ASX Announcement 15 August 2025

Flagship Cu-Ni-PGE Project Expanded

HIGHLIGHTS

- **Binding agreement with Best Resources LLC for exclusive option to acquire the Maikhan Uul copper-gold project**
  - Located only 8 km from the AZ9's flagship Oval Cu-Ni-PGE discovery
  - Mining license with tenure through to 2045
  - Historical drilling confirms near-surface VMS-style copper-gold mineralisation
  - Potential to expand the existing resource at depths below the current 215m limit of historic drilling
- **New tenement for mineral exploration issued by the Government**
  - Spans 3327.17 hectares south of Yambat tenement
  - Issued for 3 years (renewable to 12 years), with minimal obligations for exploration and environmental commitments
  - New tenement acquisition based on knowledge from potentially district scale discovery at Oval
  - Covers part of a regional magnetic high, interpreted as a potential extension of MS1 and Oval intrusive zones

Asian Battery Metals PLC (ABM or the Company, ASX: AZ9) is pleased to announce it has secured exclusive rights to evaluate the Maikhan Uul copper-gold project, located in southwestern Mongolia, just 8 km from its flagship Oval Cu-Ni-PGE discovery. Securing the exclusive option aligns with ABM's strategy to consolidate and grow a critical minerals footprint in Mongolia, with a strong emphasis on copper as a key enabler of the global energy transition.

Located 300km from the Southern border with China, Maikhan Uul is a volcanogenic massive sulphide (VMS)-style deposit. Historical drilling confirms multiple mineralised zones extending to and open below 215m depth, with a 2015 foreign resource estimate of 5.0Mt @ 0.58% Cu and 0.16g/t Au (non-JORC compliant). The area is subject to a mining licence to 2045 and is well serviced by good infrastructure and high-voltage power.

In parallel, the Company has also expanded its position in the region through the successful acquisition of a new mineral exploration tenement to the south of its Yambat Project spanning 3327.17 hectares via Government tender. The area lies over a prominent regional magnetic anomaly believed to be structurally related to the MS1 and Oval target areas. Initial exploration, including IP geophysics, is planned for later in 2025.

Gan-Ochir Zunduisuren, Managing Director of Asian Battery Metals PLC, commented: *"The Maikhan Uul Cu-Au Project is a natural extension of our regional copper-focused exploration strategy and is strongly synergistic with our existing Oval Cu-Ni discovery within the*

Yambat Project, both geographically and operationally. With shallow VMS-style mineralisation, a long-standing mining license, and close proximity to existing infrastructure, this project gives us exciting near-term optionality as we build a critical mass around our core asset in Mongolia.

"We are also pleased to secure a new tenement covering the south side of the current tenement, an important step to increase our regional footprint. This award by the Government is a credit to our team and our recent successes".

The acquisition of the Maikhan Uul copper-gold project and the new mineral exploration tenement will not constitute a change in the nature and scale of the Company's activities as the acquisitions collectively represent an increase of less than 25% to the Company's total consolidated assets, total equity and its budgeted expenditure for the next 12 months. For this reason, the Company will not seek shareholder approval for the acquisitions.

MAIKHAN UUL CU-AU PROJECT

Project Overview

Located in Sharga soum, Govi-Altai aimag, approximately 40 km northwest of the Govi-Altai aimag center, 50 km northeast of the Sharga soum center, and 12 km southeast of the Ulaan Tug bagh center of Sharga soum, at the northern foot of Maikhan Ulaan Hill.

According to the tectonic zonation of Mongolia, the Maikhan Uul deposit is situated at the southern boundary of the Zavkhan and Nuur zones of the North Mongolian Fold System, and within the Tayan and Baruunkhuurai zones of the Mongolian Altai Fold System. Metallogenically, it is located in the Dund Shar district of the Undur Ulaan Khasagt metallogenic zone. The Maikhan Uul project area lies in the southern part of the Zavkhan-Orkhon continental active margin terrane, between the Sharga and Darvi-Bayan Ulaan deep faults. The mineralisation of the deposit is hosted within chlorite and sericite altered schistose rhyolite porphyry of Lower-Middle Riphean age, as well as carbonatised rhyolite porphyry altered to hydrogoethite.

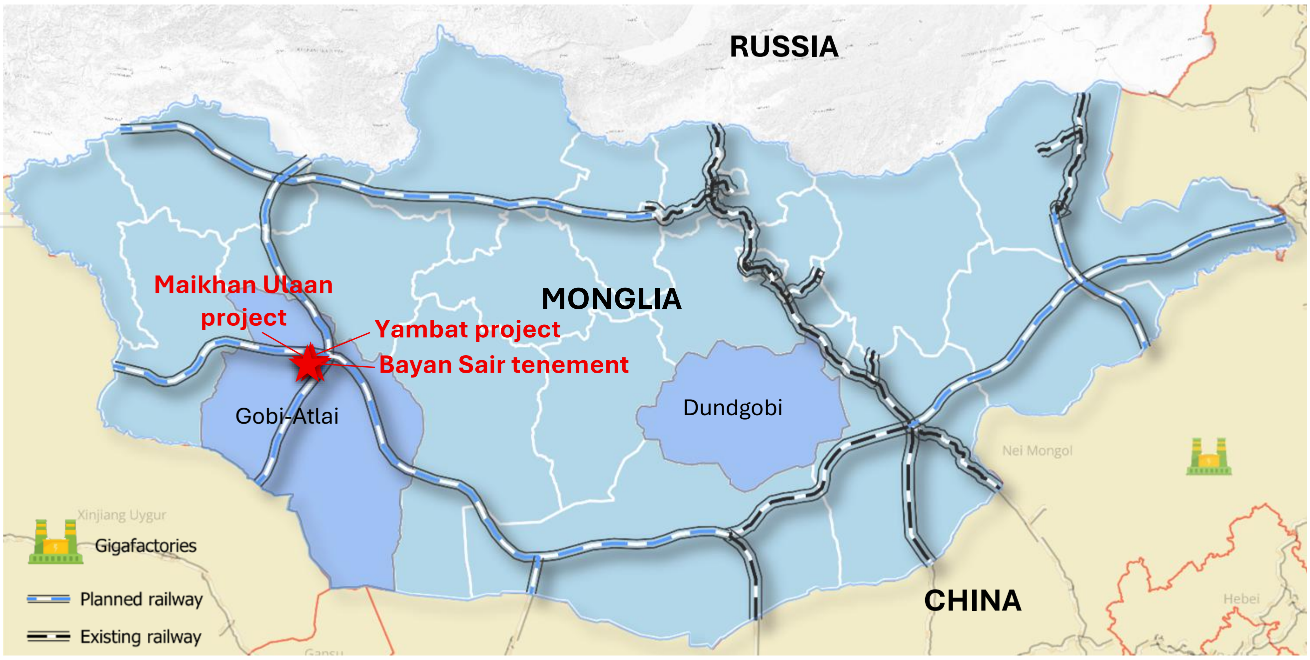

Figure 1. Maikhan Uul, Yambat and Bayan Sair location

Mineralisation occurs close to surface within multiple lenses or zones up to 12 metres thick and is currently drilled to 215 metres below surface and is open below this depth. It is interpreted to be VMS style because of the association with felsic intrusive, the nature of alteration, the Cu/Au association and the presence of massive sulphide in one drill hole intercept.

The project was first explored in 1988-1991, subsequently in 2010 and was then acquired by Best Resources LLC (formerly Samten Moris LLC), who was looking for copper and gold mineralisation. Between 2010 and 2014 Best Resources LLC undertook geological mapping, geochemical sampling, geophysics, trenching, drilling programs, and initial flotation test work.

The results of this work allowed Best Resources LLC to secure a Mining license in 2015, valid for 30 years, to 2045. The license covers a total area of some 79.14 hectares.

2015 Historical and Foreign Resource

Initial reconnaissance work was conducted between 1988 and 1991, followed by further exploration programs implemented between 2010 and 2014. Past activities included geological mapping, geophysical surveys, soil sampling, drilling and preliminary metallurgical testing.

A non-JORC mineral resource was reported in 2015 under the Mongolian Resource and Reserve Classification System:

Classification[1]	Mt	Cu (%)	Cu (t)	Au (g/t)	Au (t)
B	1.34	0.66	8,791	0.13	0.169
C	3.69	0.55	20,446	0.18	0.646
B+C	**5.03**	**0.58**	**29,237**	**0.16**	**0.815**

Type	Mt	Cu (%)	Cu (t)	Au (g/t)	Au (t)
Weathered	0.05	0.70	317	0.15	0.007
Primary	4.99	0.58	28,920	0.16	0.808
Total	**5.03**	**0.58**	**29,237**	**0.16**	**0.815**

Table 1. Resource Estimate of the Maikhan Uul Deposit, 2015 (0.2% Cu cut-off)

Cautionary Statement: The estimate of the 2015 mineral resource is not reported in accordance with the JORC Code 2012. A Competent Person has not done sufficient work to classify the estimate of a Mineral Resource in accordance with the JORC Code 2012.

[1] Resource classification is based on Mongolian Resource and Reserve Classification System and Resource B is considered to be close to Measured, and Resource C is considered to be close to Inferred or Indicated Resources. Reserves and Resources are not distinguished in the Mongolian system. A resource with a completed Pre-Feasibility or Feasibility study could be a reserve. Source" Alignment of Resource and Reserve Classification System Russian Federal and CRIRSCO" by Dr Stephen Henly & Nial Young October 2008. The Mongolian system was adapted from the Russian system and is very similar (Mongolian Standardisation is under discussion but is considered to be heading in the direction of CRISCO). Despite this opinion on resource classification equivalence, eventual classification under JORC will depend on review of data collection, spacing, quality and estimation methodology, which have yet to be fully completed. The above equivalence may not eventuate following detailed evaluation and according to the opinion of the Competent Person.

It is uncertain that following evaluation and/or further exploration work that the currently reported foreign estimates will be able to be reported as mineral resources in accordance with the JORC Code 2012. The 2015 mineral resource was prepared by Best Resources LLC in December 2015 and approved by the Mineral Resource and Petroleum Authority of Mongolia (MRPAM). ABM has not reported the estimate in accordance with the JORC Code 2012.

The resource was reported under the Mongolian Resource and Reserve Classification System and therefore the reporting of the 2015 mineral resource does not conform to the requirements in the JORC Code 2012 and a Competent Person has not done sufficient work to classify the estimates of mineral resources in accordance with the JORC Code 2012.

There are no ore reserve numbers being reported.

ABM is not in possession of any new information or data relating to the 2015 mineral resource that materially impacts on the reliability of the estimates or the Best Resources LLC's ability to verify the 2015 mineral resource as mineral resources in accordance with Appendix 5A (JORC Code).

Work Programs and Key Assumptions of Foreign Resource

The Mongolian resource is supported by the results of 15 diamond drill holes out of a total 18 drilled, 14 trenches, geologic mapping, geochemical sampling, topographic survey, and induced polarisation geophysical survey (DDIP and PDIP). Samples have been subjected to flotation test work which indicated recovery of 94.4% at 25.8% Cu grade.

The Mongolian resource was estimated using the ordinary kriging estimation method and checked against an inverse distance estimate.

Reliability of Foreign Resource

The geologic mapping, geochemical sampling, geophysical surveying and drilling give a relatively good understanding of the style, geometry and continuity of mineralisation. However, ABM's investigation of the foreign resource is at an early stage and deeper investigation of the reliability of the supporting data and estimation method is needed prior to any decisions on classification under the JORC code. Issues requiring more detailed review, identified to date include but are not necessarily limited to; the nature of drill down hole survey, density estimation and QA/QC verification of the assays. The details of the ordinary kriging resource estimation method require detailed review to confirm their appropriateness to the mineralisation being estimated.

Planned due diligence program

Over the next 6 months ABM will undertake due diligence work in Mongolia to investigate the resource viability for the Maikhan Uul Copper-Gold Project to determine whether it can be classified in the JORC 2012 system or updated JORC Code.

This due diligence program will include the following steps:

i. Deployment of SAMSON EM to identify potential conductors prior to confirmation drilling

ii. Undertake approximately 200-300 metres of confirmation drilling in the higher-grade resource areas. Drilling is currently scheduled to commence in Q3 2025
iii. CP evaluation of the data supporting the Resource, estimation method and classification into the JORC system or otherwise, formulation of further work programs to allow future classification as a JORC Resource
iv. Independent legal review

This process provides ABM with a low-cost, staged approach to assess and advance a strategically located copper-gold opportunity that is highly synergistic with the existing broader Oval asset.

Key Terms of the Binding Exclusive Right Agreement

ABM (or nominee) has been granted an option to acquire the licence covering the Maikhan Uul Copper-Gold deposit by transfer of the licence or 100% of the issued shares of Best Resources LLC, subject to satisfactory legal, and technical due diligence.

ABM has agreed to pay:

- An option fee – USD 50,000 paid on the signing of the agreement to undertake due diligence over 6 months period; and
- Subject to satisfactory legal, and technical due diligence, acquisition consideration – USD 890,000 payable within 10 business days of from the transfer of the licence or the shares to ABM.

NEW EXPLORATION TENEMENT – SOUTHERN EXTENSION

The Company's subsidiary, Innova Mineral LLC, has just been granted a new mineral exploration licence named Bayan Sair, located in Gobi-Altai province, Yesonbulag soum.

It covers 3327.17 hectares to the south side of the Yambat Project tenement, which is under active exploration.

The tenement has limited bedrock exposure to the surface and is mostly covered by Quaternary sediments within river drainages (Figure 3). There is no known mineralisation or mineral occurrence on the tenement.

However, regional airborne magnetic survey indicates a large magnetic high signature in the eastern part of the tenement, which is around 4km from the MS1 gabbroic intrusion (Figure 2). Drill results at the MS1 area intercepted a mineralised mafic intrusion on a strong magnetic anomaly under sediment cover[2]. The closeness to the Oval Project and the presence of the magnetic anomaly makes this tenement of great strategic interest to the company's exploration strategy.

The next stage of work on this property is to complete an induced polarisation (IP) survey to test for potential mineralised areas.

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[2] *Previously announced in ASX announcement dated 16 June 2025 "Regional Drilling Expanding Mineralised Intrusion Footprint".*

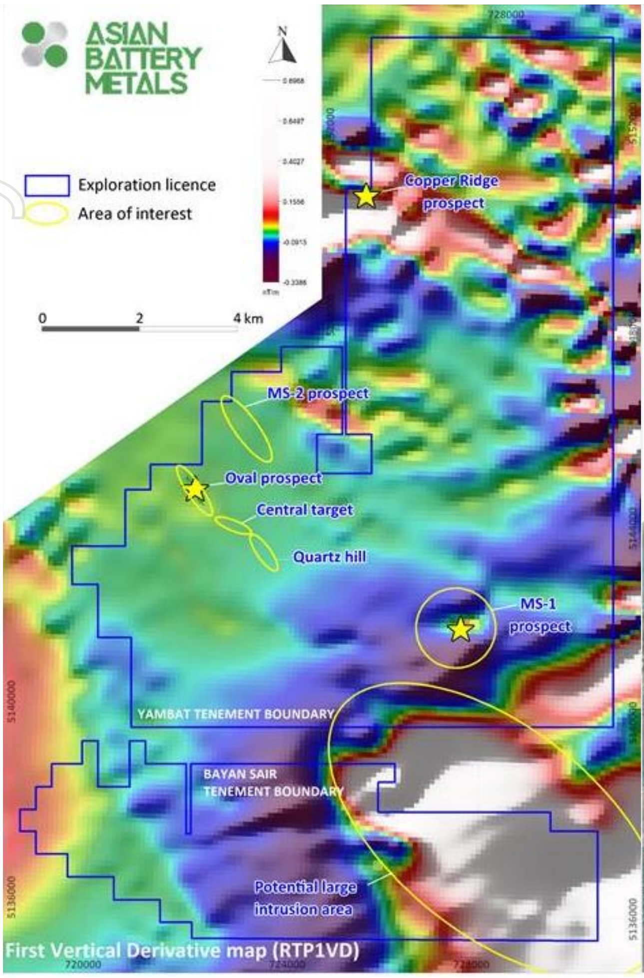

Figure 2. Bayan Sair and Yambat tenement on Reduction to the Pole (RTP) map

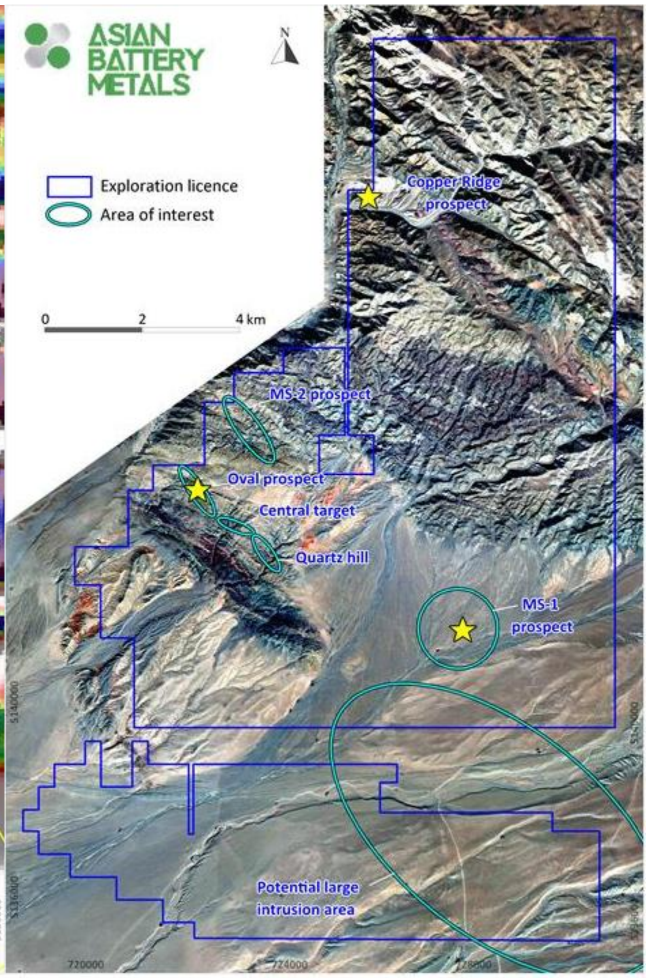

Figure 3. Bayan Sair and Yambat tenement on satellite map

About Asian Battery Metals PLC

Asian Battery Metals PLC is a mineral exploration and development company focused on advancing the 100% owned Yambat (Oval Cu-Ni-PGE, Copper Ridge Cu-Au), Bayan Sair, Khukh Tag Graphite and Tsagaan Ders Lithium projects in Mongolia.

For more information and to register for investor updates, please visit www.asianbatterymetals.com.

Approved for release by the Managing Director of Asian Battery Metals PLC.

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COMPETENT PERSON STATEMENT

The information in this announcement that relates to Exploration results, Foreign Exploration results and non-JORC Foreign historical estimation of Mineral Resources are based on and fairly and accurately represent the information and supporting documentation prepared by and under the supervision of Robert Dennis. Mr Dennis is a consultant contracted to ABM and a Member of the Australian Institute of Geoscientists. Mr Dennis has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Dennis consents to the inclusion in the report of the matters based on the exploration results and Foreign Exploration results and non-JORC Foreign historical estimation of Mineral Resources in the form and context in which they appear. The Competent Person is not aware of any new information or data that materially affects the information contained in the referenced sources or the data contained in this announcement.

FORWARD-LOOKING STATEMENTS

This document may include forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of the Company. Actual values, results or events may be materially different to those expressed or implied in this document. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. No representation is made that, in relation to the tenements the subject of this announcement, the Company has now or will at any time in the future develop resources or reserves within the meaning of the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves.

Any forward-looking statements in this presentation speak only at the date of issue of this document. Subject to any continuing obligations under applicable law, the Company does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions, or circumstances on which any such forward looking statement is based.

Estimates and projections which by their nature involve substantial risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. When used in this announcement, the words “anticipate”, “expect”, “estimate”, “forecast”, “will”, “planned”, and similar expressions are intended to identify forward-looking statements or information. Such statements include without limitation: statements regarding timing and amounts of capital expenditures and other assumptions; estimates of future reserves, resources, mineral production, optimisation efforts and sales; estimates of mine life; estimates of future internal rates of return, mining costs, cash costs, mine site costs and other expenses; estimates of future capital expenditures and other cash needs, and expectations as to the funding thereof; statements and information as to the projected development of certain ore deposits, including estimates of exploration, development and production and other capital costs, and estimates of the timing of such exploration, development and production or decisions with respect to such exploration, development and production; estimates of reserves and resources, and statements and information regarding anticipated future exploration; the anticipated timing of events with respect to the Company’s projects and statements; strategies and the industry in which the Company operates and information regarding the sufficiency of the Company’s cash resources. Such statements and information reflect the Company’s views, intentions or current expectations and are subject to certain risks, uncertainties and assumptions, and undue reliance should not be placed on such statements and information. Many factors, known and unknown could cause the actual results, outcomes and developments to be materially different, and to differ adversely, from those expressed or implied by such forward-looking statements and information and past performance is no guarantee of future performance. Such risks and factors include, but are not limited to: the volatility of commodity prices; uncertainty of mineral reserves, mineral resources, mineral grades and mineral recovery estimates; uncertainty of future production, capital expenditures, and other costs; currency fluctuations; financing of additional capital requirements; cost of exploration and development programs; mining risks; community protests; risks associated with foreign operations; governmental and environmental regulation; and the volatility of the Company's stock price. There can be no assurance that forward-looking statements will prove to be correct.

Appendix 1 – Foreign Estimate

Details of Non – JORC Foreign Estimates in relation to ASX LR Chapter 5

LR Clause / Heading	Requirement	Maikhan Uul project Disclosure
Cautionary Statement (proximate; equal prominence)	*State that the foreign estimate is not JORC (2012); CP has not done sufficient work; uncertain if it can be reported as JORC later.*	The foreign estimate in this market release is not reported in accordance with the JORC Code (2012). A Competent Person (CP) has not done sufficient work to classify the foreign estimate as a Mineral Resource in accordance with the JORC Code (2012). It is uncertain that, following evaluation and/or further exploration work, the foreign estimate will be able to be reported as a Mineral Resource in accordance with the JORC Code (2012).
5.10 — JORC Code	*If reporting foreign estimates, entity isn't required to comply with LR 5.6 provided 5.12–5.14 disclosed.*	The Company is not required to comply with LR 5.6 (JORCC Code) as relevant disclosures are stated in this announcement and table below. The Company complies with LR 5.12, 5.13 and 5.14 requirement for statement of non-JORC foreign estimates as provided in this Schedule and announcement.
5.11 — Economic analysis	*Do not include foreign estimates in economic analysis.*	The Company is not applying any economic analysis or commentary to the foreign estimate in this announcement.
5.12.1 — Source & date	*Identify source(s) and date(s) of the foreign estimate.*	Primary Source (Mongolian original): "*RESOURCE REASSESSMENT REPORT OF SUPPLEMENTAL EXPLORATION PROGRAM (2012–2014) FOR THE "MAIKHAN UUL" COPPER-GOLD ORE DEPOSIT, LOCATED IN THE SHARGA SUM OF GOBI-ALTAI PROVINCE" (Resource as at 1 October 2015)*. Authors: B. Batzorig, B. Enkhbayar, P. Munkhbilag, N. Burenzaya, B. Anar-Od. Prepared for Samtan Mores LLC, Ulaanbaatar, Mongolia, 2015. Mining Licence: *MV-019681*. Translated key excerpts are provided in Appendix 4. Historic exploration documents (1988–1991; 2010–2014); not relied upon for tonnage/grade; CP has not relied on these.
5.12.2 — Categories other than JORC	*Explain differences if non-JORC categories used.*	The foreign estimate is Reported under the Mongolian Resource & Reserve Classification System (alphabetical B, C). These are not JORC categories and not equivalent. The Mongolian system was modelled on the Russian system and is broadly comparable. Henley (2004) and others have evaluated the Russian alphabetical classification system with respect to the compliant codes in Canada and Australia and concluded that A+B is comparable to "measured", C1 to "indicated" and C2 to "inferred" in internationally acceptable codes for reporting resources. However, any comparisons to codes in Canada and Australia are only an approximation, and cannot be considered as equivalents.
5.12.3 — Relevance & materiality	*Explain why material to the entity.*	The foreign estimate for the Maikhan Uul Cu–Au deposit is relevant and material to the Company's ongoing assessment of the project and planning of future work programs to potentially allow a future JORC Resource possibly using some of the historic data if it can be confirmed of suitable quality.

