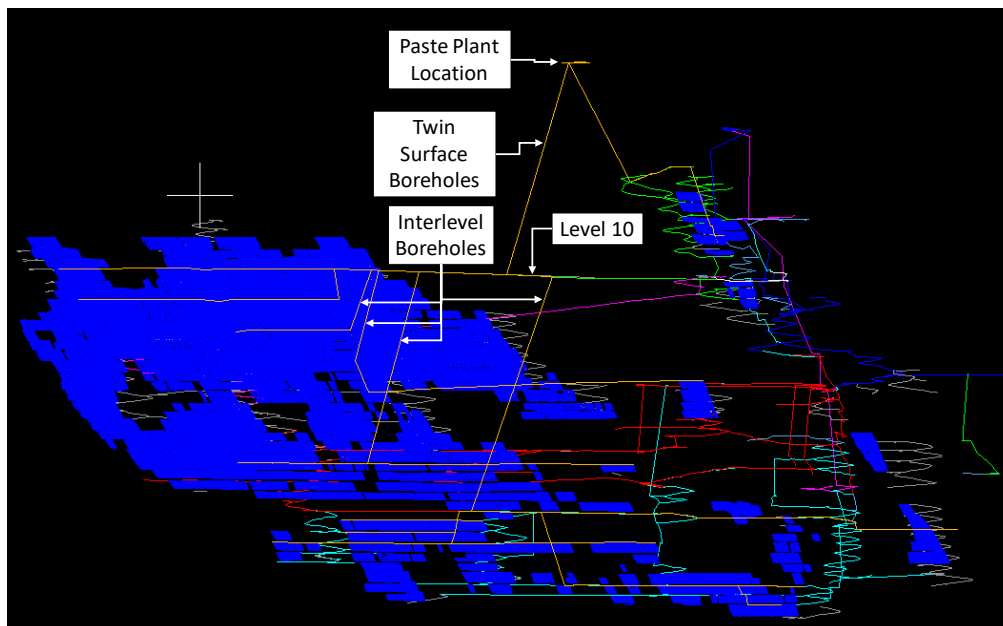


**Figure 16-12: Backfill Profile Keeping All Waste Underground**

Source: Stantec LOMP update, 2023

Cemented paste backfill requires a minimum strength to ensure stability when being exposed either vertically or horizontally (undercut). Paste strength requirements will be assessed on a stope-by-stope basis by Cozamin personnel based on the geometry of the future exposure. Cement binder dosage will vary with the assessed strength requirements and required cure time prior to exposure, though is expected to range between 3% to 8% by solids mass. A 7-day cure time delay for vertical exposures has been considered for mine planning purposes.

Surface infrastructure needed to dewater tailings and produce paste backfill are discussed in Section 18. Paste will be delivered to underground workings via two surface boreholes located next to the paste plant (Figure 16-13). The surface boreholes will break through on Level 10 and interlevel boreholes off Level 10 will be used to access individual levels as mining progress.



**Figure 16-13: Underground Paste Distribution System, view looking west, (Not to Scale)**

Source: Capstone, 2021

Distribution of the paste to the various working levels will be accomplished by manual switch-overs from the main trunk line(s) to the level piping and eventually the stope piping. Instrumentation will be installed in key locations to report pressure data to the plant operator. Manual valves will be installed just before the stopes to allow for diversion of flush water away from the stope to a containment area provisioned for by the mine.

This underground distribution system will be flushed with water before and after each pour, namely pre-flush and post-flush. Pre-flush is used to check for blockage in the system, to confirm the routing is correct and to wet the lines so the paste will maintain the moisture content as it travels down the system. This flush water will be diverted away from the stope and will report to the mine dewatering sumps.

## 16.6 Mine Ventilation

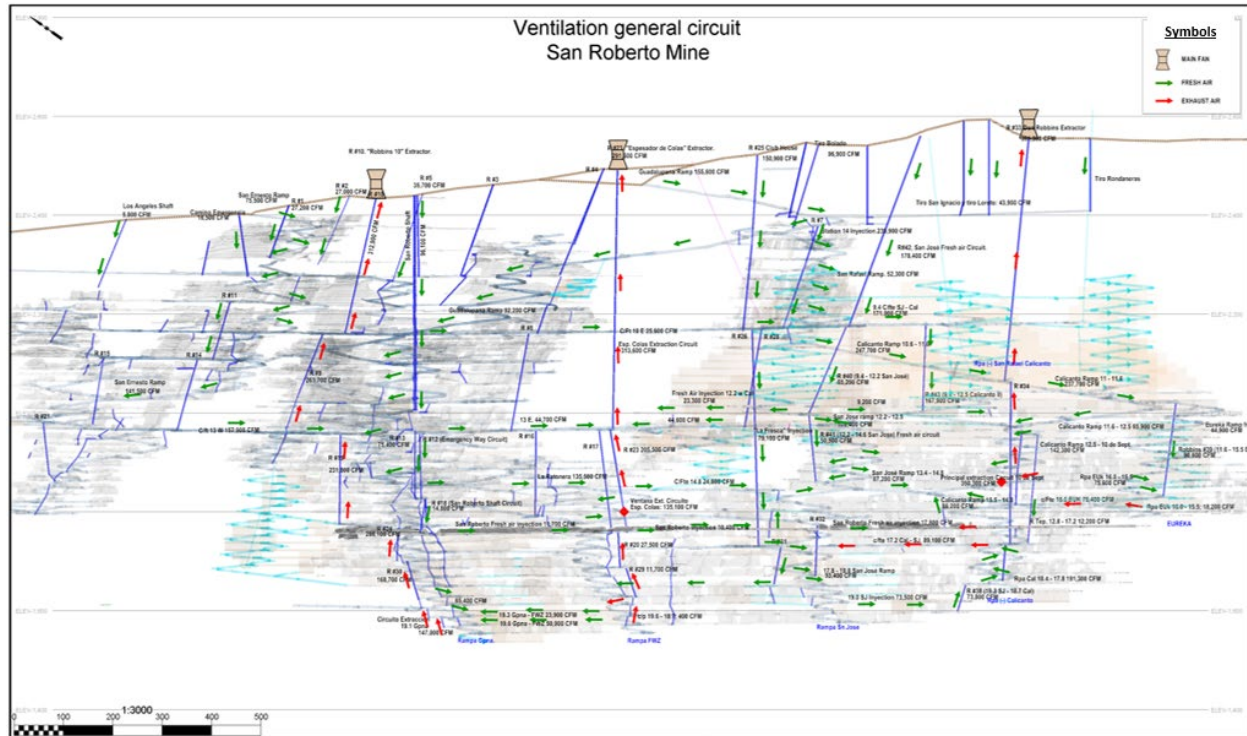
The underground workings are ventilated using a push pull system with intake and exhaust fans located on surface, and booster fans underground delivering 1,050,550 CFM (482 m<sup>3</sup>/s) of fresh air through the MNV and MNFWZ. Fresh air enters the mine through the San Roberto shaft, Guadalupana ramp, San Ernesto ramp and several separate ventilation raises. All of the exhaust air leaves the mine through three principal ventilation raises. Underground booster fans, internal raises, and ventilation doors transport the fresh air to the desired locations.

There are currently three dedicated main mine fans. Exhaust routes are configured to serve the different areas of production (Figure 16-14).

- 620 hp Zitron exhaust fan at the Robbins #10 raise for western zones (**Robbins #10 Circuit**). 29% of total underground air flow.
- 620 hp Zitron exhaust fan at the Robbins #23 raise for central zones (**Tails thickener Circuit**). 32% of total underground air flow.
- 772 hp Zitron exhaust fan at the Don Robbins 818m raise serving V20 SW (**Don Robbins Circuit**). 39% of total underground air flow.
- 620 hp Zitron in standby and it will be used soon in a new circuit.

A variety of booster and level fans are used where needed to direct fresh air to production areas and include:

- 19x 15-50 hp fans
- 11x 84-100 hp fans
- 6x 115 hp fans
- 6x 140 hp fans
- 2x 150 hp fans
- 3x 250 hp fans

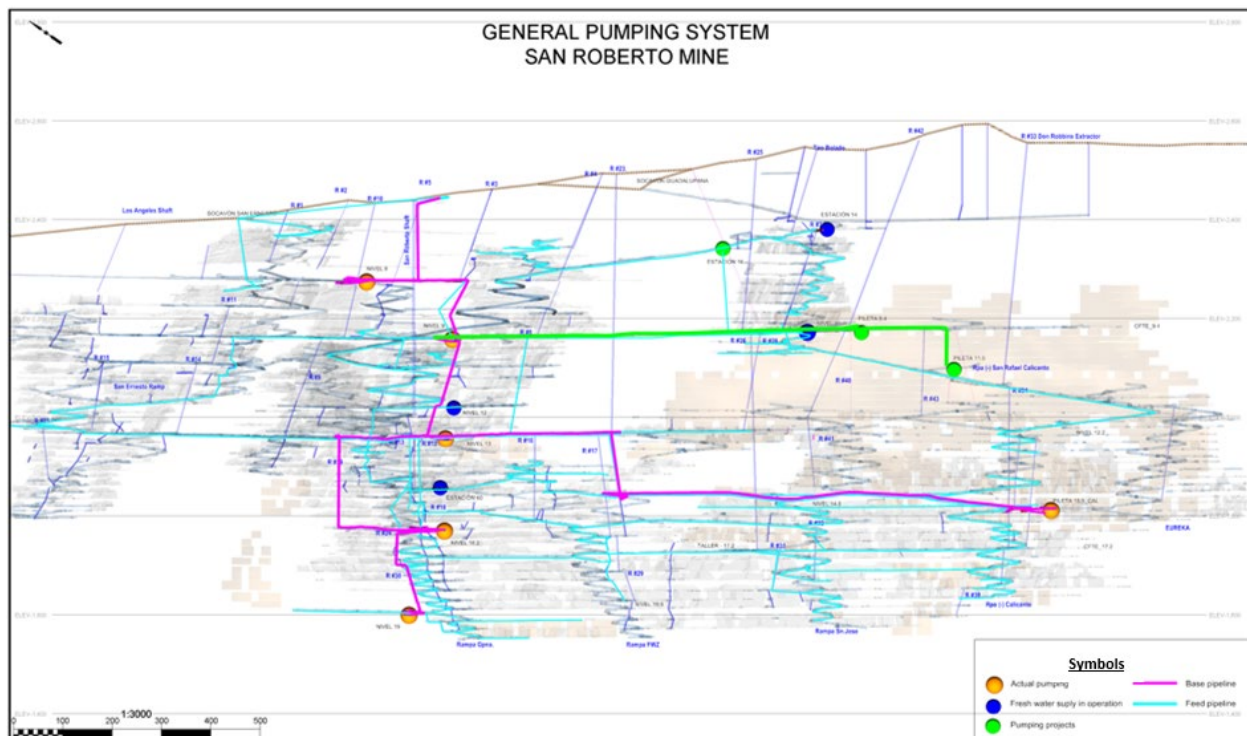


**Figure 16-14: Cozamin Ventilation Network Section, looking to the northeast at 55°.**  
Source: Capstone, 2023

## 16.7 Mine Dewatering

Cozamin's mine dewatering system is shown in Figure 16-15. The mine dewatering system is centrally located in the San Roberto mine. The system uses a series of sump levels to assist with the decantation process. The western regions of the mine use five vertical submersible pump stations on different levels and transfer water along Level 10 to the central pump station. The San Roberto zone and MNFWZ use vertical submersible pumps to transfer water to Level 10. Level 10 uses a 100 HP submersible pump to transfer water to Level 8. Vertical submersible pumps are located on Level 8 to transfer water to surface for process water. A small portion of water is recirculated back into the mine for use by mining equipment and processes.

Upgrades to the dewatering system are in progress in anticipation of mine expansion. Three main pump stations are planned in on Levels 11.0, 9.4, and station #16 to manage drainage from production areas and inflows from the new excavations. Future dewatering needs are modeled according to predicted inflows based on past mining experience in the MNV and MNFWZ. Unanticipated inflows would require additional pumping infrastructure, however since the mine is developing from the bottom upwards, no impacts to production or additional operating risk are expected.



**Figure 16-15: Cozamin Dewatering Network, Section looking to the northeast at 55°.**

Source: Capstone, 2023

## 16.8 Mobile Equipment

Cozamin has a fleet of modern mobile equipment composed of Capstone-owned and contractor-owned equipment. Capstone personnel concentrate on production and internal mine haulage. Contractors are used on site for haulage and development that exceed the current Capstone fleet capabilities. Table 16-5 highlights the Capstone fleet and Table 16-12 shows the contractor fleet.

**Table 16-5: Capstone-owned Major Mobile Equipment**

Equipment Type	Model	No. of Units
Load-haul-dump (“LHD”) Scoops	LH 410 Sandvik (4.6 m <sup>3</sup> )	10
Jumbo Drills	Axera 5 Sandvik 16 ft	2
	DD-311-40 Sandvik 16 ft	1
Long-hole Drills	DL310 Solo Sandvik	1
	DL311 Solo Sandvik	2
	DL331 Solo Sandvik	1
	DL411 Solo Sandvik	1
Haul Trucks	TH430 Sandvik – 18m <sup>3</sup>	2
Raise boring (TUMI)	SBR 400SR	1
Rock Bolters	DS 311 Sandvik	5
Rock Scalpers	853 S8 Paus	2
Telehandlers	Caterpillar (1x TH360B; 2x TL642C)	3
Backhoe Loaders	416F2 Caterpillar	2
Surface Haul Trucks	International/Volvo/Mercedes-Benz	1
Getman	GETMAN-A64	1
Maclean Scissor Lift	MEM-977	1

**Table 16-6: Current Contractor-owned Major Mobile Equipment**

Equipment Type	No. of Units
Load-haul-dump (“LHD”) Scoops	7
Jumbo Drills	7
Rock Bolters	10
Haul Trucks – Total Available	50
Haul Trucks/shift - 7m <sup>3</sup>	7
Haul Trucks/shift - 14m <sup>3</sup>	20

## 16.9 Production Schedule

The production schedule was created using the Deswik Scheduler software. All stope shapes and development required to access the reserves have been designed in Deswik. The constraints provided for development, longhole drilling, blasting, mucking and waste backfilling are based on historical performance. Paste backfill rates have been established based on the design of the paste fill plant. The scheduler uses a general rule set of mining-based dependencies. When ramp development reaches stoping levels, in-vein production development begins expanding from the

access along strike in both directions, allowing for longhole production to start following the sequence discussed in section 16.1

The LOMP does not include any significant stockpiling of low-grade material. It includes all Mineral Reserves reported in this Technical Report. Figures may not sum due to rounding.

Table 16-7 outlines the LOMP production schedule.

**Table 16-7: LOMP Production Schedule**

	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Cu Production (kt) <sup>1</sup>	23.75	25.36	23.84	25.33	22.25	17.84	15.61	5.29
Ag Production (koz) <sup>1</sup>	1,411	1,576	1,678	1,829	1,832	1,549	1,353	404
Pb Production (kt) <sup>1</sup>	0.17	0.38	3.19	2.74	4.48	4.36	7.53	2.19
Zn Production (kt) <sup>1</sup>	0.82	0.83	3.54	2.89	5.34	5.56	8.98	2.61
Tonnes milled (kt)	1,380	1,378	1,356	1,410	1,469	1,320	1,419	478
Cu Grade (%)	1.80%	1.92%	1.84%	1.88%	1.60%	1.44%	1.19%	1.19%
Cu Recovery (%)	95.62%	95.84%	95.54%	95.57%	94.66%	93.85%	92.45%	92.96%
Ag Grade (g/t)	38	42	46	48	48	46	39	35
Ag Recovery (%)	83.64%	84.68%	83.66%	84.04%	80.82%	79.37%	76.02%	75.07%
Pb Grade (%)	0.04%	0.05%	0.27%	0.23%	0.35%	0.39%	0.60%	0.51%
Pb Recovery (%)	31.26%	54.52%	87.19%	84.40%	87.11%	84.72%	88.44%	89.64%
Zn Grade (%)	0.34%	0.29%	0.49%	0.43%	0.57%	0.64%	0.91%	0.89%
Zn Recovery (%)	17.39%	20.80%	53.33%	47.73%	63.83%	65.78%	69.52%	61.34%

Table Notes:

1. Contained metal in concentrate.

2. Cozamin's LOMP was updated based on the Mineral Reserves as of January 01, 2023.

## 16.10 Opportunities

- Complete a study in 2023 to assess alternative mining techniques with the objective of lowering costs and dilution to convert resources to reserves. Possible alternatives that will be studied include drift-and-fill, and narrow vein cut-and-fill methods.
- The paste backfill feasibility study makes a number of estimates for equipment and materials costs, geotechnical stability and other factors. Further test work may identify binder savings to achieve the desired strength requirements.
- Complete a remnant study to recovery pillars in areas mined in the unconsolidated rockfill utilizing paste fill and other techniques. Typically, conventional backfilled areas have been designed to leave approximately 26% of the total mineralization behind in pillars. This study should be completed by Cozamin technical staff over 2023-2024, to assess the potential to convert these resources to reserves.
- An initiative is underway to reduce dilution site-wide through improved engineering, planning, longhole drill control and optimized explosives design guided by consultants and site experts.



## 17 Recovery Methods

### 17.1 Introduction

The mill remains largely as described in previous technical reports.

The Cozamin mill has processed increasing tonnages from the San Rafael resource since mid-2018. The review of the process flowsheet focuses on confirming that the current flowsheet can deliver the projected throughput requirements between 2020 and 2030. In the early years, ore contribution will be primarily from the MNFWZ. The zinc ores from the 10 Vein be processed starting in late 2024, and contribution from this area, along with San Rafael, will contribute until the end of the planned mine life. An analysis of plant performance during high throughput periods in 2019 and 2020 was used to validate the recovery projections from the test programs performed by Blue Coast Metallurgy Ltd. Additionally, a test was conducted using ore mined from the San Jose extension area of the MNFWZ during a continuous 11-day period in May of 2020. These test periods are considered relevant to the mill performance projections in this report as the test material closely matched predicted future ore hardness from the MNFWZ and provided several data points for validation of the revised recovery algorithms.

### 17.2 Process Design Criteria

The design calculations for the processing plant were focused on identification of potential bottlenecks in the mineral processing circuit under the expected mining rates going forward.

Table 17-1 summarizes the main process design criteria used to estimated required plant capacity and process modifications required to remove any potential bottlenecks. Projected unit operation availabilities and utilizations are based on actual plant performance during 2022.

**Table 17-1: Selected Process Design Criteria**

Parameter	Units	Value
Average Plant Throughput	dry tpd	3,780
Operating Day	hours	24
Plant Feed Grade Capacity	%Cu	2.6
Crusher Availability	%	83.3
Crusher Utilization	%	80.0
Crusher Operating Time	%	68.0
Mill Availability	%	90.0
Mill Utilization	%	98.0
Mill Operating Time	%	88.2
Ore Bond Work Index	BWi @212 µm	18.5
Mill Feed Size	µm	6300
Mill Product Size	µm	230
Copper Concentrate Grade	%Cu	25



Parameter	Units	Value
Copper Filter Availability	%	87.0
Copper Filter Utilization	%	95.0
Plant Fresh Water Consumption	m <sup>3</sup> /t	0.82

### 17.3 Process Plant Overview

Actual mill performance, together with the expected unit capacities achievable with the installed equipment, was used to assess the maximum practical sustainable mill throughput target for this study.

The evaluation consisted of a review of the process flowsheet for any potential bottlenecks at the expected peak mining rates and assessing the feasibility of removal of those bottlenecks with minimal capital expenditure. The evaluation is broken down by unit process in the mill, including the crushing plant, the grinding plant, flotation, concentrate filtering and tailing handling. A mass balance based on a mill throughput rate of 180 tonnes per hour (“tph”) (3,980 tpd calendar or 4,500 tpd nominal) based on a projected 88.2% operating time. This would provide a one standard deviation over the average mill throughput needed to sustain the peak mining rates based on current mill operating variability. The output of this mass balance was used to check against the capacity of the installed equipment.

In addition, the actual flotation recoveries of copper, zinc and silver on a daily basis during an 11-test run of San Jose material were checked against the recovery models to confirm the ability of the existing operation to meet the projected recovery targets.

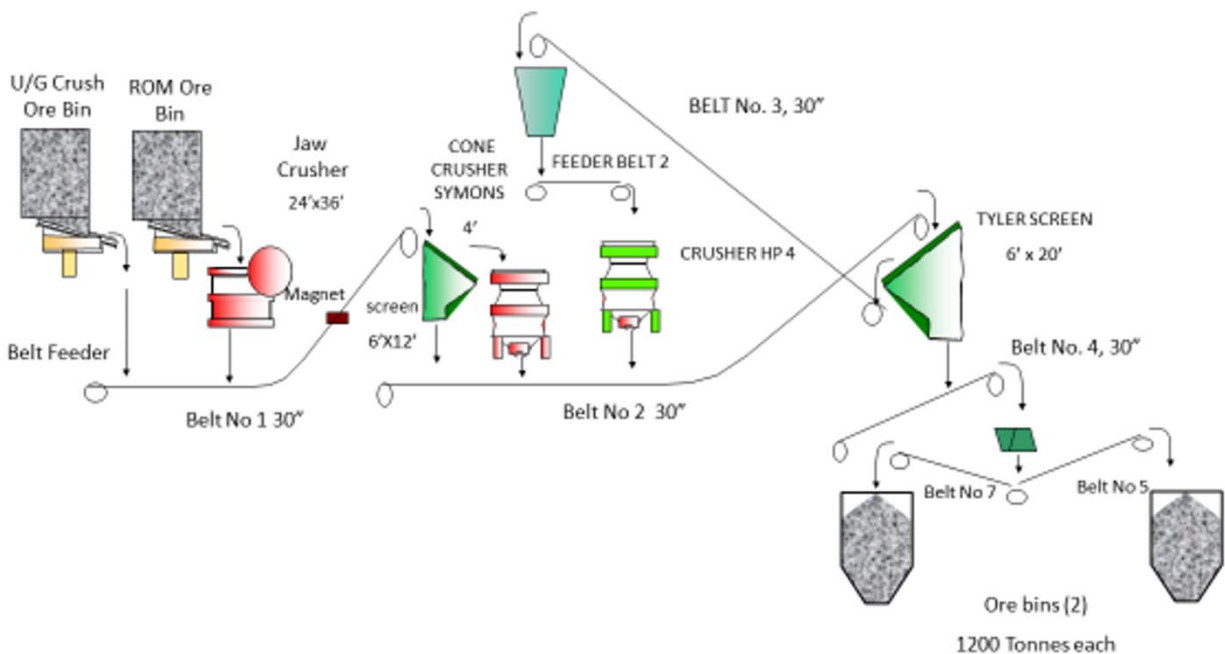
It is relevant to note that during June of 2020 the mill operated at an average hourly throughput of 167 t per operating hour, which compared with a targeted throughput of 169 t per operating hour. The operating results during the May test period with San Jose material, together with the sustained mill performance in June, support the conclusion that the plant is capable of processing 3,780 tpd on a sustained basis with minimal debottlenecking of the crushing and milling circuits to accommodate the slightly harder ores expected in the future. The anticipated circuit modifications are discussed below.

### 17.4 Crushing Plant

The crushing plant process flow sheet is illustrated in Figure 17-1. Ore is trucked from the headframe bin and underground ramps to a surface stockpile for blending to produce a consistent copper feed grade. The surface stockpile of approximately 10,000 tonnes is reclaimed by a front-end loader that feeds the material to a 100 tonne bin, from which ore reports to the 0.5 m x 0.9 m primary jaw crusher via belt feeder. An average crushing capacity of 230 tph would be required based on an 85% overall crushing plant availability and a 80% utilization. Peak hourly throughputs would likely exceed 280 tph. The existing primary crusher is capable of sustaining this throughput rate. A second feed bin and feeder are installed that will allow the crushed underground ore, which represents approximately 45% of the total feed at the targeted production level, to bypass the

surface jaw crusher. This ensures ample excess primary crushing capacity. A vibrating grizzly, which would unload the surface primary crusher, will be installed prior to increasing the throughput on a sustained basis.

Primary crusher product is conveyed to the secondary 1.52 m x 3.66 m vibrating screen ahead of the 1.22 m secondary standard head cone crusher. Screen oversize is fed to the secondary crusher with screen undersize combined with secondary crusher product. This material is conveyed to a 1.83 m x 4.88 m vibrating screen with oversize material conveyed to the tertiary crusher (Metso HP4) and undersize material being conveyed to the fine ore bins, for the two main ball mill circuits and original ball mill circuit. Tertiary crusher product is returned to the 1.83 m x 4.88 m screen. The secondary/tertiary crushing plant has been audited at steady state with throughput above the 280 tph target demonstrating the capacity of the plant to operate at this level with all motors drawing loads well below their rated maximums. Two 1,200-tonne capacity fine ore bins are available each feeding one of the two primary grinding lines in the milling circuit. Each bin provides approximately 20 hours storage for the respective grinding line at the current milling rate. This would drop to approximately 12 hours at the projected rates. This would require all extended maintenance activities in the crushing circuit to be scheduled together with the mill maintenance program. In addition, spare bowls and mantles for the secondary and tertiary crushers would be required to ensure rapid turn-around on steel changes.



**Figure 17-1: Crushing Flow Sheet**  
Source: Capstone, 2021

Operating data from 2019 suggests that while the crushing circuit has regularly achieved average hourly throughputs near the targeted levels, the circuit has yet to be tested at the sustained

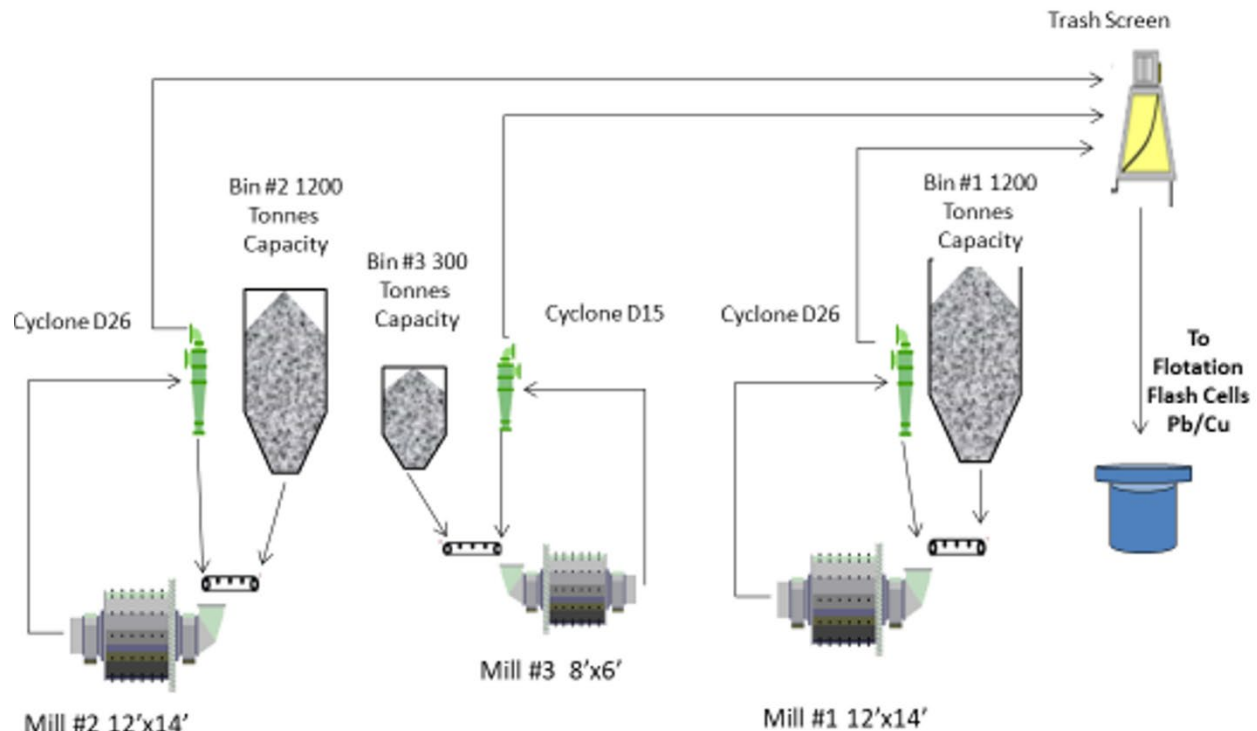
production levels expected in the future. The expected increase in ore hardness would likely stress the tertiary portion of the circuit at the higher end of the hourly throughput range required to sustain the target average throughput at the currently planned circuit availability and utilization. Circuit auditing and modeling indicate that crushing capacity was limited by the tertiary screening efficiency, resulting in overload conditions in the tertiary crusher. This study led to the installation of a higher efficiency screen, completed in October 2020. Following the installation of the high-efficiency screen, the circuit has surpassed the average throughput required to sustain the projected throughput.

## **17.5 Grinding**

The current milling process flow sheet is presented in Figure 17-2. The milling section is composed of two primary ball mills operating in parallel. Each mill is 3.65 m in diameter by 4.27 m long. The original ball mill (2.8 m in diameter by 1.6 m long) grinding circuit was recommissioned to provide additional grinding capacity when mining the Avoca zone in 2013 and 2014 and again in 2018 to support the increase in throughput associated with processing the San Rafael ores. In 2021, the mill discharge arrangements were changed to allow the mills to draw higher power from the 1,500 HP motors (previously, the mills operated at around 1,000 HP). With the additional power draw capacity, the plant is able to achieve the nominal throughput rates when treating the harder San Jose ores.

The grinding product size (P80) is 230  $\mu\text{m}$ . Each ball mill is operated in closed circuit with a cyclone pack configured with 0.66 m diameter cyclones. Cyclone underflow reports back to the respective grinding mill with the cyclone overflow from both circuits reporting to a common flotation conditioning tank.

Lime is added to the grinding circuit for pH control throughout the circuit. Flotation reagents, including a zinc depressant and an oxidation-reduction potential modifier, are also added to the grinding circuit.



**Figure 17-2: Milling Flow Sheet**

Source: Capstone, 2021

## 17.6 Flotation

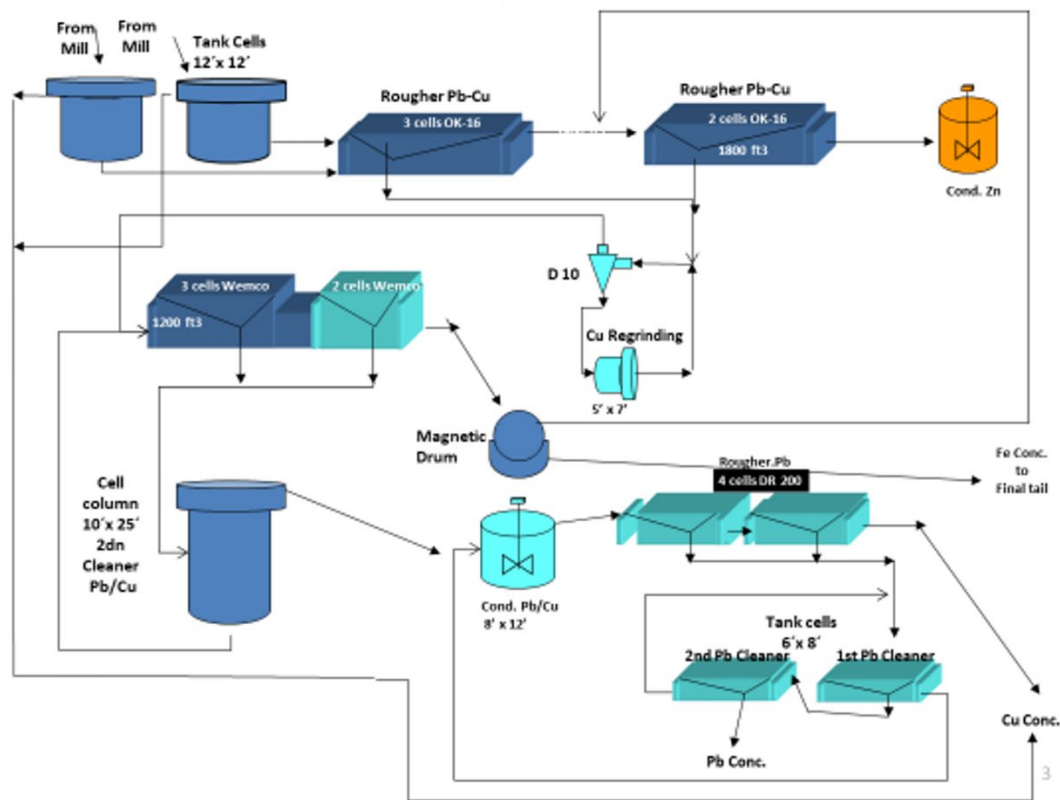
The original process flow sheet has been expanded to include a tank flotation cell for the recovery of copper and lead for each grinding line. Figure 17-3 illustrates the current flotation flow sheet at Cozamin. Slurry from the grinding circuit is transported to the tank flotation cells for initial copper flotation. Concentrate from this initial stage of flotation reports directly to the copper cleaning circuit. The current mine plan does not contemplate production of lead concentrates until 2027.

Tailings from the tank cells report by gravity to banks of rougher and scavenger flotation cells (6-OK 16 cells) for additional recovery of copper. The copper rougher concentrates report to a two-stage cleaning system.

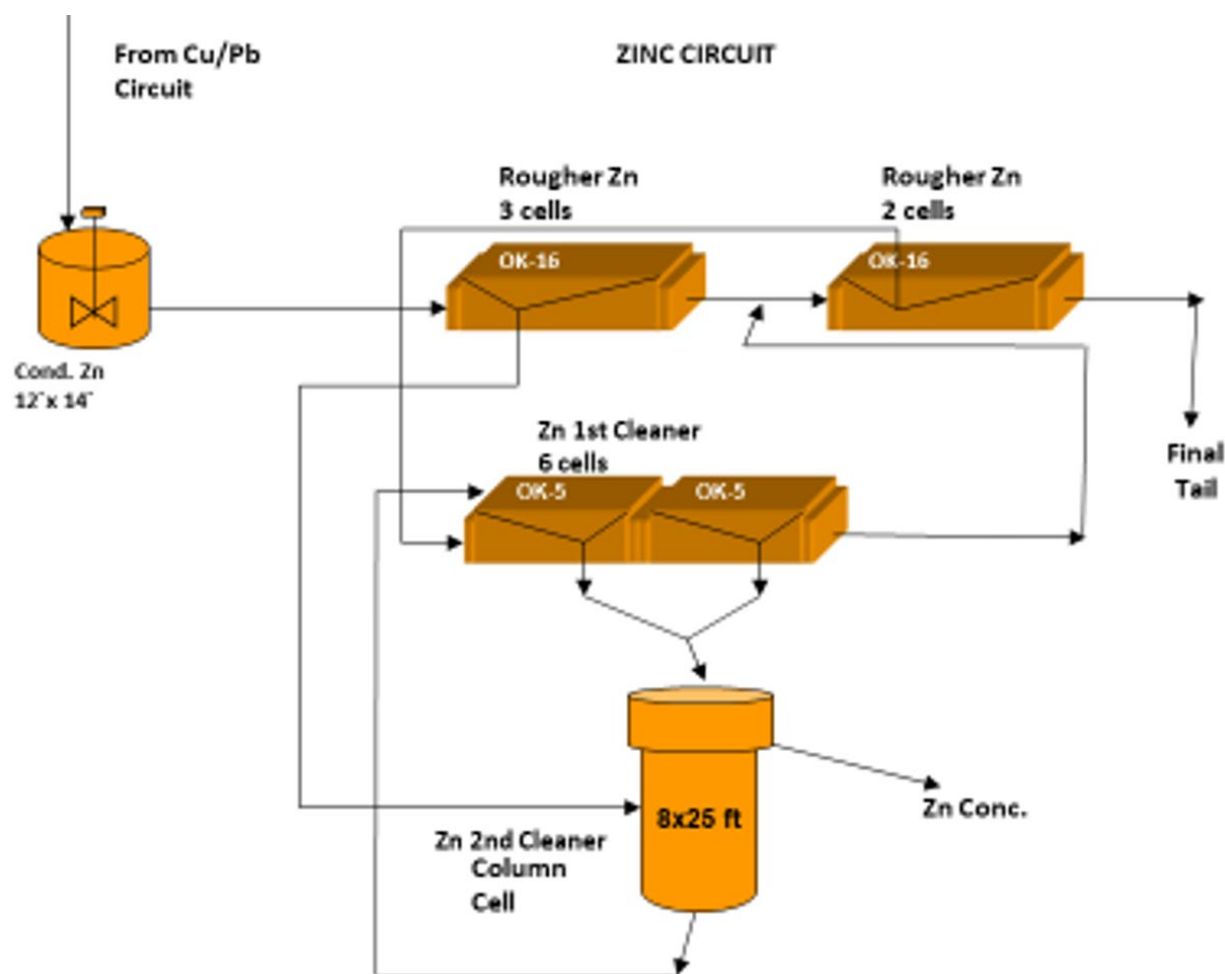
Copper rougher flotation tailings report to the zinc conditioner tank prior to zinc rougher flotation, where reagents are added to depress deleterious minerals and activate the zinc mineralization. The zinc rougher concentrate reports to a closed circuit regrind for additional liberation of zinc mineralization. Products from the regrind circuit reports to two stages of zinc concentrate cleaning. A column cell has been added to the circuit to improve zinc concentrate grade. Tailings from the first cleaner stage report to final tails.

The capacity of the existing flowsheet was confirmed by comparing calculated residence times at the projected nominal throughput with standard laboratory depletion times. The retention times

are 2.5 times the laboratory requirement at 180 tph. In addition, actual shift results from the San Jose trial period in May 2019 with throughput rates at those levels were checked against the recovery algorithms and are consistent with those projections. Copper grades going forward are consistent with those in the updated mine plan. Zinc grades are expected to remain near the threshold for operability of the zinc circuit until late in the mine life. The mine plan will assume that zinc production ceases at that time and will be restarted when the remaining San Rafael ore is processed beginning in 2027. In operational practice, the zinc circuit can be started on an opportunistic basis when grades merit zinc production over the slight impact on saleable silver production loss when producing zinc.



**Figure 17-3: Copper Flotation Flow Sheet**  
Source: Capstone, 2021



**Figure 17-4: Zn Flotation Flow Sheet**

Source: Capstone, 2021

## 17.7 Concentrate Dewatering and Filtration

Copper concentrate is pumped to the 16 m diameter concentrate thickener. Underflow from the thickener is pumped to a holding tank and then filtered in a Larox pressure filter (Figure 17-5). Product moisture is approximately 10%. Copper concentrate can be stored in the inside bins (capacity 1,500 tonnes) or outside on a concrete pad (capacity 4,000 tonnes). Concentrate is trucked to port daily (approximately 600 km) and sampled as the material is transferred to the port warehouse and becomes the property of the buyer.

Higher copper feed grades are anticipated in the future. At the expected peak grades of 2.6% copper, the existing Larox filter would not be able to achieve the required peak capacity of approximately 400 tpd of dry concentrate. The current capacity of the Larox system is approximately 340 tpd.

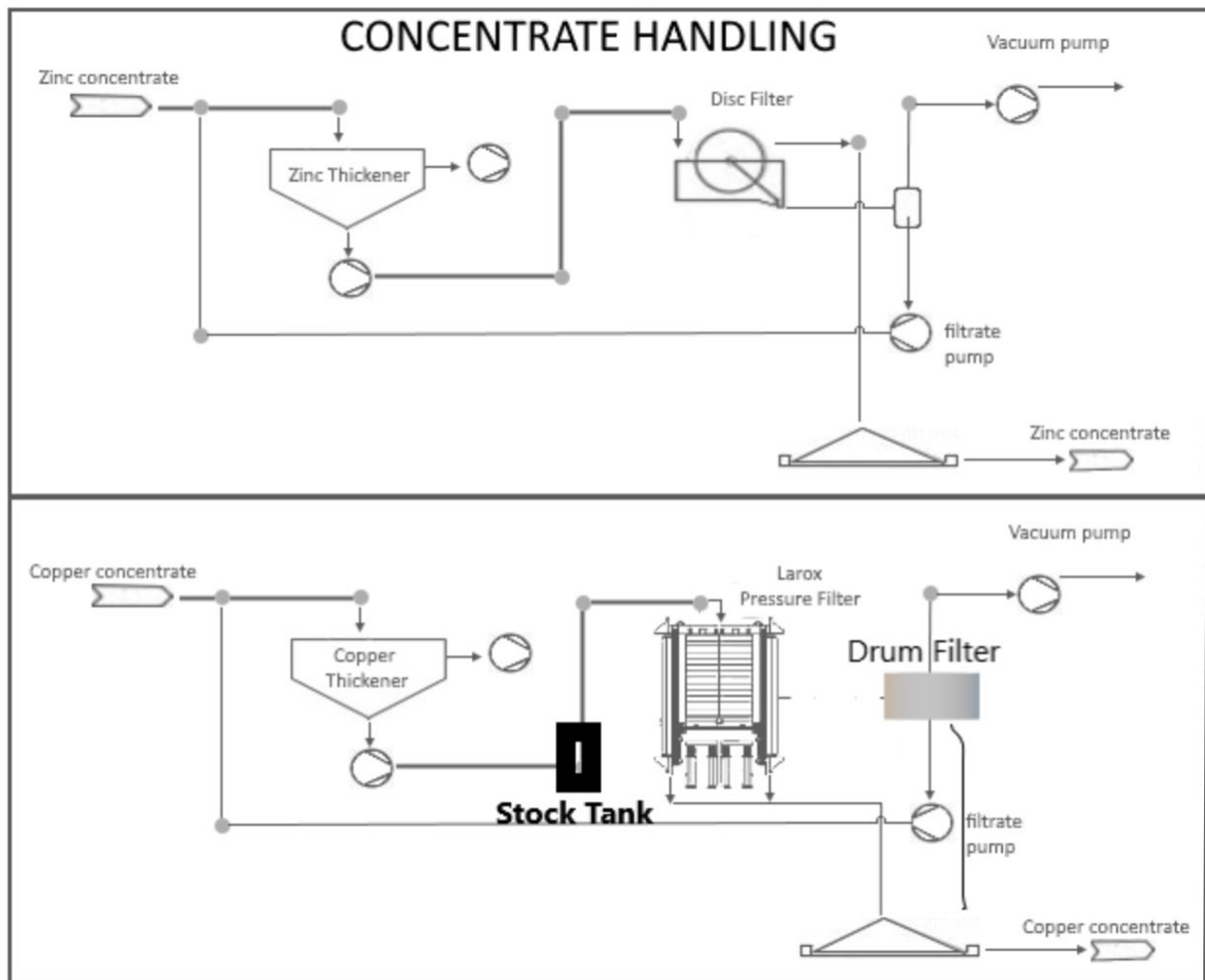
Zinc concentrate is pumped from the 8 m diameter thickener to the 1.3 m diameter x 4 m disc filter. Product moisture is approximately 10% and is stored in the inside bins with a capacity of 1,000 tonnes. The material is then transported to the port and sampled the same as the copper concentrate.