5.12.4 — Reliability (Table 1 considerations)	*Comment on reliability incl. relevant JORC Table 1 criteria.*	The Company is not treating the foreign estimate as a JORC Mineral Resource or Ore Reserve and considers it a guide pending verification. Nothing has come to the attention of the Company or CP that causes them to question the existence and general tenor of mineralisation; however, neither has he independently validated the estimate; it is not being reported/adopted/endorsed as a JORC Mineral Resource.
5.12.5 — Work programs, assumptions, mining/processing	*Summarise programs and key assumptions used.*	Based on total of 15 exploration diamond drill holes out of a total of 18 drilled and 14 trenches; geological mapping, soil geochemistry, topographic survey, and IP (DDIP/PDIP) (2010–2014), following initial work (1988–1991). Estimation method: ordinary kriging. Preliminary flotation test work completed on selected samples (summary in Appendix C – Metallurgy (Summary)). No JORC-compliant modifying factors asserted; no Ore Reserves reported.
5.12.6 — More recent estimates/data	*Disclose any later relevant estimates/data.*	To the extent known to the Company, no subsequent public resource estimate superseding the 2015 Mongolian Resource exists.
5.12.7 — Work to verify to JORC	*Outline evaluation/exploration required to verify to JORC.*	Data acquisition & validation (original assays, QA/QC, density, surveys, drill/trench records); SAMSON EM screening; ~200–300 m confirmatory core drilling in higher-grade areas (target Q3 2025, subject to approvals); CP review of estimation methodology/classification; additional sampling/metallurgy as required. Currently uncertain if it can be reported as a JORC Mineral Resource thereafter.
5.12.8 — Timing & funding	*Provide timing and how work will be funded.*	Initial verification and confirmatory activities planned over the next ~6 months. Intended to be funded from existing cash reserves.
5.12.9 — Cautionary statement	*Include cautionary statement with equal prominence.*	The foreign estimate in this market release is not reported in accordance with the JORC Code (2012). A Competent Person (CP) has not done sufficient work to classify the foreign estimate as a Mineral Resource in accordance with the JORC Code (2012). It is uncertain that, following evaluation and/or further exploration work, the foreign estimate will be able to be reported as a Mineral Resource in accordance with the JORC Code (2012).
5.12.10 — CP statement	*Named CP statement that LR 5.12.2–5.12.7 is accurate representation.*	The information under LR 5.12.2–5.12.7 is an accurate representation of available data and studies for Maikhan Uul and is based on information compiled under the supervision of Mr Robert Dennis, Member, AIG, consultant to Asian Battery Metals PLC. Mr Dennis has sufficient relevant experience to qualify as a Competent Person under JORC (2012) and consents to its inclusion in the form and context presented.

Appendix 2 – Foreign Exploration Results (Guidance Note 31 / FAQ Q36)

Section	Maikhan Uul project Disclosure
Source & Date	<u>*Primary Source (Mongolian original)*</u>**:** *"RESOURCE REASSESSMENT REPORT OF SUPPLEMENTAL EXPLORATION PROGRAM (2012–2014) FOR THE "MAIKHAN UUL" COPPER-GOLD ORE DEPOSIT, LOCATED IN THE SHARGA SUM OF GOBI-ALTAI PROVINCE" (Resource as at 1 October 2015).* Authors: *B. Batzorig, B. Enkhbayar, P. Munkhbilag, N. Burenzaya, B. Anar-Od*. Prepared for *Samtan Mores LLC*, Ulaanbaatar, Mongolia, 2015. <u>*Mining Licence:*</u> MV-019681. Translated key excerpts are provided in Appendix 4.
JORC Code 2012	The Foreign Exploration Results are not reported in accordance with the JORC Code (2012). A CP has not done sufficient work to disclose them in accordance with the JORC Code (2012).
Reliability of Results	Results are relevant and material to ABM's assessment. Nothing has come to the attention of the Company or CP to question the accuracy/reliability; however, neither have they

	independently validated the results; thus they are not reported/adopted/endorsed under JORC. Confidence may be reduced when reported under JORC (2012).
Exploration History & Geology	Reconnaissance 1988–1991; substantive programs 2010–2014. Deposit style: VMS-style Cu–Au associated with felsic host rocks; mineralisation in multiple near-surface lenses/zones (locally up to ~12 m thick), drilled to ~200 m depth. Hosts include schistose rhyolite porphyry with chlorite–sericite alteration and carbonatised rhyolite porphyry locally altered to hydrogoethite.
Work Completed	Geological mapping, soil geochemistry, topographic survey, IP geophysics (DDIP/PDIP), trenching, drilling, metallurgy, Mongolian Resource estimation.
Drilling & Trenching	15 diamond drill holes 14 trenches supported the Foreign Resource Estimate.
Sampling / QA/QC	Methods as reported in the Primary Source; independent verification & QA/QC by ABM pending.
Metallurgy	Preliminary flotation test work on selected samples; translated summary in Appendix 4.
Data Aggregation / Orientation	Non-JORC presentation; aggregation and orientation effects require verification under JORC Table 1.
Recent Data	To the extent known to the Company, **no** subsequent public exploration results supersede or materially modify the Primary Source.
Future Evaluation & Exploration Work	Data acquisition & validation (assays, QA/QC, density, surveys, drill/trench records); collar identification/resurvey, check sampling; SAMSON EM screening; ~200–300 m confirmatory core drilling in higher-grade areas (target Q3 2025, subject to approvals); CP review vs JORC Table 1.
Funding	Intended to be funded from existing cash reserves.
Cautionary Statement	The Foreign Exploration Results are not reported in accordance with the JORC Code (2012). A CP has not done sufficient work to disclose them in accordance with JORC (2012). Following evaluation and/or further exploration, the confidence in prior reported results may be reduced under JORC (2012). Nothing has come to the attention of the Company that causes it to question the accuracy or reliability of the results, but they have not been independently validated and therefore are not to be regarded as reported/adopted/endorsed by the Company.
Competent Person Statement	The information in this announcement that relates to Exploration results, Foreign Exploration results and non-JORC Foreign historical estimation of Mineral Resources are based on and fairly and accurately represent the information and supporting documentation prepared by and under the supervision of Robert Dennis. Mr Dennis is a consultant contracted to ABM and a Member of the Australian Institute of Geoscientists. Mr Dennis has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves. Mr Dennis consents to the inclusion in the report of the matters based on the exploration results and Foreign Exploration results and non-JORC Foreign historical estimation of Mineral Resources in the form and context in which they appear. The Competent Person is not aware of any new information or data that materially affects the information contained in the referenced sources or the data contained in this announcement.

Appendix 3 - JORC Code (2012) – Disclosure for the New Tenement – Bayan Sair Exploration License

Section 1. Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
		Bayan-Sair tenement
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	Not Applicable. No Sampling reported by ABM on Bayan Sair in this announcement

	• *Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Not Applicable. No drilling reported
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Not Applicable.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	Not Applicable.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in-situ material collected,*	Not Applicable.

	including for instance results for field duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	Not Applicable.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	Not Applicable.
Location of data points	• *Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	Not Applicable. No collars reported. Planned work is geophysics (IP)
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	Not Applicable.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	Not Applicable.
Sample security	• *The measures taken to ensure sample security.*	Not Applicable.

Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Not Applicable.

Section 2. Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
		Bayan Sair tenement
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	By the Head of the Cadastre Department of the Mineral Resources and Petroleum Authority of Mongolia (MRPAM) decision No. 453 dated August 11, 2025, a mineral exploration license (3327.17-hectare area named Bayan Sair) was granted to Innova Mineral LLC. The tenement is located a in Yesunbulag soum, Govi-Altai aimag, Mongolia. No known impediments
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	Regional aeromagnetic data were acquired and published by Mongolia's Mineral Resources and Petroleum Authority (MRAM) as part of a government open-file program (public dataset). ABM did not acquire these data. The public MRAM dataset was reprocessed by Southern Geoscience Consultants (SGC) on behalf of ABM to assist regional target generation within and around the area.
Geology	• *Deposit type, geological setting and style of mineralisation.*	Regionally adjacent to Oval/MS1 mafic-ultramafic intrusions. Covered with Quaternary sediments; conceptual targets include mafic intrusion-related and/or conductive sulphide zones.
Drillhole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* – *easting and northing of the drillhole collar* – *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* – *dip and azimuth of the hole* – *down hole length and interception depth - hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the*	Not Applicable. No drilling or trenches on Bayan Sair are reported.

	report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Not Applicable
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	Not Applicable
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.*	Figure 2. Bayan Sair tenement over RTP aeromagnetic image. Background magnetics sourced from MRAM (public dataset); reprocessed by Southern Geoscience Consultants (SGC) for ABM (RTP and standard filters). Provided for regional context only; no Exploration Results are reported.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	No Exploration Results are reported
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Dataset: MRAM regional aeromagnetics (public). Processing (SGC): Reduced to Pole (RTP), projected to WGS84 UTM Zone. Used for qualitative, regional interpretation and target generation only. No quantitative interpretation is reported. Data are non-ABM legacy/public data of variable vintage and quality; not suitable for resource estimation. Result in this announcement: An RTP background image highlights a prominent magnetic high in the eastern license area (around 4km from MS1) indicative of potential mafic/intrusive sources; no

		Exploration Results are reported for Bayan Sair in this announcement
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Planned IP survey test for potential mineralized/conductive zones; target generation to guide any subsequent drilling.

Appendix 4 - Resource Reassessment Report of Supplemental Exploration Program (2012–2014) For The "Maikhan Uul" Copper-Gold Ore Deposit, Located in The Sharga Sum of Gobi-Altai Province

(continues)

"SAMTAN MORES" LLC

Authors: B.Batzorig
B.Enkhbayar
P.Munkhbileg
N.Burenzaya
B.Anar-Od

RESOURCE REASSESSMENT REPORT OF SUPPLEMENTAL EXPLORATION PROGRAM (2012–2014) FOR THE "MAIKHAN UUL" COPPER-GOLD ORE DEPOSIT, LOCATED IN THE SHARGA SUM OF GOBI-ALTAI PROVINCE

(Deposit resource as of October 01, 2015)

Exploitation License No. MV-019681

Report VOLUME 1

ДАБЛЬ ЧЕК ХХК ОРЧУУЛГА DOUBLE CHECK LLC TRANSLATION УЛААНБААТАР ХОТ ТТГ5536 ☏ 5436842

Ulaanbaatar
2015

1 FOREWORD

In recent years, Mongolia's geology and mining sectors have attracted investments from foreign and domestic private and state-owned enterprises focused on exploring specific mineral areas and developing identified resources into commercial production.

Exploitation License No. XV-019681 for the "Ulaan Uul" area, located within Sharga sum, Gobi-Altai province, was originally granted to Jargalsaikhan Shatar on September 4, 2003, and subsequently transferred to Monmineral LLC on August 20, 2004, by Decision No. 2004-1088 of the Head of the Geology and Mining Cadaster Department.

On June 11, 2010, the license was finally transferred to Samtan Mores LLC. According to Order No. 127 issued by the Head of the Mineral Resources Department on April 1, 2010, the coordinates of the mineral license area were officially converted to the WGS-84 coordinate system.

By Order No. 880 of the Head of the Geology and Mining Cadaster Department dated October 19, 2015, Samtan Mores LLC (certificate ID 9011562060) was granted with Mineral Exploitation License No. MV-019681.

The copper-gold occurrence at Maikhan Uul was first discovered between 1988 and 1991 by geologists of the 1st Tonkhil Expedition—D. Togtoh, A. Baatarkhuyag, S. Bayardalai, and Ts. Usna-ekh—during geological group mapping at a scale of 1:200,000. Based on their findings, it was recommended that the copper-gold occurrence at Maikhan Uul be further investigated and studied.

According to the tectonic zoning of Mongolia, the Maikhan Uul deposit is located at the southern boundary of the Zavkhan and Nuur areas within the North Mongolian Fold System. Metallogenically, it is situated in the Undur Ulaan Khasagt ore zone and the Dund Shar ore district, which are part of the Tayan and Barunukhur regions of the Mongolian Altai Fold System. The ore body is spatially bounded by the Sharga deep fault, which forms the boundary of the Zavkhan Nuur area.

The deposit is associated with a secondary quartz ore body that intrudes schistose acidic igneous rocks of the Lower Riphean-aged Khartolgoi Formation. The secondary quartz ore hosts copper-gold mineralization, characterized by white to yellow iron oxides, pyrite, and sulfide minerals.

Samtan Mores LLC conducted exploration fieldwork from 2010 to 2012 using its funds, following the recommendations of previous researchers, and carried out the work in stages, including exploration traverses, geochemical sampling, geological mapping, geophysical (electrical) surveys, trenching, core drilling, laboratory analysis, and post-exploration evaluation.

During the 2010–2012 exploration program, the exploration traverses, initial geochemical sampling, geological mapping, and geophysical (electrical) surveys were conducted by Erdeniin Erel LLC under a subcontracting agreement. Core drilling was carried out by Twin Idol LLC, topographic mapping by Land Major LLC, and laboratory analysis by SGS LLC.

The scope of the aforementioned works and the annual breakdown of exploration costs are presented in Table 1-2.

The analysis of field exploration and annual reports from the 2010–2012 program was prepared by geologists B. Budsuren and B. Galbadrakh of Samtan Mores LLC. Based on the results of this work, geologists U. Enkhtaivan and Z. Ariunbat compiled a resource report estimating the deposit's resources in the Category C (Probable) classification. The resources were registered in the Unified State Resource Register as of July 1, 2012, and a pre-exploitation agreement was signed with the Mineral Resources and Petroleum Authority on September 3, 2012.

The deposit resources were delineated by surface channel sampling at 100–120 meter intervals across the copper-gold ore body and by 15 drill holes spaced 155 to 398.7 meters along the dip. The resources were classified as oxidized and primary ore, with resources estimated in Category C (Probable), and the inferred wealth is measured by the P (Inferred) grade.

As a result of the above work, the deposit was estimated to contain Category C resources of 2,469,115.4 tons of oxidized ore with an average grade of 1.02% Cu and 0.215 g/t Au, containing approximately 25,188.4 tons of copper and 531.8 kg of gold; and 5,973,188.3 tons of primary ore with an average grade of 0.31% Cu and 0.169 g/t Au, containing approximately 18,522.8 tons of copper and 1,007.6 kg of gold. The deposit hosts a total of 8,442,303.6 tons of Category C ore grading 0.518% Cu and 0.1825 g/t Au, containing approximately 43,711.2 tons of copper and 1,539.4 kg of gold. Additionally, the Inferred P grade resource was estimated at 973,150.5 tons of ore with an average grade of 0.953% Cu and 0.242 g/t Au, containing approximately 9,269.6 tons of copper and 235.2 kg of gold.

Between 2012 and 2014, Twin Idol LLC conducted supplementary exploration drilling, SGS LLC performed laboratory analyses, and Topazia LLC carried out topographic surveys of boreholes and channels; Table 1-3 details the scope of work and cost breakdown.

The 2012–2014 supplementary exploration work was conducted in accordance with the "Interim Regulations on the Classification of Mineral Resources" and the "Guidelines for the Application of Resource Classification to Mixed Metal Ore Deposits," both approved by the Mineral Resources and Petroleum Authority of Mongolia. The 2010–2012 drilling and excavation campaigns further refined the drilling and excavation grid, and based on their results, deposit resources were estimated in the Proven B, Probable C, and Inferred P categories.

The Maikhan Uul copper-gold deposit features a layered ore body with minimal thickness variation and relatively uniform grade distribution. The coefficient of variation of core and channel sample assays is 0.9 (90%), indicating that the deposit can generally be classified as Group 3 by shape and size; however, the low variability in thickness and grade stability also exhibits characteristics typical of Group 2 deposits.

Therefore, an exploration grid density of 50 m between lines and 70–100 m between excavations was selected for the B-class blocks.

The copper-gold ore body was delineated by 14 surface drill channels spaced 50 meters apart and 15 drill holes positioned 155.6 to 398.7 meters along the dip. Based on the results, the resources were estimated and classified as Proven (B grade), Probable (C grade), and Inferred (P grade), with oxidized and primary ore types evaluated separately.

Supplementary exploration work conducted from 2012 to 2014 confirmed that the Maikhan Uul copper-gold deposit contains an Proven (B grade) resource of 30,131.03 tons of oxidized ore with an average grade of 0.791% Cu and 0.164 g/t Au, containing approximately 238.27 tons of copper and 0.005 tons of gold, and 1,306,278.6 tons of primary ore with an average grade of 0.655% Cu and 0.126 g/t Au, containing 8,552.84 tons of copper and 0.164 tons of gold;
the Probable (C grade) resource includes 5,313.84 tons of oxidized ore grading 0.514% Cu and 0.126 g/t Au, containing 78.73 tons of copper and 0.002 tons of gold, and 3,678,986.5 tons of primary ore with an average grade of 0.554% Cu and 0.175 g/t Au, containing 20,367.32 tons of copper and 0.644 tons of gold.

The total ore resources of the Maikhan Uul deposit include 1,336,409.66 tons of Proven (B grade) ore with an average grade of 0.658% Cu and 0.127 g/t Au, containing 8,791.11 tons of copper and 0.169 tons of gold;
and 3,694,300.35 tons of Probable (C grade) ore with an average grade of 0.553% Cu and 0.175 g/t Au, containing 20,446.06 tons of copper and 0.646 tons of gold. In total, the combined B + C grade resources amount to 5,030,710.01 tons of ore with an average grade of 0.581% Cu and 0.162 g/t Au, containing 29,237.17 tons of copper and 0.815 tons of gold.

The Inferred (P grade) resource comprises 2,883,186.95 tons of ore with an average grade of 0.581% Cu and 0.162 g/t Au, containing approximately 16,751.32 tons of copper and 0.467 tons of gold.

The reduction in the inferred resource reported in 2015 compared to the 2012 estimate is attributed to the restriction of hanging wall blocks to 25 meters, increased drilling density, and more precise modeling of faults and structural features. The changes in resource estimation are detailed in Table 1-1.

Table 1-1. C Grade Resources and Ratio to Total B+C Grade Resources

Resource classification	**Cut-off grade Cu%**	**Volume, m^3**	**Ore, t**	**Metal Cu, t**	**Metal Cu, t**
Total C Grade	0.1	2,923,898.10	8,442,303.60	43,711,200	1,539,4
Total (B+C)	**0,2**	**1,668,161.87**	**5,030,710.01**	**29,237,165**	**0,815**
Change in Resources		***1,255,736.23***	***3,411,593.59***	***14,474,035***	***724,4***

Figure 1-1. Photo of the Licensed Exploration Site

Based on the results of the supplementary exploration work, geologists B. Batzorig, B. Enkhbayar, N. Burenzaya, and P. Monkhbileg estimated the deposit's resources classified as Proven (B Grade), Probable (C Grade), and Inferred (P Grade) categories, and compiled a comprehensive exploration report.

The resource estimation report for the resource exploration comprises 11 main chapters: Foreword; General Information on the Exploration Area; Geological Structure; Exploration Methods; Scope of Work; Research Area Assessment; Ore Metallurgical Characteristics; Hydrogeological Study of the Deposit; Mining and Technical Conditions; Deposit Resource Estimates; Deposit Exploitation Readiness and Feasibility Study; Environmental and Geoecological Assessment; and Conclusions, along with numerous annexes and detailed drawings.

During the exploration activities, all applicable Mongolian regulations concerning subsoil management were strictly adhered to, with continuous collaboration maintained with local authorities and community stakeholders.

A total of 769,187,218 MNT was spent on supplementary exploration activities during 2012–2014; a detailed breakdown of expenses is provided in Table 1-1.

Table 1-2. Breakdown of Exploration Work Volume and Costs (2010–2011)

№	Type of work	Unit of Measurement	2010			2011		
			Unit cost	Quantity of Work	Cost, '000. MNT	Unit cost	Quantity of Work	Cost, '000.MNT
1	**Preparation**	%						
	Planning		200.000	15	3,000,000	55,644	10	556,436
	Field work preparations and							
2	**Field mapping**	hectares	100.000	237,7	23,770,000			
3	**Exploration traverses**	linear-km				13.984	50	699,209
4	**Field sampling**							
	borehole	sampling						
	Geochemical	samplng	1100	8182	90,000,000			
5	**Geophysical study**							
	-Electrical	line-km	400.000	4	70,000,000	1,053,210	103.6	5,055,408
	-radiometer	line-km						
	-Magnetic	linear meters						
6	**Mountain works**							
	-Excavation of channels	cubic.m						
	-Prospecting shafts	linear meters						
7	**Drilling:**							
	-Core drilling	linear meters	179.884	2.409	433,342,520	109.506	160	17,520,960
	-Hydrogeological percussion	linear meters						
	Topographic and geodetic work		126.582	79	10,000,000			
8	**Sampling:**							
	Point sampling	units	17.000	17	4,680,000			
	-channel	units						
	Core samples		1.000	731	731.000	5,000	4	20,000
	Thin section							
	Thin slices							
	NITON analysis		4,166	11,994	49,970,000			
9	**Laboratory works**		20,595	2,350	24,200,000	14,811	8	118,491
	Environmental Rehabilitation				100,000			170,000

№	Type of work	Unit of Measurement	2010			2011		
			Unit cost	Quantity of Work	Cost, '000. MNT	Unit cost	Quantity of Work	Cost, '000.MNT
9	**Post-exploration works**				3,517,400	122,416	10	1,224,160
	Archeology and paleontology							
	Total expense (MNT)				**713,310,920**			**24,120,524**

Table 1-3. Breakdown of Exploration Work Volume and Costs (2012–2011)

№	Type of work	Unit of Measurement	2012			2013			2014		
			Unit cost	Quantity of Work	Cost, '000. MNT	Unit cost	Quantity of	Cost, '000.MNT	Unit cost	Quantity of	Cost, '000. MNT
1	**Preparation**	%									
	Planning		71,463	15	1,07,651.8	150,000	51	7,706,204.4			
	Field work preparations and										
2	**Field mapping**	hectares									
3	**Exploration**	line-km	699,209	5	3,496,044.7						
4	**Field sampling**										
	Borehole	sampling									
	Geochemical	sampling									
5	**Geophysical study**										
	-Electrical	line-km									
	-radiometer	line-km									
	-Magnetic	linear									
6	**Mountain works**										
	-Excavation of	cubic.m									
	-Prospecting shafts	linear									

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№	Type of work	Unit of Measurement	2012			2013			2014		
			Unit cost	Quantity of	Cost, '000. MNT	Unit cost	Quantity of Work	Cost, '000.M	Unit cost	Quantity of Work	Cost, '000. MNT
7	**Drilling:**										
	-Core drilling	linear	180.345	709	194,591,809.7	194,371	1147,8	223,100,100.0			
	-Hydrogeologi	linear meters									
	Topographic and geodetic										
8	**Sampling:**										
	Point sampling	units									
	-channel	units	24,138	145	3,500,000	5000	211	1,055,000			
	Core samples		21,365	227	4,850,000	5000	145	725,000			
	Thin section										
	Thin slices										
9	**Laboratory works**		40,700	372	70,951,541.00	29,570	211	6,472,731.82	29.865	10	298,650
	Environmental										
9	**Post-exploration**				**214,269,361.00**	314,584	63,6	20,007,532.2			1,000,000
	Archeology and				14,247,200						
	Total expense				**507,105,537**			**258,833,031**			1,298,650.0

Approved by: ....Director of "Samtan Mores" LLC B.Sodchimeg Financier: E. Enkhzaya Geologist N.Burenzaya

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2 GENERAL INFORMATION ON THE EXPLORATION AREA

2.1 Summary of Physical-Geographical Conditions and Socioeconomic Development

The Maikhan Uul deposit is situated in Sharga sum, Gobi-Altai province, approximately 40 km northwest of the provincial center, 50 km northeast of Sharga sum center, and 12 km southeast of Ulaantug Bag center, located at the northern foothills of Maikhan Ulaan hills. (Figure 2-1). The licensed area in the Ulaan Uul region covers 79.14 hectares and is defined by the geographic coordinates listed in Table 2-1, referenced in the L-46-60 coordinate system.

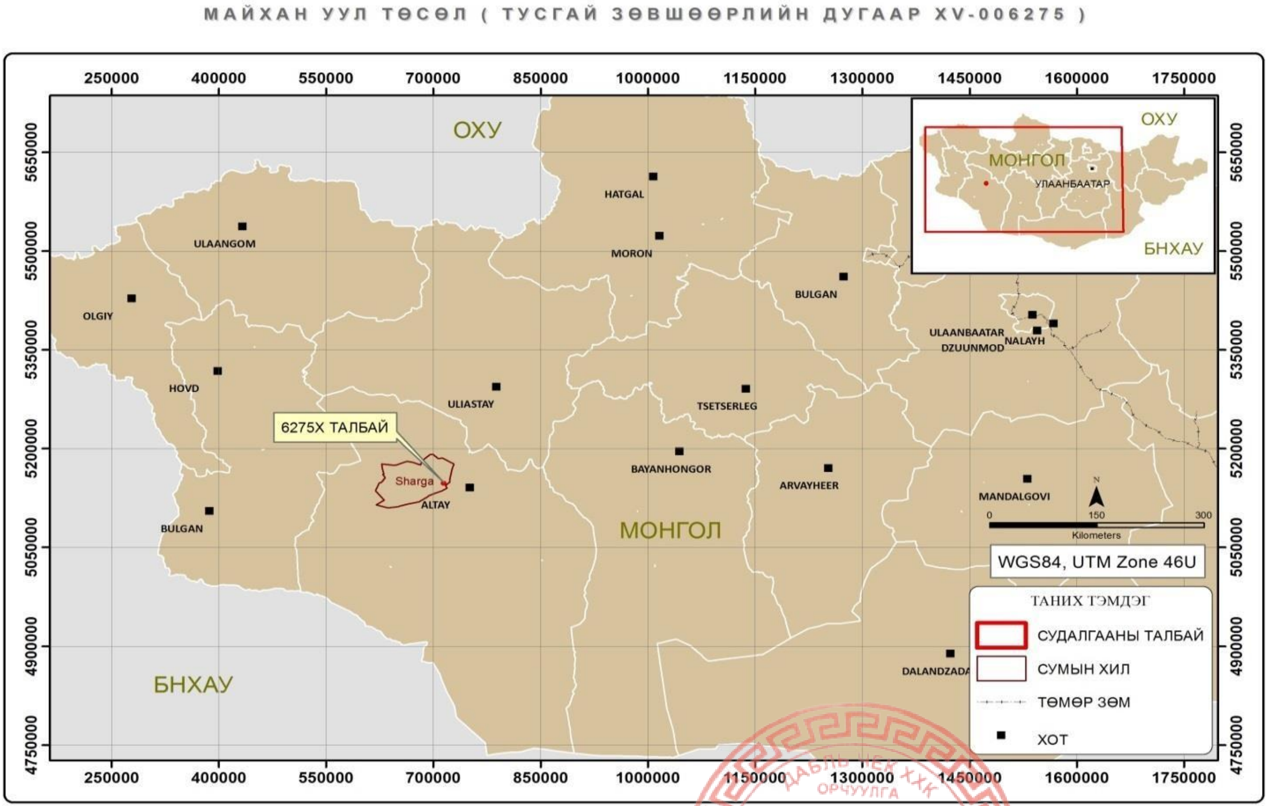


Figure 2-1 Map Overview of the License Area

Table 2-1: Coordinates of the Licensed Area Corner Points

№	Latitude			Longitude		
1	95°	47′ 00″	00″	46°	26′	45″
2	95°	47′ 00″	00″	46°	27′	05″
3	95°	48′ 00″	00″	46°	27′	05″
4	95°	48′ 00″	00″	46°	26′	45″

2.1.1 Geographical Zoning

The study area is divided into three primary orographic zones from north to south: the Great Lakes Basin, the Mongolian Altai Range, and the Altai Foothill Basin. The Great Lakes Basin occupies the northern and northwestern portions of the study area and is characterized by a broad valley interspersed with low hills. One of its largest subunits, the Khuisin Gobi Valley, extends approximately 100 km in length and 70 km in width, with a minimum elevation of 1,250 meters above sea level. This basin connects to the Shargyn Gobi Basin to the southeast, between the Dariv and Khasagt mountain ranges. The Shargyn Gobi Basin extends approximately 160 km in length and 100 km in width, featuring a sloping, hilly, and undulating surface that descends toward the center. Its lowest point lies along the shore of Shargyn Tsagaan Nuur. The Mongolian Altai Mountain system comprises narrow, elongated ranges that arc from east to west and northwest around the study area. Based on their geomorphological characteristics and spatial distribution, these ranges are subdivided into three main subunits: the Mongolian Altai Main Range, the Peripheral Ranges, and the Intermontane Depressions.