Lead concentrate is pumped from a 4 m diameter thickener to a 1.3 m diameter x 2 m long drum filter. The final moisture is approximately 8% and this material is stored inside (capacity 400 tonnes) prior to shipment by truck to the port. All concentrate trucking is done by a third party. All trucks are weighed both empty and full at the mine site and the port.

With the zinc grade restriction applied, all concentrate handling equipment can handle the increased flow projected in the Cozamin LOMP.

The concentrate trucks are dispatched in convoys and equipped with GPS to monitor progress between the mine site and the port.





**Figure 17-5: Concentrate Handling Flow Sheet**

Source: Capstone, 2021

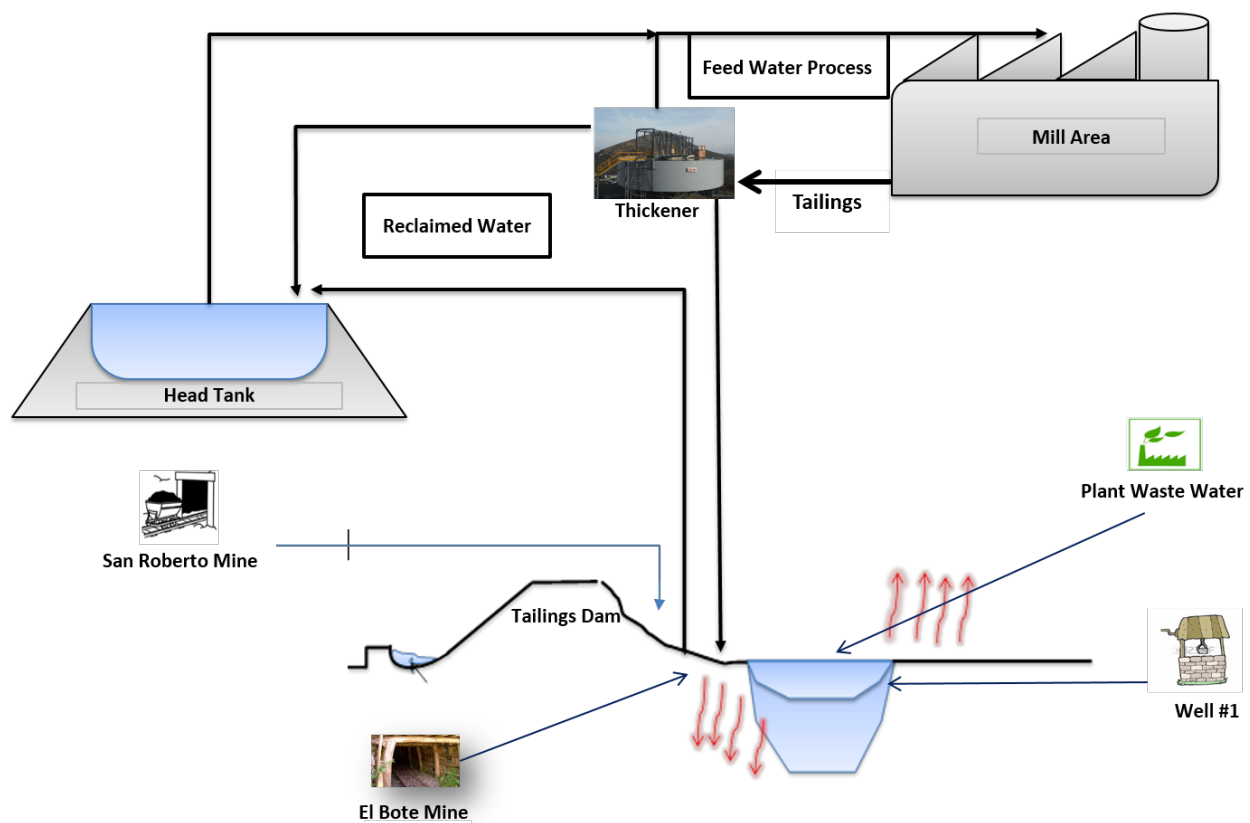
## 17.8 Tailings Handling

Tailings at Cozamin have historically been deposited in the TSF as a slurry. Under this system, tailings are pumped from the plant at approximately 32% solids to the thickener, where tailings achieve approximately 40% to 42% solids and are subsequently pumped to the TSF for disposal (Figure 17-5). Cozamin TSF maintenance personnel deposit tailings in the TSF via D-20 and D-10 Krebbs cyclones in paddocks approximately 50 m long (normal to the dam crest) and 25 m wide (parallel to the dam axis). The paddocks allow operations personnel to limit the embankment length over which the beach is constructed, mitigating the risk of slimes and water accumulating along the embankment crest. This deposition method allows for better water management and higher overall tailings densities.

When tailings segregation using cyclones is not possible, the tailings bypass the thickener and direct tailings discharge takes place in the southwestern portion of the TSF. Following discharge

into the impoundment, the coarse tailings particles settle out of the slurry in the beach area while the water with slimes continues to flow towards the reclaim pond area at the lowest point in the southeastern portion of the impoundment. Water pooled within the tailings pond is either evaporated on surface or reclaimed and sent back to the mill facility for re-use via a barge pumping system and water return pipeline.

The rated capacity of the tailings thickener is 168 tph of tailings (180 tph of fresh mill feed) at a target 68% solids underflow. The actual operating range below 50% solids would provide upside to this limit. In current operation the system operates at less than 15% of the rated torque and is not considered a risk at the future throughput rates.



**Figure 17-6: Slurry Tailings Handling Flow Sheet**  
Source: Capstone, 2021

The slurry tailing deposition system is being transitioned to a filtered tailings system in 2023. With this system, underflow from the existing thickener is pumped to a filter feed tank located at the filter plant as described in Section 16. The tailings are fed continuously when the process plant is operating. The filter plant and dry stack facility is described in Section 18. The underground distribution system is described in Section 16.

## 17.9 Recommendations Related to Recovery Methods

The QP recommends the following upgrades:

- Construct mill upgrades as described in Section 17, including a grizzly at the primary crusher and fines bypass to final product and increased tailings pumping capacity before production rates increase. In addition, purchase spare sets of mantles and bowls for the secondary and tertiary crushing circuits to reduce maintenance downtime.
- Copper filtration capacity is adequately covered by the existing installation with the back-up drum filter that is currently installed. Further work needs to be completed to evaluate the installation of an additional concentrate filter (or concentrate pulp storage capacity) to reduce the risk of unplanned outages caused by filtration upsets and to improve filtered concentrate moisture levels.

## 18 Project Infrastructure

### 18.1 Regional Infrastructure

The city of Zacatecas lies between several major Mexican cities along the Mexican Federal Highway system. The city is intersected by major highways that connect it to the larger cities of Aguascalientes, San Luis Potosí, Monterrey, Durango, and Guadalajara. A major railway operated by Ferromex services Zacatecas and services the city through a terminal in Torreón. The Class 1 railway connects the region to Mexico City to the south and to the United States to the north. The General Leobardo C. Ruiz International Airport lies 18 km northwest of the city and connects passengers to destinations in Mexico and the United States.

### 18.2 Mine Underground Infrastructure

As an operating mine, all required mining-related infrastructure is in place. This includes hoisting and haulage systems, underground crusher and storage bins, access ramps and lateral development, electrical power distribution systems, compressed air systems, water distribution systems, tailings dewatering and paste backfill system, communications networks and maintenance shops.

Existing mining-related infrastructure includes:

- San Roberto production Shaft; two 5 tonne skips; 2,000 tpd capacity
- San Ernesto Ramp; primary maintenance access
- Guadalupana Ramp; primary truck haulage access
- Calicanto Ramp; main haulage ramp for ore extraction
- Underground jaw crusher with rock breaker and crushed rock storage bin
- Five main lateral inter-ramp haulage drifts
- 43 ventilation raisebores
- 5x Main 13.2 kV power feeder cables
- Underground 13.2 kV power, substations and transformers
- Fiber-optic and wireless radio communication networks
- Mine personnel tracking system
- Microseismic monitoring system
- Contractor mobile maintenance shop with two heavy equipment bays
- Cozamin mobile maintenance shop with four heavy equipment bays
- Paste fill plant (with underground distribution system extension currently underway)
- Compressed air, mine-use water, and dewatering pipelines
- Dewatering pumps

- Ventilation Fans

### **18.3 Mine Surface Infrastructure**

As an operating mine, all required surface infrastructure is presently in place. This includes power, pipelines, crushing and conveying facilities, all milling and processing infrastructure, maintenance facilities, roads, and a tailings storage facility with related infrastructure. A tailings filtration and paste plant has recently been constructed and commissioned and are expected to be fully operational in early 2023.

The buildings and infrastructure facilities include buildings, pipelines, pump stations, electrical systems, laydowns, ore storage pads and roads (refer to Figure 5-1). The principal surface facilities include:

- Process plant
- Laboratory
- Power substation
- Plant maintenance building
- Mobile equipment maintenance building
- Mine entrance building
- Back-up generators
- Ore stockpiles
- San Roberto hoist room
- Mine and Geology offices
- Waste rock storage facility
- Tailings filtration and paste plant
- TSF
- Administrative offices
- Dining areas
- Recreational complex / auditorium

Personnel live in the communities surrounding the mine site, so no on-site accommodations are required.

#### **18.3.1 Electrical Infrastructure**

Electrical power is supplied by the Comisión Federal de Electricidad (CFE) from the national power grid, with a current approval to draw 9.5 MW. Cozamin has requested an increase to 14 MW and this draw is expected to be approved by the Centro Nacional de Control de Energía (CENACE) by mid-2023. This supply is expected to be adequate to realize the LOMP. The 115 kV line voltage is stepped down to 13.2 kV by two main 12.5 MVA transformers. An evaluation is

underway to assess the potential acquisition of another backup transformer. There is a 2.5 MW generator available at site to power critical equipment when needed.

#### **18.3.1.1 Recommendations**

The qualified person for this section recommends that Cozamin staff complete the following to ensure uninterrupted power supply:

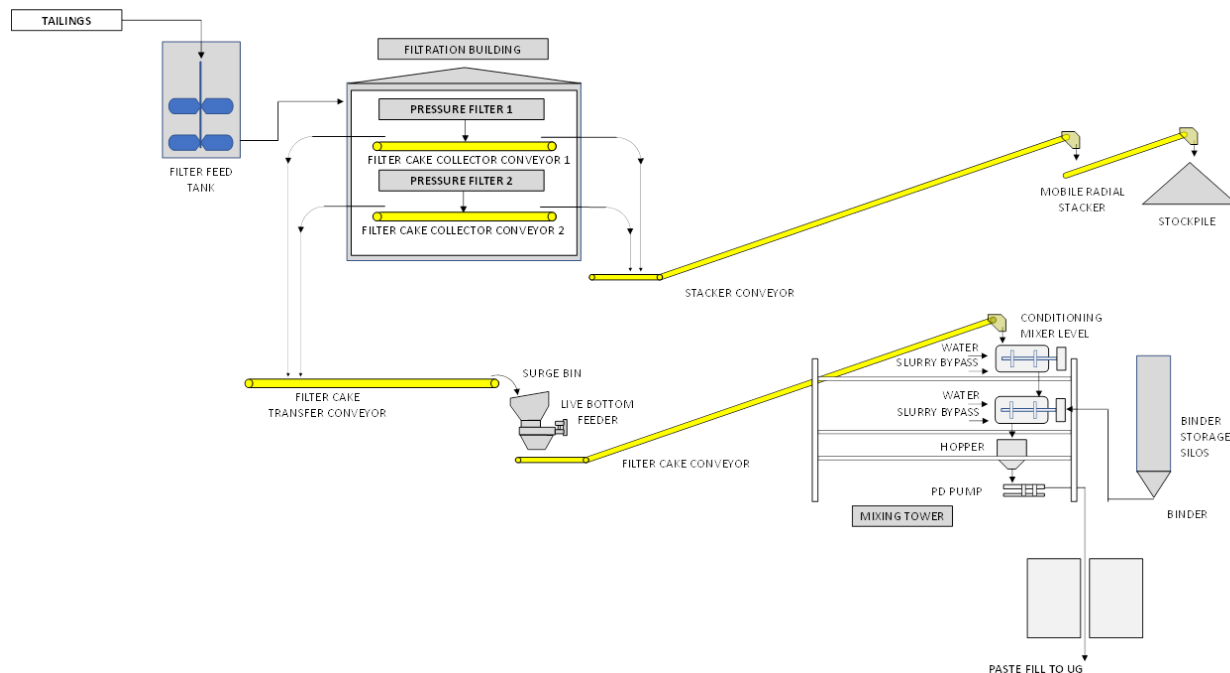
- Assess future regional power demands and the need for a backup transformer and continue to monitor peak power draw and assess means for smoothing demand peaks. This work should be completed by Cozamin technical staff in the course of their normal duties.

#### **18.3.2 Tailings Dewatering and Paste Backfill**

Figure 18-1 shows a simplified process flow sheet for the tailings filtration and paste plant, illustrating the basic system components. The process design of the paste plant is strongly influenced by the requirements of the underground (both mining and reticulation) and the material properties of the tailings. It is expected that the properties of the filtered tailings will remain fairly constant and the use of a continuous mixing process mixing process is therefore included in the design. Minor changes to tailings properties, binder content, water content and so forth will be controlled by specific sampling and monitoring measures included in the design to ensure a consistent backfill is produced.

Tailings from the existing thickener will be pumped into a filter feed tank, which uses an agitator to maintain the underflow solids in suspension. The filter feed pumps provide slurry to the pressure filters which dewater the tailings, separating the feed into filter cake and filtrate. Bypass pumps also pump filter feed slurry directly to the mixing area.

Filter cake from the pressure filters falls onto the filter cake collectors. The cake is either diverted onto the transfer conveyor, which feeds directly into the surge bin integrated with a live bottom feeder, or the stacker conveyor and radial stacker which stockpile the filter cake on the dry stack facility.



**Figure 18-1: Tailings Dewatering and Paste Plant Simplified Process Flow**

Source: Paterson & Cooke, 2020

The process design of the paste plant is strongly influenced by the requirements of the underground (both mining and reticulation) and the material properties of the tailings. It is expected that the properties of the filtered tailings will remain fairly constant and the use of a continuous mixing process mixing process is therefore included in the design. Minor changes to tailings properties, binder content, water content and so forth will be controlled by specific sampling and monitoring measures included in the design to ensure a consistent backfill is produced.

Tailings from the existing thickener will be pumped into a filter feed tank, which uses an agitator to maintain the underflow solids in suspension. The filter feed pumps provide slurry to the pressure filters which dewater the tailings, separating the feed into filter cake and filtrate. Bypass pumps also pump filter feed slurry directly to the mixing area.

The plant is equipped with two Outotec (formerly Larox) FFP 3512 high capacity horizontal plate and frame pressure filters with 2 x 3.5 m<sup>2</sup> plates. Filter cake from the pressure filters falls onto the filter cake collectors. The cake is either diverted onto the transfer conveyor, which feeds directly into the surge bin integrated with a live bottom feeder, or the stacker conveyor and radial stacker which stockpile the filter cake on the dry stack facility.

Filtrate, cloth wash and core wash drain into the filtrate tank where the solids are kept in suspension by an agitator. The sump pumps also provide spillage to the filtrate tank. The filtrate from the filtrate tank is recycled to the thickener feed box by filtrate pumps.



The live bottom feeder controls the addition of filter cake from the surge bin to the filter cake conveyor, which transports the cake to the conditioning mixer. Trim water and/or trim slurry is added to the cake in the conditioning mixer to prepare the filter cake.

The filter cake mixture is then gravity fed into the continuous mixer, where it is mixed with the binder to produce paste. Depending on the mixture, it is possible to also add trim water and/or trim slurry to the continuous mixer. The paste is then gravity fed through the paste hopper to the paste pumps. Paste discharges out the paste hopper to a hydraulic piston type paste pump which pumps the paste to a surface borehole to access the underground workings. The continuous mixer includes a dust collector and pressure washer.

As required, binder delivery trucks add binder to two binder storage silos. Each silo is equipped with a dust collector. Rotary feeders at the base of each silo load the binder onto weigh feeders which feed the binder onto the screw conveyor. The screw conveyor adds binder directly into the continuous mixer.

Process water from the reservoir is added to the process water tank. Three sets of pumps draw water from the process water tank. The wash pumps provide cloth wash water and core wash water to the pressure filters and flush water to the paste hopper and slurry pumps. The process water pumps provide trim water to the mixers, and the flush pump provides flush water to the underground distribution system.

The drying air compressors provide unfiltered air to the drying air receivers. The air is then sent to the pressure filters and paste borehole, as required. Drying air is also diverted through an air filter and sent to the air dryer. The dry air passes through another air filter on the way to the instrument air receiver. The pressing air compressors provide air filtered by air filters to the pressing air receivers. The pressing air is then sent to the pressure filters.

Fresh water is supplied to GSW pumps to supply gland water to the slurry pumps.

### **18.3.3 Water Supply**

There are three primary sources of water at Cozamin: fresh water permitted wells, permitted groundwater from nearby underground mines, and discharge water from a local municipal water treatment facility. The existing data and site water balance indicate that the current sources and operational water management will be sufficient for the current LOMP.

The site has historically averaged 0.82 m<sup>3</sup> of makeup water per tonne of ore milled. With the implementation of tailings filtration and paste backfill, specific water consumption is expected to decrease as process water is recovered from the tailings prior to their placement on the filtered tailings storage facility. A new water storage pond is permitted for construction to replace the decant pond on the current slurry TSF, which serves as part of the site water conveyance infrastructure.

#### **18.3.3.1 Recommendations**

The qualified person for this section recommends that Cozamin staff complete the following to ensure adequate supply and responsible management of the site's water resources:

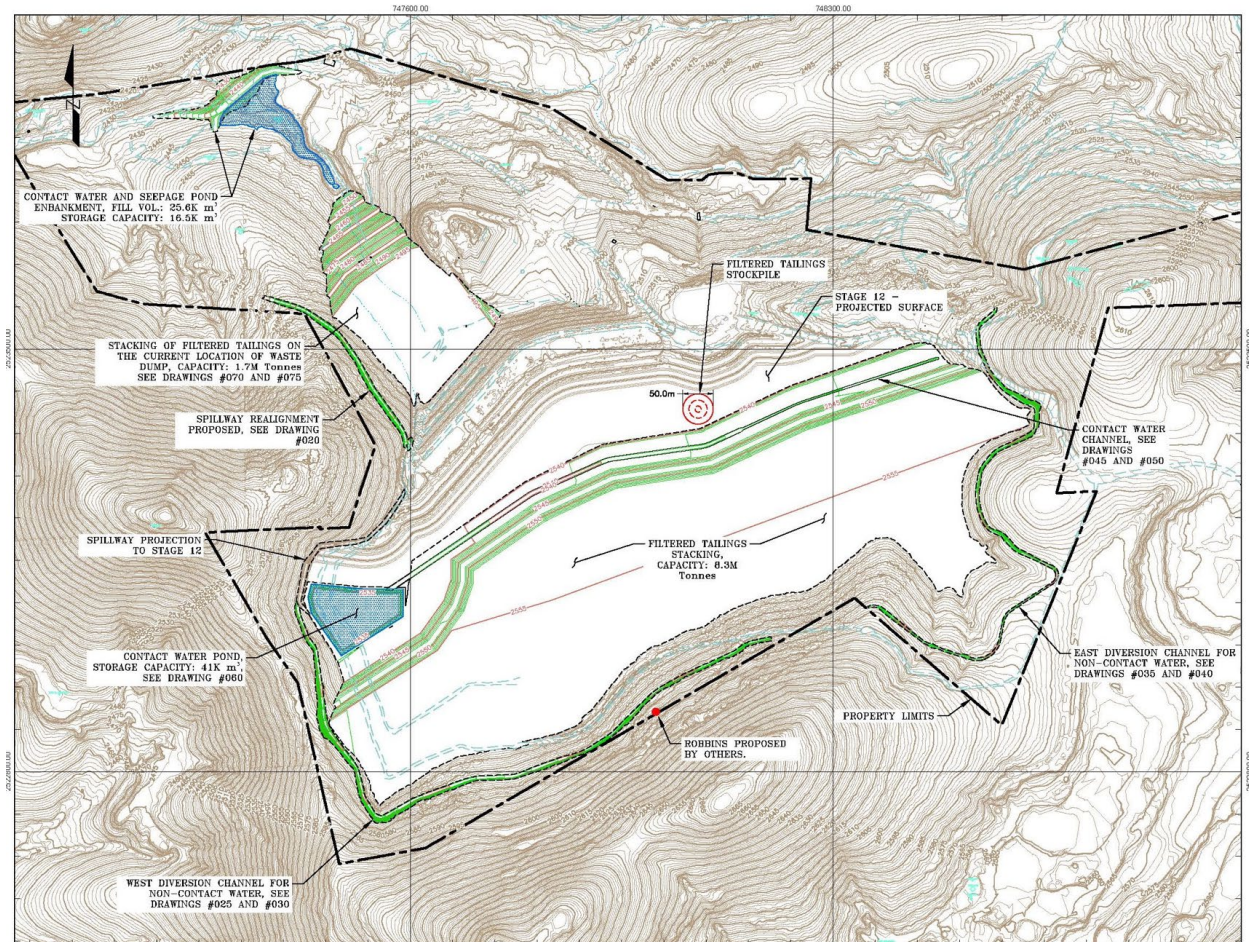
- Regularly update and calibrate the site water balance model to improve Cozamin's ability to predict and plan for potential periods of water scarcity or excess. This work should be completed by Cozamin technical staff in the course of their normal duties.

#### **18.3.4 Tailings Storage Facility**

The design of Cozamin's conventional (slurry) TSF up to Stage 5 consisted of a modified centerline raised embankment. Given the restrictions downstream to continue expanding the embankment using centerline construction, a transition was made to constructing upstream embankment raises. Five upstream raises have been constructed (Stages 6 to 10) to elevation 2,521 masl. Each raise is constructed over compacted cyclone sand from the tailings beach, with the embankment constructed using compacted locally suitable materials to achieve a suitable shear strength.

The slurry tailing deposition system will be transitioned to a filtered tailings system in 2023. As discussed in Section 17, underflow from the existing thickener will be pumped to the tailings filtration plant. From this plant, a portion of the tailings will be transported to the adjacent paste plant to produce backfill, and a portion of the tailings will be transported via conveyor to a stockpile on top of the existing TSF. Material from this stockpile will be transported by truck and placed on the filtered tailings storage facility.

The filtered tailings storage facility comprises a Phase I located at the toe of the existing TSF, and a Phase II located on top of the existing TSF, as shown in Figure 18-2. There is a seepage and runoff collection pond located at the toe of Phase I. Tailings will be deposited for approximately two years in Phase I, after which deposition will transition to Phase II, which has sufficient tailings storage capacity for the current LOMP.



**Figure 18-2: Filtered Tailings Storage Facility Design**

#### 18.3.4.1 Recommendations

The qualified person for this section recommends that Cozamin staff complete the following to ensure adequate tailings storage capacity and to continue implementing appropriate tailings management practices throughout the LOM:

- Monitor the performance of the existing conventional TSF and Phase I of the filtered TSF once slurry deposition ceases, to ensure that the filtered tailings perform as expected and that the existing TSF will provide adequate foundation strength for the planned Phase 2. This work should be completed by Cozamin technical staff in the course of their normal duties, in close collaboration with the Engineer for Record (WSP, formerly Wood).



## 19 Market Studies and Contracts

### 19.1 Markets

The Cozamin Mine has been selling metal concentrates since the start of production, and under Capstone ownership since 2006. The main commodities produced at the mine are copper, zinc, and lead concentrates, along with silver contained in each of the three concentrates and gold in the lead concentrate. The metal prices assumptions used in the Mineral Resource and Mineral Reserve estimates can be found in Table 19-1. The assumed metal prices were determined using best practice techniques suggested in the 2020 CIM Guidance on Commodity Pricing (CIM, 2020). Analysis of long-term historical pricing, analyst and peer consensus pricing, and specialist consultant reports were used to forecast long term metal prices in the context of the expected life of the Cozamin Mine.

**Table 19-1: 2023 Forecast Metal Price Assumptions**

Metal	Unit	Mineral Reserve	Mineral Resource
Copper	US\$ / lb	\$ 3.55	\$ 3.75
Silver	US\$ / oz	\$ 20.00	\$ 22.00
Lead	US\$ / lb	\$ 0.90	\$ 1.00
Zinc	US\$ / lb	\$ 1.15	\$ 1.35

Cozamin's copper concentrate is considered a high-quality clean concentrate with low impurities (deleterious or penalty elements). Clean concentrates are in high demand for use as a blending component to improve lower quality concentrates from other sources. The zinc concentrate is lower quality due to high cadmium concentrations, limiting its global marketability. Lead concentrate is considered to be of average quality.

The metal concentrates produced at Cozamin are sold to reputable trading companies on annual or multi year contracts. Demand for the concentrates has maintained stability throughout the life of the project. Currently, three contracts are active and in good standing. The QP of this section is relying on the expert knowledge of Ashley Woodhouse, Director, Marketing of Capstone Copper Corp., that the terms, rates and charges of these concentrate contracts are within industry norms.

All three concentrates are sold domestically, delivered on a delivered at place ("DAP") or free on board ("FOB") Manzanillo basis, negating the need to secure storage facilities or arrange ocean shipping for export. The zinc concentrate can be delivered domestically, by truck, to either domestic smelters or to storage/blending facilities near the port of Manzanillo (as directed by the buyer for the monthly quotas, typically DAP). Copper concentrate, and lead concentrate when sold, are typically delivered to facilities located in Manzanillo for blending or direct export. Transportation agreements are negotiated for a fixed price per wet metric tonne for a prescribed period (usually annually) and transported by truck to the port under FOB contract. Cozamin's current concentrate sales agreements are summarized in Table 19-2; no contract for the sale of zinc concentrates is in place as of the effective date of this report.

**Table 19-2: Metal and Concentrate Purchase Contracts**

Metal (Concentrate)	Purchaser	Contract Period	% of Production	Metal Price
Copper Concentrate	Metagri S.A. De C.V.	2023	70%	Cu: LME Cash Settlement Ag: London Silver Spot
Copper Concentrate	Hartree Metals LLC	2023	30%	Cu: LME Cash Settlement Ag: London Silver Spot

### 19.1.1 Stream Arrangement

On February 19, 2021, Capstone Copper Corp, through a wholly-owned subsidiary, entered into a definitive Precious Metals Purchase Agreement (the “Stream Arrangement”) with Wheaton Precious Metals International Ltd., a wholly-owned subsidiary of Wheaton Precious Metals Corp. (collectively, “Wheaton”). Under the terms of the Stream Arrangement, Wheaton paid an upfront cash consideration of \$150 million for 50% of the silver production until 10 million ounces have been delivered, thereafter dropping to 33% of silver produced by the Cozamin Mine. Wheaton will make ongoing payments equal to 10% of the spot silver price at the time of delivery for each ounce delivered to them.

Mineral Resources and Mineral Reserves at the Cozamin Mine in this Technical Report were prepared based on silver pricing assumptions stated in Sections 14 through 16 of this report rather than the ongoing payment price and amortization of the upfront payment from the Stream Arrangement. However, C1 cash costs disclosed in this Technical Report in Section 21 are shown inclusive of the impacts of the Stream Arrangement and are higher as a result of the lower silver credit.

## 19.2 Contracts

In addition to the concentrate sales contracts and the Stream Arrangement discussed in Section 19.1, Cozamin relies on several contractor relationships for services and supplies. The list of significant contracts in place at Cozamin can be found in Table 19-3, however, the material contracts are:

- Mineral Hauling - Various Ejido Contractors
- Land Lease – Ejido Hacienda Nueva
- Mine Development - Servicios Mineros de México S.A. de C.V., Cominvi S.A. de C.V.
- Diamond Drilling - Patpa Distribuciones S. de R.L. de C.V.
- Concentrate Transportation - Transportes Mineros del Cobre S.A. de C.V., Transportistas Unidos Ejido Morelos, S.A de C.V
- Sampling and Laboratory - Alfred H. Knight de México S.A. de C.V., Intertek Testing Services De México S.A. de C.V.
- Cementation and Dry Stack - Cemex SAB de CV

The QP of this section is relying on the expert knowledge of L.C. José de Jesús Espino Zapata, Gerente Administrativo Capstone Gold S.A. de C.V., that these contracts are considered within accepted industry practice.

**Table 19-3: Contracts at the Cozamin Mine**

Contract #	Contractor	Contract Subject	Start Date	End Date
CPR011-2021-23	Sandvik Mining and Construction de México S.A. de C.V.	Mining Equipment Spare Parts Supplier	Jan. 01, 2021	Sep. 20, 2024
ACA001-2021-23	Eulalio Medellín Medellín	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA002-2021-23	Lorena Ávila Sifuentes	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA003-2021-23	Mauro Gutierrez Castañón	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA004-2021-23	Sandra Robles Medellín	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA005-2021-23	Luis Adrián Olvera Medellín	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA006-2021-23	Felipe Avila García	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA008-2021-23	Juan Javier de León Medellín	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA009-2021-23	Juan Manuel Mireles Olvera	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA012-2021-23	Juan Medellín Cardona	Hauling	Jan. 01, 2021	Dec. 31, 2023
ACA001-2020	Reyes Gerardo Delgado Medellín	Hauling	Jan. 01, 2020	Dec. 31, 2022
ACA007-2021-23	Juan Manuel Gutierrez Villalobos	Hauling	Jan. 01, 2018	Dec. 31, 2023
ACA011-2021-23	Julian Gutierrez Hernandez	Hauling	Jan. 01, 2018	Dec. 31, 2023
ACTA 5923	Ejido Hacienda Nueva	Land Lease	Jan. 01, 2018	Dec. 31, 2048
ARR-001-2020	Raúl González Anaya y Juan Antonio Rosales Torres	Land Lease	Nov. 01, 2019	Oct. 31, 2029
CP001-2011-21	Grupo Gasolinero Rivas SA de CV	Diesel Supplier	Jul. 11, 2011	Jul. 11, 2024
CPO002_2019	Econocom México SA de CV	IT Equipment	Feb. 01, 2019	Feb. 02, 2024
CPR002-2020-22	Nitro Explosivos de Ciudad Guzman SA de CV	Explosives Supplier	Jan. 01, 2020	Dec. 31, 2024
CPR003-2021	Alfred H. Knight de México SA de CV	Sampling Laboratory and	Jan. 01, 2021	Dec. 31, 2023
ECO001-2021	Transportes Mineros del Cobre S.A. de C.V.	Concentrate Carriers	Jan. 01, 2021	Dec. 31, 2023
ECO002-2021	Transportistas Unidos Ejido Morelos, S.A de C.V.	Concentrate Carriers	Jan. 01, 2021	Dec. 31, 2023
ECO003-2021	Constructora Parroquia SA de CV	Concentrate Carriers	Jan. 01, 2021	Dec. 31, 2023
OMI001-2021	Servicios Mineros de México SA de CV	Mine Development	Jan. 01, 2021	Dec. 31, 2023
OMI003-2021	Master Drilling México SA de CV	Raisebore Services	Jan. 01, 2021	(in progress)
OMI004-2019	Cominvi SA de CV	Mine Development	Aug. 01, 2019	Jul. 31, 2025
OMI006-2020	Grupo Constructor Plata SA de CV	Shotcrete Services	Oct. 01, 2020	Dec. 31, 2024
SGE001-2021	Patpa Distribuciones S de RL de CV	Diamond Drilling	Jan. 01, 2021	Dec. 31, 2023
SMA001-2020	Sara Abigail Hernández Urenda	Waste Management	Jan. 01, 2020	Dec. 31, 2025
STE010-2021	Terp SA de CV	IT Consultants	Jan. 01, 2021	Dec. 31, 2023

### 19.3 Comment on “Market Studies and Contracts”

The QP reviewed commodity pricing assumptions, marketing assumptions and the current major contract areas, and considers the information acceptable for use in estimating Mineral Reserves and in the economic analysis that supports the Mineral Reserves.

## **20 Environmental Studies, Permitting and Social or Community Impact**

Requirements and plans for waste and tailings disposal are described in Section 18 of this Report. This section provides information on environmental assessment, permitting, site monitoring both during operations and mine closure, and social or community factors related to the Project.

### **20.1 Environmental Assessment and Permitting**

This summary of the environmental assessment and permitting requirements is based on work undertaken for Capstone under the supervision of Nimbus Management Ltd., Jenna Hardy, P.Geol., FGC, Principal.

#### **20.1.1 Regional and Local Settings and Baseline Studies**

The Cozamin Mine lies within a regionally mineralized area that has seen extensive historic mining over more than 475 years. Host rocks surrounding the mineralized vein systems are anomalous in base and precious metals, providing a halo of elevated metals values that extends a considerable distance beyond known workings.

Numerous old mine workings, excavations and waste rock dumps, as well as some historic tailings are present, both on, and adjacent to, the Cozamin mine site. Some lie on mining concessions where surface rights are held by Capstone and others where rights are held by third parties.

Environmental impacts within the mine site resulting from historic activities are evident. As well, there are obvious impacts from the present day (though sometimes intermittent) operations of surrounding mines and processing operations by third parties. The impacts have been discussed, though not necessarily completely documented, in historic reports, as well as in more recent reports completed by Capstone and its consultants.

Numerous baseline studies required to support the original environmental impact assessments of the various regulatory authorizations and their modifications have been conducted by independent consultants at different times since Capstone's purchase of Cozamin. Investigations included detailed analysis of soil, water and air quality; vegetation and wildlife; biodiversity; hydrology; cultural resources; and socio-economic impacts. The studies identified locally elevated heavy metals concentrations in soils, acid rock drainage and metal leaching as possible concerns potentially manageable with appropriate mitigation measures. Static acid-base accounting showed that flotation tailings and some types of waste rock have the potential to generate acidic drainage. However, the country rocks surrounding the deposit have significant neutralizing capacity and show relatively low permeability outside the immediate envelope of the structures hosting the mineralization. In addition, construction activities concluded as part of Cozamin's many expansions were effective in reducing the identified sources of acidic drainage associated with the historic tailings impoundment, as well as downstream contamination due to tailings dispersal during previous operations. Further, during Capstone's ongoing operation apart from



the recent deposition into the waste facility downstream from the TSF, both newly generated waste rock and historic waste rock from prior operations have in large part been deposited underground as backfill.

### **20.1.2 Regulatory Basis and Permitting**

Though local and state permits are also required, mine permitting in Mexico is regulated and administered under an integrated regime by the government body SEMARNAT, the federal regulatory agency that establishes the minimum standards for environmental compliance. The federal level environmental protection system is described in the General Law of Ecological Equilibrium and the Protection of the Environment (Ley General de Equilibrio Ecológico y la Protección al Ambiente or “LGEEPA”). Under LGEEPA, numerous regulations and standards for environmental impact assessment, air and water pollution, solid and hazardous waste management and noise have been issued. Article 28 of the LGEEPA specifies that SEMARNAT must issue prior approval to companies intending to develop a mine and mineral processing plant.

SEMARNAT also regulates the use of “forest” resources and promotes sustainable development of “forest” ecosystems under the General Law of Forest Development (Ley General de Desarrollo Forestal or “LGDFS”) which establishes the regulation for the Change of Use of Soils in Forested Lands (Cambio de Uso de Suelos en Terrenos Forestales or “CUSTF”) authorization. This applies to removal of all types of vegetation in areas which have potential to be used for forest activities. An Economic-Technical Study (Estudio Economico-Tecnico or “ETE”) is required to demonstrate that proposed activities will not compromise biodiversity, cause soil erosion, deterioration of water/air quality or reduction of water catchment, and that in the long term the proposed alternative use will be more productive.

The National Water Law (“Ley de Aguas Nacionales”) provides authority to the National Water Commission (Comisión Nacional de Aguas” or Conagua (“CNA”), an agency within SEMARNAT), to issue water use/extraction concessions as well as permits to occupy and construct hydraulic infrastructure in federal watercourses, in addition to specifying requirements to be met by applicants.

Environmental regulations are promulgated through various “Official Mexican Standards (“Normas Oficiales Mexicanas”), known as “NOMs” or “normas”, which establish specifications, procedures, standards, ecological criteria, emission limits and general guidelines that apply to particular processes or activities.

Mining companies are required to hold or control surface rights over the area to be permitted. In recent years, SEMARNAT has changed the environmental permitting procedure to require that supporting information be included which demonstrates that there is a legal and binding agreement in place for the surface rights covering the area to be permitted.

Prior to Capstone’s involvement in the Cozamin mine, several key environmental studies had been carried out by previous owners. The San Roberto mine had been fully permitted to operate

at 750 tpd. Capstone completed the following to support permitting and regulatory approvals with a view to re-open the mine and expand tonnage throughput to 1,000 tpd in 2006:

- an environmental impact assessment, known in Mexico as a Manifestación de Impacto Ambiental (“MIA”), which describes potential impacts to the environment that may occur in all stages of the operation as well as the measures to prevent, control, mitigate or compensate for these impacts;

a detailed study of new lands that would be needed for use as part of an expanded mining operation, known as the Estudio Justificativo de Cambio de Uso de Suelos (“ETJ”), which applies to all affected lands associated with the mining and processing operation;

- a risk assessment to include all aspects of the operation, known as an Estudio de Riesgo (“ER”), that evaluates and ranks risks associated with activities which can impact human health and environment, and describes risk control and mitigation measures.

The original MIA was approved by SEMARNAT on August 29, 2005, remaining valid for 10 years, and with optional renewal for additional terms of 10 years. Capstone received approval for an additional ten years of operation on June 1, 2015, and approval for an additional extension for the LOM operation is reasonably expected.

In 2016, SEMARNAT streamlined the regulatory process by introducing a new submission and approval process known as a Unified Technical Document, or Documento Técnico Unificado (“DTU”). This combines the necessary environmental impact assessment with the required study detailing changes to use of soils in “forested” lands (Cambio de Uso de Suelos en Terrenos Forestales or “CUSTF”) for sites where additional lands are needed as part of an expanded operation and these had not been previously permitted. Over time, following significant exploration and operational success, Capstone made a series of applications for modifications to the original operational MIA, followed by additional MIA and DTU specifically to cover work, installations and activities complementary to those already approved. These included the expansion of the tailings storage facility and associated infrastructure for a Stage 10/11 slurried tailings facility. Terms for the DTU authorizations may vary from two to 10 years and depend on the estimated time frame for the proposed activities. Under the MIA process, there were, in addition, various ETJ, to accommodate an expanded operation, changed operational conditions and optimized site usage. Various environmental impact assessments for exploration and associated changes of use of forested lands were also completed and approved.

On July 22, 2021, following a MIA-P (MIA-Particular process which considers mining projects with effects which are “local” or “non-regional”), construction and operation of the filtered tailings and paste plant plus associated infrastructure, was authorized for a ten-year term. On March 8, 2022, under a DTU-B process (for projects of regional scale and likely cumulative impact), SEMARNAT approved construction and operation of a dry stack tailings (filtered) facility, and its associated infrastructure, also for a 10-year term. These installations are described in Section 18 of this Report.

To year end 2022, permitted work has included: enlargement of operations for the underground mine, plant and surface support facilities; installation and relocation of new surface and

underground facilities, including construction of numerous ventilation raises on surface; a self-serve diesel supply station; construction and relocation of surface access roads, including a new primary road access into the mine property; a new design and expanded footprint for the TSF and its infrastructure including a downstream waste facility; installation of sub-stations and power lines as well as water lines and pumping capacity for water sources; development of playing fields, a recreational facility and lunch rooms; short term hazardous waste storage; an expansion of the San Roberto shaft, mine deepening, underground pump installation, with improved underground ventilation and mine maintenance facilities; temporary work areas for contractors; expanded materials handling areas, offices, a native plant nursery for re-forestation, and designated areas for stockpiled topsoil. For surface exploration drilling there were authorizations for temporary accessways, drill platforms and lay downs areas and additional drill core storage facilities.

Cozamin mine is presently authorized to operate at up to 4,500 tpd of underground production and process plant operation, using two surface ramps and the principal San Roberto shaft, to dispose slurried tailings into the Stage 10 TSF, and with optimization of the paste and backfill plants to distribute filtered tailings underground as backfill, and into an eventual filtered TSF atop the existing TSF, which will then become an integrated dry stack facility.

Certain smaller scale, lower impact, activities and improvements/updates to operations infrastructure (e.g., surface drilling in localized areas, self-serve vehicle wash) within areas otherwise already permitted have also been authorized through less formal but more focused notification procedures to SEMARNAT known as “Consultas”. Additional ETJ authorizations have also been received for work which falls outside the standard threshold for disturbances of direct mineral exploration activities (under exploration NOM-120-SEMARNAT-2011).

The operation required more workers and more sanitary facilities, necessitating improvement in downstream waste management. A separate MIA (with accompanying ETJ) for the construction and operation of a plant to treat residual water is in place until 2031 or until the site is abandoned.