Figure 2-2. View of the Shargyn Gobi from the summit of Maikhan Mountain, looking from northeast to southwest.

The Mongolian Altai Mountains comprise several mountain ranges characterized by predominantly flat and sharp peaks, separated by long, narrow valleys that lie adjacent to each other. From northwest to southeast, these ranges include: the Baatar Range (3,475 m), Buural Bogd Range (also known as Sutai Range, 4,090 m), Khating Range (3,377 m), Khaichi Range (3,390 m), Myangan Ugalzatyn Range (3,360 m), and Khar Azargyn Range (2,973 m).

The peripheral mountains are connected to and branch off from the main Mongolian Altai mountain range but also include distinct ranges that extend in the same general direction. These peripheral ranges include the Dariv Mountain Range (2,684 m), Bumbat Khairkhan (3,464 m), Bayantsagaan Mountain Range (2,840 m), and Khasagt Khairkhan Mountain Range (3,578 m). The main Mongolian Altai mountain range, along with its branches and peripheral ranges, generally share a similar appearance, featuring flat and smooth peaks as well as low mountains with sharply dissected Gobi-style peaks on both flanks. While the northern slopes of the Altai Mountains are typically steep, the western slopes tend to be more gently inclined; however, both have undergone extensive dissection, resulting in numerous gorges and ravines. This gradually subsiding surface can be considered a remnant of an ancient plain.

The intermountain depressions of the Altai Mountains are interconnected by ravines and share similar characteristics: they are long and narrow, sometimes quite wide, with large and small lakes often situated in the center of the depressions. These depressions, arranged from west to east, are situated at varying elevations: Lake Tsetseg (1700 m), Lake Hulman (2234 m), Lake Tonkhil (2050 m), Lake Amtat (2176 m), Lake Khagiin (2576 m), Lake Sangin Dalay (2681 m), and Lake Alag (1036 m). The lengths of these symmetric and asymmetric depressions range from 20 to 80 km, while their widths vary between 3 and 20 km. The edges of these depressions span 1 to 5 km in width, forming gentle slopes of 3 to 5 degrees, while their centers feature valleys containing lakes or swamps, saline soils, and salt marshes.

2.1.2 Hydrology

The rivers and lakes throughout the study area belong to the Central Asian endorheic (closed) basin, characterized by very weak surface runoff, with flow rates less than 1%. This region can be further subdivided into several smaller zones: the Great Lakes Basin, Intermountain area, and Altai Foothills. Among these, the Zavkhan River bend—part of the Great Lakes Basin—is located near the study area and has numerous tributaries. The riverbed ranges from 30 to 50 meters in width, with depths of 0.7 to 1.5 meters, and a water flow velocity between 0.7 and 1.2 meters per second. The rivers feature numerous branches, islands, and interspersed bends, which are abundant in swampy areas. Seasonal spring floods, marked by yellow-hued waters, combined with episodic heavy summer rains, frequently result in riverbank overflows, a situation intensified by extensive floodplains.

Several small lakes and ponds are distributed throughout the study area. The water levels of these water bodies fluctuate seasonally, primarily in response to variations in precipitation. Although the area generally falls within the Great Lakes Depression, the depressions of Zereg, Ihes, and Shargyn Gobi—though interconnected yet distinct—are bordered by numerous dry streams and rivers sustained by both perennial and seasonal floodwaters and rainfall. Among the largest rivers in this system are the Khushoot, Tsagaan, North Shargyn, Middle Shargyn, South Shargyn, Tsangilah, Togrug, and Bor Rivers. However, the Shargyn River, originating in the southeast of the Shargyn Gobi and flowing into Shargyn Tsagaan Lake, is distinguished by abundant swamps, lakes, and ponds.

Each separate intermountain depressions ares independent and typically surrounded by dry streams fed by temporary rainwater, although some rivers with permanent flow exist, sustained by perennial snow and ice melt. Numerous small lakes are also found within these depressions, often bordered by extensive marshy mud.

In certain cases, the lake water is brackish, and minerals such as salt, slaked lime, and silt are extracted. However, many of the small lakes in these intermountain depressions contain fresh water.

2.1.3 Climate

The study area exhibits an extreme continental climate characterized by significant daily and annual temperature fluctuations, long winters, short summers, very low precipitation, and exceptionally dry air. Multi-year measurements indicate that the average annual air temperature varies considerably, primarily depending on the surface elevation of the area. Based on data from the meteorological stations at Taishir, Delger, and Altai, the average annual temperature is below zero, ranging from -1.8°C to -0.6°C. From October to March, the average monthly temperatures at the Taishir, Delger, and Altai stations remain below zero. Annual precipitation varies across the study area, averaging between 33.4 mm and 181.0 mm over multiple years, with approximately 75% occurring during the summer months. Winter precipitation is relatively low, often resulting in snow cover less than 0.1 cm thick, which may persist in some areas. Occasionally, thicker snow cover develops, posing significant risks to livestock and wildlife. Relative air humidity is generally low, with monthly averages ranging from 28% to 94%. The average annual relative humidity is approximately 70%.

Spring begins in mid-March and is characterized by sunny weather, minimal precipitation, and strong winds. During March and April, air temperatures typically remain below zero, rising above freezing only in late April or early May. In the mountainous regions, snow cover reaches 3–6 cm by the end of March. The surface soil remains predominantly frozen and fully thaws only when temperatures consistently rise above zero. Occasionally, heavy snowfall occurs in March and April, often associated with heightened cyclonic activity.

Summer is moderately warm with light winds, with July being the hottest month where temperatures occasionally reach 25–30°C. Summer season also corresponds to the period of highest rainfall, accounting for 70–80% of the total annual precipitation.

Autumn is generally considered the most pleasant season, characterized by sunny, warm days and considerably cooler nights. The dry air gradually transitions the soil toward winter conditions. Precipitation decreases sharply in autumn, while wind speeds increase significantly, occasionally reaching 14 m/s. Prevailing winds predominantly blow from the northwest to southeast or from north to south.

Winter is marked by persistent cold but generally clear weather. Minimum air temperatures occasionally fall below -30°C, reaching lows of -40°C in some instances. Precipitation remains relatively low during winter, and snow cover persists throughout the season only in mountainous areas, where it can accumulate to depths of 100–140 cm. During the cold season, wind speeds generally do not exceed 4–7 m/s. Climatic conditions across the study area are strongly influenced by surface elevation, with higher mountain regions exhibiting lower temperatures and relatively greater precipitation.

Wind: The valleys between the Altai and Khangai mountain ranges are dominated by strong northwest winds along the valleys, typically ranging from 9 to 14 m/s and occasionally reaching 18 m/s.

These persistent winds, prevailing year-round along the valleys, contribute to decreasing air humidity, significant thinning of vegetation cover, widespread dispersal of wind-blown sand, and active desertification.

Soil: The study area lies within the North Gobi subregion of the broader Gobi soil region. Due to low humidity, constant winds, and high summer temperatures, soil formation progresses slowly under dry conditions. Sparse vegetation results in minimal humus input to the soil; furthermore, the humus that does accumulate largely decomposes and mineralizes under warm, dry conditions, with some lost to wind erosion. Consequently, humus content in the Gobi brown soils rarely exceeds 1%. According to N.D. Bespalov, the Gobi brown soils can be classified into loamy brown, silty brown, sandy brown, saline brown, and grassy brown soils. In the Sharga and Khuis Gobi areas, Gobi brown soils and khujir marz cover a significant portion of the landscape, resembling the Gobi brown soils of the lake valleys and representing their direct extension. Conversely, in the Gobi Altai region, mountain meadows and high-mountain light brown soils are predominant.

Flora: The region falls within the Mongolian grassland steppe zone, and vegetation cover is generally sparse, typical to the Gobi region. The primary pasture species include various types of wild leeks, ramsons, feather grass, and wormwoods, while the mountain meadows are richer in biodiversity, supporting species such as feather grass, wheat-grass, burnets, roseroot, and gentians. Shrubs and woody plants primarily occur in mountain valleys and ravines, where species such as black larch, poplar, willow, and tall garagana grow along elevated slopes. In the central part of the Shargyn Gobi, thickets dominated by saxaul and garagana are widely distributed.

Fauna: The region supports a diverse range of mammals, birds, and insects. In the forested remnants of the Khasagt, Tsast Bogd, and Khar Azargyn ranges, ungulates such as deer, Siberian ibex, wild sheep, and roe deer inhabit the area, while wild asses are occasionally observed. Small mammals such as rodents, gophers, martens, jerboas, and hares are relatively widespread throughout the area. Predatory species such as red foxes, grey wolves, lynxes, and snow leopards inhabit the mountainous zones. Avian species in the region include both resident and migratory birds. Common resident birds comprise crows, magpies, jays, snowcocks, and larks. Migratory species observed in the area include scoters, wild ducks, geese, and grey herons.

Population, Economy, Transportation, and Communication: The study area is located near the administrative center of Gobi-Altai province, one of Mongolia's relatively more densely inhabited regions. The predominant ethnic group is Khalkh, although Zakhchin and Torguud communities reside in the western parts of the area. Population density across the mountainous and desert-steppe zones is very low, averaging approximately 1 person per square kilometer.

The largest populated area within the region is Altai city, the administrative center of Gobi-Altai province. The city hosts provincial government offices, a power plant, an airport, a post office, educational institutions including both secondary and higher schools, hospitals, markets, and the Medical College. The center of Sharga sum is situated to the southwest of the study area and includes a secondary school, shops, hospitals, as well as administrative and cultural centers.

Although the area is relatively remote from the provincial capital, both road and air transport infrastructure are reasonably well developed. The improved Ulaanbaatar–Khovd roadway runs along the southern boundary of the field. Gas stations are available at the major junctions along this route.

Additionally, the sum centers are linked to Ulaanbaatar and other provincial centers through overhead power lines, telegraph-telephone networks, and fiber optic cables. Cellular telephone services are provided via the Mobicom network.

3 GEOLOGICAL STRUCTURE OF THE EXPLORATION FIELD

3.1 History of Geological Exploration

This report outlines the history of geological surveys conducted in the area, comprising the following subsections: evidence of ancient mining activities, route surveys, field investigations, and thematic or scientific studies.

Previous researchers have identified traces of ancient ore mining at several locations within the study area. Remnants from the Paleolithic to Neolithic periods—such as silicastone mining sites, stone tools, blacksmith workshops, and pottery shards—have been discovered near springs, streams, and low-lying depressions.

Traces of ancient open-pit copper mines and smelting sites from the Bronze Age exist (at Maikhan Uul, Tsakhir Aguit, and Budaghond), and local legends tell of mining activities (at Maikhan Uul) dating back 70 to 200 years.

The field route study was conducted by Russian and later Soviet scientists in the late 19th and early 20th centuries during their explorations of Mongolia. These geological and geographical routes now hold primarily historical significance for current research.

Geological survey work in the area began in 1956 and has since been conducted through geological and hydrogeological prospecting of varying scales.

➢ Geological Mapping at 1:1,000,000 Scale:

In 1956, V.A. Amantov, based on the Lake Depression survey route, compiled a geological map at a scale of 1:1,000,000. He identified the region as a Caledonian structure and assessed it as prospective for iron and copper (skarn) mineralization, chromite, titanomagnetite, chrysotile asbestos, and platinum mineralization.

The 269th expedition, led by V.A. Fedorovsky, B. Luvsandanzan, and D.D. Lavrov, conducted geological exploration and mapping at a 1:1,000,000 scale in 1958 in the southwestern Mongolian Altai Mountains. They studied the geological formations in detail, compiled a geological map, and identified locations with iron and copper mineralization.

In 1959, V.A. Fedorovsky, B. Luvsandanzan, and L.N. Volkova (30th expedition) conducted a 1:1,000,000 scale survey of the L-46-XXI, XXII, and XXVIII areas, concluding that these areas lie in the eastern part of the Western Dry Syncline, which generally extends west and northwest, and are part of the Hercynian folded region.

In 1959, V.V. Bezzutsev, V.A. Zaporojets, V.Ya. Lyusov, and B.N. Lyarsky conducted exploration and mapping work at a 1:1,000,000 scale in the Mongolian Altai and the southwestern end of the Khangai Range (L-46, 47; M-47).

➢ Geological and Hydro geological Mapping at 1:500000 Scale:

In 1974–1975, H. Tserenpuntsag, G. Tseren, E. Monkhbat, and D. Janchiv conducted comprehensive geological and hydro geological mapping at a 1:500,000 scale in parts of the L-46-XVII, XVIII and L-46-XI, XXIII, XXIV, XII sheets. This work identified sediments from the PR, V, E, D, J, J-K, P, N, and Q ages.

In 1976–1977, B. Dorlig and B. Banzragch conducted a detailed geological and hydrogeological survey at a 1:500,000 scale in the northwestern part of the Khan Taishir Range and the southwestern part of the Khangai Range. This work identified sediments of Vendian, Lower Cambrian, Lower to Middle Devonian, Upper Jurassic to Lower Cretaceous, Neogene, and Quaternary ages.

➢ Geological Mapping at 1:200000 Scale:

In the northern part of the field, V.A. Samozvantsev and others conducted group geological mapping at a scale of 1:200,000 between 1978 and 1981.

Additionally, in the eastern part of the field, A.A. Rauzer and D. Zhanchiv performed group geological mapping at the same scale from 1983 to 1986.

➢ Geological Mapping at 1:50000 Scale:

In 1959, in the southwestern part of the licensed area, E.V. Mikhailov, M.Ya. Mikhailova, and I.I. Chernov conducted 1:50,000 scale exploration and mapping work aimed at identifying heliodor mineralization within the southern section of the magmatic vein belt.

Also in 1959, T.P. Tridasov and M.I. Dubrovsky conducted 1:50,000 scale geological mapping and a reconnaissance survey for mixed metal detection in the Barlagin River district, as well as in the Khaltaruul and Nukhni ridges.

The main prospecting, exploration, evaluation, and verification works carried out in the vicinity of the study area are as follows: In 1969, N.N. Volchek and Y.A. Kudryavtsev carried out prospecting and research work on the Khasag and Tonkhil asbestos deposits.

In 1964, A.I. Golovnykh and A.Yu. Tikhonov assessed the prospecting and industrial potential of the mica deposits scattered around the Barlag River and the Khoit Shargyn River.

In 1970, A. Baasanjav and D. Ravjir conducted prospecting work around Tonkhil, Shargyn Tsagaan Lake, and Tsetseg Lake.

➢ The study area has been partially covered by thematic or scientific research. As a result of joint studies by Mongolian and Soviet scientists at key locations, several articles and books on the subject have been published.

The works of I.P. Paley, F.P. Mitrofanov, O. Tumurtogoo, J. Byamba, D. Dorzhnamjaa, and A.F. Boyshenko have significantly contributed to resolving key issues related to the stratigraphy, metamorphism, and distribution of Precambrian sedimentary rocks in the Darvi Range, Khasagt Range, and Gobi-Altai region. Their research on the stratigraphic significance of microphytoliths and mineralization has also laid the groundwork for the development of Proterozoic-Riphean stratigraphy.

Numerous articles and studies by L.P. Zonenshain, O. Tumturtogoo, J. Byamba, G.V. Pinus, E.I. Selivanov, V.I. Tikhonov, and V.V. Bezzubtsev address regional geological investigations of the study area, solutions to tectonic problems in western Mongolia, practical applications of the geosynclinal theory, and key insights into stratigraphy and ophiolite formations.

In 1990, Y.A. Borzakovsky and colleagues compiled a geological map of western Mongolia at a scale of 1:500,000 and prepared explanatory notes that summarized the latest geological mapping data, supplemented by results from field investigations.

Between 1988 and 1991, D. Togtoh, A. Baatarkhuyag, S. Bayardalai, and Ts. Usna-ekh from the Tonkhil 1st expedition conducted geological group mapping at a scale of 1:200,000. This work led to the first discovery of the Maikhan Uul deposit copper-gold occurrence.

Between 2010 and 2012, at the request of "Samtan Mores" LLC, the geological exploration department of "Erdeniin Erel" LLC and the drilling team of "Twin Idol" LLC jointly conducted exploration activities at the Maikhan Uul copper deposit. Geologists U. Enkhtaivan and Z. Ariunbat prepared a technical report, including post-exploration works and resource estimates, and presented the deposit's resources at the Probable (C) category to the Mongolian State Professional Committee on Mineral Resources.

Based on the results of the supplementary exploration works of 2012-2014, geologists B. Batzorig, B. Enkhbayar, N. Burenzaya, and P. Monkhbileg estimated the deposit's resources classified as Proven (B Grade), Probable (C Grade), and Inferred (P Grade) categories, and compiled a comprehensive exploration report.

3.2 Stratigraphy

In the central part of the Maikhan Uul field, covered by the MV-19681 exploitation license, 80–85% of the sedimentary rocks are shales of Lower to Middle Riphean (R1-2) age. In the peripheral areas, volcano-terrigenous sediments of Middle Jurassic (J2) age and Quaternary sediments are present.

The study area lies within the Darvi subzone, at the southern boundary of the Zavkhan region in the North Mongolian folded system. In the study area, metamorphic, sedimentary, and igneous rocks of Paleozoic, Mesozoic, and Cenozoic origin are widely distributed, each exhibiting distinct characteristics that differentiate them across tectonic regions, zones, and subzones.

3.2.1 Unclassified sediments of lower-middle Riphean (R1-2) age.

The main sediments of the area—unclassified lower to middle Riphean (R1-2) sediments—form steep vertical cliffs, bare rock faces, deep ravines, and debris flows in the foothills of Maikhan Uul. Behind the mountain, these sediments mainly appear as eluvial and eluvial-proluvial exposures, creating gentler, less rugged slopes.

The sediments comprise epidote-chlorite-sericite orthoschist, dacite, and andesidacite derived from andesite-basalt; quartz-chlorite-sericite orthoschist, chlorite-sericite orthoschist, and micro-laminated shales derived from andesites; chlorite-sericite-plagioclase orthoschist, quartz-chloritoid, epidote-chloritoid orthoschist; weakly to moderately shale-rich rhyolite, dacite, rhyodacite, andesidacite, andesibasalt; and strongly quartz- and iron oxide-enriched (hematitized) sedimentary quartz hydrothermal breccia, resulting from acidic lava breccia bodies.

The various types of orthoschist and shale textures described above are entirely absent at depths of 20–35 meters, gradually transitioning into a more compact effusive massif composed of lava breccias, rhyodacites, and dacites exhibiting the flow textures typical of rhyolite. This suggests that the shale formation typically occurs as a thin veneer overlying the effusive massif.

Generally, the central surface of this mushroom-shaped shale cover is characterized by rock sequences of rhyodacite, dacite, andesidacite, and acidic lava breccias that show no signs of schist-forming processes. These sequences occasionally appear as erosional windows within the broader distribution area of orthosanar and iron oxide-enriched bodies.

In the northern and northeastern parts of the field, tectonically (possibly explosively) formed hydrothermal breccia bodies—controlled by latitudinal faults—are strongly enriched in iron and silica, comprising approximately 20% of the rocks of the same age. These breccia bodies host lens-shaped, skarn-like inclusions ranging from 0.15 to 20 cm in thickness and up to 1 meter in width. The iron- and silica-enriched bodies form three latitudinal zones, each measuring 300–450 meters in length and ranging from 10–25 meters to 25–40 meters in thickness, separated by numerous small longitudinal faults.

3.3 Middle Jurassic (J2) volcano-terrigenous sediments

The so-called Middle Jurassic (J2) sediments—possibly of Late Cretaceous age and limited in distribution—comprise red, dense, and fissured volcanic rocks (with a strike azimuth of 103° and dip angle of 40°), including slab-like trachyrhyolite, trachyporphyry, and trachydacite. These rocks contain interlayers of shale, limonitized agglomerate, and tuffobreccia horizons that encircle the Maikhan Uul tectonic block. The agglomerate is composed of red, foliated, lithovitrocrystalloclastic trachytic rocks.

The age of the Khar Tolgoi strata is determined based on the following grounds:

1. The gabbro bodies of the Khatsavch Bulag and Yesenbulag formations in the Lower Tormol region, which are highly metamorphosed and intersected by gravel layers, are considered analogous to serpentinite-intruded gabbro veins dated at approximately 920 million years. Based on this indirect evidence, they are inferred to be of Lower–Middle Riphean age.

Overall, this sediment, which has undergone greenschist facies metamorphism, is intruded by small bodies of Middle Riphean granite, subsequently altered by contact metamorphism, and transformed into grey gneiss.

3.3.1 Tsagaanshoroot Formation /D2cs/

The sedimentary rocks of this age are well exposed, with their hard rock layers forming intact crests, while the softer red argillites have been worn away, eroded, or cracked in actively sheared areas. This pattern is similar to that of Jurassic-Cretaceous sediments, though the rocks here exhibit somewhat greater resistance to erosion. The Tsagaanshoroot Formation consists of sedimentary rocks, including red, reddish-brown, blue-violet, and light-white sandy argillites and aleurites, with a few layers of igneous andesite. The Lower Devonian Teel Formation is overlain by a small angular unconformity and a weathered surface, and is unconformably overlain by the Lower Carboniferous Khurengol Formation. At a distance of 5.3 km southeast of Khokh Mountain Pass, the Lower Devonian bedrock sections are quite thick, with the red mudstone layer measuring 282.0 m in thickness.

According to the section of red sediments distributed along the northeastern edge of the Shargyn Gobi—either trapped within the Shargyn deep fault or forming synclinal folds in the Maikhan Uul—brownish-red aleurites with basal conglomerates (2–5 m thick) predominate. These are interbedded with thin lenticular layers of chalk and sand that contain fragments of ancient Silurian–Devonian fish shells. Based on previous geological research, descriptions of the collected organic remains, and a few additional specimens obtained during our study, it is concluded that the sediments of the Tsagaanshoroot formation belong to the Eifelian–Givetian stage of the Middle Devonian.

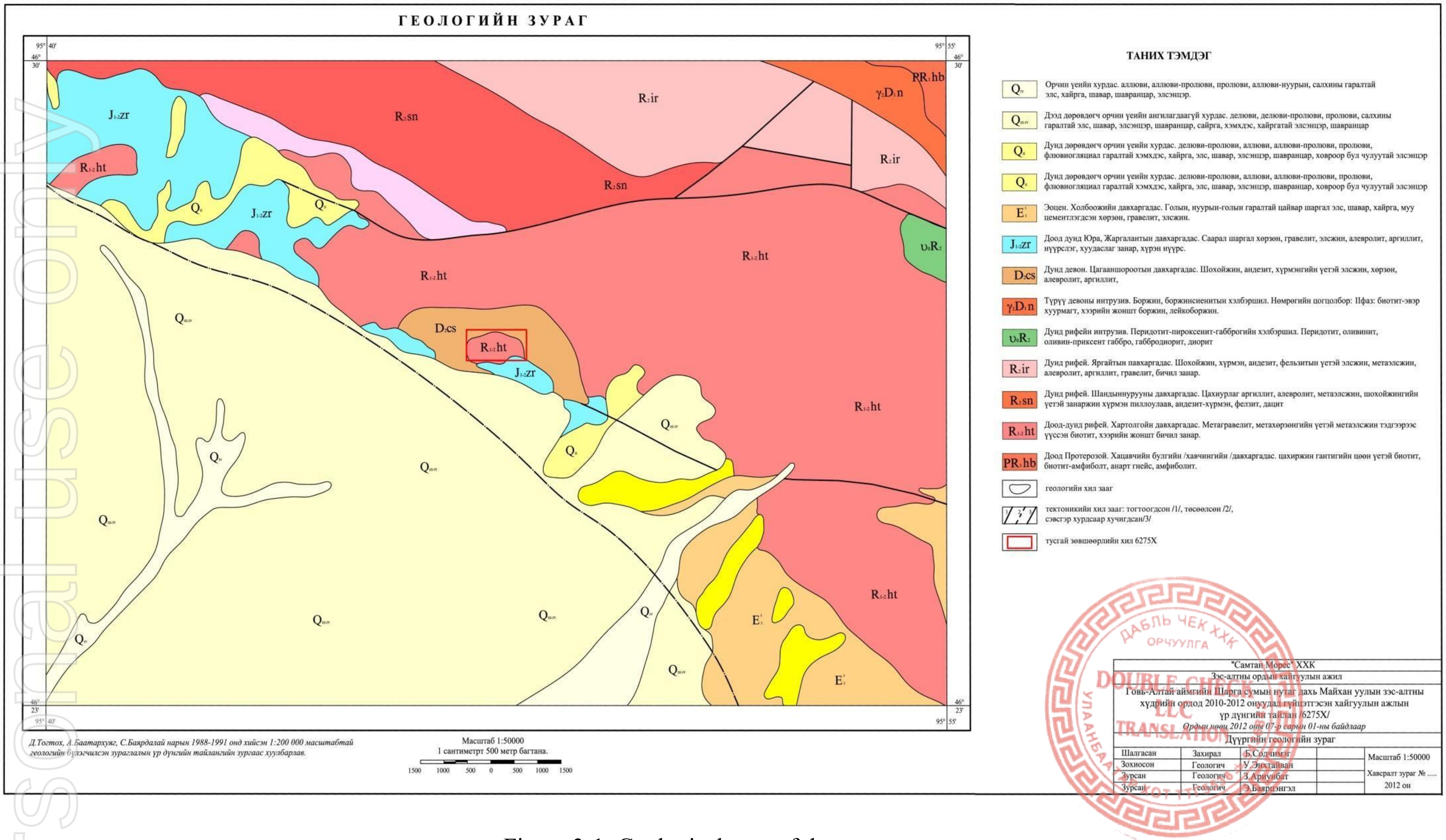


Figure 3-1: Geological map of the area.