SEMARNAT’s statements of approval for these documents (known as a “Dictámenes”) include detailed terms and conditions for compliance in protection of the environment, as well as an obligation to file operational reports every six months describing the Company’s progress in fulfilling the terms and conditions. The Dictámenes provide authorization for Capstone to complete the proposed activities within the approved mine footprint subject to the terms and conditions outlined. These represent normal environmental and regulatory requirements as described in the applications, and all costs are included in the operating costs summary. Development of the required monitoring and mitigation plans, closure strategy and operational procedures is dynamic, with periodic review and updating to make sure they continue to meet permit requirements. Detailed reporting includes filing of mitigation and closure plans with SEMARNAT, as well as the costs for progressive reclamation completed, and the results of ongoing dust and water quality monitoring.

Following a final verification inspection by the Procuraduría Federal de Protección al Ambiente en el Estado de Zacatecas (“PROFEPA”), the federal agency (“or attorney general”) with

responsibility for enforcing SEMARNAT regulations, Capstone received its first integrated operating permit on October 20, 2006 (LAU-32/007-2006). This is known in Mexico as a Licencia Única Ambiental (LAU). The LAU is the main operational permit which provides Mexican federal environmental regulators with information on project environmental risk and impact, atmospheric emissions, and hazardous waste, as well as details regarding wastewater effluent. It covers all procedures for environmental impact and risk assessment, emissions to the atmosphere and the generation, handling and reporting of hazardous wastes. The LAU also sets out the acceptable limits for air emissions, hazardous waste and water impacts, as well as the environmental impact and risk of the proposed operation based on the approved MIA or DTU, the environmental risk study, and the ETJ.

LAU's were granted for the tonnage expansions to 2,600 tpd (March 25, 2008), 3,000 tpd (May 19, 2009), 4,000 tpd (January 13, 2012) and 4,500 tpd (June 15, 2015). Under the administrative reporting procedure of the LAU, all environmental data relating to air and water emissions are consolidated and reported on a single Annual Operations document known as a COA (Cedula de Operación Anual) which is submitted to SEMARNAT annually on April 30. This information is recorded in a publicly available Emissions and Transfer of Contaminants Register (RETC), fulfilling the Mexican government's commitment to transparency in the area of environmental regulation.

Overall PROFEPA's other responsibilities as a regulator are to deal with complaints, conduct inspections, and in general verify compliance with all federal environmental laws and regulations. It can impose penalties for violations of environmental laws and regulations, and monitors compliance with any preventative and mitigating measures it issues. PROFEPA also oversees the program of third-party environmental audits under the National Environmental Auditing Program ("NEAP") as described in a following section on Clean Industry Certification.

### **20.1.3 Waste Management**

Wastes generated by the mining operations include waste rock and tailings as well as regulated and hazardous wastes. Capstone received authorization as a generator of hazardous wastes under the General Law for the Prevention and Comprehensive Management of Waste (Ley General para la Prevención y Gestión Integral de los Residuos or "LGPGIR"- articles 68, 69, 70, and applicable regulations), first registering its plan for management of wastes in 2009 (No. 32-PMM-I-0015-2009). In 2017, following review by the regulator, Dirección General de Gestión Integral de Materiales y Actividades Riesgosas (or "DGGIMAR"), Capstone filed a revised plan with more focus on mining and metallurgical wastes which was authorized on December 3, 2017, for a 15-year term. Capstone submits regular updates with respect to the types of wastes generated and how they are managed; its integrated waste management plan is revised on an annual basis.

### **20.1.4 Water Availability and Use**

Cozamin is operated as a zero-discharge facility; it does not discharge process water and there are otherwise no direct discharges to surface waters. In 2022, the operation recycled about 70% of the water used through the existing TSF.

Water supply and changes to water use with transition to, and implementation of the filtered TSF are discussed in Section 18.4.2. Though an additional water supply pond is permitted to be constructed during Phase 2 of the filtered TSF, existing baseline data suggests current water sources from seasonal rainfall and catchment, the nearby municipal water treatment plant, the onsite treatment plant, and underground water (both at the mine and from permitted wells) and operational water management are sufficient to maintain LOM operations.

The successful implementation of measures which have already been undertaken provides reasonable expectation that longer-term water supply needs can continue to be met. However, for the purposes of contingency planning and risk analysis, additional investigation is recommended. Studies to better define the site wide water balance (specifically to establish the contribution from rainfall which is presently mingled with process water in the tailings pond) and evaluate the potential for supply issues over the longer term have not been completed, and it is recommended that these be appropriately scoped and carried out as soon as the necessary supporting information is available (Section 26). The supply situation should continue to be actively monitored and as a matter of routine best management operational practice, site water retention, and conservation measures should be adopted where practical.

Within the local water supply area, water demand remains high, and the regional aquifer shows a deficit for resupply. Further, the pressure for housing and other municipal development in the areas directly surrounding Cozamin is evident and is increasing. There is also renewed activity at several of the historical operations adjacent to Cozamin (e.g. past producers San Acacio and Veta Grande Mines, as well as at Rosgo's leased La Plata toll mill, sometimes intermittent operations at the Juan Reyes Planta de Beneficio de Jales y Minerales (toll processing, in part by vat leach) which may impact both water supply availability, as well as potentially adding downstream effects to ground water and by dust dispersion.

#### **20.1.5 Clean Industry Certification**

Capstone first registered under PROFEPA's National Environmental Auditing Program (or NEAP), otherwise known as the Clean Industry (Industria Limpia) Program in 2007. This voluntary program promotes self-regulation and continuous environmental improvement and is arguably one of the most advanced programs of voluntary compliance in Latin America. A rigorous first audit assesses compliance with a broad spectrum of local, state, and federal environmental, mine and operational safety, health and occupational safety, laws, norms and regulations.

In entering the program, operating mines contract third-party, PROFEPA-accredited, private sector auditors (considered experts in fields such as risk management and water quality) to conduct an "Industrial Verification" audit. PROFEPA determines the terms of reference of the audit, defines audit protocols, supervises the work through certification of the independent auditors, and evaluates compliance with the agreed-upon actions. The audit determines whether facilities are in compliance with applicable environmental laws and regulations. It results in an Action Plan which defines a time frame, estimated costs and specific actions needed for the mine to solve existing or potential compliance problems; it also identifies non-regulated potential issues which could result in environmental contingencies.

Each audited mine enters into an Environmental Compliance Agreement with PROFEPA in which it commits to undertake the Action Plan to conduct the work. The Clean Industry Certificate therefore recognizes operations that demonstrate a high level of environmental performance, based on their own environmental management system, which as well are in total compliance with regulations. Apart from public acknowledgement of its clean status, benefits include the assurance of legal compliance by execution of the Action Plan, agreement with regulators on a defined program of remediation and mitigation, and the ability to participate in no-cost training programs established by PROFEPA. The audit Certificate is valid for two years and can be re-authenticated after renewal by an additional audit.

Capstone was successfully certified as in compliance with existing laws and regulations in 2008, meeting a list of requirements which included implementation of international best practices, applicable engineering and preventative/corrective measures. With each audit renewal Capstone identified areas for improvement and implemented a detailed Action Plan (with estimated costing) to achieve compliance within an approximate two-year period through the cooperative process described above. Work completed in support of the Plan is verified by the independent auditor, and Capstone's participation in NEAP allows the company to continue current operations under its existing permits and authorizations during the remediation of any potential non-compliance matters which might be identified.

Capstone completed the required audit for its fourth Clean Industry re-certification in 2020. No site issues or concerns were identified which would prevent successful renewal, and Capstone has followed the guidance of authorities in undertaking all the steps to re-certify. Covid-related administrative delays on the part of regulators mean that final evaluation has taken more time than legislated, however, in recognition of the importance of the certification, PROFEPA has kept the process in force through regular observations and contacts with Capstone.

#### **20.1.6 Comment on Environmental Management and Permits Status**

Overall, under Capstone's management, the Cozamin Mine has a good environmental record and a generally good relationship with the environmental regulatory authorities. The company has an active and continuous corporate responsibility program focused on health and safety, positive community relations and protection of the environment.

At the effective date of this Report, all environmental permits required by the various Mexican federal, state and municipal agencies are in place for the current Cozamin mine operations. The health, safety and environmental management system and integrated health, safety, environmental and social management plans have been developed in accordance with the appropriate Mexican regulations. Annual land usage/disturbance and half yearly environmental compliance reports are filed as required.

A mine-wide environmental management and monitoring program (including accident and incident reporting) has been underway from the start of Capstone's renewed operation and will continue. Data collected are used to inform ongoing operational environmental management and monitoring programs. This includes appropriate environmental management and mitigation plans



based on the principle of adaptive management and continuous improvement. These are reviewed and revised annually as necessary, with results reported as required to Mexican regulators.

With respect to the implementation of any of the operational recommendations resulting from this Technical Report, Capstone will need to review these with SEMARNAT, and any other Mexican regulatory agencies as soon as sufficient engineering and other necessary design information is available. This review would identify and flag for discussion any new proposed activities and/or modifications to current activities already authorized as described above, as well as any new activities which could be considered as new work on lands not included in the existing MIA, DTU, CUSTF and ETJ, or which would involve new disturbances, which once fully designed might require new authorizations.

As engineering designs for optimized operation of the paste plant and backfill system and implementation of the filtered TSF advance and/or are finalized Capstone may also want to confirm that the proposed footprint for any new activities and infrastructure includes sufficient allowance to offer appropriate zones of protection (i.e. buffer zones) in the event they encroach close to the boundaries of Capstone's mineral concessions and surface land holdings.

Though some assessment and management planning remain to be completed (and planning to address historic environmental liabilities needs to be incorporated), work to date indicates that environmental impacts are manageable. It is expected that with appropriate management and mitigation solutions to anticipated problems can be developed within the project schedule and time frames.

Apart from the issues identified above with respect to the locally elevated heavy metals concentrations, and the potential for acid rock drainage/metal leaching from conventional slurried tailings and certain waste rock and management of historic environmental liabilities, other issues of environmental concern relate to potential impacts as seen in comparable underground base metal mines of similar size with flotation tailings impoundments, transitioning to a filtered TSF. These include dust, tailings handling/management, storm water diversion, combustibles and reagent management/handling, potential for aquifer contamination, waste management and disposal, and noise.

## **20.2 Closure Plan and Regulatory Basis**

In Mexico, reclamation and closure are addressed using broad standards set out under Article 27 of the Constitution from which the legal framework for environmental protection is derived under LGEEPA. Environmental regulations with respect to closure are promulgated through the various NOM's that establish specifications, technical standards, ecological criteria and general guidelines. At the present time, there are no formal reclamation and closure standards for mining, however companies' general obligation is to take mitigation measures which will protect natural and human resources and restore the ecological balance. Regulations do require a preliminary closure program be included in the MIA and DTU and that a definite closure plan be developed



and provided to the authorities during mine operations as a supplemental submission to the project reporting. Plans typically use risk-based approaches which involve characterizing the existing concentrations of metals in the soils, waters and groundwater, and designing a plan to ensure that post closure risks to human health and the environment are acceptable, with metals concentrations no higher than the pre-mining baseline conditions.

Though the preparation of the closure plan and a commitment on the part of the mining company to implement the plan are needed, financial surety (i.e., bonding) directed to final restitution and closure has so far not generally been required. This may gradually be changing as some Canadian mining companies have recently been asked to prepare bonding estimates for SEMARNAT's review. Further, with the 2013 implementation of the Federal Law of Environmental Responsibility, and new guidelines with respect to environmental liabilities, companies can anticipate that standards will evolve higher. The legislation as it stands firmly incorporates the principle that "those who contaminate will pay" ("el que contamina paga"), and it is clear that environmental damages, if not remediated by the owner/operator, can give rise to civil, administrative and criminal liability, depending on the action or omission involved. PROFEPA is responsible for the enforcement and recovery for those damages. Recent legal reforms have introduced the concept of class actions as a means to demand environmental responsibility for damage to natural resources.

Capstone re-started the Cozamin Mine in 2006 with a proactive approach to closure, following closely the terms and conditions of its particular site authorizations, as well as the detailed obligations outlined, for example, in the various NOM's regulating tailings facilities and associated infrastructure (NOM-141-SEMARNAT-2003), management of hazardous wastes (NOM-052-SEMARNAT-2005, NOM-157-SEMARNAT-2009), and exploration activities (NOM-120-SEMARNAT-1997). A conceptual closure plan described current and projected conditions of facilities, operating areas and storage sites. Specific activities for successful closure were identified and costs estimated based on the proposed mine and project development. Capstone submitted its first revised reclamation and closure plan to SEMARNAT as part of its six-month reporting requirement in March 2009, applying the site-specific experience gained during progressive reclamation activities. The plan has been revised and updated on an annual to semi-annual basis since 2016, most recently with the support of independent consultant, Clifton Associates Ltd-Natural Environment S.C. ("Clifton") (2022)

Key objectives of Capstone's plan include:

- demonstrating compliance with relevant Mexican laws and regulations, as well as Capstone corporate standards;
- protecting public and employee health, safety and welfare;
- limiting or mitigating any residual adverse environmental effects of the project;
- minimizing erosional damage and protecting surface and ground water resources through control of natural runoff;
- establishing physical and chemical stability of the site and its facilities;

- ensuring that all process chemicals and hydrocarbon products are safely removed from the site at closure and equipment is properly decontaminated and decommissioned;
- properly cleaning and detoxifying all facilities and equipment used in the storage, conveyance, use and handling of process chemicals;
- establishing surface soil conditions conducive to the regeneration of a stable vegetation community through stripping, stockpiling and reapplication of soil material and/or application of waste rock or borrow suitable as growth medium;
- repopulating disturbed areas with a diverse self-perpetuating mix of plant species to establish long-term productive communities compatible with existing land uses;
- mitigating socio-economic impacts of the project following decommissioning and subsequent closure as far as reasonably possible;
- maintaining public safety by stabilizing or limiting access to landforms that could constitute a public hazard; and
- eliminating to the extent practical future risks to human safety, health and protection of the ambient environment.

Capstone's most recent update to its closure plan and cost in December 2022 assumed progressive reclamation during operations, operational closure at the end of 2030, two years of intense removal/reclamation/restitution activities, followed by a year of transition to complete remaining activities for closure, and finalize monitoring and maintenance programs, with a total of no less than 10 years of post-closure monitoring and maintenance. The closure plan included consideration of certain new initiatives by the Mexican government which will develop a national program for site rehabilitation in areas of historic mining, as well as the potential for increased requirements for operating mines to consider more options for sustainable restoration of the visual landscape after final closure. As the Mexican government moves to advance these regulatory aspects, there may be increased requirements and standards for reclamation, rehabilitation and restitution of the Cozamin site and bonding may be required. The closure plan will be reviewed and updated accordingly.

To date, a number of ongoing closure activities have been undertaken as part of the annual site programs of progressive reclamation. Completed activities include: closure of historical workings; reclamation and re-vegetation of exploration drill pads and access ways (both those disturbed historically and by Capstone); reclamation and re-vegetation of areas of historical waste rock dumps and mining activities; clean-up of historical tailings dispersed downstream from the TSF by earlier operators; removal of selected historical waste rock for use as underground fill and current construction activities; and at Chiripa construction of preliminary diversion channels around the historical impoundment, re-sloping, armouring and stabilizing the historical dam faces and installation/replacement of downstream gabions. Capstone's extensive remediation of the Chiripa area conducted in 2022 and continuing into early 2023 is described in the section which follows. Surface soils removed by Capstone for site construction have been stockpiled for reuse in closure. Though detailed studies of their suitability for reclamation have not been completed, the undisturbed parts of the mine area which are not actively grazed support patchy plant cover

and areas reclaimed previously generally during progressive reclamation already shows good evidence of successful re-vegetation with local species over short time frames.

Continued implementation of “best practices” operational management and site wide initiatives focused on continuous improvement, along with sequential progressive reclamation and closure planning, will over time significantly reduce new sources of contamination. Reclamation, post-closure monitoring and follow-up will require more detailed planning but have the overall objective of leaving the land in a useful, stable and safe condition capable of supporting native plant life, providing appropriate wildlife habitat, maintaining watershed function and supporting limited livestock grazing; potential future industrial uses remain to be considered. General objectives include the removal of any environmental liabilities, minimization of potential acid rock drainage/metals leaching and the return of the site to a condition that resembles pre-mining conditions or restores productivity. Final land use after closure will need to be determined in consultation with neighbouring communities and Mexican authorities.

Once mining stops, surface equipment as well as surface and underground infrastructure will be removed, and the mine will be allowed to flood. Mine entryways will be closed to restrict entrance. Surface accesses to the mine such as ramps will be closed and filled; apertures such as shafts and raises will be plugged. Access to mine areas, stopes, and raises will be stabilized and eliminated. Though additional ground water studies (included long term water and water quality modelling) are needed, based on pre-Capstone historical mining, once operations stop, ground waters are expected to return to their original phreatic levels in a short time, with no direct point source discharges to surface anticipated. All salvageable items will be removed from the site. Leftover quantities of chemicals, reagents, lubricants, combustibles, etc., will be returned to suppliers, vendors, or sold to third parties. Any remaining non-hazardous waste will be removed to the municipal landfill. Hazardous waste will be removed and disposed of at an appropriately licensed waste management facility. Buildings, other structures and surface infrastructure will be dismantled, removed and sold (or donated) where practical.

Remaining disturbed areas will be re-sloped to re-establish natural landscape contours and (where applicable) pre-existing drainage patterns. In selected areas as-necessary erosion prevention measures will be implemented. The disturbed areas will be re-vegetated with natural species approved by SEMARNAT. Roads that will not be required after mine closure will be re-graded and re-vegetated to approximate pre-mining conditions.

Capstone's slurried flotation tailings and certain historical waste rock piles located on surface are potentially acid generating and require careful management during operations and into closure and post closure to minimize potential impacts to the environment. Successful management will require combinations of mine waste handling, placement planning and evaluation of the need for treatment of existing acid generating surfaces to reduce oxygen entry and infiltration by precipitation and therefore the volume of any contaminated water emanating from the site. Investigation of options and alternatives for the future management of tailings and waste rock continue and these will need to be operationalized through more detailed operational planning. As required, these considerations will be incorporated into ongoing closure planning.

With respect to tailings, WSP (2022) outlined a conceptual approach for closure of the present slurried TSF and Phase 1 of the filtered TSF in place at year end and identified activities for final closure to maintain physical and geochemical stability. These included: diversion channels above the present TSF to limit freshwater inflow from the upper watershed; re-contouring/re-sloping the surface of the TSF using dried slurried tailings to prevent ponding and improve flow; and a final multi-cap cover with downstream passive treatment system for seepage and infiltration yet to be designed. The filtered TSF surface would be covered by a similar multi-layer cap, while the downstream TSF buttress, waste facility, downstream raise areas and crest of Stage 10 TSF would only require revegetation. Related downstream ponds would be removed and regraded. The spillway extension would be maintained in closure.

Once the detailed design for the filtered TSF is completed and the conversion takes place, it is strongly recommended that Capstone develop a feasibility level closure design for the various structures related to tailings storage and management with particular focus on evaluating options and alternatives for the multi-cap cover. Geochemical and geotechnical characterization and modelling for both slurried and filtered tailings, as well as water quality modelling, and evaluation of potential borrow sources/borrow quality will be required to support definition of viable options for cover based on materials available locally. Results of these studies, in conjunction with Capstone's regular water quality monitoring data, will support high level trade off studies of a range of options and alternatives for cover design. With careful engineering design, carefully managed placement of filtered tailings during operations, and good quality control on construction, there would appear to be a number of reasonable and well-tested options for cover available.

Reclamation obligations will be funded during mining operations and are not anticipated to involve measures significantly different than would be expected for an underground base metal mining operation of this size and type processing by flotation, with tailings stored at closure in what will become an integrated dry stack and located near centres of population.

## **20.3 Closure Costs**

The original preliminary closure cost estimate developed internally by the Cozamin projects and environmental groups was revised and updated most recently to December 15, 2022, with support from third party consultant, Clifton. The figures supporting the cost estimate were defined using the Open Pit / Underground Mine - Cost Estimator Tool CAL.V.Dic/2022, developed for arid climates by the New South Wales Government Industry & Investment, which is used in many mining regions internationally, and has been well validated for underground base metal mines in Mexico. As modified by Clifton, it has been used at Capstone for closure costing since 2016.

The overall undiscounted cost estimate of US\$16.44 million, considers and incorporates the environmental conditions and those disturbances present at Cozamin to December 31, 2022. The figure reflects necessary expenditures to achieve successful closure based on those existing disturbances and current operational conditions; it includes both legal and constructive obligations. Supporting the figures are descriptions of the remediation, reclamation and restitution approaches for closure, and a detailed physical inventory of volumes, areas and estimated site

unit costs to 4Q 2022. Assumptions include continued operation at the current average operating rate of 1.5 Mt/a mined to December 2030, following by an estimated 10-year period of post-closure monitoring. The estimate does not contemplate or project any additional activities, facilities or disturbances which are, might be, or are likely to be required for the remainder of the life of the operating mine as outlined in this Report, but which are not yet authorized or constructed at the time of calculation of the costs.

This undiscounted amount is refined by the application of appropriate risk adjusted discount and exchange rates to present value of the final figure used in the corporate Asset Retiring Obligation (“ARO”) reported for Cozamin. Funding of the progressive reclamation costs comes from operational cash flow. Post-closure monitoring and maintenance costs are accounted in the final year of operation. Reclamation and closure costs are capitalized and amortized over the LOMP. Site closure costs are appropriately funded by allocating a percentage of sales revenue.

As Capstone continues with exploration and development, mine life and resource potential are anticipated to change. For this reason, the closure plan (and costs) for Cozamin remains a dynamic document. The costing is revised and updated as required to reflect the changes in disturbances present in the current year, the evolving knowledge of specific site conditions and their reclamation requirements, revisions to design requirements as engineering and environmental studies are completed, any changes in Mexican regulatory requirements and social obligations, and an understanding of the success of ongoing progressive rehabilitation, reclamation and closure activities, as well as prevailing costs and approaches for physical and other work related to closure.

### **20.3.1 Historical Environmental Liabilities and the Chiripa Remediation Plan**

Much of the Cozamin area has been previously disturbed from historical operations that were never officially closed. Guidance documents for addressing such historical environmental liabilities (known in Latin America as “pasivos”) issued by the Mexican government are based on the “polluter pays” principle embedded in LGEEPA and LGPGIR. The Mexican federal state coordinates with both state and municipal authorities to manage the environmental liabilities identified. However, in general terms, Mexican law lacks grandfathering provisions, and it remains uncertain how much flexibility there will be in managing responsibility for restoration of areas with historical mining activities especially which are near or adjacent to operating mines or population centres.

In 2015, as part of a state-wide regional scale review of previously identified historical disturbances, PROFEPA conducted a site inspection at Capstone in an area of historical workings known as Chiripa. This is located in an entirely separate catchment located north and east of Capstone’s currently active mine and plant installations and was then outside of any of Capstone’s permitted MIA, DTU, or other authorized permits. Chiripa includes numerous and extensive old workings and waste dumps as well as the remnants of an historical process plant and several tailings dams/deposits. Significant tailings are dispersed into the arroyo downstream which ultimately drains into the city of Zacatecas. Prior to PROFEPA’s review, Capstone had undertaken limited rehabilitation and reclamation activities on a voluntary basis after extensive discussions

with regulators, with the intent of reducing or preventing further degradation of the ambient environment.

In December 2015, PROFEPA initiated an administrative procedure (known as an “emplazamiento”) against Capstone for the Chiripa area. In such situations, companies owning the surface land over the identified areas of historical liability are required to enter into a mine-to-government agreement with PROFEPA/SEMARNAT to implement and fund agreed upon sampling to characterize the site and its elements of concern, and then to define and implement programs of remediation and rehabilitation to restore the disturbance; technical aspects of the programs must be approved and then authorized by the authorities. Preference is generally given to “quick start” physical stabilization and phased action plans which build upon the success of the earlier phases.

Third party consultants conducted initial characterization studies which showed significant levels of arsenic and vanadium in soils and waste rock piles across a relatively wide area of Chiripa (with point highs for lead and cadmium), as well as historical tailings which were potentially acid generating. In 2016 and 2017, Capstone successfully completed initial phases of rehabilitation which included physical stabilization of the upper portion of the area. Physical work included: closure and capping of open workings, construction of diversion channels around the old tailings dam, recovery of spilled tailings to the historical dams, berming/resloping of waste dumps and placement of gabions in the arroyo below. A second, more detailed site characterization study submitted in August 2017 which included a preliminary proposal for phased follow up remediation and rehabilitation using phyto-remediation was rejected by regulators in June 2018.

After a recommendation from DGGIMAR, the lead regulator, Capstone engaged Ingenieria y Servicios en Control Ambiental Industrial S.A. de C.V. (“INSECAMI”), a consultant with experience in successfully remediating similar historical disturbances. Additional field work further characterized the area to identify feasible remediation approaches, and Capstone applied to the local municipality to re-classify the designated land use as “industrial for mining”. This re-classification was permissive of a different remediation approach which considered the naturally elevated baseline metal levels in soils overlying mineralization and in areas of historical mining, as well as taking into account the designated end use as “industrial for mining” and was granted in November 2018 (Constancia de Compatibilidad Urbanística No C1101-12-2019),

Capstone’s more detailed remediation plan and proposal was accepted and resolved through a series of discrete permit applications/approvals which eventually allowed for construction of a confinement cell. The cell would contain and rehabilitate soils with highest levels of arsenic and lead from the historical mining-metallurgical processes which were considered as hazardous waste and accommodate rubble from old buildings currently in disuse.

In March 2020, Capstone submitted a MIA-Estatal (“State Level MIA”) environmental impact assessment specifically for site preparation and development of a source of granular borrow materials (“banco de materiales la Chiripa”) within the historical mining area. (MIA-Estatal are tailored for particular projects where impacts can be well identified, which are not considered



particularly risky, and do not involve new disturbance and/or seek to mitigate, remediate, or rehabilitate pre-existing issues). The borrow material would be used as primary cover for historical tailings, waste dumps and other areas of environmental liability within the limits of the Chiripa property. Chiripa's MIA-Estatal was approved June 8, 2021.

In September 2020, Capstone provided additional data for the remediation plan and submitted a MIA-Particular specifically for the site preparation, construction, and operation of the Confinement Cell (Celda de Disposición Final In Situ or "CFDIS" for its acronym in Spanish). Approval was received on December 1, 2020, and Capstone then submitted a DTU-BP application for the overall Chiripa Remediation Plan and Construction of Core Storage on the July 1, 2021. In addition to the borrow area and confinement cell, works included expanded freshwater diversion channels for the historical dams, two water filtration ponds, and core storage facilities. After submission of additional technical data, this was granted January 11, 2022, for a 15-year term. After consultation with other regulators, SEMARNAT's DGGIMAR authorized construction of the confinement cell itself on August 5, 2022.

This final approval allowed the proposed activities of the Remediation Plan to begin under the technical supervision of third party, INSECAMI. The plan is presently over 65% finished at year end 2022, and final completion is projected early in 2Q 2023. The end result will be subject to verification and confirmatory sampling programs by PROFEPA, and Capstone will be responsible for ongoing post-construction monitoring and maintenance for up to 20 years. The ultimate scale and scope of required remediation, rehabilitation, restitution, and the post closure land use which will be acceptable to regulators for the longer term remains to be defined. Importantly, because these administrative procedures are relatively new in Mexico (very few agreements have been finalized), the level of effort which will ultimately be required of Capstone, as well as likely time frames for completion of a final agreement may be difficult to establish. As the regulatory procedure stands, the physical limit for proposed activities is the edge of the property border though identified effects may extend beyond this point. Neither the eventual outcome of these discussions nor the results of additional studies can be predicted.

## **20.4 Community and Social Aspects**

The Zacatecas region has a strong mining tradition, positioning the Cozamin Mine within a community broadly knowledgeable about mining's challenges and operational requirements, and with a supply of workers already skilled in mining. Successful engagement with the local communities near the mine has been a cornerstone of Cozamin's operation to date and continues going forward.

Capstone's corporate Human Rights Policy formalizes the requirement to integrate stakeholder engagement into project planning and operations, with an emphasis on the rights of vulnerable groups impacted by these activities. Cozamin has a site-specific Social Responsibility Policy, which covers procedures for identifying and mapping stakeholders, planning formal engagement activities and collecting and responding to stakeholder feedback using a systematic approach with protocols in place to receive feedback from its local communities. Regular, proactive



engagement with all stakeholders is a component of daily activities, creating respectful and productive two-way engagement. Since 2021, community engagement procedures have been formalized through a series of engagement and impact management protocols which make sure there is active listening and response to feedback and concerns; stakeholder engagement logs are updated monthly. Community concerns about environmental matters are often sent directly to regulatory authorities, who typically initiate an inspection or inquiry. If potential impacts are identified, Capstone responds by monitoring, managing and improving operational practices or implementing appropriate measure. At the mine itself, complaints can be made anonymously using mailboxes located around the site. The management team reviews all submissions monthly, and responses are published in the quarterly newsletter. Concerns are resolved in a transparent manner, and when possible, through in-person dialogue. There is a clear priority in working cooperatively to identify and mitigate potential concerns which may arise, and to leverage opportunities to deliver local benefits such as employment and service contracts for operations.

Some mine infrastructure is located on land owned by the directly neighbouring agrarian communities of the Ejido Hacienda Nueva and Ejido La Pimienta; site management meets regularly with elected ejidal leadership. Hacienda Nueva receives financial support for assistance with education, sporting, and recreation facilities as well as for community engagement; donations have been used to help fund upgrades and improvements to local schools, deliver scholarships for local students and provide aid to elderly ejido members. There are no habitations within several kilometres of the footprint of the mine or its associated infrastructure, and the mine will not (and has not to date) require the resettlement of any individuals or communities.

Capstone is committed to a variety of programs which give back to the local communities in Zacatecas, and in 2022, updated its community investment strategy going forward with stakeholder input. In 2021 community investments focused on the following areas: community health and social welfare; youth programs and sports; education and training; environmental initiatives; and local emergency planning and response. Capstone also places specific priorities on local hiring, training opportunities and contributions to the development of local infrastructure. For the last five years Capstone has hosted local tree-planting events using native species such as drought-tolerant mesquite and huizache.

Overall, Capstone seeks to be an active community member, keeping aware of local interests and concerns through its involvement in neighbouring communities, and typically partnering with civil society organizations or local/state agencies to sponsor local projects through volunteer time and donations. Capstone has also identified vulnerable stakeholder groups, including children, seniors, and people with disabilities, developing a program to improve food security, access to education and health opportunities for these groups. In 2021 Capstone responded to concerns about the potential impact of blasting on neighbouring property. Community members are also interested in how Capstone can financially support their local traditions and festivals.

Throughout the global pandemic Capstone worked with local health services to contribute additional hospital beds and medical personal protective equipment. Certified training staff from Cozamin participated in COVID-19 prevention training and awareness initiatives in communities,

together with local health professionals. The site also supported local community organizations that work with vulnerable youth and children and continued its monthly food hamper program through various charitable organizations, and in cooperation with local governments or service organizations. In recognition of these efforts, Capstone received a Health Security award from the Mexican Institute of Social Security (“IMSS”) in 2020 for its participation in a voluntary program which incentivized companies to implement effective protocols for preventing the spread of COVID-19.

Capstone’s Clean Industry Certification has been discussed in an earlier section. Other recognitions for Capstone at Cozamin with respect to social and community aspects include the following:

Distinctive ESR® Socially Responsible Company (Empresa Socialmente Responsable or “ESR”) award from CEMEFI, the Mexican Centre for Philanthropy (for the 12th consecutive year in 2021). ESR is a voluntary program that accredits and recognizes companies for their commitment to sustainable, social and environmental operations, as well as for sustainability practices in the local community. The award acknowledges Capstone’s efforts to assume voluntary and public commitments to implement socially responsible management and continuous improvement as part of its culture and business strategy.

- Safe and Healthy Workplace award from the Mexican Institute of Social Security (2020-2022). This is another voluntary program which improves workforce health, safety and well-being, productivity, and quality of life.
- Human Rights award from the Human Rights Commission of the State of Zacatecas (2022), which acknowledges employers for their commitment to human rights, including dignity of workers, prevention of human trafficking, equality and non-discrimination, protection of personal data, and inclusion of people with disabilities in the workplace.

Mexican Confederation of Industrial Chambers of Commerce (CONCAMIN) Ethics & Values Award, (in the Multi-National Companies category) (2020) for its strong corporate social responsibility practices in economic, social and environmental performance, as well as respect for people, ethical values and positive community impact (i.e. a corporate culture governed by ethics and values). CONCAMIN is an umbrella organization with thousands of companies and major chambers of commerce members across Mexico. The award recognizes companies that demonstrate strong corporate social responsibility practices in areas of economic, social and environmental performance, respect for people, ethical values, and positive community impact.

Capstone participates in periodic environmental leadership (Liderazgo Ambiental) programs organized by regulators in Mexico and is a member of the Zacatecas Mining Cluster (“Clusmin Zacatecas”), an industry association that elevates industry standards, shares best practices, social license concerns, innovation, sustainability, community relations and responsible mining, and keeps members up to date about changing regulatory requirements/expectations.

Throughout Mexico, but also more specifically in Zacatecas state, there has been an increase in violence amongst drug cartels, human trafficking organizations and other criminal enterprises, including violence towards the authorities. Such impacts are also likely to occur in the surrounding communities to the mine, which can affect Capstone’s employees, contractors and visitors. Mine

operations may positively impact security by providing legitimate sources of income for families as well as social supports through community investments. Capstone takes the security risks seriously, adopting a vigilant approach and taking measures to protect people and the site. Employees are trained to reduce their personal security risks in all aspects of their lives, and Capstone works with local authorities to provide patrols in the mine area and by engaging with state and local governments to ensure this initiative continues.

## 20.5 Recommendations

The QP recommends the following work be completed:

In support of engineering design for closure the following studies are recommended:

- Borrow surveys and materials balance for closure
- Geochemical characterization studies and metals transport modelling to define potential for Acid Rock Drainage (ARD)/Metals Leaching (ML) and general elements of potential concern in tailings (both slurried and filtered), historical waste and in the underground mine: Support of a specialist consultant experienced in evaluating ARD/ML will be required to define parameters and approaches which meet international standards.
- Trend analysis of site water quality database to be assessed in the regional context of highly mineralized rocks with numerous historical workings, metals loads/mobility and evaluation of remediation options and alternatives.
- Engage a closure cover specialist consultant to develop high level overview of options and alternatives for closure.
- Complete a feasibility level cover design for filtered TSF and various structures related to tailings storage and management with particular focus on costing options and alternatives.

These actions would be part of Cozamin's environmental department's on-going responsibilities with support of specialist consultants. Costs may be in part be considered as operational costs, and in part are included in the global budget for technical closure studies included in the 2022 closure cost estimate.

Mine property lands management:

- Evaluate proposed ancillary infrastructure and borrow source needs to assess whether buffer zones at the edges of the existing mine property are appropriately sized to ensure design and operational flexibility.

This action would be part of the Cozamin management team's regular responsibilities to assess and is included in the operating cost model.

To better inform closure planning going forward:

- Develop operational best management practices for processing, placement and disposal of waste and tailings to support progressive reclamation of the TSF and filtered TSF and minimize longer term costs for final operational closure.
- Update preliminary hydrology and geohydrology studies to evaluate flooding of the underground mine on closure and filtered TSF infiltration/seepage.
  - Undertake topographic surveys and at least preliminary environmental characterization programs to define a preliminary mitigation plan for rehabilitation, restoration and closure of pasivos within the Capstone mine property and directly adjacent on concessions held either by Capstone or third parties. This will provide early warning of any risks of further deterioration to the ambient environment which might require new strategies, additional monitoring or supplementary site characterization programs.

These actions which would be managed by the mine's environmental department will require additional consultant support, some of the studies may in part be operational costs, while others may be attributable to closure, and are in part included in the global budget for technical closure studies included in the 2022 closure cost estimate.

To reduce uncertainties in closure cost estimation and identify as yet unconsidered risks:

Gap analysis of the present closure cost estimate and completion of necessary studies will improve confidence and reduce uncertainty in closure costing. The following studies and specialist support are recommended:

- Geotechnical stability of underground workings in closure to assess any potential for surface subsidence in the longer term.
  - Define geotechnical guidance on probable design requirements for closure of various types of underground openings for long-term safety and stability (considering both static and dynamic loads).
- Undertake a dismantling/de-commissioning/decontamination study for facilities, buildings, and equipment and disposal of materials.
- Update dust dispersion modelling to establish dispersion trends with clear data and confirm whether mitigation measures may be needed to retain and capture metals-bearing dusts and prevent dispersion beyond the property border.

These actions which would be managed by the mine's environmental department will require additional consultant or specialist support and definition of appropriate scopes of work. Some of the studies may in part be considered as operational costs, while others are attributable to closure, and are included in the global budget for technical closure studies included in the 2022 closure cost estimate.

To advance the closure plan and progressive closure:

- Undertake proposed definition of a more detailed action plan for progressive restitution and closure during operations to assess duplicated costs, and opportunities for cost efficiencies.
- Conduct annual reviews and revisions of the closure plan, including cost estimation and assessments of options for proposed future land uses to reduce risks and uncertainties through regular re-consideration of options and alternatives.

These actions would be part of Cozamin's environmental department's on-going responsibilities and budget.

With respect to social issues:

- Maintain ongoing dialogue with regulators to proactively understand expectations, evolving best practices and acceptable final land uses. Where practical continue to extend the conversation with adjacent property owners and communities around acceptable end land uses.
- Continue to actively engage in community assistance and development programs with surrounding communities to ensure Capstone retains its social licence.

This continued practice is included in Cozamin's current operating cost model and managed by the Cozamin operating team.

## 21 Capital and Operating Costs

### 21.1 Operating Cost Estimate

As Cozamin is an operating mine with stable operating history and cost control, the basis of estimate for the estimated operating costs uses actual operating costs used in the budgeting process, which includes escalation for inflationary pressures, additional ground support requirements for geotechnical stability, new mining methods, and the new processes of paste backfill and filtered tailings deposition. The operating cost estimate was completed by the Corporate Technical Services team of Capstone Copper, utilizing the new mine plan production profile. Contractor costs were derived from forecasted requirements and contract unit costs. Mine support functions were estimated based on recent operating unit costs against the new life of mine plan activities to produce the mine operating costs. The processing operating costs were derived using forecasted production and current unit operating costs, revised to account for expected changes related to the implementation of the tailings dewatering and paste backfill system. General Management and Administration costs were assumed to be based on budget unit rates and fixed for the updated LOMP. Table 21-1 summarizes the expected mine operating costs for the LOMP.

**Table 21-1: Summary of Operating Costs**

Cozamin LOMP OPEX	Units	Total	2023	2024	2025	2026	2027	2028	2029	2030
Cut and Fill Stope Mining Costs	US\$k	\$77,163	\$7,107	\$12,368	\$10,482	\$9,944	\$15,120	\$9,711	\$10,439	\$1,992
Longhole Stope Mining Costs	US\$k	\$75,266	\$12,039	\$9,060	\$9,866	\$10,798	\$8,564	\$9,884	\$10,621	\$4,433
Ore Handling	US\$k	\$78,360	\$10,589	\$10,576	\$10,408	\$10,824	\$11,272	\$10,134	\$10,890	\$3,667
Cut and Fill Paste Backfill	US\$k	\$13,038	\$825	\$1,435	\$1,291	\$146	\$2,919	\$2,265	\$3,435	\$721
Longhole Paste Backfill	US\$k	\$25,265	\$1,734	\$3,699	\$3,428	\$3,602	\$2,908	\$3,158	\$4,251	\$2,485
On-Site General Mine Expenses	US\$k	\$99,550	\$13,453	\$13,436	\$13,223	\$13,751	\$14,320	\$12,874	\$13,835	\$4,659
Transverse Cross-Cut Development	US\$k	\$10,301	\$4,646	\$2,436	\$3	\$1,266	\$1,172	\$779	\$0	\$0
<b>Underground Mining Costs</b>	<b>US\$k</b>	<b>\$378,941</b>	<b>\$50,392</b>	<b>\$53,010</b>	<b>\$48,701</b>	<b>\$50,331</b>	<b>\$56,274</b>	<b>\$48,804</b>	<b>\$53,472</b>	<b>\$17,957</b>
Beneficiation Plant Costs	US\$k	\$112,809	\$15,244	\$15,226	\$14,984	\$15,582	\$16,227	\$14,589	\$15,678	\$5,279
Filter Plant & Dry Stack Tailings	US\$k	\$29,541	\$3,992	\$3,987	\$3,924	\$4,080	\$4,249	\$3,820	\$4,106	\$1,382
<b>Milling Costs</b>	<b>US\$k</b>	<b>\$142,350</b>	<b>\$19,236</b>	<b>\$19,213</b>	<b>\$18,908</b>	<b>\$19,663</b>	<b>\$20,476</b>	<b>\$18,409</b>	<b>\$19,784</b>	<b>\$6,662</b>
General Costs	US\$k	\$45,605	\$6,163	\$6,155	\$6,057	\$6,299	\$6,560	\$5,898	\$6,338	\$2,134
Administrative Costs	US\$k	\$39,327	\$5,314	\$5,308	\$5,224	\$5,432	\$5,657	\$5,086	\$5,466	\$1,840
<b>General &amp; Administrative Costs</b>	<b>US\$k</b>	<b>\$84,932</b>	<b>\$11,477</b>	<b>\$11,463</b>	<b>\$11,281</b>	<b>\$11,732</b>	<b>\$12,217</b>	<b>\$10,983</b>	<b>\$11,804</b>	<b>\$3,975</b>
<b>Minesite Operating Costs</b>	<b>US\$k</b>	<b>\$606,223</b>	<b>\$81,105</b>	<b>\$83,687</b>	<b>\$78,890</b>	<b>\$81,725</b>	<b>\$88,967</b>	<b>\$78,196</b>	<b>\$85,059</b>	<b>\$28,593</b>

### 21.2 Capital Cost Estimation

Capital expenditures were developed in support of the LOMP and include the following sustaining capital components:

- Purchase of new equipment.
- Overhauls of existing equipment.
- Capital underground development and projects.