3.3.2 Quaternary system (QII)

The slopes, depressions, and gullies of the Maikhan Uul range are filled with these sediments. Sediments of this age are primarily composed of yellowish-gray loam and boulder deposits, consisting of sand, sandstone, gravel, clay, and clastic rocks derived from both the lower and upper slopes of the mountains.

Sediments of deluvial–proluvial origin (dpQII) are distributed along the slopes of the small mountains in the northern and central parts of the study area. These sediments are brownish-yellow in color and contain clastic rocks, unconsolidated sands, and sandstones. They are overlain by the Lower Quaternary Goshuu Formation and further covered by Upper Quaternary to Recent sediments.

It is also worth noting the presence of 1.5–2.0 m thick sediments composed of poorly sorted sand and gravel, overlain by brownish-yellow siltstone with interlayers of orange-yellow sand. These deposits were attributed to the Uush Formation by previous researchers, such as A.A. Rauser, and are considered to belong to the Middle Quaternary. In this area, such sediments lack calcareous cement and are predominantly composed of sandy material, forming benches approximately 10–15 meters thick. A stratigraphic section observed along the steep edge of a deep ravine on the slopes of the Great Nomgon and Small Nomgon mountains reveals the following sequence, from bottom to top:

- ✓ Reddish-yellow clay and loam with fine interlayers of light sand, 1.0 m thick
- ✓ Brownish-yellow, poorly sorted sandy sediments containing pebbles and gravel, 1.5 m thick
- ✓ Brownish-yellow, poorly sorted loose sediments of proluvial origin, mainly consisting of sand and clay interlayers; the upper part is more clastic in nature, 10–15 m thick

Total thickness of the section: 12.5–17.5 m

3.4 Upper Quaternary Modern sediments Q3-4

The slopes, depressions, and gullies of the Maikhan Uul range are filled with these sediments. Sediments of this age are primarily composed of yellowish-gray loam and boulder deposits, consisting of sand, sandstone, gravel, clay, and clastic rocks derived from both the lower and upper slopes of the mountains. The sediments are well differentiated from those of other ages within the study area. On aerial photographs, they display a variety of patterns, including mottled dark gray, dark, and occasionally light white hues, as well as twisted, scaly, and convoluted textures. Based on their origin, these sediments can be classified as eluvial, colluvial, deluvial, proluvial, alluvial, lacustrine, and eolian, respectively.

Modern sediments of alluvial–proluvial origin are widely distributed throughout the area and are clearly distinguishable along the banks of numerous well-developed gullies. These sediments consist of moderately rounded silt, gravel, sand, and clay loam. The ends or boundaries of some long gullies are indistinct and may resemble lacustrine alluvium. The large dry gullies on both the left and right banks of the Dund Shariin River are generally classified within this group. Although the edges of the flood-eroded ravines are similar, the alluvial features are more prominently developed there.

3.4.1 Geomorphology

The study area is situated in the central part of the Asian continent, orographically within the Central Asian Upland. The average elevation of the mountains is approximately 1,800 meters above sea level, with a maximum height of 4,090 meters and a minimum of 1,100 meters. Many geological and tectonic factors, both external and internal—such as sedimentation, erosion and deposition, and tectonic movements—have played a major role in shaping the current surface morphology of this region.

According to P. Tsegmid's geomorphological zoning (1969), the area belongs to the Fractures and Hills of the North Altai Gobi. This region includes the Zereg and Ihes Lake gorges, as well as the Khuis and Shargyn Gobi depressions. The following main types of land surfaces in the study area, shaped by landforms and the interaction of various formative processes, are identified: flattening, erosion-denudation, denudational, denudational-structural, erosional, accumulation-erosion, accumulation, and igneous rock surfaces.

High mountains with residual surfaces of the plateau: The plateau surfaces observed near the study area are classified into three categories based on absolute elevation, shape, and relief: high mountains with residual plateau surfaces of type I, medium mountains with residual plateau surfaces of type II, and low mountains with residual plateau surfaces of type III plateau. These low mountains with residual plain surfaces cover the foothills of the high mountains, with absolute elevations ranging from 1,500 to 2,000 meters and relative elevations around 500 meters. The licensed field lies within this area, which is further classified into three types based on its relief:

- ➢ A poorly dissected surface with flat tops
- ➢ A well-dissected surface with pointed tops aligned along fault zones
- ➢ A moderately dissected hilly surface

3.5 Hydrogeology

According to N.A. Marinov's (1963) hydrogeological zoning, the study area falls within the Mongolian-Altai range-folded region, the Khangai-Khentii range-folded region, and the artesian water region of the intermountain depression. The terrane of this region generally consists of the Altai Mountains, with an average absolute elevation of 2,757 meters, gradually decreasing from the west and northwest toward the southeast and the depressions between the ranges are occupied by relatively even, steppe-like mountains with average absolute elevations ranging from 1,000 to 1,500 meters. In general, features of multi-year permafrost are well-identified in the river valleys of mountain peaks located above 2,200 meters.

Since groundwater in the study area is primarily associated with Quaternary loose sediments that fill the depressions of numerous small rivers and lakes, hand-dug and drilled wells are typically situated within these valleys and along the mountain slopes. Most springs are located along the zones of major and minor tectonic faults. According to data from previous researchers, the mineralization of spring water ranges from 0.2 to 1.0 g/L, while the mineralization of well water reaches up to 1.4 g/L.

However, the mineralization of open streams is similar to that of the springs.

The water sources in and around the study area generally belong to the calcium–magnesium group and are of the hydrocarbonate–sulfate type in terms of chemical composition. The following aquifers have been identified based on groundwater accumulation and movement, as well as the condition, origin, lithology, and composition of the water-bearing sediments in the region
:

- ➢ Riphean metamorphic sedimentary aquifer
- ➢ Early Cretaceous effusive rock aquifer
- ➢ Lower–Middle Jurassic sedimentary aquifer
- ➢ Paleogene loose sedimentary aquifer
- ➢ Quaternary loose sedimentary aquifer
- ➢ Deep bedrock aquifer

Riphean metamorphic sedimentary aquifer:

Sedimentary deposits of this age are distributed throughout the area and primarily consist of sandstone, shale, claystone, aleurite, limestone, and occasional igneous rocks. The degree of metamorphism varies across these deposits. Similarly, the degree of fracturing, shale development, and porosity also vary, with the pores often filled by secondary minerals such as quartz and epidote. Samples taken from two springs within the sediments, located between Maikhan Ulaan Tolgoi and Gozgor Mountain, exhibited flow rates of 0.2–0.5 L/s and mineralization levels ranging from 3.8 to 9.5 g/L. The springs showed no pressure, color, or odor, and their water was classified as sulfate-type based on chemical composition. In general, the water in this formation is highly mineralized and thus unsuitable for drinking.

Early Cretaceous effusive rock aquifer:

Lower Cambrian and Lower to Upper Silurian to Lower Devonian andesites, basaltic rocks, and andesite-basaltic tuffs. Shale zones, which are unevenly distributed and occasionally eroded, are observed within the formation. The movement and accumulation of groundwater are generally controlled by a series of faults oriented west-northwest. Spring discharge occasionally reaches 1.5 L/s and is usually pressureless. The mineralization of the water typically averages 0.6–0.7 g/L, but can sometimes reach as high as 80 g/L. In terms of chemical composition, the water belongs to the hydrocarbonate and hydrocarbonate-sulfate types and is generally suitable for drinking.

The primary source of the water supply is precipitation and other forms of water infiltration. Upper Jurassic-Lower Cretaceous loosely cemented sedimentary aquifer

This aquifer is widely distributed along the edge of the Shargyn Gobi, where sediments containing red and grey coals are prevalent. Its main characteristic is concentration in zones dominated by large, poorly cemented, brownish-red variegated sands and gravels. These sediments are generally unaffected by faults or tectonic activity, remain unfolded, lie horizontally, and are separated by the aforementioned water-locking control zones.

Or in some special cases, pressurized water points have been observed. The water points in the Shargyn Gobi depression exhibited yields ranging from 0.04 to 0.2 l/sec, with mineralization levels between 2.6 and 5.5 g/l. In terms of chemical composition, the water is classified into sulfate-chloride, hydrocarbonate-sulfate, and sulfate types. Accordingly, it is evident that the water points in this formation possess a composition suitable for other uses in the population's water supply and are abundant in resources. The primary source of water recharge comes from precipitation, as well as the migration and movement of water from surrounding water bodies.

Paleogene and Neogene loose sedimentary aquifer:

This aquifer is composed of Oligocene red sandstone, sand, clay, gravel, and conglomerate; Miocene light-yellow conglomerate, sand, clay, and gravel; and Paleocene red variegated clay, gravel, and sand. Uncemented loose sediments are widely distributed across the Shargyn Gobi Depression and several other areas. The water is generally unpressurized, with flow rates ranging from 0.1 to 1.4 l/s, occasionally reaching up to 10.5 l/s. Its mineralization is approximately 1.1 g/l, and the chemical composition varies across different depressions. In the Shargyn Gobi Depression, the water is predominantly of the hydrocarbonate-sulfate type, with occasional instances of hydrocarbonate water. These waters are entirely suitable for drinking purposes.

Quaternary loose sedimentary aquifer:

Quaternary sediments are widely distributed in and around the study area, with their hydrogeological characteristics classified according to their origin and considered separately.

Sediments originating from foothills, riverbeds, and valley bottoms cover a small area and are relatively coarse-grained, containing large grains and minimal silt. These sediments store unpressurized fresh water only in the lower sections. Its yield reaches 0.1-0.3 l/sec, and its mineralization is 0.3-1.3 g/l. The water belongs to the hydrocarbonate-sulfate and sulfate types in terms of chemical composition.

Sediments originating from rivers, hill-fed rivers, and lacustrine-rivers generally fill flat or gently sloping dry ravines and gullies. These sediments are typically composed of clayey layers with minimal mixing, primarily consisting of gravel and silty sand. Thus, water is concentrated in the lower sections of the sediment and moves only through that part.

Numerous springs along the tectonic fault zone, located in the central part of the Shargyn Gobi and its outskirts, belong to this type of water. The water has a yield ranging from 0.3 to 0.8 l/sec, with mineralization levels between 0.4 and 2.0 g/l. It is classified as belonging to the hydrocarbonate-sulfate and sulfate types in terms of chemical composition.

Loose sediments of lacustrine origin are widely distributed around the study area, primarily consisting of clay and loamy sand. The main characteristic of the water contained in these sediments is its high mineralization (0.8–2.3 g/l), low yield, and classification into hydrocarbonate-sulfate, sulfate, and mixed compositions in terms of chemical composition.

Overall, the water in the Quaternary loose sediments is fully suitable for drinking, technical, and other uses.

Deep bedrock aquifer:

The deep bedrock is widely distributed throughout the study area. It is composed of Early Proterozoic granite and gneiss, Middle Riphean diorite-plagiogranites, Late Riphean granite, Middle-Late Cambrian gabbro-granite, Middle Silurian diorite-plagioclase, Early Devonian granite, Early Carboniferous granite, syenite, Late Permian alkali syenite, and granite.

Water accumulates in the voids formed within the cracks, tectonic faults, and zones of these rocks, migrating along these structures. Water points are typically located along or near these fault zones. In granite-dominated areas, the yield of water points ranges from 0.1 to 0.8 l/sec, with some cases reaching up to 1.7 l/sec. However, the mineralization of well water averages 0.5–0.7 g/l, while spring water mineralization ranges from 0.19 to 0.5 g/l.

The water is primarily of the hydrocarbonate-sulfate type in terms of chemical composition, although a few water points exhibit sulfate or mixed compositions. The cations in these waters are primarily from the calcium-magnesium, calca-sodium-magnesium, and calcium-sodium groups. Overall, the water is well-suited for drinking.

The source of water accumulation is mainly precipitation, though in some cases, it may also result from infiltration and migration of water from other aquifers.

3.6 Tectonic and Geological Development History

The Maikhan Uul project area is located in the southern sector of the Zavkhan-Orkhon active continental margin terrane, positioned between the Shargyn and Darvi-Bayan Ulaan deep fault zones. According to the structural classification of the Mongolian folded system (as outlined in Geosynclinal Principles, Geology, People's Republic of Mongolia, 1973), the region is part of both the Zavkhan and Nuur sectors of the North Mongolian folded system, as well as the Tayan and Barunukhur sectors of the Mongolian Altai folded system (as described in Tectonics of the PRM, 1971). The crustal cover of the district encompassing the study area, which spans multiple tectonic zones, has undergone various degrees of fracturing, displacement, and erosion. Numerous geological indicators, including metamorphic rocks of differing ages, ophiolitic sequences, sedimentary and igneous rock formations, igneous complexes, and Mesocene volcanic products, provide insight into the patterns of regional tectonic evolution.

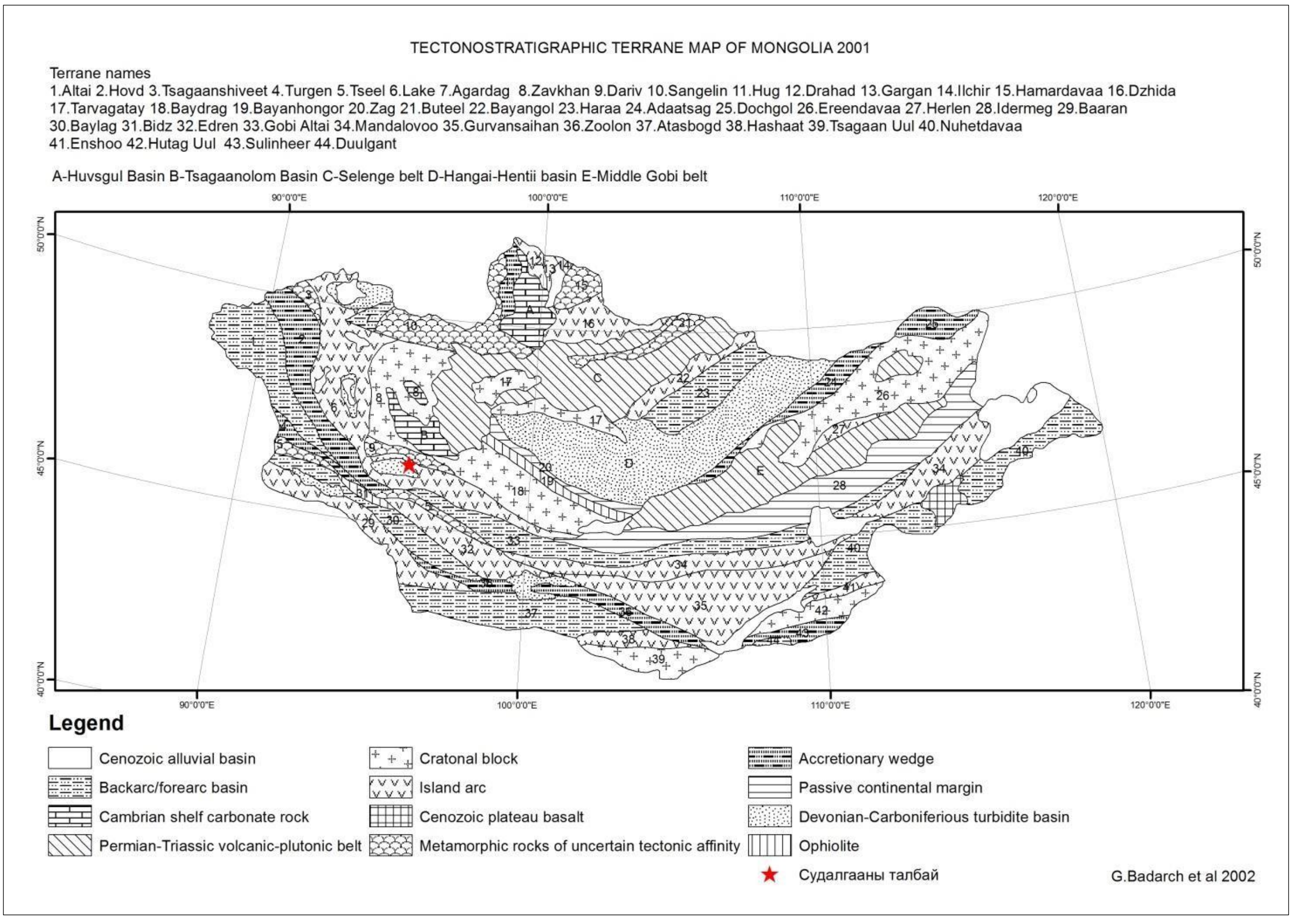


Figure 3-2. Plate tectonic image B.Badarch

This area has experienced several tectonic geodynamic phases, including oceanic, shelf, and continental active margin types.

In the Maikhan Uul region, Neoproterozoic metamorphic formations are exposed centrally, while Meso-Cenozoic sedimentary cover sequences overlie the peripheral zones. A series of faults, aligned along the latitudinal axis, play a crucial role in controlling the distribution of ore veins and secondary veins, which are notably rich in mineralization. Ongoing propylitic alterations within the fracture zones along the faults govern the mineralization of Cu, Zn, Co, and Fe. Longitudinal faults have led to the development of weaker clayey transformations.

Analyzing the current geodynamic conditions and material composition will provide a framework for comparing and defining ancient geodynamic states and their respective phases, facilitating the reconstruction and understanding of past geodynamic environments.

Starting with the ultrabasic and basic Proterozoic ophiolite formations, and extending through the Riphean and Riphean-Vendian ophiolite associations, as well as the Silurian and Devonian marine cover, the marine formations that developed over an extensive geological period exhibit distinct characteristics and specific geodynamic evolution. Previous researchers have classified the area surrounding the field into major structural units, including Zavkhan, Nuur, Mongolian Altai, and South Mongolian, which are further subdivided into sub-regions and sections.

These structural units are delineated by deep fault zones such as the Darvi-Bayan Ulaan, Tsagaanshiveet-Ikh Bogd, and Altai faults.

Zavkhan structural formation zone:

The southwestern extent of the Zavkhan region, characterized by a right-angled southwestward thrust that spans the area surrounding the study region, is subdivided into the Gobi-Altai massif, Dariv, Urgamal, and Khasagt subregions. The stages of ancient geological development occurred under geodynamic conditions associated with oceanic, shelf, Riphean, and continental active margins.

The Gobi-Altai massif forms a wedge-shaped block, confined by faults on both sides, and extends from the Dariv Range to the foothills of the Khasagt Range.

Given its historical development under specific geodynamic conditions, the Gobi-Altai massif can be considered both the crystalline foundation of the Zavkhan region and a remnant fragment of the pre-Riphean proto-plateau. Thus, the crystalline foundation, overlain by the Esenbulag Formation containing both quartzite and carbonate layers, was shaped and disrupted by intense folding, as well as horizontal and multidirectional faulting. Shortly after Early Proterozoic tectonic events, the process of seafloor and continental regeneration began, marking a significant phase in the long geological history that spans the entire area of the present-day Darvi Range and Khasagt district. Rift zones in the oceanic crustal mantle formed initially, gradually transitioning into active continental margins, and continuing to evolve through several subsequent stages.

3.7 Mineral Resources

Copper-Gold Occurrences at Maikhan Uul

The L-46-XVIII-60-G-13 field is located 12 km southeast of the center of the Ulaan Tug Brigade /Bag/, Sharga sum, Gobi-Altai province, at the northern foothills of Maikhan Mountain. Its geographical coordinates are N 46° 27′ 00.0″ E 95° 47′ 20.0″.

The Maikhan Uul copper-gold occurrence was first identified within the Maikhan Uul deposit district during geological mapping and general prospecting work conducted by D. Togtoh, A. Baatarkhuyag, S. Bayardalai, and Ts. Usna-Ekh between 1988 and 1991 at a scale of 1:200,000. Their findings concluded that the Maikhan Uul copper-gold occurrence warranted further exploration and detailed study.

General prospecting work was conducted across the occurrence, which included excavating 167 cubic meters of channel samples, drilling 256 linear meters in three boreholes, and creating a geological sketch at a scale of 1:25,000. Geochemical samples were collected using a 50 x 100 meter grid, alongside channel samples, point samples, thin slice samples, and thin section micro-samples, all of which were subsequently analyzed.

Three boreholes were drilled to penetrate the depth of the ore body; however, due to challenges such as drilling difficulties, the steepness of the body's slope, and unfavorable geological conditions, no significant results were obtained. The samples taken from the ore body were analyzed using radiometric methods and were found to contain the following elements and concentrations: Cu – 0.01-1.0%, Pb – 0.005-0.01%, Zn – 0.01-0.05%, and Ag – 0.005-5.0 g/t.

The gold content in the channel samples was low, and the content in the spot samples was about the same as above. However, in the samples taken from boreholes 4 and 6, the following concentrations were determined: Cu – 0.005-0.05%, Pb – 0.001-0.005%, Zn – 0.01-0.02%, Ag – up to 1.0 g/t, and Au – up to 0.05 g/t.day

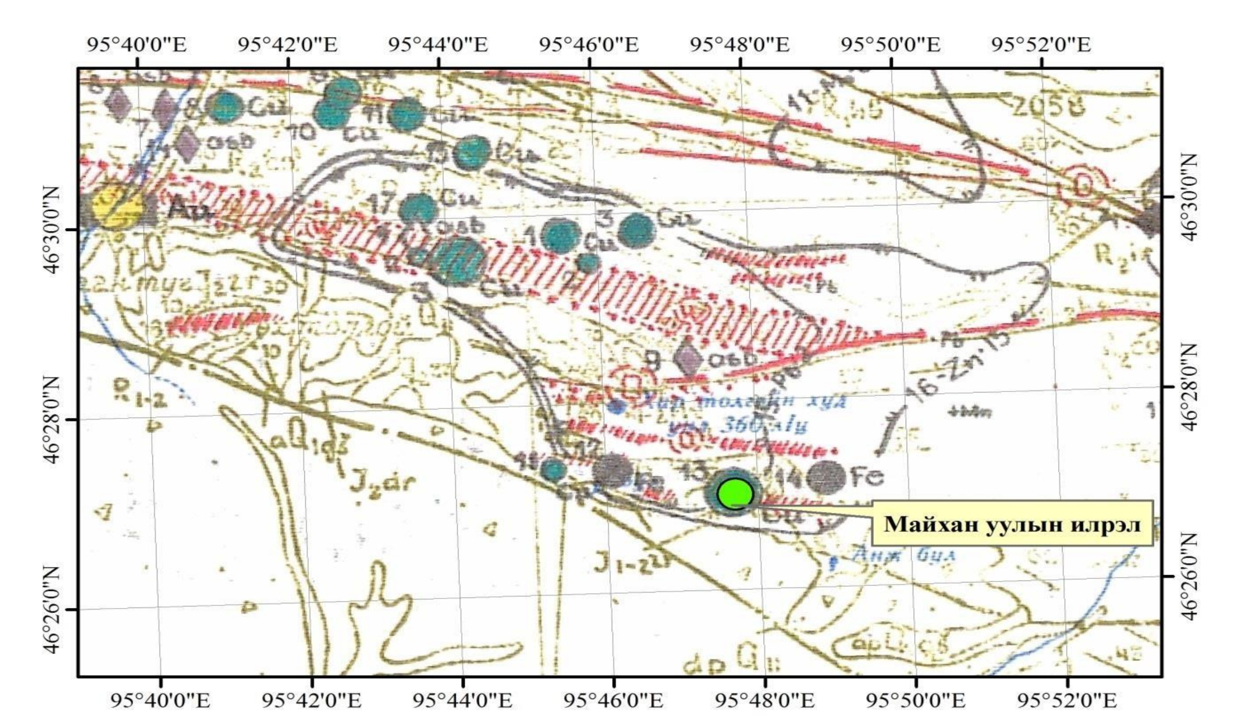


Figure 3-3: Maikhan Uul occurrence

According to the results of the initial geochemical analysis conducted across the occurrence, the identified main parameters include the size of the rich mineralized secondary ore body, with the following contents: Cu – 0.02-0.5%, Pb – 0.015%, and Zn – 0.02%. Additionally, a secondary quartz ore body, with no visible ore exposures at the front of the occurrence, was also identified.

This occurrence is situated within a prospective copper-gold ore district identified through mapping and is classified as a volcanogenic-hydrothermal gold-copper-pyrite type. Therefore, further detailed study was recommended.