- Capital infrastructure.
- Sustaining capital requirements.
- Asset retirement obligations.
- Expansionary capital components include:
  - New tailings storage facility including ancillary facilities and infrastructure.
  - Tailings dewatering plant and Paste backfill plant.
- Capital costs do not include exploration activities.

Table 21-2 summarizes expected full year capital costs over the Cozamin LOMP. The first five years are outlined in the Cozamin capital budget plan. Capital expenditures include mine equipment, plant upgrades, underground capital development, tailings management and surface infrastructure, with an allowance for the remaining years of the plan based on the average of the preceding 5-year plan. The sustaining capital development costs were estimated based on unit rates and the updated mine plan which supports the reserves.

**Table 21-2: Summary of Capital Costs**

Cozamin LOMP CAPEX	Units	Total	2023	2024	2025	2026	2027	2028	2029	2030
Mine Sustaining Development	US\$k	\$75,283	\$18,840	\$11,605	\$10,735	\$14,990	\$10,032	\$7,698	\$1,383	\$0
Mine Sustaining	US\$k	\$24,809	\$5,581	\$4,901	\$2,966	\$4,603	\$2,743	\$3,039	\$977	\$0
Site Sustaining	US\$k	\$13,492	\$3,132	\$3,230	\$1,522	\$1,325	\$1,999	\$1,499	\$785	\$0
Expansionary	US\$k	\$7,614	\$7,594	\$19	\$0	\$0	\$0	\$0	\$0	\$0
Exploration	US\$k	\$2,656	\$2,656	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total CAPEX w/o ARO</b>	<b>US\$k</b>	<b>\$123,854</b>	<b>\$37,803</b>	<b>\$19,756</b>	<b>\$15,222</b>	<b>\$20,918</b>	<b>\$14,773</b>	<b>\$12,236</b>	<b>\$3,145</b>	<b>\$0</b>
Asset Retirement Obligations (ARO)	US\$k	\$3,277	\$1,645	\$522	\$394	\$177	\$108	\$108	\$108	\$216
<b>Total CAPEX w/ ARO</b>	<b>US\$k</b>	<b>\$127,130</b>	<b>\$39,447</b>	<b>\$20,278</b>	<b>\$15,616</b>	<b>\$21,096</b>	<b>\$14,881</b>	<b>\$12,344</b>	<b>\$3,253</b>	<b>\$216</b>

Note: Asset Retirement obligations in the table above does not include the post closure obligations for active closure activities to remediate the site after the operations curtail and post closure monitoring for the subsequent 7 years.

## **22 Economic Analysis**

As Cozamin is a producing mine and no material expansion of current production is proposed, an economic analysis is not required for this Technical Report.

## 23 Adjacent Properties

The Mala Noche Vein is one of several main veins that have been exploited since pre-colonial times in the Zacatecas area. The Bote vein has recently been in production until 2003, but production on the Veta Grande, Panuco, Mala Noche, Cantera and San Rafael veins has varied with silver and base metal prices. The average ore grades for the Zacatecas district are reported to be 1.5 g/t Au, 120 g/t Ag, 3% Pb, 5.1% Zn and 0.16% Cu with total silver production to the end of 1987 estimated to be about 750,000,000 ounces (Ponce and Clark, 1988). The QP has been unable to verify this information and the reported grades are not necessarily indicative of the mineralization on Cozamin Mine that is the subject of this Report.

## **24 Other Relevant Data and Information**

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

## 25 Interpretation and Conclusions

The Cozamin Mine has been successfully developed into a viable mining operation with 16 years of continuous operation by Capstone Copper. Based on the findings of this Technical Report, the QPs believe Cozamin is capable of sustaining production through the depletion of the Mineral Reserve. Relevant geological, geotechnical, mining, metallurgical and environmental data from the Cozamin Mine has been reviewed by the QPs to obtain an acceptable level of understanding in assessing the current state of the operation. The Mineral Resource and Reserve estimates have been performed to industry best practices (CIM, 2019) and conform to the requirements of CIM Definition Standards (CIM, 2014).

### 25.1 Conclusions

Capstone Copper holds all required mining concessions, surface rights and rights of way to support mining operations for the life-of-mine plan developed using the January 1, 2023 Mineral Reserves estimates. Permits held by Capstone Copper are sufficient to ensure that mining activities within the Cozamin mine are carried out within the regulatory framework required by the Mexican Government. No unusual risk to permit applications and/or extensions is anticipated beyond the potential for delays in regulatory review and approval following government disruption related to COVID-19. Annual and periodic land use and compliance reports have been filed as required.

The understanding of the regional geology, lithological, structural and alteration controls of the mineralization at Cozamin are sufficient to support estimation of Mineral Resources and Mineral Reserves. The Mineral Resources and Mineral Reserve estimates, NSR cut-off strategy and operating and capital cost estimates have been generated using industry-accepted methodologies and actual Cozamin performance standards and operating costs. Metallurgical expectations are reasonable, based on stable metallurgical performance from actual production and data from recently completed studies. Reviews of the environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors for the Cozamin mine support the declaration of Mineral Reserves.

Cozamin water sources include purchase of additional water rights from the municipal authority in 2014, authorization to use treated water, water from underground mines held by various other parties, and water supply wells constructed downstream from the mine and processing facilities in 2011 and 2012. Cozamin Mine is projected to have access to sufficient water resources to support a 4,000 tpd operation.

The current slurry tailing deposition system will be transitioned to a filtered tailings system in 2023. The filtered tailings storage facility comprises a Phase I located at the toe of the existing TSF, and a Phase II located on top of the existing TSF. Tailings will be deposited for approximately two years in Phase I, after which deposition will transition to Phase II, which has sufficient tailings storage capacity for the current LOMP.

Based on current regulations and laws, Capstone has addressed the environmental impact of the operation, in addition to certain impacts from historical mining. Closure provisions are appropriately considered in the mine plan. There are no known significant environmental, social or permitting issues that are expected to prevent the continued mining of the deposits at Cozamin mine.

## 25.2 Risks and Opportunities

The QPs, as authors of this Technical Report, have noted the following risks:

- The Mineral Reserve estimate could be materially impacted by changes to assumptions used in the estimate such as long-term metal price, exchange rate, treatment and refining charges, inputs to design of stope shapes and development that constrain the estimate, local vein variability caused by model smoothing, metallurgical recovery, forecast dilution and mining recovery, NSR cut-offs, geotechnical (including seismicity), hydrogeological and mining method. Unanticipated deviation of performance or assumptions during the transition to paste backfill and new mining methods could materially impact the Mineral Reserve estimate. Significant changes to environmental, permitting and social license assumptions also presents a risk. (Clay Craig, P.Eng.)
- The Mineral Resource estimate could be materially impacted by changes in continuity of grade and in interpretation of mineralized zones after further exploration and mining, uncertainty of assumptions underlying the consideration of reasonable prospects of economic extraction, such as commodity price, exchange rate, geotechnical and hydrogeological aspects, operating and capital costs, metal recoveries, concentrate grade and smelting/refining terms, and by significant changes to land tenure or the permitting requirements. (Clay Craig, P.Eng.)
- Phase 2 of the filtered TSF will entail placing filtered tailings over the existing conventional slurry TSF, requiring the existing TSF to provide adequate foundation strength for this planned Phase 2. The data and analyses available at present indicate that this will be achieved, but changes to the tailings management plan, and increased tailings management costs, may be required if the existing TSF does not provide the expected foundation conditions (Josh Moncrieff, P.Geo.)
- Mexican regulatory expectations for environmental and social responsibility continue to evolve. Since the first environmental impact assessment, Capstone's property ownership has increased beyond the area of active mining and processing operations to encompass additional areas of historic mining and processing operations, particularly, though not exclusively in the area of the Chiripa arroyo. Outside of the approved Remediation Plan for Chiripa, the path forward for remediating the environmental liabilities is not yet certain and may result in increased expectations and regulatory requirements. This has potential to increase costs for final closure and/or post closure monitoring, and these cannot be quantified at this time. (Jenna Hardy, P.Geo., FGC)
- Failure to properly characterize and inventory available borrow materials and eventual lack of appropriate material sources for encapsulation and vegetal soils for use in covers for the TSF, filtered TSF, historic waste dumps and other areas. This could imply a requirement to expand the mine footprint to open new borrow areas (adding requirements for permits and reclamation for closure), and if no availability is found within the present



mine property, a need for Capstone to acquire new lands, then possibly apply for new permits for change in use of forested soils, and/or adding costs for closure of the area, or alternatively requiring purchase of materials offsite. This could materially affect final closure costs, and these cannot be quantified until studies are completed. (Jenna Hardy, P.Geo., FGC)

- Possible presence of historic liabilities either identified/inventoried or not yet inventoried (whether on, or adjacent to, the mine property on Capstone's mining concessions), which need new strategies for verification, monitoring, or restitution to make sure there are no continuing environmental issues due to their presence. Although Capstone has made provisions for this type of reclamation responsibility in its "allowance for pasivos", in its closure costs, there is no assurance that the provisions made will be enough to meet future obligations which can't be predicted. (Jenna Hardy, P.Geo., FGC)
- Unexpected differences in restitution and closure approaches needed in response to public engagement and consultation around closure planning or requirements, including proposed end land uses, or resistance to the land use restrictions needed to promote site restitution (especially in the abandonment stage when Capstone potentially has less control over the site) could increase closure costs in ways which can't be quantified at the present time. (Jenna Hardy, P.Geo., FGC)
- Newly detected or understood requirements for remediation or rehabilitation which need different methods or approaches than those proposed or extending farther or longer than expected to be effective, may likewise increase closure costs which cannot be quantified at this time. (Jenna Hardy, P.Geo., FGC)

The authors of this Technical Report have noted the following opportunities:

- 2023 infill drilling at MNV West Target to support an initial Resource Estimate. (Clay Craig, P.Eng.)
- In addition to the above program, additional infill drill programs could be implemented to upgrade the classification of a substantial portion of the current Inferred Resource to Indicated class by decreasing the drill hole spacing. (Clay Craig, P.Eng.)
- Deep drilling tests for additional copper mineralization below both MNFWZ and MNV West Target, and drilling tests to explore for additional zinc mineralization at both MNFWZ and along strike of the MNV east of San Rafael should be costed and scheduled. (Vivienne McLennan, P.Geo.)
- Continue regional exploration and property evaluations within reasonable trucking distance of the plant. (Clay Craig, P.Eng.)
- Assess opportunities related to mining methods, including:
  - Reduction of dilution site-wide through improved engineering, planning, long-hole drill control and optimized explosives design. (Clay Craig, P.Eng.)
  - Investigation of alternative mining techniques with the objective of lowering costs and dilution to convert resources to reserves. Possible alternatives that will be studied include, Drift-and-Fill and narrow vein cut and fill methods (Clay Craig, P.Eng.)

- Recovery of pillars in areas mined in the past is being investigated using paste fill and other salvage techniques. Cozamin has left unmined pillars needed for geotechnical stability throughout its mine life and will continue to do so until paste backfill is available. Typically, conventional backfilled areas have been designed to leave approximately 26% of the total mineralization behind in pillars. (Clay Craig, P.Eng.)
  - Since a considerable amount of the Mineral Reserve volume is planned to be mined using fan drilling in the stoping procedure, further optimizations of reserve shapes may be possible by adding additional plane points where applicable. This opportunity should be completed by the Cozamin technical staff as part of their regular duties. (Craig, P.Eng.)
- The transition from slurry tailings to paste and filtered tailings management is expected to result in less tailings requiring storage at surface, and less risks associated with the physical stability and closure of the TSF. (Josh Moncrieff, P.Geo.)
- With respect to closure planning and costing and risk mitigation in these areas:
  - Planning and preparation for the restitution and closure stage of the Cozamin Mine has identified areas of opportunity in terms of information generation through technical studies for operations projected for 2023 that will support refinement, confirmation or modification of proposed closure activities for improved cost-effectiveness and risk reduction. Similarly certain technical studies for closure also projected for 2023 will also further inform closure planning and revised 2023 yearend costing.
  - Proposed development of an actionable Progressive Closure Plan in 2023, presents opportunities to identify/remove areas of duplicated costs, as well as cost efficiencies for closure through modified operational practices (e.g., processing and placement of tailings and waste rock), and early closure of areas no longer in use for operations. It will also improve the cost estimate by clearly separating costs for progressive closure undertaken as part of routine operations management for permitting (i.e., to return lands to their original condition for eventual re-use by operations) from areas where site restitution is undertaken for final or definitive closure.
  - Similarly with respect to final closure, in 2023 the updated closure plan and field inventory will continue the process of separation described, and focus on integrating similar activities (e.g., grouping interior process plant infrastructure by function) as well as identifying site areas where activities had been misapplied previously (e.g., scarification over old pits/shaft and tailings surfaces), and removing areas where operational progressive closure had already been undertaken, but full restitution for definitive closure is still required. Where identified these costs will be removed from the next estimate, and further improve certainty in the costing.
  - Mitigation costs for the historic liabilities can potentially be reduced by integrating activities in these areas with ongoing closure activities already identified in the nearby areas of the mine property. Though cost reduction can't be quantified at this time, Capstone may be able to better qualify and perhaps begin to quantify their risk level. (Jenna Hardy, P.Geo., FGC)

## 26 Recommendations

The following recommendations have been identified by the authors of the Technical Report.

### 26.1 Recommendation Related to Drilling (Section 10)

- Continue to incorporate exploration drifts into planned mining access for more precise infill drilling from underground, particularly in areas of deep mineralization drilled only from surface. The estimated cost for 2023 is US\$1.1 million to complete a deeper west exploration cross-cut to be utilized for the 2023 infill drilling program at MNV West Target.

### 26.2 Recommendation Related to Mineral Processing and Metallurgical Testing (Section 13)

- More metallurgical testing should be conducted in due course on the Pb/Zn ores assuming the resource grows and closer to the time when they will be milled. The testing could be conducted at Cozamin or in a commercial laboratory for a cost in the order of US\$80,000.

### 26.3 Recommendations Related to Mineral Reserve Estimates (Section 15.6)

- As further exploration and infill-drilling continues, and empirical understanding of the physical characteristics of the orebody develops, continued revision of mining methods and drilling and blasting practices to optimize safety and economics may be necessary. This recommendation should be overseen by Cozamin and Corporate technical staff as part of their regular duties, however mining and geotechnical engineering consultants may be required by 2024 to review new approaches at an anticipated cost of approximately US\$200,000 to \$250,000.
- Stopes mined by longhole are largely planned to be backfilled with paste, which will require an extensive underground delivery system ('UDS'). The existing design of the UDS will need to be updated to capture all new areas that will require paste fill. The revised layout of the UDS should be overseen by Cozamin technical staff with consultant support for detailed engineering, hydraulic analysis, and transient pressure analysis at an anticipated cost of US\$35,000.
- Cozamin Technical Services and Corporate Resource Estimation should evaluate infill drilling tighter than 50m spacing, for areas with potential to require transverse mining.

### 26.4 Recommendations Related to Geotechnical Considerations (Section 16.2)

The QP recommends the following studies, anticipated to cost approximately US\$350,000:

- Implementation of a mitigation plan to tackle increased seismic activities. This includes adjusting the mine sequence in order to avoid creation of unfavorable geometry. The mitigation plan needs to include the use of dynamic ground support, enhance the seismic system coverage, in order to monitor seismic activities, as well as establishing a re-entry protocol following a blast or big seismic event.

- Continued systematic bolting in new headings and adjust ground support in areas of weaker rock mass conditions or in higher ground stress zones and ensure ongoing ground support QAQC (quality assurance and quality control) Continued development of a formal ground control management plan that summarises different mine design (stope and pillar) and ground control requirements in different geotechnical domains, to be updated as performance information becomes available.
- Continued improvements to recording geotechnical data including mapping of the rock mass conditions underground and in drill core logging, validation of ground support performance, stope and pillar sizes, rock mass characterization, definition of regional field characteristics to aid reliable stress modelling, development of a 3D geomechanical domain model.
- Continued training of personnel in geotechnical mapping and to identify poor rock conditions and execute remediation ground control work where needed.
- Define local regional stress field characteristics to develop a reliable geotechnical numerical stress model and provide supporting data to verify geotechnical assumptions used for design are correct.
- Optimization of paste fill practices including paste fill mix specific to vertical exposure once the paste plant is operational and effectively producing a quality product.

## **26.5 Recommendations Related to Recovery Methods (Section 17)**

- Construct mill upgrades as described in Section 17, including a grizzly at the primary crusher and fines bypass to final product, and increased tailings pumping capacity before production rates increase. In addition, purchase spare sets of mantles and bowls for the secondary and tertiary crushing circuits to reduce maintenance downtime.
- Evaluate the installation of an additional concentrate filter to reduce the risk of unplanned outages caused by filtration upsets and to improve filtered concentrate moisture contents, with the aim of ensuring maximum mill availability.

## **26.6 Recommendations Related to Project Infrastructure - Electrical (Section 18.3.1)**

- Assess future regional power demands and the need for a backup transformer, and continue to monitor peak power draw and assess means for smoothing demand peaks. This work should be completed by Cozamin technical staff in the course of their normal duties.

## **26.7 Recommendations Related to Project Infrastructure - Water (Section 18.3.3)**

- Regularly update and calibrate the site water balance model to improve Cozamin's ability to predict and plan for potential periods of water scarcity or excess. This work should be completed by Cozamin technical staff in the course of their normal duties.

## **26.8 Recommendations Related to Tailings Storage Facility (Section 18.3.4)**

- Monitor the performance of the existing conventional TSF and Phase I of the filtered TSF once slurry deposition ceases, to ensure that the filtered tailings perform as expected and that the existing TSF will provide adequate foundation strength for the planned Phase 2. This work should be completed by Cozamin technical staff in the course of their normal duties, in close collaboration with the Engineer for Record (WSP, formerly Wood).

## **26.9 Recommendations Related to Environmental Studies, Permitting and Social or Community Impacts (Section 20)**

The QP recommends the following studies, described more completely in Section 20.4:

In support of engineering design for closure:

- Borrow surveys and materials balance for all types of final covers on closure.
- Undertake geochemical characterization and transport modelling to define potential for Acid Rock Drainage (ARD)/Metals Leaching (ML) and general elements of potential concern in tailings, historical waste and in the underground mine
- Engage a closure cover specialist consultant to develop a high-level technical overview of options and alternatives for design.
- Undertake feasibility level cover design for filtered TSF closure: and the various structures related to tailings storage and management with particular focus on costing options and alternatives.

These actions would be part of Cozamin's environmental department's on-going responsibilities with support of specialist consultants. Costs may be in part be considered as operational costs, and in part are included in the estimated global budget for technical closure studies described in the 2022 closure cost estimate.

Mine property lands management:

- Evaluate proposed ancillary infrastructure and borrow source needs to assess whether buffer zones at the edges of the existing mine property are appropriately sized to ensure design and operational flexibility.

This action would be part of the Cozamin management team's regular responsibilities to assess and is included in the operating cost model.

To better inform closure planning going forward:

- Develop operational best management practices for processing, placement and disposal of waste and tailings to support progressive reclamation of the TSF and filtered TSF and minimize longer term costs for final operational closure.

- Update preliminary hydrology and geohydrology comprehensive site studies evaluate flooding of the underground mine on closure and filtered TSF infiltration/seepage.
- Undertake topographic surveys and preliminary environmental characterization programs to define a preliminary mitigation plan for rehabilitation, restoration and closure of pasivos located within the Capstone mine property and directly adjacent on concessions held either by Capstone or third parties.

These actions which would be managed by the mine's environmental department will require additional consultant support. Some of the studies may in part be operational costs, while others may be attributable to closure, and are in part included in the studies described in the 2022 closure cost estimate.

To reduce uncertainties in closure cost estimation and identify as yet unconsidered risks, the following are amongst the recommended studies and specialist support:

- Geotechnical stability of underground workings in closure to assess any potential for surface subsidence for long term closure.
- Define geotechnical guidance for probable design requirements for closure of the various types of underground openings.
- Undertake a dismantling/de-commissioning/decontamination study for facilities, buildings and equipment and disposal of materials.
- Update existing dust dispersion modelling to establish dispersion trends with clear data and confirm whether mitigation measures may be needed to retain and capture metals-bearing dusts and prevent dispersion beyond the property border.

These actions which would be managed by the mine's environmental department will require additional consultant support. Some of the studies may in part be operational costs, while others are attributable to closure, and are in part included in the estimated global budget for technical closure studies included in the 2022 closure cost estimate.

To advance the closure plan and progressive closure and identify as yet unconsidered risks:

- Undertake proposed definition of a more detailed action plan for progressive restitution and closure during operations which identify areas of duplicated costs, as well as opportunities for cost efficiencies for closure through modified operational practices.
- Conduct annual reviews and revisions of the closure plan, including cost estimation and assessments of options for proposed future land uses to reduce risks and uncertainties through regular re-consideration of options and alternatives.

These actions would be part of Cozamin's environmental department's on-going responsibilities and budget.

With respect to social issues:

- Maintain ongoing dialogue with regulators to proactively understand expectations, evolving best practices and acceptable final land uses. Where practical continue to

extend the conversation with adjacent property owners and communities around acceptable end land uses.

- Continue to actively engage in community assistance and development programs with surrounding communities to ensure Capstone retains its social licence.

This continued practice is included in Cozamin's current operating cost model.



## 27 References

- Blue Coast Research Ltd., 2021. *Metallurgical Program Report: The Testing of Pb/Zn Ores from the Cozamin Mine*. Parksville, BC. January 2021. Print.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2014. *CIM DEFINITION STANDARDS - For Mineral Resources and Mineral Reserves*. CIM Council, May 10, 2014. Web.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2019. *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines*. CIM Council, November 29, 2019. Web.
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2020. *2020 CIM Guidance on Commodity Pricing and Other Issues related to Mineral Resource and Mineral Reserve Estimation and Reporting*. Canadian Institute of Mining, Metallurgy and Petroleum. CIM Council, August 28, 2020. Web.
- Capstone Gold Corp., 2003. *Capstone Options Five Advanced Exploration Projects in Mexico*. Business Wire, Oct. 27, 2003. Web.
- Capstone Gold Corp., 2005. *Capstone Acquires 90% Interest in Cozamin and enters into Transaction Agreements with Silverstone Resources*. Internet Archive, December 1, 2005. Web.
- Capstone Gold Corp., 2015a. *Barrenos 2014 – Reporte anual de QAQC*. Report. Zacatecas. February 19, 2015. Print.
- Capstone Gold Corp., 2015b. *March 2015 – acQuire DB Audit*. Report. Zacatecas. March 27, 2015. Print.
- Capstone Gold Corp., 2015c. *May 2015 – acQuire DB Audit*. Report. Zacatecas. May 20, 2015. Print.
- Capstone Gold Corp., 2015d. *June 2015 – acQuire DB Audit*. Report. Zacatecas. July 20, 2015. Print.
- Capstone Gold Corp., 2016a. *Reporte anual 2015 – QAQC Barrenos y canales*. Report. Zacatecas. January 18, 2016. Print.
- Capstone Gold Corp., 2016b. *Reporte de auditoria BD de barrenación Marzo 2015 a Marzo 2016*. Report. Zacatecas. May 9, 2016. Print.
- Capstone Gold Corp., 2017a. *Reporte anual de QAQC barrenos y canales 2016*. Report. Zacatecas. January 13, 2017. Print.

- Capstone Gold Corp., 2017b. *Reporte de auditoria BD de barrenación Abril a Dec 2016*. Report. Zacatecas. March 8, 2017. Print.
- Capstone Gold Corp., 2017c. *Reporte de auditorio BD de barrenación a Jul 2017*. Report. Zacatecas. December 27, 2017. Print.
- Capstone Gold Corp., 2018a. *Reporte anual de QAQC barrenos y canales 2017*. Report. Zacatecas. February 21, 2018. Print.
- Capstone Gold Corp., 2018b. *Reporte de auditoria BD de barrenación a Feb 2018*. Report. Zacatecas. March 6, 2018. Print.
- Capstone Gold Corp., 2018c. *Reporte de auditoria BD de barrenación a Oct 2018*. Report. Zacatecas. November 7, 2018. Print.
- Capstone Gold Corp., 2019. *Reporte anual de QAQC barrenos y canales 2018*. Report. Zacatecas. January 16, 2019. Print.
- Capstone Gold Corp., 2020a. *Reporte anual de QAQC barrenos y canales 2019*. Report. Zacatecas. January 10, 2020. Print.
- Capstone Gold Corp., 2020b. *Reporte de auditoria BD de barrenación a abril 30, 2020*. Report. Zacatecas. April 30, 2020. Print.
- Capstone Gold Corp., 2020c. *Memo coordinate change October 2020*. Report. Zacatecas. October 14, 2020. Print.
- Capstone Gold Corp., 2021. *Reporte anual de QAQC barrenos y canales 2020*. Report. Zacatecas. January 13, 2021. Print.
- Capstone Gold Corp., 2022. *Reporte anual de QAQC barrenos y canales 2021*. Report. Zacatecas. January 6, 2022. Print.
- Capstone Gold Corp., 2023a. *Reporte anual de QAQC barrenos y canales 2022*. Report. Zacatecas. January 7, 2023. Print.
- Capstone Gold Corp., 2023b. *Reporte de auditoria BD de barrenación noviembre 2020 de diciembre 2022, 2023*. Report. Zacatecas. March 20, 2023. Print.
- Capstone Copper Corp., 2006. *Capstone Mine Achieves Commercial Production*. Internet Archive, Sept. 12, 2006. Web.
- Capstone Copper Corp., 2007. *Technical Report on the Cozamin Mine, Zacatecas, Mexico*. Report. Vancouver, BC. October 31, 2007. Print.
- Capstone Copper Corp., 2014. *Technical Report on the Cozamin Mine, Zacatecas, Mexico*. Report. Vancouver, BC, 2014. Print.

- Capstone Copper Corp., 2016. *Mala Noche Vein Mineral Resources Update June 2016*. Report. Vancouver, BC. March 31, 2016. Print.
- Capstone Copper Corp. 2015. *Reanalysis of 2004-2013 Diamond Drill Samples within San Roberto Zone and Mala Noche Footwall Zone Modelled Solids, July 2014*. Memo. Vancouver, BC, March 3, 2015. Print.
- Capstone Copper Corp., 2018a. *Mala Noche Vein Mineral Resources Update July 2017*. Report. Vancouver, BC. January 18, 2018. Print.
- Capstone Copper Corp., 2018b. *Technical Report on the Cozamin Mine, Zacatecas, Mexico*. Report. Vancouver, BC. July 19, 2018. Print.
- Capstone Copper Corp., 2019. *Technical Report on the Cozamin Mine, Zacatecas, Mexico*. Report. Vancouver, BC. January 24, 2019. Print.
- Capstone Copper Corp., 2020. *Technical Report on the Cozamin Mine, Zacatecas, Mexico*. Report. Vancouver, BC. October 23, 2020. Print.
- Cardenas Vargas, J., Paraga Perez, R., Merida Montiel, R., Macedo Palencia, J. and Rodriguez Salinas, J., 1992. *Geological-Mining Monograph of the State of Zacatecas*. n.p.: Consejo De Recursos Minerales, Secretaria De Minas E Industria Basica de Mexico. Print.
- Clark, L. and Pakalnis, R., 1997. "An empirical design approach for estimating unplanned dilution from open stope hangingwalls and footwalls". 99th Annual AGM–CIM Conference. Vancouver, BC.
- Clifton Associates Ltd Natural Environment S.C., 2022 *Plan de Restitucion y Cierre Minera Cozamin, Capstone Gold SA de CV* 15-diciembre-2022. pp232
- Cereceres, R.R., 2023. *Legal Opinion on Mining Concessions*. Letter. Chihuahua. March 14, 2023. PDF file.
- Davis, B., 2009. *Cozamin QA/QC Performance*. Issue brief. Larkspur, CO: n.p., 2009. Print.
- Davis, B., 2014. *Cozamin Estimation Reliability by Drill Spacing*. Memo. Larkspur, CO. PDF.
- Golder Associates Ltd. (Golder), 2019. *Geotechnical Model of San Jose Area at Mala Noche Footwall Zone*. Report. Vancouver, BC: n.p., April 29, 2019. Print.
- Golder Associates Ltd. (Golder), 2020. *Geotechnical Review of the Base Case Mining of the Upper Mala Noche Footwall Zone*. Technical Memorandum. Vancouver, BC: n.p., September 14, 2020. Print.
- Golder Associates Ltd. (Golder), 2021a. *Geotechnical Recommendations for Implementation of Paste Backfill at the Cozamin Mine*. Technical Memorandum. Vancouver, BC: n.p., March 9, 2021. Print.

- Golder Associates Ltd. (Golder), 2021b. *Technical Memorandum – Geotechnical Input for Vein 20 Extension and Vein 10SE*. Technical Memorandum. Vancouver, BC: n.p., March 10, 2021. Print.
- Hardy, J.L.,(Nimbus Management Ltd). 2022 Technical Memo: Cozamin Mine: Basis for Rehabilitation and Closure Cost and Asset Retiring Obligation (“ARO”) Estimate to Year End 31-Dec-2022 31-December-2022- final rev. pp38 (plus appendices)
- Kirkham, G., 2020. *Mineral Resources Summary*. Memo. Burnaby, BC: n.p., July 4, 2020. Print.
- Lions Gate Geological Consulting Inc. (LGGC), 2014. *Preliminary Results of the Drillhole and Chip/Channel Databases and QAQC Audit of Cozamin Mine*. Issue brief. Sechelt, BC: n.p., Print.
- Paterson & Cooke, 2020. *Cozamin Paste – Pre-feasibility Report*. Rep. Sudbury, ON: n.p., December 11, 2020. Print.
- Paterson & Cooke, 2021 Project No.: CGC-32-0439, Cozamin Paste Project – Feasibility Engineering, April 4 2021
- Ponce S., B.F. and Clark, K.F., 1988. “The Zacatecas Mining District: A Tertiary Caldera Complex, Associated with Precious and Base Metal Mineralization.” *Economic Geology* 83.8 (1988): 1668-1682. Print.
- SRK Consulting (Canada), 2009. *Technical Report, Cozamin Mine, Zacatecas, Mexico*. Rep. Vancouver, BC: Print.
- Stantec, Cozamin Mine – Mining Method Analysis Report, Project #166822655. December 8, 2022
- Stone, D.M.R., 1993. *The Optimization of Mix Designs for Cemented Rockfill*. Minefill 93. SAIMM, Johannesburg, GP: pp. 249-253.
- Wood, 2021. *Estudio de Factibilidad para la Conversion de la Presa de Jales en Pulpa a un Deposito de Jales Filtrados*, Wood Environment & Infrastructure Solutions, July 2, 2021.
- WSP, 2022. *Technical Memo: 2022 TSF & FTSF Conceptual Closure Recommendations & Materials Take Off Estimates for the ARO Update 21-December-2022* pp11
- Zonge Engineering and Research Organization, Inc. (Zonge), 2004. *Interpretive Report (Addendum to the Phase I Report), Natural Source AMT Geophysical Survey with Ground Magnetics, Cozamin Project, Phase II*. Rep. Tucson: n.p., Print.
- Zonge Engineering and Research Organization, Inc. (Zonge), 2010. *Dipole-Dipole Complex Resistivity Survey on the Cozamin Project, Zacatecas, Mexico*. Rep. Tucson: n.p., Print.
- .

## **28 Qualified Person Certificates**

## **CERTIFICATE OF QUALIFIED PERSON**

I, Peter Amelunxen, do hereby certify that:

- 1) I am currently employed as the Vice President, Technical Services by:  
Capstone Copper Corp.  
Suite 2100 – 510 West Georgia Street,  
Vancouver, BC, V6B 0M3, Canada
- 2) This certificate applies to the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with an effective date of January 1, 2023.
- 3) I am a graduate of the University of Arizona with a Bachelor of Science Degree in Mining Engineering (1998) and McGill University with a Master of Engineering Degree (2004) . I have been practicing my profession since 1998, including work as a metallurgist, process engineer and mill superintendent at base metals mining operations (2003-2008) in USA and Peru, as a consulting metallurgist covering auditing, modeling, optimization and design of base metals and precious metals operations (2008-2018), and, since 2018, as an executive leading corporate technical teams in charge of metallurgy and processing improvement studies.
- 4) I am a Registered Member of Professional Engineers Ontario, P.Eng.,  
Licence# 100563111.
- 5) I visited the Cozamin Mine property most recently September 12-16, 2022.
- 6) I am responsible for Sections 1.9, 1.15, 12.3, 12.6, 13, 17, 26.2, 26.5 and items attributed to me in Sections 1.8, 1.22, 1.24 and 25.2 in the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico” with an effective date of January 1, 2023.
- 7) I have had prior involvement with the property as an employee of Capstone Copper Corp., since April 2022, overseeing continuous processing and metallurgical recovery improvements at Cozamin Mine as part of my role as Vice President, Technical Services.
- 8) I am not independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.
- 9) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of a Qualified Person as defined in National Instrument 43-101.
- 10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in Toronto, Ontario, Canada.

*"Signed and Sealed"*

Peter Amelunxen, P.Eng.  
Capstone Copper Corp.

## **CERTIFICATE OF QUALIFIED PERSON**

I, Clay Craig, do hereby certify that:

- 1) I am currently employed as the Director, Mining & Strategic Planning by:  
Capstone Mining Corp.  
Suite 2100 – 510 West Georgia Street,  
Vancouver, BC, V6B 0M3, Canada
- 2) This certificate applies to the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with an effective date of January 1, 2023.
- 3) I am a graduate of University of British Columbia, with a Bachelor of Applied Science in Geological Engineering in 1994. I have been practicing my profession since 1994 and my relevant experience for the purpose of this technical report includes work in resource estimation, mine planning and mine engineering management at a number of mines and development projects, as well as Mineral Reserves estimation at numerous projects. I have worked on and been involved with NI 43-101 studies on a number of projects including the Oyu Tolgoi and Fort Knox mines.
- 4) I am a Registered Member of Engineers and Geoscientists British Columbia, P.Eng., EGBC# 25189.
- 5) I visited the Cozamin Mine property most recently September 12-16, 2022.
- 6) I am responsible for Sections 1.10-1.13, 1.14.1, 1.14.3, 1.17, 1.19-1.22, 12.2, 12.4, 14, 15, 16.1, 16.3-16.10, 19, 21, 22, 25.1, 26.3 and items attributed to me in Sections 1.8, 1.22, 1.23, 1.24 and 25.2 in the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico” with an effective date of January 1, 2023.
- 7) I have had prior involvement with the property as employee of Capstone Mining Corp., since November 2020 as Manager, Mining & Evaluations and since September 2022 as Director, Mining & Strategic Planning.
- 8) I am not independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.
- 9) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of a Qualified Person as defined in National Instrument 43-101.
- 10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in Anthem, Arizona, USA.

*“Signed and Sealed”*

Clay Craig, P.Eng.  
Capstone Mining Corp.



**Jenna Hardy, P.Geo., FGC**  
**Nimbus Management Ltd**  
**535 East Tenth St.**  
**North Vancouver, BC V7L 2E7**

## **CERTIFICATE OF QUALIFIED PERSON**

I, Jenna Hardy, do hereby certify that:

1) I am currently employed as the President by:

Nimbus Management Ltd  
535 East Tenth St,  
North Vancouver, BC, V7L2E7

2) This certificate applies to the report titled "NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico", with an effective date of January 1, 2023.

3) I am a graduate of the University of Toronto with a B.Sc. "Specialist in Geology" (1974) and an M.Sc. in Economic Geology) (1978), and of Simon Fraser University, British Columbia with an M.B.A. (1988). I have been practicing my profession since 1978 and have worked on or been involved in previous NI43-101 studies at the Cozamin Mine since 2007, and in environmental studies, permitting and community aspects of mining and exploration development projects in Latin America since 1997.

4) I am registered as a P.Geo. Member of Engineers & Geoscientists BC (19446) and of the Canadian Institute of Mining & Metallurgy.

5) I most recently visited the Cozamin Mine property on August 26 to 30, 2019.

6) I am responsible for the following sections in the report titled "NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico" with an effective date of January 1, 2023:

Sections 1.8, 1.18, 1.22, 1.24, 12.7, 20, 26.9 and attributed to me in 25.2.

7) I have had prior involvement with the property since 2005 as an independent consultant in previous technical reports, environmental and engineering studies, including as independent qualified person for the reports entitled "NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico", with an effective date of April 30, 2020, October 24, 2018, March 31, 2018 and October 31, 2020.

8) I am independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.

9) I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.

10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.

11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in North Vancouver, BC, Canada.

*"Signed and Sealed"*

Jenna Hardy, P.Geo., FGC  
President  
Nimbus Management Ltd.



ASA GEOTECH

Ali Jalbout PhD., P. Eng.

ASA Geotech

35 Rue Hans Selye, Kirkland

Quebec, Canada H9J 3W4

## CERTIFICATE OF QUALIFIED PERSON

I, Ali Jalbout. do hereby certify that:

1) I am currently employed as the Principal Geotechnical Specialist by:

ASA Geotech  
35 Rue Hans Selye, Kirkland  
Quebec, Canada H9J 3W4

2) This certificate applies to the report titled "NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico", with an effective date of January 1, 2023.

3) I am a graduate of the University of Damascus in 1997 with a Bachelor degree in civil engineering, and from the University of Science and Technologies in Lille USTL – France with a Master and Doctorate in geotechnical engineering. I have been practicing my profession since 1997.

4) I am a Registered Member of the Professional Engineers of Ontario PEO and Ordre des ingénieurs de Québec OIQ.

5) I visited the Cozamin Mine property on September, 12, 2022, and on February 6<sup>th</sup> 2023.

6) I am responsible for the following sections in the report titled "NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico" with an effective date of January 1, 2023:  
Sections 1.8, 1.14.2, 1.22, 12.5, 16.2, 26.4 and items attributed to me in Section 1.24

7) I have been involved with the property since July, 2022.

8) I am independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.

9) I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence, and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.

10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.

11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in Montreal, Quebec.

*"Signed and Sealed"*

Ali Jalbout PhD, P. Eng  
Principal Geotechnical Specialist  
ASA Geotech Inc.

## **CERTIFICATE OF QUALIFIED PERSON**

I, Vivienne McLennan, do hereby certify that:

1) I am currently employed as the Manager, Resource Governance by:

Capstone Mining Corp.  
Suite 2100 – 510 West Georgia Street,  
Vancouver, BC, V6B 0M3, Canada

2) This certificate applies to the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with an effective date of January 1, 2023.

3) I am a graduate of Lakehead University of Thunder Bay, Ontario, with a Bachelor of Science - Geology. I have been practicing my profession since 1999, including work as a project geologist on base metals resource diamond drilling programs in Canada, Mexico and Chile from 2003 to 2012 and 2019.

4) I am a Registered Member of Engineers and Geoscientists British Columbia, P.Geo., EGBC# 38708.

5) I visited the Cozamin Mine property most recently January 9 to 20, 2023.

6) I am responsible for Sections 1.1, 1.2, 1.4-1.7, 2-11, 12.1, 23, 24 and 27 and items attributed to me in Sections 1.8, 1.22, 1.23, 25.2 and 26.1 in the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico” with an effective date of January 1, 2023.

7) I have had prior involvement with the property as employee of Capstone Mining Corp., providing guidance on data handling for geology, sampling and analytical QAQC to Cozamin Mine 2010 through 2023, and have been involved in previous NI 43-101 studies, including the reports entitled: “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with an effective date of October 31, 2020, April 30, 2020, October 31, 2018, March 31, 2018 and July 18, 2014

8) I am not independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.

9) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of a Qualified Person as defined in National Instrument 43-101.

10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.

11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in Mission, British Columbia, Canada.

*“Signed and Sealed”*

Vivienne McLennan, P.Geo.  
Capstone Mining Corp.

### **CERTIFICATE OF QUALIFIED PERSON**

I, Josh Moncrieff, do hereby certify that:

- 1) I am currently employed as the Director, Technical Services by:  
Capstone Mining Corp.  
Suite 2100 – 510 West Georgia Street,  
Vancouver, BC, V6B 0M3, Canada
- 2) This certificate applies to the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with an effective date of January 1, 2023.
- 3) I graduated from the University of British Columbia, Vancouver, BC, with a Bachelor of Science in Oceanography and Geophysics in 2002 and obtained an M.Sc. in Geology from the University of Calgary, Calgary, Alberta in 2006. I have been practicing my profession since 2002 and my relevant experience for the purposes of this Technical Report includes over 16 years of technical services support to open pit and underground mines, with a focus on mine water, tailings, heap leach and waste management.
- 4) I am a Registered Member of Engineers and Geoscientists British Columbia, P.Geo., EGBC# 149625.
- 5) I visited the Cozamin Mine property most recently from April 4 to 6, 2023.
- 6) I am responsible for Sections 1.3, 1.16, 18, 26.6-26.8 and items attributed to me in Sections 1.8, 1.22-1.24 and 25.2 in the report titled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico” with an effective date of January 1, 2023.
- 7) I have had prior involvement with the property as employee of Capstone Mining Corp., guiding the technical support function and supporting tailings management at Cozamin Mine since October 2019 and as qualified person for the reports entitled “NI 43-101 Technical Report on the Cozamin Mine, Zacatecas, Mexico”, with effective dates of April 30, 2020 and October 31, 2020.
- 8) I am not independent of Capstone Copper Corp. as defined in Section 1.5 of National Instrument 43-101.
- 9) I have read the definition of “qualified person” set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional association, I meet the requirements of a Qualified Person as defined in National Instrument 43-101.
- 10) I am not aware of any material fact or material change with respect to the subject matter of the technical report that is not reflected in the Technical Report and that, at the effective date of the Technical Report, to the best of my knowledge, information and belief, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 11) I have read the sections for which I am responsible for and the National Instrument 43-101, Standards for Disclosure of Mineral Projects and Form 43-101F1. This technical report has been prepared in compliance with that instrument and form.

Dated this 2<sup>nd</sup> day of May 2023 in Phoenix, Arizona, USA.

*“Signed and Sealed”*

Josh Moncrieff, P.Geo.  
Capstone Mining Corp.