3.8 Deposit Structure, Ore Body Shape, and Size

The regional characteristics of the Maikhan Uul copper-gold deposit include the development of northeast-trending faults, oriented nearly along the longitude, and transverse faults intersecting them. The main fault structure of the deposit is composed of northeast-northeast trending faults, with angles ranging from 30° to 50°, along with latitudinal faults forming a block structure. These faults often exhibit right- and left-lateral displacements. Additionally, these displacements are observed to occur both transversely and vertically.

The fault zones are characterized by steep slopes, cliffs, ravines, and grooves. The width of these zones ranges from 0.5 to 34.0 meters and exhibits a steep vertical dip. The structure and texture across the zones are generally consistent, with chalcopyrite, malachite, and gold being the primary ore minerals. As a result of metamorphic processes, the rocks exhibit a shaly, igneous texture. The quartz and feldspar that constitute the primary composition of the rock are irregularly shaped and small in size. Sericite, present in the main part of the rock, appears as colorless, flaky grains. Pyrite crystals are the predominant minerals in the ore, with relatively small amounts of chalcopyrite and chalcocite observed. Chalcopyrite is found in the interstices of pyrite, among non-ore minerals, and along the cracks of pyrite crystals, where it appears as small, irregular grains. In some cases, chalcopyrite grains show partial transformation into chalcocite at their edges.

The ore body of the deposit is divided into the West and East ore bodies due to fault-induced fragmentation.

The West ore body is located in the western part of the field and is an elongated lenticular-shaped body, measuring 360 meters in length and 20-46 meters in width. It has been displaced by a tectonic fault that strikes to the west. The ore body, with an azimuth of 30° and a dip angle of 81°, is primarily mineralized with pyrite and chalcopyrite. Along the rock boundary, metamorphic mineralization, including limonite, quartzification, epidotite, and pyrite, is intensively developed and fully analyzed using a geophysical bipolar electrical section, with a polarization value ranging from 6 to 9 mV/V.

The East ore body is located in the eastern part of the field and is an elongated lenticular-shaped body, 560 meters in length and 4.0-32.0 meters in width, following a large hillock to the west. The ore body, with a dip azimuth of 210° and a dip angle of 80°, is predominantly mineralized with malachite and chalcopyrite. Along the boundary, pyritization, limonite, epidotite, and chlorite metamorphic mineralization are intensively developed. The geophysical bipolar electrical section imaging was fully analyzed, with a polarization value ranging from 9 to 14 mV/V.

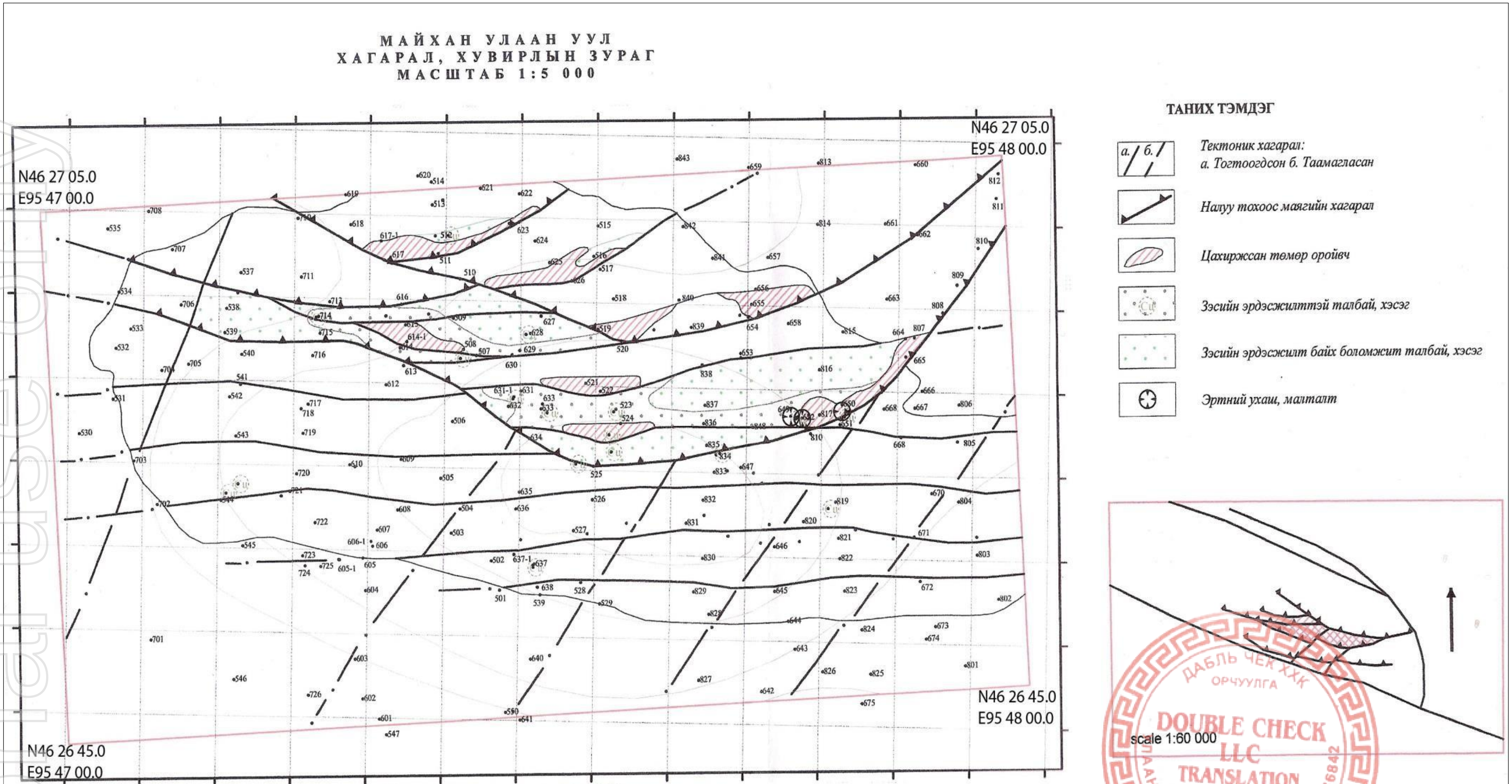


Figure 3-4: Image of the Deposit Faults and Metamorphism

The deposit resource estimate was based on the length of the West and East ore bodies, extending 850 meters along the longitude and 150 meters along the dip, with an identified average thickness of 12 meters and a depth range from 1750 to 1550 meters.

3.9 Geological Structure and Origin of the Deposit

According to the tectonic zoning of Mongolia, the Maikhan Uul deposit is located at the southern boundary of the Zavkhan and Nuur areas within the North Mongolian Fold System. Metallogenically, it is situated in the Undur Ulaan Khasagt ore zone and the Dund Shar ore district, which are part of the Tayan and Barunukhur regions of the Mongolian Altai Fold System. The Maikhan Uul project field is located in the southern part of the Zavkhan-Orkhon active continental margin terrane between the Shargyn and Darvi-Bayan Ulaan deep faults. A series of faults, aligned along the latitudinal axis, play a crucial role in controlling the distribution of quarz veins and secondary veins, which are notably rich in mineralization. Propylitic alteration is strongly developed in the fracture zones along the faults, controlling the mineralization of Cu, Zn, Co, and Fe. The longitudinal faults have resulted in weak clayey alteration.

The deposit is associated with a secondary quartz body within the shale-bearing, acidic igneous rocks of the Neoproterozoic-aged Khartolgoi Formation. Two ore bodies, with widths ranging from 400 to 500 meters and thicknesses between 1 and 12 meters, have been identified within the deposit. Exploration work has been conducted on the two bodies—west and east—displaced by faults, and resource estimates have been made.

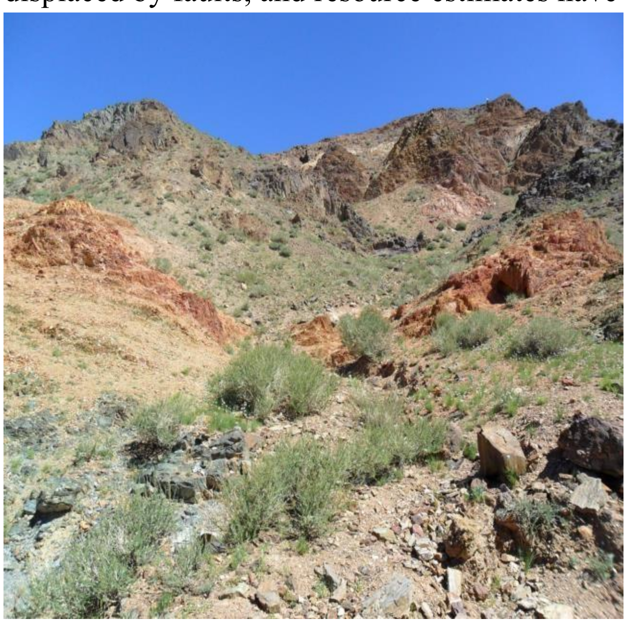


Figure 3-5. Limonitized Shale-Rhyolite Alteration Zone

The host rocks are metamorphosed and epidotized, with secondary ore pyritization. They contain inclusions of turquoise, chalcopyrite, pyrite, hematite, magnetite, and rare orange copper. These ore minerals are predominantly concentrated in the two northern bodies of the ore body.

The ore body and host rocks are oriented along a latitudinal axis, with a nearly vertical dip (80 degrees) to the north. The thickness of the body varies along its length.

Figure 3-6. Orange copper intersected at 22.3 meters in borehole MUDH-1203.

Copper mineralization generally forms two zones in lenticular-shaped layers, acting as a copper cover. This zone extends 300 meters along strike and reaches a thickness of up to 75 meters. In the central part of the deposit, a large copper-bearing ore vein is observed, with the vein width varying from 0.4 to 3.0 meters. Some veins are intercalated with the host rock and appear milky white in color. Small traces of ancient mining excavation are observed in the copper-rich parts of the host rock. However, no traces of ancient mining excavation have been identified in the secondary ore with high copper-gold content.

Mineragraphic studies have identified pyrite, chalcopyrite, chalcocite, malachite, gold, and orange copper. Across this oxidation zone, iron hydroxides, malachite, azurite, covellite, and, rarely, red copper are also present.

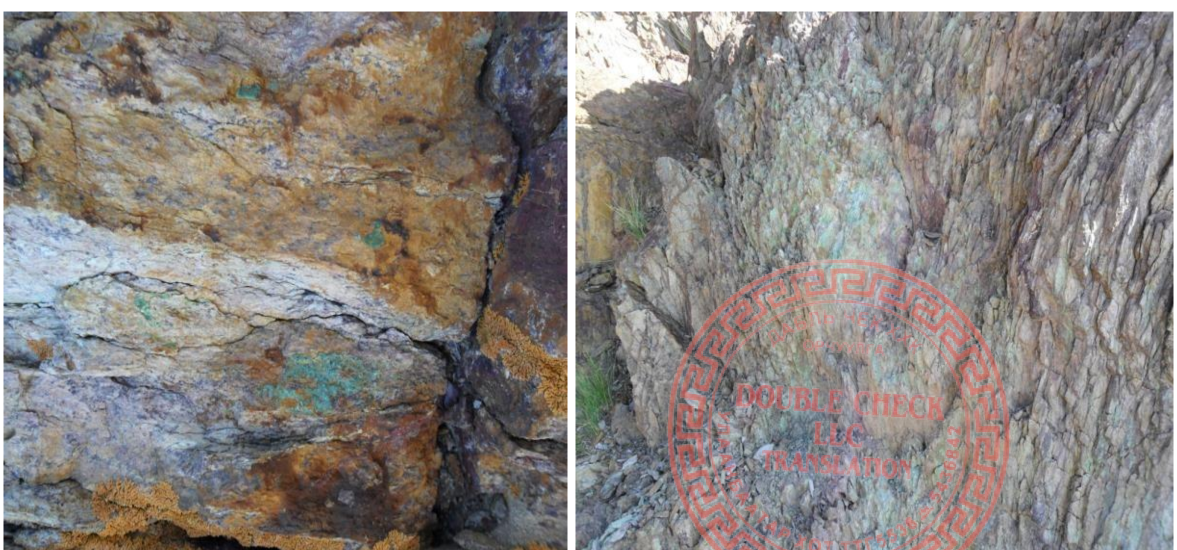


Figure 3-7. Oxidation Zone: Hematite, Goethite, and Malachite Covers

Based on field mapping, observations, drilling, and analysis, it has been determined that the ore formation process is spatially and genetically related to the Early Riphean shaly rocks, allowing the mineralization age to be considered Early Riphean.

Additionally, based on petrographic and mineragraphic analyses of the Maikhan Uul gold-copper deposit, as well as the conclusions of previous researchers regarding its origin, the following conclusions were drawn:

1. The mineralization consists of chlorite- and sericite-altered shale-bearing rhyolite porphyry, dated to the lower-middle Riphean, and carbonated rhyolite porphyry that has been altered to hydrogeotite. The rocks exhibit a massive shaly texture with porphyritic, granoblastic, lepidogranoblastic, and felsic structures, enriched with small-grained light green and red-brown pyrite in certain areas.
2. Mineragraphic studies of the deposit have identified exploitable minerals, including chalcopyrite, malachite, gold, small amounts of chalcocite, tetrahedrite, and orange copper, along with iron hydroxides and turquoise in the oxidation zone of these rocks. Chalcopyrite occurs irregularly, with oblong grains ranging from 0.01 to 0.2 mm. The sequence of identified ore minerals is as follows: leucoxene, sphene, pyrite, chalcopyrite, hydrogeotite, and chalcocite.
3. Based on field mapping, field observations, drilling, and analysis, it has been determined that the ore formation process is spatially and genetically related to the Early Riphean shaly rocks, allowing the mineralization age to be considered Early Riphean.

Table 3-1. Table comparing the Maikhan Uul deposit with global deposits

Geochemical	Cypriot type	Kurukoglu type	Beshshi type	Maikhan Uul deposit
Geochemical	Cu, Zn	Cu, Zn, Pb, Ba, As, Ag, Au, Se,Sn,Bi	Cu, Zn, Ag, Co, Ni, Mn	Cu, Au
Geo-dynamic environment	Oceanic ridge or island arc ophiolite assemblage	Final stage of island arc	Arc and back-arc, early stage of island arc, continental arc	Overlappin g basin
Geological Composition	Base volcanic rocks	Oceanic volcanic arc rocks	Volcanic-sedimentary rocks	Acidic volcanite s
Host rocks	Alkali pillow basalts, basalt tuffite	Rhyolite, dacite, andesite, basalt	Basalt, andesite, tuff, gabbro, argillite	Rhyolite porphyry, andesite, dacite
Age of Mineraliz	Permian, Upper Triassic	Devonian, Upper Triassic,	Cambrian, Upper Triassic	Lower-Middle
Ore Minerals	Pyrite, Chalcopyrite, Magnetite, Sphalerite, Marcasite, Galena, Pyrrhotite, Cubanit, Hematite	Pyrite, Sphalerite, Galenite, Chalcopyrite, Pyrrhotite, Dull ore, Bornite, Arsenopyrite	Pyrite, Pyrrhotite, Chalcopyrite, Sphalerite, Cobaltite, Magnetite, Galena, Bornite, Cubanit, Molybdenite, Marcasite	Pyrite, Chalcopyrite, Chalcocite, Covellite, Bornite, Magnetite, Orange
Associated Minerals	Talc, Chlorite	Barite, Gypsum, Anhydrite, Carbonates, Quartz, Chlorite, Sericite	Quartz, Calcite, Ankerite, Siderite, Albite, Tourmaline,	Quartz, Sericite, Jarosite, Epidote, Chlorite

This deposit is classified as a small-scale deposit, falling into Group II based on the current classification of mineral deposits in Mongolia, considering factors such as ore body composition, mineral quality, and the shape and size of the ore body.

The deposit is situated in a prospective copper-gold ore district identified through mapping efforts. The mineralization characteristics, sequence, host rocks, and geodynamic environment have collectively led to the conclusion that the Maikhan Uul deposit is a Kurukoglu-type **volcanogenic-hydrothermal** gold-bearing copper-pyrite deposit.

4 EXPLORATION METHODOLOGY

The exploration of the Maikhan Uul copper-gold deposit was conducted with consideration of previous research findings, expert recommendations, and established exploration methods, all while factoring in the deposit's origin and geological context.

Since 2010, "Samtan Mores" LLC has collaborated with "Erdeniin Erel" LLC on the exploration of the deposit. The exploration work has been carried out in a systematic sequence, including exploration traverses, geophysical electrical and magnetic surveys, core drilling with accompanying testing, laboratory research, and post-exploration analysis.

Between 2012 and 2014, supplementary detailed exploration of the deposit was conducted using various methods, including core drilling, testing, geodetic surveying, laboratory research, and post-exploration activities. The final analyses were completed between May and July of 2015. The types, volume, and scope of geological exploration work (Table 4-1), along with the scope of completed exploration activities and the breakdown of costs by year (Tables 1-1 and 1-2), are presented in the tables.

Table 4-1. Breakdown of Exploration Work Volume (2010–2012)

№	Type of work	Unit of	Quantity of Work
1	Field mapping	hectares	79 ha
2	Exploration traverses	Linear km	237,7
3	Dipole-dipole electrical section	Linear km	103.6
4	Excavation of channels	Cubic meters	1044
5	Channel samples	pcs	145
6	Core samples	pcs	735
7	Topographical mapping	hectares	75
8	Well-to-well topographic correlation	pcs	30
9	Core drilling	pcs	9
10	Core drilling	Linear meters	2569
11	Well-to-well topographic correlation	pcs	20
12	Core samples	pcs	735

Table 4-2. Breakdown of Exploration Work Volume (2012–2014)

№	Type of work	Unit of	Quantity of Work
1	Well-to-well topographic correlation	pcs	30
2	Core drilling	pcs	9
3	Core drilling	Linear meters	1856,8
4	Channel samples	pcs	372

Under the contract, "Erdeniin Erel" LLC conducted geological exploration and mapping at a scale of 1:500, lithogeochemical sampling with a 5x5m grid, and geophysical electrical exploration in the Maikhan Uul area of the "Samtan Mores" LLC's exploration license (6275X project) from July 24 to September 31, 2010. This work covered 52 blocks, with a total area of 50 hectares.

During the field survey, 237.7 linear km of geological traverse work was completed along 5x5m lines as instructed by "Samtan Mores" LLC. A total of 10,894 lithogeochemical samples were collected, along with 104 spot samples from mineralized points and alteration zones. A portion of the lithogeochemical samples was analyzed at the internationally recognized laboratory of "SGS Mongolia" LLC. These exploration works were conducted using a pre-defined topographic base map with a 5x5 meter grid.

4.1 Preparation phase

Prior to initiating geological exploration, research materials from previous studies were sourced from the Geology and Information Center of the MRPAM, and the exploration sequence was meticulously planned based on a comprehensive analysis of geological, mineralogical, and geochemical data, along with geophysical surveys and relevant documentary materials, including aerial photographs, LANDSAT imagery, and GOOGLE EARTH images, for the special license area and its surrounding region. For data analysis and mapping, programs such as ArcGIS, MicroMine, AutoCAD, and others were used.

The roles of engineers, technicians, and support staff involved in the fieldwork were outlined, and they were briefed on the company's safety protocols and labor protection regulations prior to the start of their tasks.

Equipment, geological instruments, and devices such as hammers, compasses, GPS units, sample bags, vehicles, and protective clothing were prepared, along with all other necessary tools for the exploration work.

4.2 Exploration Traverse Survey.

Exploration traverses were conducted within specific areas, previously defined by earlier exploration, to delineate the boundaries of rocks containing copper-gold mineralization. The aim was to precisely identify rocks and zones with sulfide mineralization, discover new zones and lenticular bodies, and enhance efforts to map geological formations, internal structures, tectonics, and transformations along faults and other geological features. The primary objective was to accurately locate transformation zones and rocks containing valuable components, and to perform the necessary testing and documentation.

During the exploration traverses, the boundaries of observation points and transformation zones, along with areas of particular interest within these transformations, were recorded using GPS.

As a result, the geological structure of the deposit was clearly mapped, a detailed area for the next stage of geophysical magnetic mapping was identified, and the sites for excavation and drilling operations were determined.

The total area mapped during the exploration traverses from 2010 to 2012 covered 50 linear kilometers. The traverses were conducted on foot and by car, following a horizontal direction along both sedimentary and metamorphic zones.

4.3 Lithogeochemical Sampling

The specific results of the sampling conducted on a 5x5 meter grid to define primary geochemical dispersion directly reflect the level of mineralization in the area. The lithogeochemical anomalies identified are classified into two types:

1. Cu-Zn's overlapping anomaly

2. As-Fe-Pb-Co's overlapping anomaly

The ***Cu-Zn (Au-Ag)*** lithogeochemical overlapping anomalies are primarily observed in the southwestern half of the study area and are linked to the volcanic rocks with homodromous sequences that have undergone significant transformation, including moderate to strong quartzification, weak propylitic metamorphism, and the presence of acidic to moderately igneous lavabreccia (lithocrystalloclastic) rhyolite, dacite, andesite, and andesibasalt At the surface, these volcanic rocks are heavily affected by the schist-forming process, with the degree of foliation decreasing laterally and vertically toward the center of the volcanic massif, where they transition into gneiss-like compressional or flow textures.

The primary ***Cu-Zn*** dispersion diapasons are confined to the fracture zones between the latitudinal faults, with high-grade primary dispersion diapasons forming lens-shaped bodies. These diapasons range in size from 10x20 meters to 50x100 meters. The Cu and Zn ratio is 1:30, with high Cu grades reaching 13-15%, and Zn grades up to 0.4%.

The average grade along the primary distribution diapason is 1.7% Cu and 0.2% Zn. Surface copper mineralization occurs primarily as malachite, azurite, bornite, and covellite, with rare occurrences of orange copper. These mineralizations are typically found as transients and smears along shale fractures and occasionally as intrusions. High-grade copper (>5000 ppm) geochemical primary distribution diapasons or mineralizations spatially overlap with medium-grade distribution ranges, forming five latitudinally extending zones within the study area. These five zones are divided into 3 on the back and 2 on the front of Maikhan Uul. The 3 back zones are confined by iron oxidation and strong silicification hydrothermal breccias that occupy the northeastern half of the study area.

The 3 back zones dominate in terms of dispersion area and mineralization content, with the zones' widths ranging from 12–50 m, 25–100 m, and 8–65 m, and their lengths extending to 230 m, 450 m, and 600 m, respectively. Copper mineralization is found surrounding the hydrothermal breccia bodies, occasionally on shale volcanic xenoliths or in erosion window-like outcrops within the breccia zones.

4.4 Geological mapping

The geological mapping of the ore was designed and completed by geologists from 'Erdeniin Erel' LLC over a total area of 79 hectares, at a scale of 1:500, under contract. The geological map was prepared based on the stratigraphic classification outlined in the baseline mapping report of previous researchers.

The geological mapping was conducted using the exposure mapping method, with the geological map of the ore body created based on data from channels excavated along the exploration lines.

1: The geological map at a 1:500 scale was created by interpreting the boundaries and general structures of the rocks based on the results of the area's magnetic mapping. Geological connections were made without adhering to a specific grid density by dividing them into 1:200 scale sheets. The geological boundaries of the lower Riphean massive rocks, along with the shale rhyolite and subvolcanic bodies stretching longitudinally through the central part of the area, were accurately mapped. Five thin microsections representing the deposit were collected to distinguish the lithology and metamorphic mineralization, with detailed petrographic records made by GCL-SOE.

The primary rock of the Khar Tolgoi Formation is relatively well-segmented, forming cliffs that range in height from 2.0 to 10 meters along the ravine sides and narrow ridges of the deeply incised ravines. In contrast, the foothills feature poorly segmented hills with small exposures, typically ranging from 1.0 to 2.0 meters, predominantly composed of clastics. The entire Khar Tolgoi Formation is characterized by monoclinal folds with a northeastward dip of approximately 70–80 degrees, though small brachial-type folds are occasionally observed. Petrographic analysis indicates that mineralization is closely associated with the processes of quartzization, chloritization, sericitization, and the schist-forming process. The schistose, quartzized, and sericitized rhyolite is fine-grained, light green in color, and exhibits a schistose texture. Altered rhyolite is observed as porphyritic inclusions, containing quartz and potassium feldspar in some rocks, and quartz alone in others. Some sections exhibit foliated material with small amounts of unaltered quartz and feldspar, while other parts show quartzization, chloritization, and sericitization.

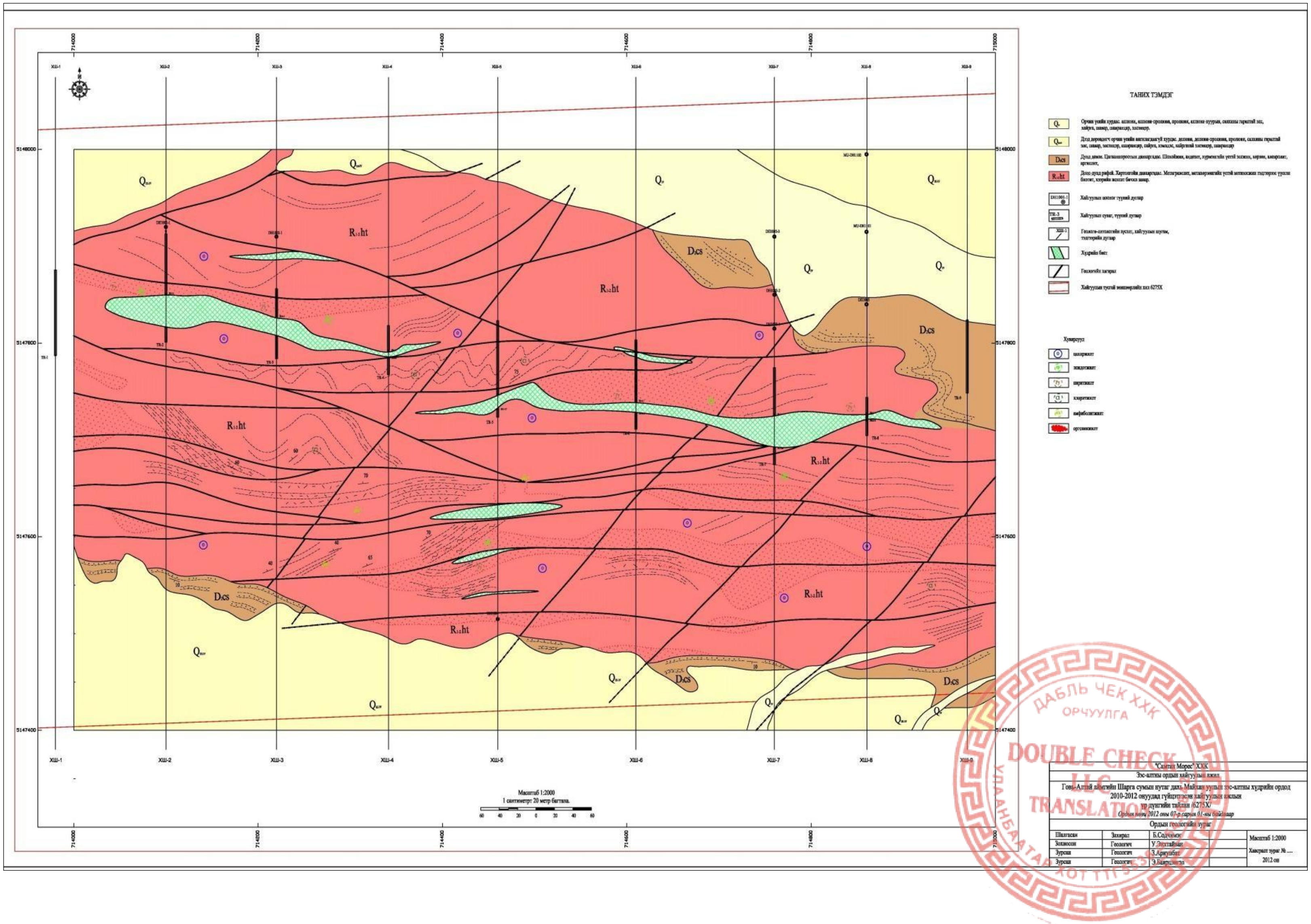


Figure 4-1: Detailed geological mapping of the deposit.

4.5 Excavation of channels

The field bedrock is relatively well-drained, and the terrane is steep, which led to the excavation being carried out manually and with an excavator. The channel excavation was planned based on the integration and analysis of geophysical magnetic and electrical survey data, alongside drill hole data. The excavation was conducted manually in areas with steep relief that were inaccessible to the excavator.

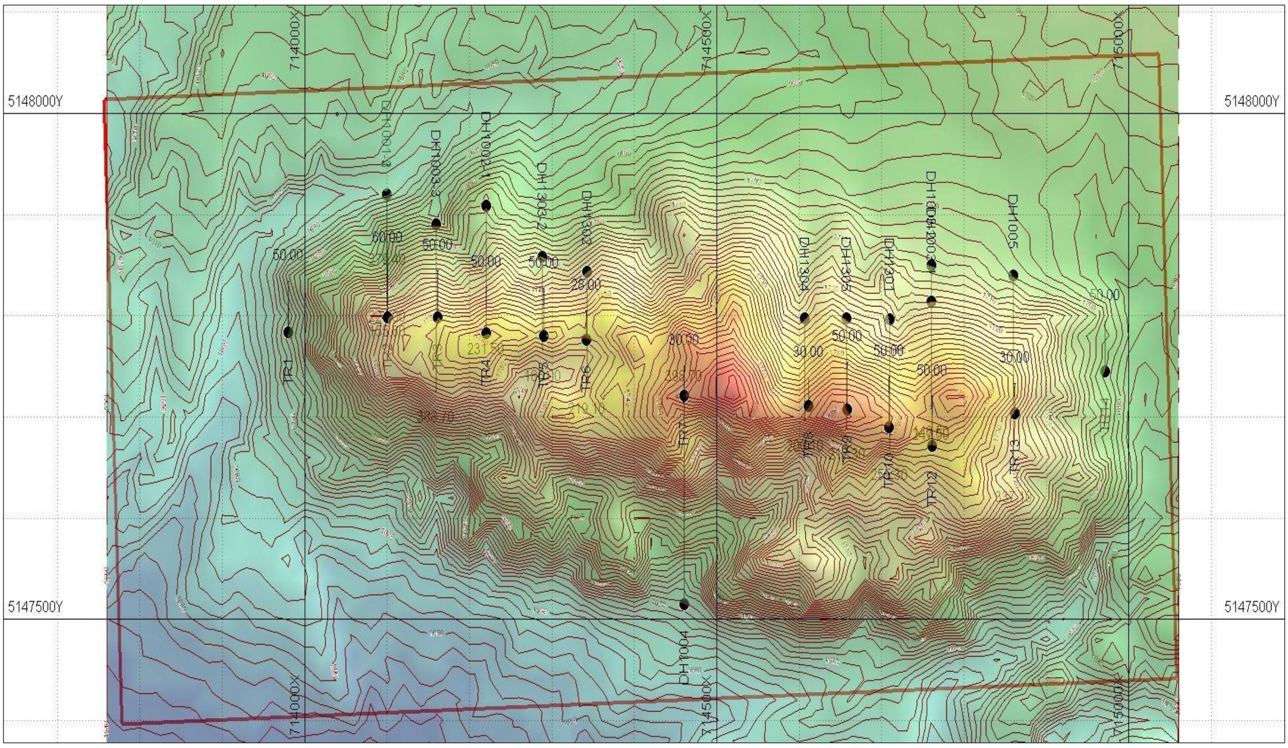


Figure 4-2: Outline of the Channel Locations

The excavation was conducted by marking the intervals in meter-wide steps along the walls and bottoms, focusing on areas with the best visibility, distinct structures, and characteristic mineralization-alteration. A 1-meter-long special-purpose tray was used to collect samples with a hammer and chisel.

Sampling was typically taken with a length of 1 meter, depending on the extent of the ore body and the boundaries of the host rock. Some continuous mineralized zones were left open until drilling was completed, after which they were sampled.

Figure 4-3: Channel excavation diagram

Mountain channel excavations were conducted to detect and study ore-bearing structures, mineralization zones, geophysical and geochemical anomalies, mineralization points, and the morphological characteristics of the mineralization. The work also aimed to identify geological boundaries and features within the ore body.

The depth of the channels varied based on factors such as the degree of rock weathering, the thickness of loose sediments, and the presence of fracture zones. The deepest point of the channel reached 1.0 meter, with an average width of 0.5-1.0 meters. The length of each channel ranged from 30 to 60 meters, depending on the extent of metamorphic mineralization in the ore body, the host rocks, and the fracture patterns. In 2011-2012, a total of 15 channels were excavated, and 356 samples were collected from these channels.

Detailed information about the channels can be found in the channel summary table (Table 4-1).

Table 4-3 : Summary of channels excavated in 2011-2012.

№	Channel ID	Longitude	Latitude	RL m	Length (m)	Volume (cubic.meters)
1	TR2	714100.9	5147799	1722.6	60	120
2	TR3	714160.9	5147799	1731.35	50	75.8
3	TR4	714220.6	5147783	1741.05	50	86.48
4	TR5	714289.7	5147780	1738.02	50	90.5
5	TR6	714341.4	5147777	1733.36	28	67.89
6	TR7	714460.5	5147721	1757.68	30	50.85
7	TR8	714611	5147711	1751.67	30	68.79
8	TR9	714658.4	5147707	1757.8	50	85.24
9	TR10	714289.7	5147690	1751.89	50	80.4

№	Channel ID	Longitude	Latitude	Collar elevation	Length (m)	Quantity of Work
10	TR11	714761. 6	5147671	1740. 25	55	90. 5
11	TR12	714761. 6	5147671	1740.25	50	60.5
12	TR13	714861.5	5147704	1725.68	30	45.7
13	TR14	714971.6	5147745	1693.79	50	56.15
14	TR15	713980.1	5147784	1674.62	50	65.2
	Total					1044 cubic.meters

After the channel excavation work was fully mapped and sampled, with some notable intervals photographed, the land was restored and the work was presented to the local environmental inspector.

4.6 Drilling Works

The exploration drilling of the deposit was conducted in two stages.

The drilling team from "Twin Idol" LLC utilized the POWER 6000 SCD drilling machine, manufactured by HANJIN Corporation, to gather data on the depth of mineralization in the copper-gold-bearing ore body. A total of 9 boreholes were drilled, with depths ranging from 155.60 meters to 398.7 meters, reaching up to a depth of 200 meters. In total, 2,569.0 linear meters of drilling work were completed. The drilling was conducted using internationally recognized HQ diameter range. Throughout the process, core recovery was carefully monitored, achieving a yield of 95-100%, with an average of around 97%, fully satisfying geological requirements. A total of 735 core samples were collected from the exploration drilling holes. The consolidated data on the drilled holes at the deposit level, organized by year, is presented in the table (Table 4-3 and 4-4) below.

Table 4-4: Consolidated table of drilled wells (2010-2012)

№	Hole ID	Longitude	Latitude	RL (m)	azimuth	Dip	Depth (m)
1	DH1001-1	714100	5147920	1670.97	180	0	155.6
2	DH1001-2	714100	5147920	1670.97	180	45	224
3	DH1002-1	714220	5147910	1699.37	180	45	231.5
4	DH1001-3	714100	5147920	1670.97	180	82	279.4
5	DH1003-1	714760	5147815	1715.69	180	45	146.5
6	DH1003-2	714760	5147850	1706.91	180	55	247.5
7	DH1003-3	714760	5147910	1700.01	180	65	388.7
8	DH1004	714460	5147515	1671.4	0	45	398.7
9	DH1005	714860	5147840	1701.68	180	55	337.1
	Total in Linear meters						2569 m

During the 2012-2014 supplementary exploration drilling, the drilling team from 'Twin Idol' LLC continued the previous work. Following the classification guidelines for hard mineral deposits, they drilled 9 holes with depths ranging from 146.5 to 398.7 meters along 11 exploration lines, spaced 50 x 100 meters apart, totaling 1,856.8 linear meters of drilling. A total of 372 core samples were collected from the exploration boreholes.

Detailed information about the boreholes is provided in (Table 4-5 e).

№	Hole ID	Longitude	Latitude	RL (m)	Azimuth	Dip	Depth/ m
1	MU_DH1202	715019	5147887	1710.5	180	80	282.30
2	MU_DH1203	715023	5147763	1698.2	180	80	163.30
3	MU_DH1204	687587	5140201	1670.3	190	45	204.50
4	DH1301	714710	5147848	1712.06	180	-60	255,3
5	DH1302	714342	5147896	1697.51	180	-60	219,1
6	DH1303-1	714160	5147915	1683.35	180	-60	171
7	DH1303-2	714289	5147902	1692.75	180	-60	185
8	DH1304	714607	5147848	1711.3	180	-60	200.1
9	DH1305	714657	5147848	1712.14	180	-60	217.3
	Total in Linear meters						1856.8 m

Figure 4-4: Photo of drilling operations in progress at the exploration site.

In the estimation of the azimuth and inclination of the drill holes, it was assumed that the ore body was intersected across its strike. The majority of drill holes were oriented with an azimuth of 180 degrees and an inclination between 45 and 60 degrees.

For each borehole drilled during the exploration phase, a 1:500 scale borehole column was constructed. Furthermore, a comprehensive summary of the test work, laboratory analysis results, and columns detailing the rock metamorphism and mineralization were compiled and incorporated into the report as appendix.

4.6.1 Borehole inclination measurement

During the 2013 exploration drilling program, gyroscopic measurements were recorded at intervals of 100 meters along the drill rod, following the completion of each borehole. Gyroscopic surveying is a key method for assessing the deviation of the borehole during drilling operations. It is widely used to accurately determine the geometry and extent of the ore body, providing critical data for the assessment of the deposit's shape and size. During the 2013 exploration drilling program, a total of 12 gyroscopic measurements were conducted across 4 exploration wells. The results of these measurements were subsequently analyzed and presented by the geologist and senior project geologists.

Figure 4-5. GSK 250 K instrument performing well gyroscopic measurement

Table 4-6: Exploration Boreholes with Gyroscopic Measurements.

Planned direction and inclination of the borehole			Deviation after measurement					
Hole ID	azimuth	Dip	Change in borehole direction			Change in borehole inclination		
			100	200	300	100	200	300
DH1301	180	60	180.1	180.3	180,5	60	59.4	59.0
MU_DH1202	180	80	180,1	180,1	180,4	80	80,2	81
DH1001-3	180	82	180,0	180,2	181	82	82,7	83,0
DH1301	180	60	180,2	180,2	180,7	60,2	60,8	61,1

The aforementioned measurements indicated that the deviation of the borehole inclination within the ore body cross-section showed minimal variation, with a maximum deviation of up to 1.2 degrees observed in the fracture zone. This data was subsequently incorporated into the resource calculation.

4.7 Geophysical Survey

By the 2011 exploration program, geophysical surveys (time-domain induced polarization and resistivity using Zonge instruments) were conducted across the licensed area of the Maikhan Uul project (MV-019681).

The primary objective of the pole-dipole method was to detect geophysical anomalies at significant depths. This method enabled the survey to extend to depths of up to 1,000 meters below the surface. A total of 4.8 km of electrical wiring was installed during the survey.

The mapping aimed to identify significant geological structures within the project area, using lines determined by the pole-dipole method. The pole-dipole mapping, with a 150-meter electrode grid, penetrated depths ranging from 1,200 to 1,600 meters. The locations of the grid points were recorded using a GPS Map 60C. This report outlines the theoretical foundation and methodology of the polarization/resistance mapping conducted in the Maikhan Uul project survey, including the instruments used, mapping parameters, measurement quality assessment, and quantitative data processing. It also includes an interpretation of the survey results along with recommendations. The geophysical interpretation was based on the results of both 2D cross-sections and 3D models.

The electrical geophysical survey was conducted from July 24 to September 31, 2010, across 52 blocks covering a total area of 50 hectares. In accordance with the geological characteristics of the study area and the survey objectives, geophysical electrical exploration utilized both the dipole-dipole method (with a 20x20 m grid) and the pole-pole method (with a 100x100 m grid), oriented in the north-south and east-west directions. The results of the field survey, including measurements of electrical resistivity and induced polarization of the rocks, were processed into 2D sections for each survey line and grid. These were subsequently combined into 3D models, and the results were presented in both 3D sections and models.

Table 4-7: Geophysical Exploration Parameters

	By 20m x 20m grid	By 100m x 100m grid
Field size	79 ha (0.65km x 1.2km)	79 ha (0.65km x 1.2km)
Type of methodology	Section	Section
Methodology	Dipole - Dipole	Pole- Dipole
Depth (meters)	Up to 70-100m below surface	Up to 500m below surface
Grid size	20m x 20m	100m x 100m
Electrode distance	20m	100м
Quantity of channel	8	6
Primary line 1/km	1200m/20+1 = 61 linear x 0.8km = 48.8 linear km	1200m/20+1 = 13 linear x 0.8km =10.4 linear km
Control line 1/km	25.2 linear km	11.2 linear km
Total	74.0 linear km	21.6 linear km
Electrode type	Non-polarizable electrode	Non-polarizable electrode
Wire	Copper	Copper
Location Description	2D/3D	2D/3D

Figure 4-6: Geophysical ELRECPRO Instrument

Figure 4-7 Geophysical ELRECPRO Instrument

1. In accordance with the exploration program, a total of 16.8 linear kilometers of Time Domain Induced Polarization/Resistivity (IP/R) surveying was carried out using Zonge's equipment. Both the primary and final data were processed, and the planned research was fully completed. This report includes the results of the survey work along with recommendations and interpretations. The relationship between the boreholes and ore bodies was depicted through the following cross-sections using the dipole-dipole electrical profiling method.

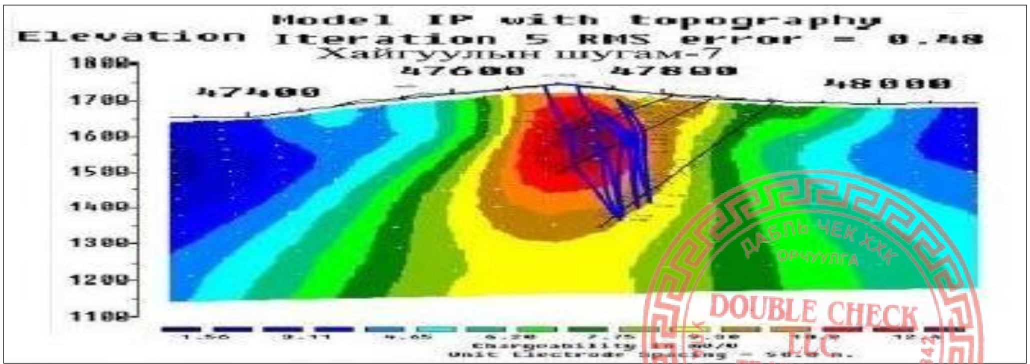


Figure 4-8. Dipole-dipole electrical cross-section along Exploration Line 7 for Boreholes 1003-1, 1003-2, and 1003-3.

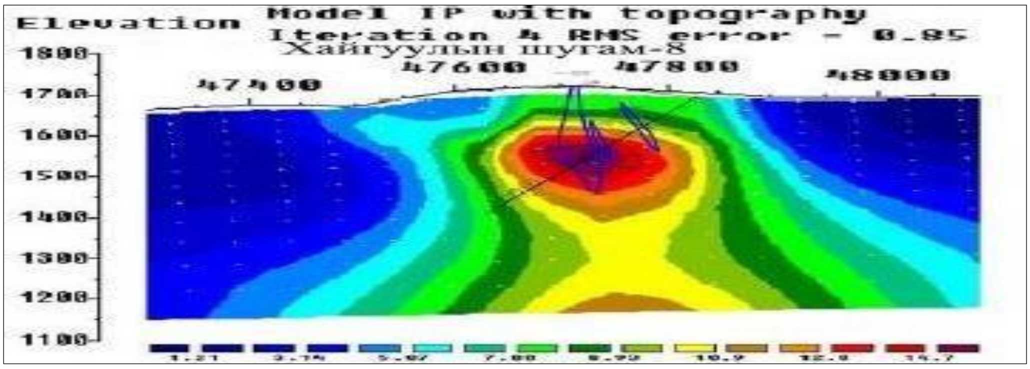


Figure 4-9. Dipole-dipole electrical cross-section along Exploration Line 8 Borehole 1005

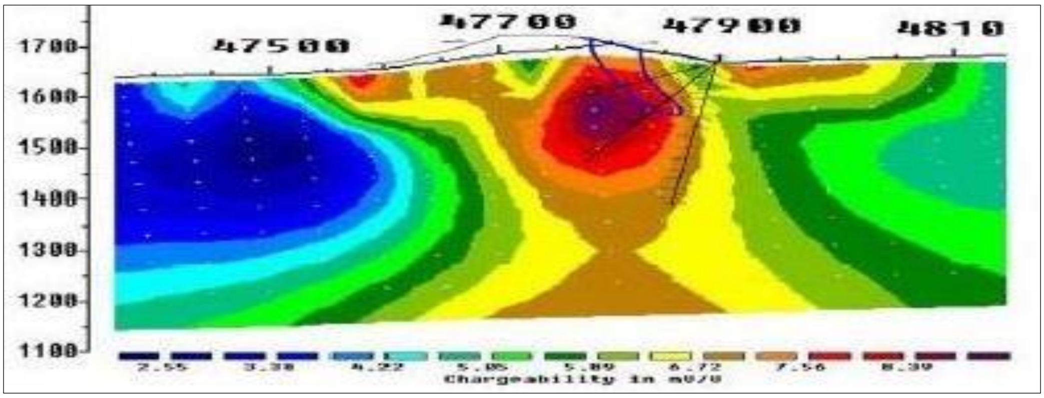


Figure 4-10. Dipole-dipole electrical cross-section along Exploration Line 2 Boreholes 1001-1, 1001-2, and 1001-3.

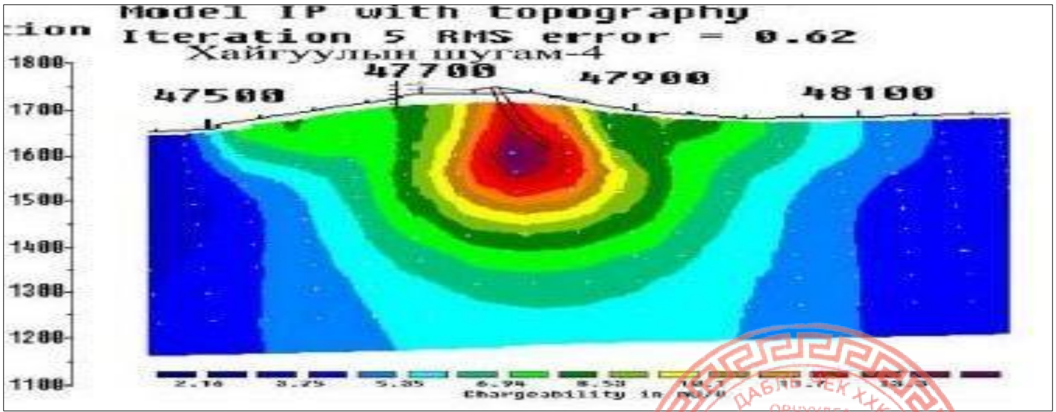


Figure 4-11. Dipole-dipole electrical cross-section along Exploration Line 8

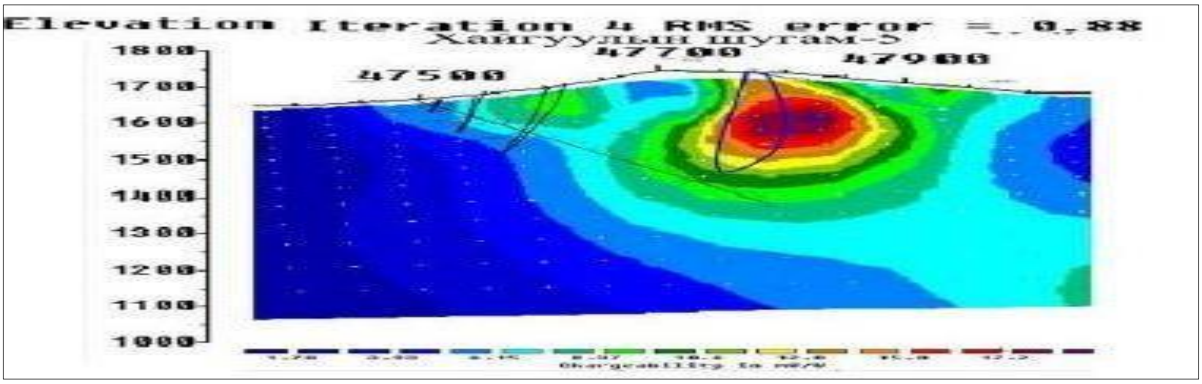


Figure 4-12 and 4-13: Dipole-dipole electrical cross-section along Exploration Line 8 Borehole 1005

2. Geophysical electrical exploration was conducted using the pole-dipole method with a 400-meter electrode spacing. Thus, the depth and accuracy of the survey work were consistent with high-quality standards. The depth of the survey reached 1600.0 meters. Maikhan Uul Project No. 6275x Electrical Polarization and Resistivity Mapping Report

3. Based on the interpretation of 2D/3D models, the polarization anomaly intensity shows a consistent north-south trend along the survey lines. The polarization anomalies are primarily observed in the range of 20.0–50.0 msec, with the peak intensity occurring between depths of 26.0–36.0 msec.

4. A correlation was noted between the low-resistivity and high-polarity anomalies, which are present in most sections of Lines 1-2 and 4. These anomalies are interpreted as indicative of sulfide mineralization, likely associated with fault zone barriers.

5. The low-resistivity anomaly, which aligns along a continuous north-south trend, is interpreted to represent metamorphic rock formations at depth. The raw data measured from the five pole-dipole lines were processed using Zonge software, resulting in 2D polarization and resistivity sections for the study area. A detailed report of the geophysical electrical survey is provided in Volume 2 (Appendix 2).

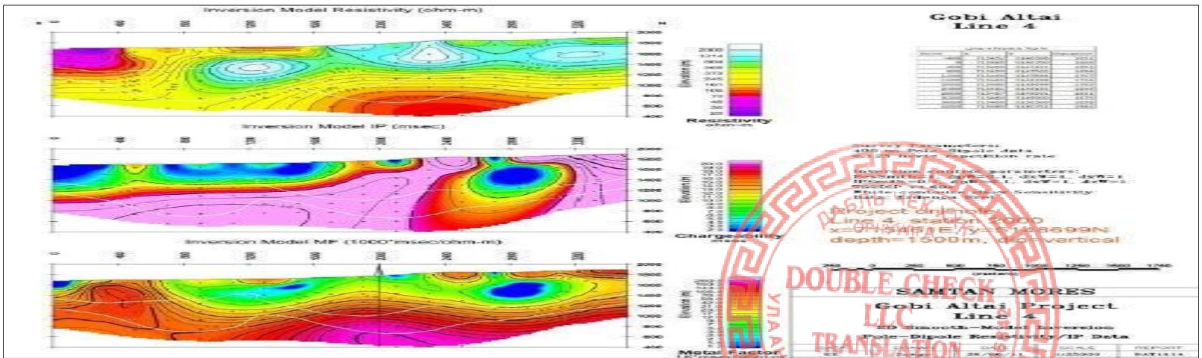


Figure 4-14. 2D Resistivity/Polarization/Metallization Coefficient Section for Line 3 after Zonge processing.

The polarization anomaly, with a maximum value ranging from 20.0 to 30.0 msec and an average of 25.0 msec, is clearly depicted in the pole-dipole method section. The low resistivity values ranged from 50 to 200 ohm·m on average (Figure 4-14), which was interpreted geologically as a deformation zone. The survey reached a depth of 1,600 meters, with high polarization anomalies, low resistivity anomalies, and high metallization coefficient anomalies clearly visible at 1,200 points across the field.

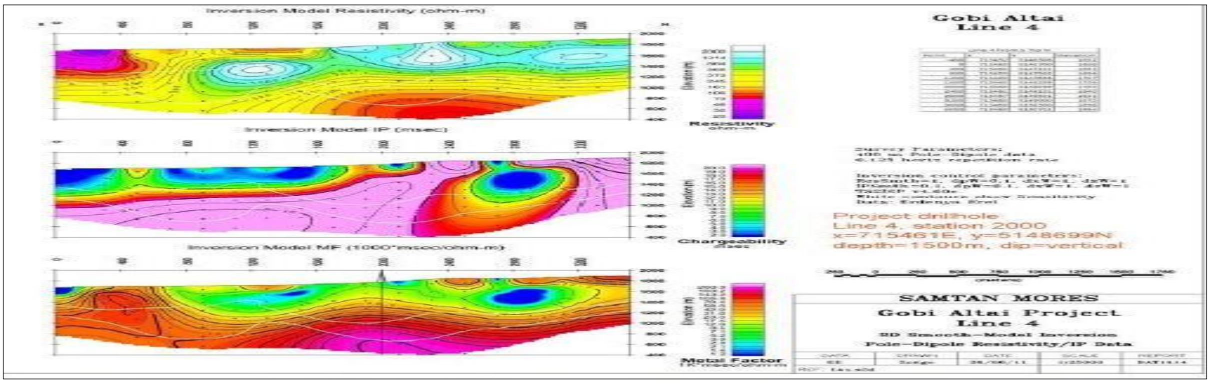


Figure 4-15. 2D Resistivity/Polarization/Metallization Coefficient Section for Line 4 after Zonge processing.

The 2D cross-sections of resistivity/polarization/metallization coefficient after Zonge processing are shown in Figure 4-13. The polarization anomalies were found to coincide with the low resistivity anomaly zone. Geologically, this is considered to be related to sulfide bodies.

The bedrock of the Maikhan Uul field consists of homodromous effusive rocks of a single volcanogenic origin. In both surface and depth longitudinal electrical survey sections, resistivity values ranged from 2.9 to 5,697 ohm·m, and polarization values ranged from 1.2 to 34.5 mV/V.

- In sedimentary rocks, polarization ranged from 1.2 to 2.8 mV/V.
- In hydrothermal breccia bodies, polarization ranged from 2.7 to 3.4 mV/V.
- In weak schist rhyolite, dacite, and andesite, polarization ranged from 3.4 to 4.8 mV/V.
- In orthosyenite with rhyolitic and dacitic composition, polarization ranged from 4.8 to 6.6 mV/V.
- In lava breccias with acidic to medium composition, flow textures, and gneiss-like features, polarization ranged from 7.1 to 12.6 mV/V. In quartz porphyry, polarization was less than 12.6 mV/V.

Among these, polarization bodies with values ranging from 7.1 to 12.6 mV/V are associated with secondary copper mineralization (malachite and azurite), while those with values exceeding 12.6 mV/V are indicative of copper-zinc monolithic sulfide mineralization.

The sulfide mineralized body described above forms a cylindrical structure with a length of 1,200 meters at a depth of 60-120 meters. Its diameter varies along its length: 50 meters in the western part, 70 meters in the middle, and 80 meters in the eastern part. This structure extends along a gradually sloping trend from west to east within the study area.

Conversely, the hydrothermal breccia body, which contains high gold content and copper-nickel mineralization, does not form a contrasting anomaly and is not clearly visible at depth. It exhibits a resistivity of 1,725 ohm·m and weak polarization of 2.58 mV/V.In fact, it is of interest at depth

However, it is of potential interest at greater depths. The weak anomaly observed is likely due to fracturing and dispersion of the mineralization within the host rock.

The occurrence of Ni, Cr, Co, Mo, and W gold complexes associated with hydrothermal breccia bodies exhibiting weak geophysical intermediate anomalies in blocks 17 and 19 coincides with lithogeochemical studies. These results suggest the presence of antidromic sequences within the homodromic volcanogenic rocks of the Maikhan Uul range. Therefore, it is confirmed that the block contains basic and ultrabasic bodies, which have been strongly altered by hydrothermal fluids and are no longer distinguishable at the surface under normal conditions. Finally, when integrating the results of the geophysical survey with geological data, it is believed that, in addition to the cylindrical Cu-Zn massive sulfide body at a depth of 60-120 meters, there is potential for a secondary massive sulfide body with high polarity at a depth of 700 meters (vertically at coordinates 5147600/714960).

4.7.1 Channel sampling

When entering the rock weathering zone, it is essential to obtain relatively clean channel samples from the channel bottom. To achieve this, during channel sampling, a groove with a cross-sectional area of 5 x 5 cm was excavated from the channel bottom. All the material from the grooved section was collected over a specified length, then packed in a special cloth bag, labeled, and sent to the laboratory for analysis. The length of the channel samples was limited to no more than 1 meter in the ore body and boundary zone, and no more than 2 meters in the host rock. The average weight of each sample ranged from 2 to 5 kg.

During the additional exploration work from 2012 to 2014, a total of 356 channel samples were collected from 15 channel bottoms. The sampling was carried out manually using tools such as scissors, stakes, hammers, and sledgehammers.

4.7.2 Core sampling

During the exploration work, cores extracted from the boreholes were stored in specially prepared wooden boxes, with each section of core being recorded for geological documentation. After completing the geological documentation, samples, typically 1 meter in length (though occasionally shorter or longer), were extracted and sent to the laboratory for copper and gold content analysis. A total of 372 core samples were collected and analyzed during the drilling work from 2012 to 2014.

After cutting the core samples, one portion was sent for laboratory analysis, while the other was stored as a duplicate.

During sampling, fragile sections that could not be sawed were broken and separated using a hammer and chisel, while denser, solid sections were cut with an electric saw.

One part of each cut sample was taken for analysis, and the remaining half was stored with its original box as a duplicate, ready for retesting if necessary. During sampling, efforts were made to retain the core number and other inscriptions on the duplicates whenever possible. For core sampling, samples were taken 1 meter from the metamorphic and mineralized zone, and 2 meters from the host rock.

4.7.3 Ore Enrichment Technological Sampling

To assess the mechanical and technological characteristics of copper-gold ore enrichment, sampling was conducted from both the exploration channels and boreholes at the Maikhan Uul copper-gold deposit. Technological sampling was carried out in April 2012 under the supervision of geologist B. Budsuren.

A total of 160 kg of core samples were collected from the following drill holes: Ts-1001-1, 1001-2, 1002-1, 1003-1, 1003-2, 1003-3, and 1005. Additionally, 250 kg of oxidized ore was taken from surface channels TR-2, 3, 4, 5, 6, 7, and 8, and all samples were analyzed at the Central Geological Laboratory.

4.7.4 Ore Volumetric Weight Measurement

After recording, photographing, and conducting geotechnical processing of the drill core samples, the ore volumetric weight was measured in the split samples. The following general principles were applied during this process:

Drill core samples were measured at 1-meter intervals and each selected sample was numbered according to its borehole and depth interval. This system ensures that it is immediately clear which part of the borehole the sample corresponds to based on its sample number. In the first step of the measurement, the weight of each sample was measured using a small electric scale (SF-400). The measurement was repeated three times, and the average value was used for calculation.

For this measurement, a rock sample with a length of 5 to 15 cm was selected, with preference given to intact, non-fragmented samples in order to measure the solid part of the split core as accurately as possible. Homogeneity was a key requirement from the outset.

After measuring the dry weight of the selected sample, the rock was coated with paraffin, submerged in water, and its volume was determined. The measurement results were calculated using the following formula:

$F = W / [(P - S) - ((P - W) / K))]$

F = Ore Volumetric Weight

W = Average dry weight of selected samples

P = Average waxed weight of selected samples

S = Average water weight of waxed samples

K = Density of paraffin (taken as 0.9 according to international standards)

A total of 200 samples were taken from the ore body, and the bulk density was measured for both oxidized and primary ores in the field. The primary ores were determined to have a volumetric density of 3.03–3.12 t/m³, while the oxidized ores had a volumetric density of 2.70–2.83 t/m³. After the bulk samples were divided and collected, the following procedures were followed for transportation to the laboratory for analysis:

Each sample was packed in a plastic bag, and the label, cut from the sample book, was attached.

The mouth of the plastic bag was tightly sealed and securely tied with string to prevent sample loss during transportation.

The bagged samples are placed in a large blue barrel by its order, filling the barrel until it is full. The sample registration table is then checked against the number of samples in the barrel. Each barrel is numbered, and the corresponding number of samples contained within it is marked on the barrel. The first barrel will contain a copy of the total number of samples, a list, the sample accompanying sheet, and the packing slip. The barrel is then covered with the designated lid and sealed with adhesive tape.

4.8 Sample Control

Control samples include both standard samples and external controls for laboratory analysis. During the exploration work, three main standard samples were referred. These were sourced from two reference standards, G399-10 and GBM303-2, which were prepared from the primary copper-gold deposit of Geostats Company in Australia. The standards were selected to accurately reflect the matrix and ore grade of the deposit. For every 50 samples, one standard sample and one blank sample were included and numbered. The list of the referenced standards is shown in Tables 4-8 and 4-9. With 8.19% of the total samples being control samples, the requirement of having 5-10% control samples in the total sample batch was met (as shown in Table 4-7).

Table 4-8: Primary and control samples

Sample Type	Number of Samples	Percentage of Total Samples
Primary sample	728	91,80
Standard sample	15	1,89
Duplicate sample	30	3,78
Control blank sample	20	2. 52
Total numberr of samples	793	100

All the samples were subjected to FAA505 analysis. The FAA505 method involves melting a 50 g sample mixture during the lead fire assay, dissolving it in a polyacid solution to determine the gold content, and then extracting it in DIBK before analyzing it using Atomic Absorption Spectroscopy (AAS).

Table 4-9. Gold standards used for external quality control

Standard type	Standard ID	Gold content (ppm)
Gold-silver sulfide ore deposit	G-399-10	13.20
Gold-silver sulfide ore deposit	GBM 303-2	1.28

During the exploration program, a total of 15 standard samples were analyzed at the laboratory of SGS Mongolia LLC in Ulaanbaatar. Sample control was carried out with one standard sample for every 50 samples.

Table 4-10. Certified values of G399 Standard samples

№	Chemical compoun	Unit of Measu	Certified value	Confidenc e limit	Result count

№	Chemical compoun	Unit of Measu	Certified value	Confidence limit	Result count
1	Mo	ppm	32	0.1	18
2	Au	ppm	13.20	0.02	25
3	Ag	ppm	<5	0.42	14
4	Co	ppm	160. 27	0. 02	20
5	Zn	ppm	764.4	0.0006	16
6	Pb	%	0.002	0.001	17
7	As	ppm	326.45	0.02	15

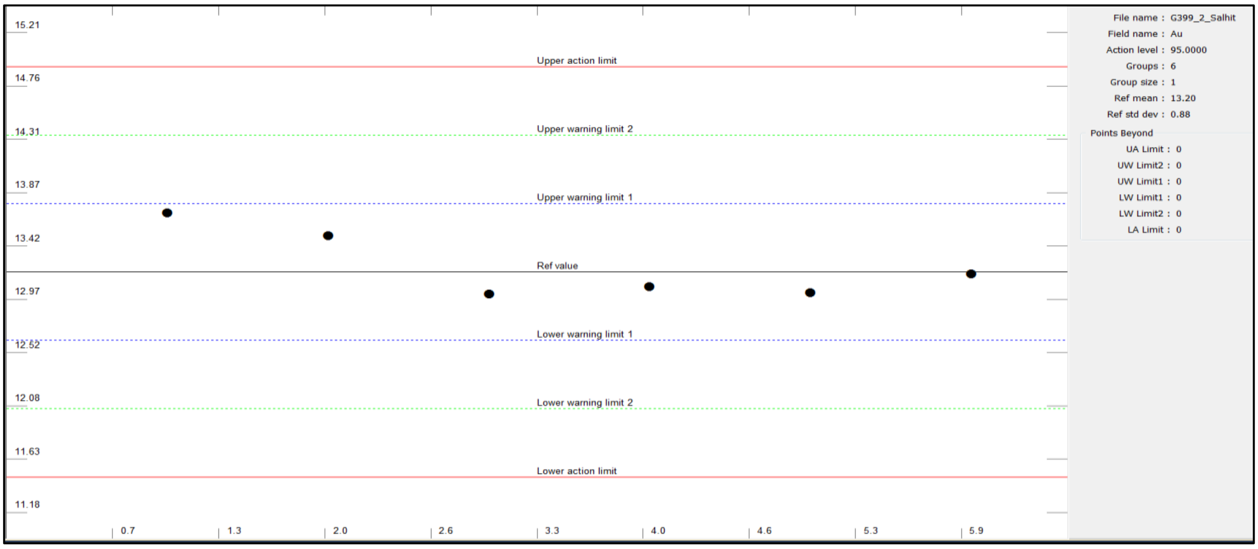


Figure 4-16. G399-10 Standard Sample's Shewhart Chart

The certified value of the G399-10 standard sample is 13.20 ppm. All six samples analyzed were found to be within the acceptable range of the certified value, with no results exceeding the defined upper or lower warning limits. As the certified value for Ag is below 5 ppm, direct comparison of the analyzed values in a graphical format is not feasible.

Table 4-11. Certified Values of GBM303-2 Standard Samples

№	Chemical compound	Unit of Measu	Certified value	Confidence limit	Result count
1	Ni	ppm	40	+/- 10.8	56
2	Cu	ppm	2847	+/- 710.8	65
	Au	ppb	15800		
3	Zn	ppm	34	+/- 9.1	57
4	Pb	ppm	41	+/- 10.8	60
5	As	ppm	62	+/- 16.9	55
6	Co	ppm	77	+/- 20.3	58
7	Ag	ppm	2.8	+/- 0.7	59

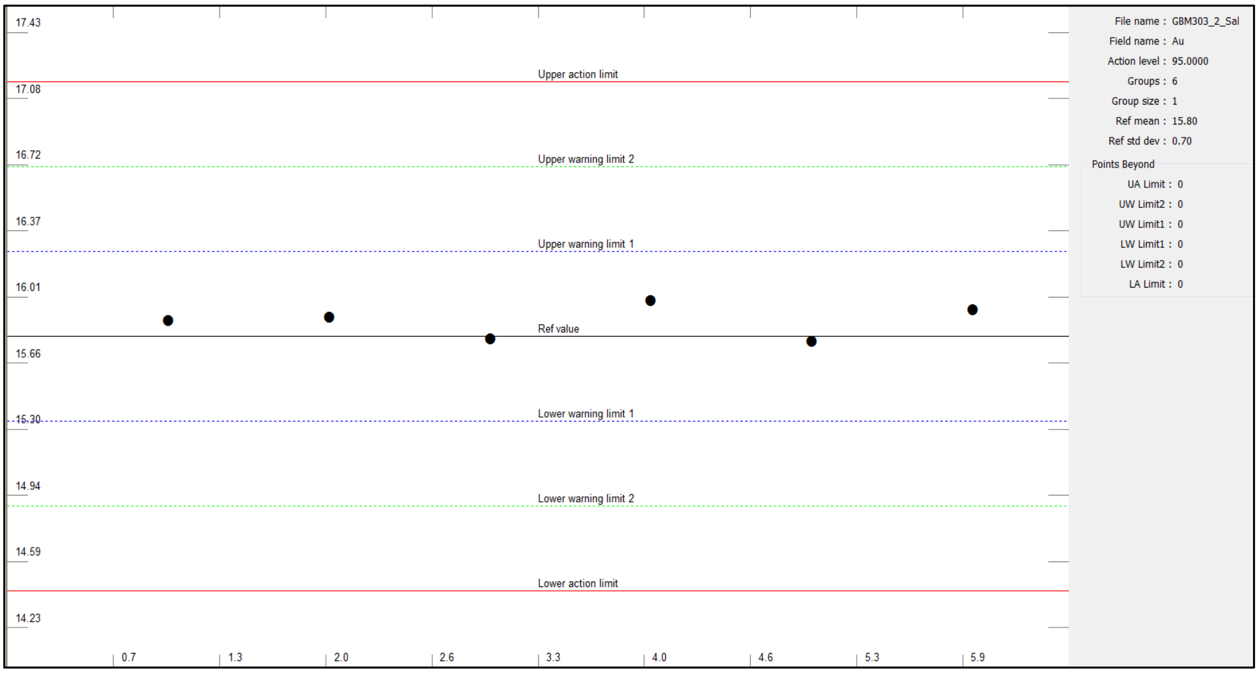


Figure 4-17. GBM303-2 Standard Sample's Shewhart Chart

The certified value of the GBM303-2 standard sample is 15.8 ppm. All six samples analyzed were found to be within the acceptable range of the certified value, with no results exceeding the defined upper or lower warning limits.

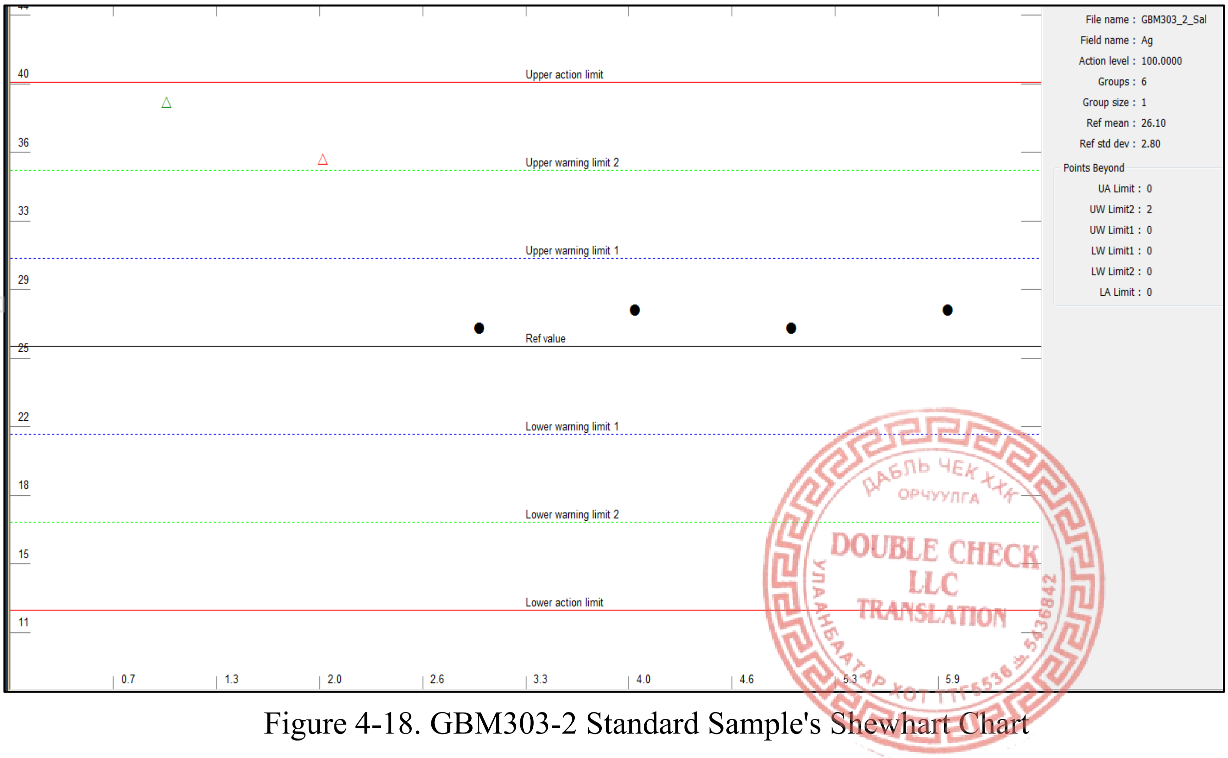


Figure 4-18. GBM303-2 Standard Sample's Shewhart Chart

Table 4-12. Certified Values of GBM303-2 Standard Samples

№	Chemical compoun	Unit of Measu	Certified value	Confidenc e limit	Result count
1	Ni	ppm	403	+/- 10.8	56
	Au	ppm	15.8	+/-	
2	Cu	ppm	72921	+/- 710.8	65
3	Zn	ppm	308	+/- 9.1	57
4	Pb	ppm	427	+/- 10.8	60
5	As	ppm	717	+/- 16.9	55
6	Co	ppm	680	+/- 20.3	58
7	Ag	ppm	26.1	+/- 0.7	59

The certified value of Ag in the GBM303-2 standard sample was 26.1 ppm. Four samples were analyzed and found to be within the certified value range, while two samples were within the Upper Warning Limit 2.

4.9 Topographical and Geodetic Program

During the exploration phase, the engineering and technical team from Land Major LLC, authorized by the GMCD of MRPAM, conducted geodetic and topographic mapping over an area of 79 hectares surrounding the Maikhan Uul copper-gold deposit. The mapping was performed at a 1:500 scale, covering channel connections and boreholes.

This work was performed in accordance with the "Technical Instructions for Large-Scale Topographic Mapping." Prior to the topographic survey, a GPS network point and three main geodetic reference points were established near the project site. Two additional reference points were installed for visibility from the primary reference points. All points were accurately fixed, and images were captured from multiple angles and distances.

DOUBLE CHECK LLC TRANSLATION

Figure 4-19. A wide-angle and close-up photograph of the topographic point GCT-5187

A Trimble 5800 GPS receiver with 3 segments and 2 long wavelengths was utilized to establish the survey control network. Field survey measurements were conducted continuously, with the survey duration dependent on the location of the base point.

Grid alignment was conducted using the UTM coordinate system, with data processed through Trimble Geomatics Office Software. The survey was carried out in Real-Time Kinematic (RTK) mode, utilizing GPS technology and reference base points.

The first roving receiver receives the data and transmits it to the fixed station via radio waves, which then provides the refined data. All grid points (observation and sampling points) are set at 5x5 m intervals in both the north-south and east-west directions. Geological mapping and rock sampling points can be established based on these grounded grid points. The development of the exploration study was conducted using software such as Liscad, Trimble Geomatics Office, and AutoCAD.

Additionally, the area plan was created using Mapsuite+, SDR Mapping & Design programs. The catalog of state geodetic reference grid points is provided in both tables and diagrams. The work was carried out in compliance with the following technical regulations and standards:

"Instructions for the establishment of geodetic reference points and marks" UGZZG, 1988

- "Instructions for the construction of topographic maps with scales of 1:5000, 1:2000, 1:1000, 1:500" /GZND 01.85.03/
/ГЗНД 01.85.03/

- "Compilation of identification symbols for topographic maps with scales of 1:5000, 1:2000, 1:1000, 1:500" UGZZG, 2001

- "Safe technical rules for geodetic work" UGZZG, 1976. A detailed report is available in Volume 2 (Appendix Report 3).

4.9.1 Well-to-well topographic correlation

At the request of "Samtan Mores" LLC, the well-to-well topographic correlation task for boreholes drilled in 2013 within the special license area XV-06275, located in the Sharga sum of Gobi-Altai province, was carried out by the engineering and technical team of "Topaziya" LLC from October 29 to November 2, 2013.

The task was performed in strict adherence to the "Technical Requirements for Large-Scale Topographic Mapping" and the "Technical Instructions for Surveying Work." Field measurements were conducted using the S82V 2-way fixed GPS system from South brand, along with other auxiliary equipment. A detailed list of the equipment used is provided in Table 2, and the technical specifications of the primary equipment can be found in Appendix 1.

Table 4-13. Instruments and Equipment Used for Field Measurements

№	Equipment type	Model (make)	Manufactured year	Quantity
1	Dual-frequency Stationary GPS	South S82V	2012	3
3	Mobile GPS	GARMIN GPS Map60	2012	1
4	Photo camera	Nikon	2012	1
5	Two-way radio communication	Kenwood	2012	3
6	Portable computer	ASUS	2013	1
7	Vehicle	Land Cruiser	1996	1

Professional software such as Microsurvey, Prolink, South GNSS Process, and AutoCAD were used for post-exploration data processing. A detailed report is included in Volume 2 (Appendix 6).

Figure 4-20. Maikhan Uul exploration expedition

4.9.2 Sampling for Ore Enrichment Technology.

To determine the mechanical and technological properties of copper-gold ore enrichment, sampling was carried out from both the exploration channels and boreholes drilled within the Maikhan Uul copper-gold deposit. Technological sampling involved 160 kg of core samples taken from drill holes /Ts-1001-1, 1001-2, 1002-1, 1003-1, 1003-2, 1003-3, and 1005/, along with 250 kg of channel samples collected from surface channels /TR-2, 3, 4, 5, 6, 7, 8/. These two sets of samples were sent separately to the Central Geological Laboratory for further analysis of the ore's composition and enrichment properties.

A detailed report is included in Volume 2 (Appendix 1).

4.10 LABORATORY ANALYSES

The analysis of point, core, and channel samples was carried out by the laboratory of "SGS" LLC. In all analyzed samples, the content of copper-gold ore trace elements (Mo, Ag, Ni, Fe) and harmful impurities such as arsenic (As), phosphorus (P), and sulfur (S) were determined. Additionally, 100 samples underwent ICP analysis for 44 elements.

Petrographic and mineragraphic studies of the various lithologies of ore and ore-bearing rocks from the core samples were performed at the Mineralogical and Petrographic Department of the Central Geological Laboratory. The composition and technological testing of the ore substances were conducted at the Technological Testing Laboratory of the Central Geological Laboratory. The results of these laboratory analyses are included in Volume 2, with the corresponding report provided in Volume 3.

4.11 Sample Preparation and Analysis Methods

The initial processing of samples for laboratory analysis was carried out at the field camp of the expedition, while the final sample preparation and analysis were performed at the laboratory of "SGS" LLC in Ulaanbaatar. The sample analysis control process involves both laboratory control and internal control conducted by the company.

4.11.1 Petrographic and Mineralogical Analysis of Rocks

In 2010, six samples were analyzed to determine the lithological composition and mineralization of the host rock, including its sequence, primary and secondary mineralization, and ore composition. A total of 4 thin slices and 2 ground samples were prepared and analyzed at the Central Geological Laboratory.

4.11.2 Chemical Analysis

To accurately determine the copper-gold content, drill core and channel groove samples underwent chemical analysis at the "SGS Mongolia" LLC laboratory. In total, 733 samples were analyzed in 2011, and four additional samples were tested in 2012. The chemical analysis results showed an average content of 0.61% Cu and 0.19 g/tonne Au.

4.11.3 Spectrum Analysis

A subset of 145 channel samples underwent ICP-44 elemental analysis to determine the contents of elements, including Cr, Ni, Co, Mo, W, Sn, Cu, Pb, Zn, Ag, As, and Bi. Additionally, 145 samples were subjected to spectro-goldometric analysis to determine the gold content. Full-spectrum analysis did not reveal any significant element content other than copper and gold from the 145 samples.

4.12 Post exploration processing

Post-exploration processing was conducted in two stages: field processing and final processing. During the field development phase, activities such as trench excavation, column drilling documentation, sample dispatch for laboratory analysis, sample analysis, selective documentation, and other essential tasks were completed as needed. These activities were conducted to determine the optimal methods for further work directly on-site. Post-exploration processing was conducted in two stages: intermediate and final processing.

From 2010 to 2012, field and on-site data processing was conducted by geologists from Samtan Mores and Erdeniin Erel LLCs. The final stage of on-site development was carried out by geologists U. Enkhtaivan and Z. Ariunbat, who calculated the deposit's resources at the Probable C-grade, facilitated the discussion of the report by the Mongolian State Professional Committee on Mineral Resources, and ensured its registration in the Unified State Resource Register.

The supplementary exploration program conducted between 2012 and 2014 was carried out by geologists from Samtan Mores LLC. The final post-exploration processing was overseen by geologists B. Batzorig, B. Enkhbayar, N. Burenzaya, and P. Munkhbileg, who estimated the deposit's resources in the Proven (B Grade), Probable (C Grade), and Inferred (P Grade) categories, and ensured their registration in the Unified State Resource Register.

For the aforementioned processing tasks, software applications such as Micromine 2014, ArcMap, AutoCAD 2013, LogPlot 7, and other recently adopted tools in the geological field were used. The report's attached images were printed using an HP DesignJet 510 Plus plotter.

SIX. ORE COMPOSITION AND TECHNOLOGICAL CHARACTERISTICS

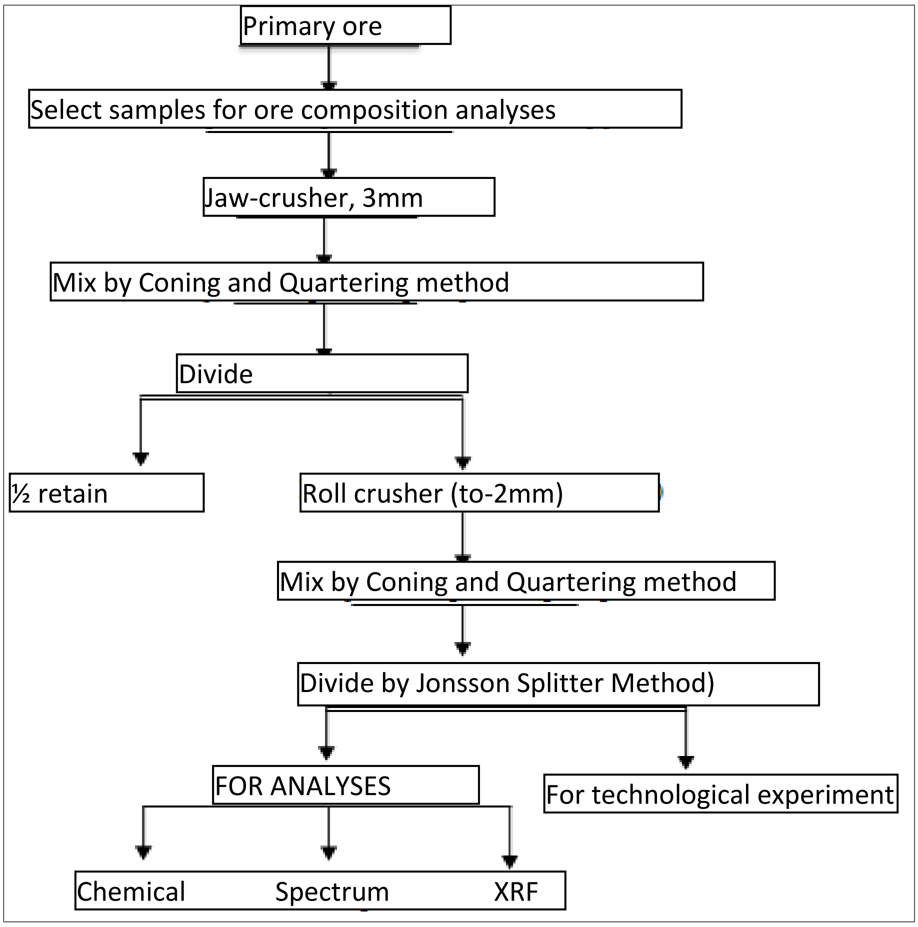
6.1 Sample Preparation

"Samtan Mores" LLC submitted 160 kg of drill core samples from the exploration drilling of the primary copper sulfide ore body of the "Maikhan Uul" copper-gold deposit, located in Sharga sum, Gobi-Altai province, for laboratory technological testing. The largest ore particle size in the samples was 50 mm. After selecting a portion of the received sample for petrographic and mineragraphic analysis, the samples were first crushed using a jaw crusher to a particle size of -3 mm. The crushed sample was then mixed three times and divided using the Coning and Quartering method. Of the total sample, 80 kg (half) was allocated for further technological testing, while the remaining 80 kg was resourced for future analysis. The 80 kg portion allocated for technological test works was further crushed with a roller crusher to -2 mm. The crushed sample was then mixed in a specialized sample mixer (Figure 6-1) and prepared for the test works.

Figure 6-1: Sample Mixer

Laboratory Analyses: The sample, crushed to -2 mm, was reduced using a Johnson divider. Further, the sample was analyzed through XRF (X-ray fluorescence) for full quantitative analysis, as well as chemical and spectral methods, to determine the mineral and elemental composition of the primary ore. Additionally, following the sample processing protocol adhered to at the CGL, 1330 g of the -2 mm sample was sieved through a series of mesh sizes: 1.0 mm, 0.5 mm, 0.25 mm, 0.125 mm, and 0.075 mm. The yield was determined for each fraction, and copper content was measured in each separated portion. The results of the analyses are presented in Tables 6-1 and 6-2, and the sample preparation scheme for the technological tests is shown in Figure 6-2.

Figure 6-2. Sample preparation flowchart for technological test work



Sieving of primary ore	Weight, gr	Yeild, %	Element, %				Element, mg/kg	
			Cu	Zn	Pb	Fe	Au	Ag
+1 мм	160	12.06	0.30	0.09	0.03	12.16	0.11	3.19
-1 мм +0.5 мм	414	31.20	0.32	0.09	0.02	12.35	0.17	4.31
-0.5 мм +0.25 мм	299	22.53	0.35	0.10	0.02	14.32	0.09	2.99
-0.25 мм +0.125 мм	290	21.85	0.39	0.11	0.02	15.03	0.12	3.32
-0.125 мм+0.075 мм	118	8.89	0.48	0.14	0.02	15.39	0.19	4.06
-0.075 мм	46	3.47	0.57	0.12	0.02	12.88	-	4.07
Нийт	**1327**	**100.00**	**0.36**	**0.10**	**0.02**	**13.65**	**0.13**	**3.63**

Table 6-1. Sieve analysis results of the primary ore

Element, %				
Au, мг/кг	Cu	Zn	Pb	Mo
0.11	0.37	0.10	<0.01	<0.005

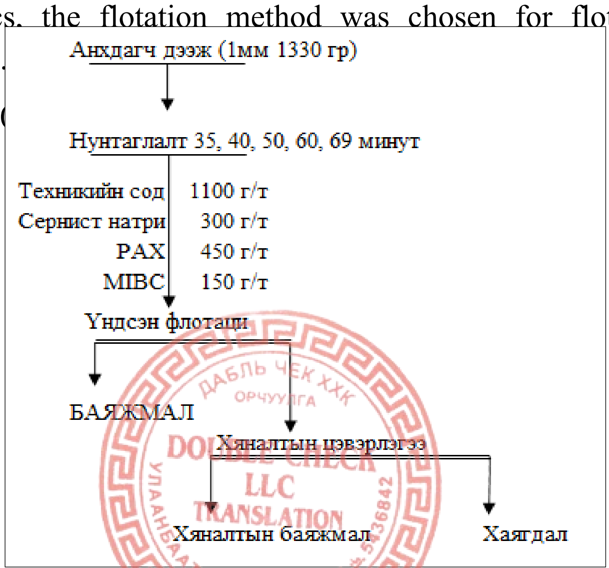
Table 6-2: Chemical analysis results of primary ore

6.2 Flotation test work

Based on the composition analysis of the primary copper sulfide ore, the samples submitted for laboratory technological testing were classified into the following groups by composition:

- Shale, quartzified, sericitized, chloritized, and mineralized rhyolite-porphyry: 85.0%
- Hydrogethite-altered, carbonated rhyolite-porphyry: 10.0%
- Muscovite-chlorite-pyrite-quartz metasomatite: 5.0%

The rocks with these compositions include relict porphyry, granoblast, lepidogranoblast, felsitic, and crustal-like structures, exhibiting a massive, shale-like texture. The rocks are macroscopically small-grained, light green in color, occasionally reddish-brown, with small to medium-sized grains, and contain significant quantities of pyrite crystals. Copper-bearing minerals in the deposit include chalcopyrite, with smaller amounts of chalcocite and tetrahedrite. These minerals are irregular in shape and are typically found within pyrite. The copper mineral content tends to increase as the pyrite content decreases. Chalcopyrite is the primary mineral of production significance. Occasionally, chalcopyrite and tetrahedrite are considerable. Chalcopyrite is irregular and oblong in shape, with grain sizes ranging from 0.01 to 0.2 mm. Due to these characteristics, the flotation method was chosen for flotation



					Элемент, %					Металл авалт, %
P80	Нунтаглалт, мин	Бүтээгдэхүүн	Жин, гр	Гарц, %	Fe	Au, мг/кг	S	Cu	Ag, мг/кг	Cu
0.118	35	баяжмал	265	19.92	33.01	0.48	26.68	1.7	7.48	84.69
		хян.баяжмал	83	6.24	17.02	0.15	12.48	0.39	2.52	6.08
		хаягдал	982	73.83	6.68	0.04	2.28	0.05	2	9.23
		нийт	**1330**	**100.00**	**12.57**	**0.13**	**7.78**	**0.40**	**3.12**	**100.00**
0.103	40	баяжмал	354	26.58	31.30	0.64	26.70	1.31	4.28	88.12
		хян.баяжмал	130	9.76	11.07	0.10	6.52	0.22	2	5.43
		хаягдал	848	63.66	5.28	0.00	0.62	0.04	2	6.45
		нийт	**1332**	**100.00**	**12.76**	**0.18**	**8.13**	**0.40**	**2.61**	**100.00**
0.093	50	баяжмал	301	22.53	33.43	0.57	31.08	1.49	7.3	83.65
		хян.баяжмал	97	7.26	15.17	0.22	10.20	0.42	3.14	7.60
		хаягдал	938	70.21	5.85	0.01	1.06	0.05	2	8.75
		нийт	**1336**	**100.00**	**12.74**	**0.15**	**8.49**	**0.40**	**3.28**	**100.00**
0.083	60	баяжмал	341	25.66	33.08	0.61	28.10	1.28	5.49	85.24
		хян.баяжмал	119	8.95	11.64	0.21	6.84	0.27	3.07	6.27
		хаягдал	869	65.39	6.07	0.06	1.18	0.05	2	8.49
		нийт	**1329**	**100.00**	**13.50**	**0.21**	**8.59**	**0.39**	**2.99**	**100.00**
0.074	69	баяжмал	332	24.89	31.64	0.48	26.88	1.43	6.54	85.94
		хян.баяжмал	106	7.95	13.69	0.16	10.12	0.31	2	5.95
		хаягдал	896	67.17	6.07	0.03	1.16	0.05	2	8.11
		нийт	**1334**	**100.00**	**13.04**	**0.15**	**8.27**	**0.41**	**3.13**	**100.00**

Table 6-3. The results of the flotation test work to establish the grinding mode are shown below.

6.3 Mineragraphic Analysis Results of the Concentrate

1. A thin slice briquette sample was prepared from the flotation concentrate and the corresponding ground sample with the same MU ID, followed by mineragraphic analysis. The volume fraction of each mineral was multiplied by its specific volumetric weight to calculate the mineral content by weight.
2. The analysis revealed a high pyrite content and a relatively low copper sulfide mineral content in the primary ore, which was also reflected in the concentrate. Pyrite is the dominant mineral in the concentrate, with chalcopyrite, chalcocite, covellite, and sphalerite present in relatively smaller amounts. The non-ore minerals content was relatively low.
3. The grain size of the minerals in the concentrate ranges from 0.004 to 0.1 mm. Notably, approximately 80% of the chalcopyrite and chalcocite grains—the primary minerals of production significance—are larger than the pyrite grains, with sizes ranging from 0.06 to 0.1 mm.
4. The chalcopyrite, chalcocite, and covellite grains are predominantly separated from pyrite and non-ore minerals, exhibiting near-total isolation. However, some reactions between chalcopyrite and sphalerite were occasionally observed. It is therefore considered unnecessary to re-grind concentrate to separate the copper minerals from pyrite.
5. With adequate cleaning of the copper concentrate to remove pyrite and proper conditioning, a concentrate with copper content ranging from 20.0% to 25.0% can be obtained.

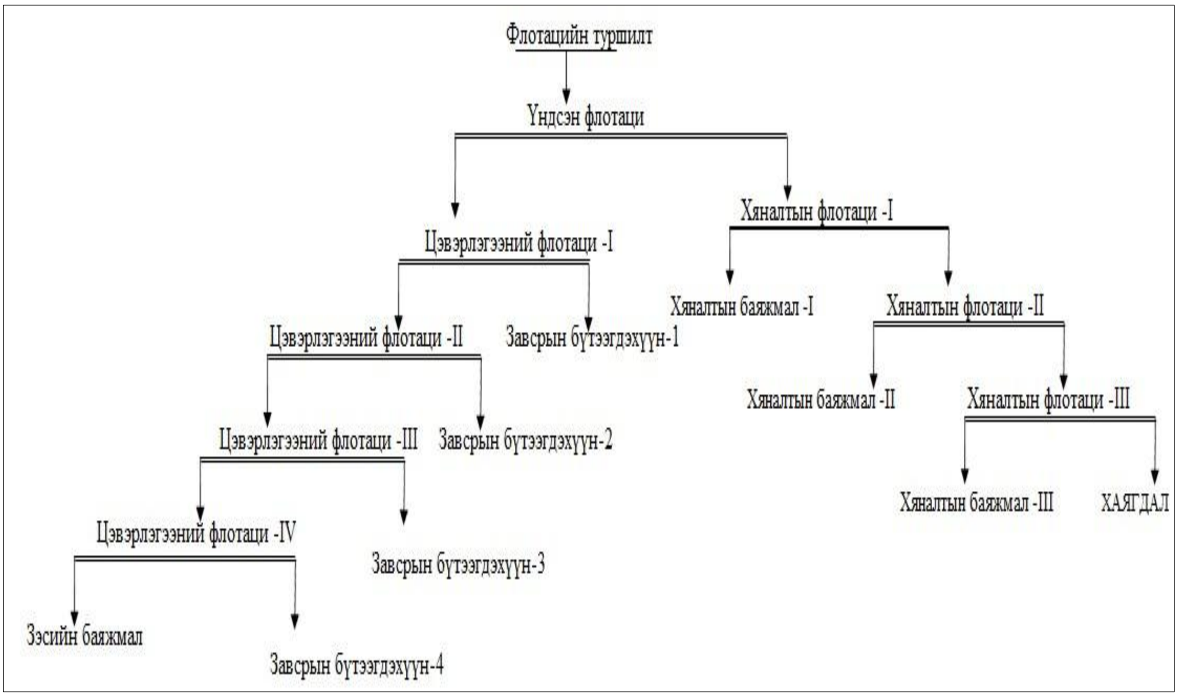
6.3.1 Flotation Test Work

The flotation test works were conducted using an "FLM-9000" flotation machine. The working chamber volumes of the flotation machine were 2, 8, and 16 liters, with a rotor speed range of 1,100–1,400 rpm, an air air flow rate of 3 l/min, a pH range of 10–12, a foam separation cycle time of 5 seconds, and a reagent mixing time of 2 minutes.

The following reagents were used in the flotation test work: Lime ($Ca(OH)_2$) as the medium adjuster, Potassium permanganate ($KMnO_4$) as the suppressant, Potassium Butyl Xanthate (PBX), produced in China, as the collector, and AERO MX5140 and AERO MX5160, produced by the U.S.-based company CYTEC and Methyl Isobutyl Carbinol (MIBC) as the frother.

The technological flowchart implemented for the test work is presented in Figure 6-4, while the reagents and their respective consumption are detailed in Table 6-4.

Figure 6-4: Flotation test work flowchart



Технологийн процессийн нэр	Нунтаглах хугацаа, мин	Хүдрийн бүхэллэг,мм	Урвалжийн зарцуулалт, г/т						Хугацаа, мин		Зутан.
			ШОХОЙ	KMnO4	AEROMX 5140	AEROMX 5160	PBX	MIBC	Урвалжтай хутгах, мин	Флотаци хийх, мин	pH орчин
			г/т	г/т	г/т	г/т	г/т	г/т			
Бутлах	-	1 мм	-	-	-	-	-	-	-	-	-
Нунтаглах	40	P80% 103мкм	-	-	-	-	-	-	-	-	-
ҮНДСЭН ФЛОТАЦИ	-	-	5000	-	-	10	-	48	2	9	11-12
I хяналт.флот.	-	-	-	-	-	-	225	12	2	4	
II хяналт.флот.	-	-	-	-	-	-	225	12	2	4	
III хяналт.флот.		-	-	-	-	-	-	12	2	4	
I цэвэрлэгээ	-	-	2500	1360	14	-	-	12	2	6	
II цэвэрлэгээ	-	-	-	340	-	-	112	12	2	2	-
III цэвэрлэгээ	-	-	-	-	-	-	56	12	2	2	-
IV цэвэрлэгээ	-	-	-	-	-	-	-	6	2	1	-

Table 6-4: Reagents and their respective consumption in the flotation test work

БҮТЭЭГДЭХҮҮНИЙ НЭР	Жин, г	Гарц, %	Зэсийн агуулга, %	Цайрын агуулга, %	Төмрийн агуулга, %	Алтны агуулга, мг/кг	Зэсийн металл авалт, %	Нийт металл авалт, %
Баяжмал	4	0.08	25.83	2.69	31	2.33	5.12	94.35
Хяналтын баяжмал -1	214	4.12	0.99	-	-	0.25	10.49	
Хяналтын баяжмал -2	134	2.58	0.44	-	-	0.09	2.92	
Хяналтын баяжмал -3	150	2.89	0.23	-	-	0.06	1.71	
Завсрын бүтээгдэхүүн -1	786	15.13	0.86	-	-	0.43	33.48	
Завсрын бүтээгдэхүүн -2	49	0.94	1.69	-	-	0.63	4.10	
Завсрын бүтээгдэхүүн -3	28	0.54	6.57	-	-	0.96	9.11	
Завсрын бүтээгдэхүүн -4	31	0.60	17.86	-	-	3.33	27.42	
Хаягдал	3800	73.13	0.03	0.15	7.78	0.03	5.65	5.65
Нийт	**5196**	**100.00**	**0.39**			**0.13**	**100.00**	**100.0**

Table 6-5.Results of the test work analysis The results of the test work analysis are presented below.

The test work determined that the copper content in the concentrate was 25.83%, the tailings content was 0.03%, and the metal recovery was 94.35%, indicating the feasibility of extracting high-grade copper concentrate. Additionally, the zinc and iron contents in both the concentrate and tailings were analyzed. The iron content in the concentrate was 33%, while in the tailings, it was 7.78%. This is attributed to the presence of iron in the copper mineral chalcopyrite ($CuFeS_2$), which inherently contains a certain amount of iron. In terms of gold, the results indicate that it is predominantly associated with sulfide minerals. The gold content in the concentrate was 2.33 mg/kg, while in the tailings it was below 0.03 mg/kg. This suggests that the gold is primarily present in its refractory form, contained within the pyrite matrix. Consequently, it is feasible to extract this non-free gold, which follows the copper concentrate during flotation, through smelting and subsequently separate it from the copper using hydrometallurgical methods.

6.4 Conclusion of technological test work

The samples submitted for laboratory analysis were classified into the following groups based on their composition:

1. Shale, quartzified, sericitized, chloritized, and mineralized rhyolite-porphyry: 85.0%
2. Hydrogethite-altered, carbonated rhyolite-porphyry: 10.0%
3. Muscovite-chlorite-pyrite-quartz metasomatite: 5.0%

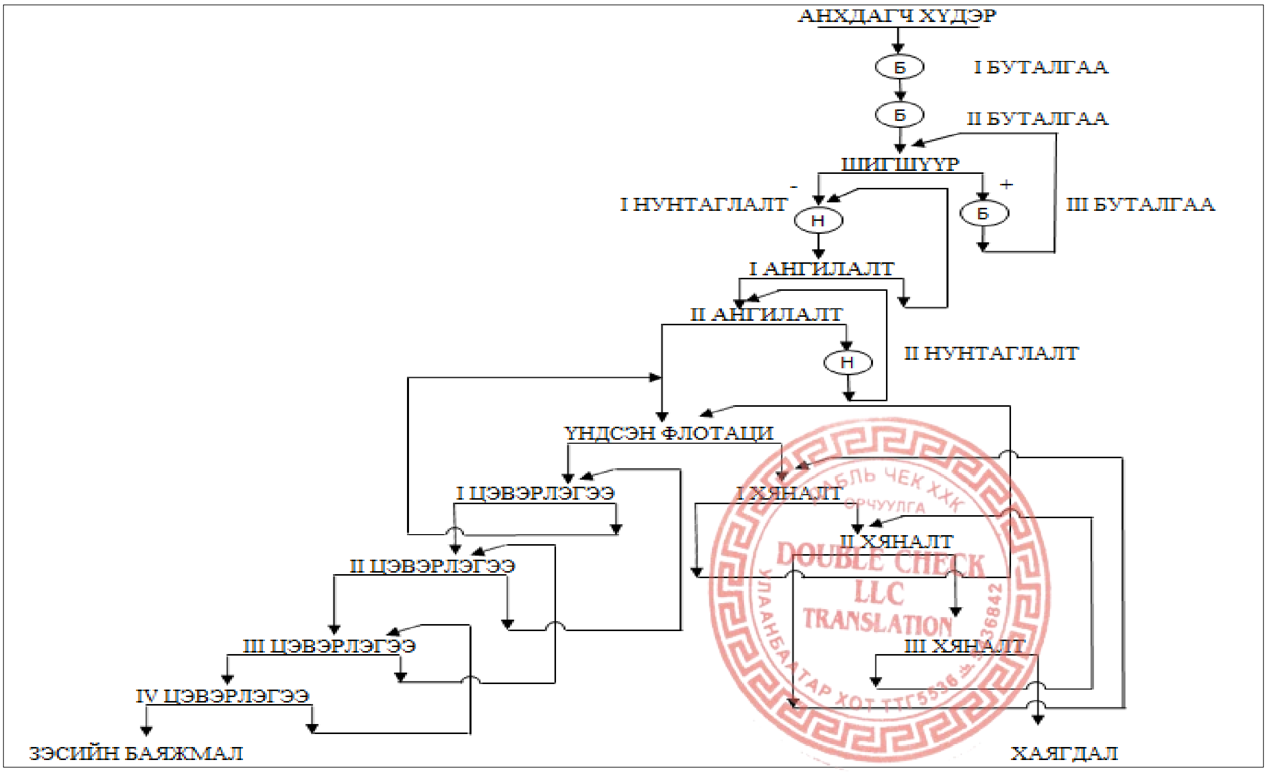
The rocks with these compositions include relict porphyry, granoblast, lepidogranoblast, felsitic, and crustal-like structures, exhibiting a massive, shale-like texture. The rocks are macroscopically small-grained, light green in color, occasionally reddish-brown, with small to medium-sized grains, and contain significant quantities of pyrite crystals.

2. Chalcopyrite is the primary mineral of production significance. Occasionally, chalcopyrite and tetrahedrite are considerable. Chalcopyrite occurs irregularly, with oblong grains ranging from 0 . 01 01 to 0.2 mm.

3. Chemical analysis of the primary sample identified the following elemental compositions: Cu 0.37%, Mo <0.005%, Zn 0.1%, Pb <0.01%, and Au 0.11 mg/kg.

4. Analysis of the physical and mechanical properties of the ore indicated a specific gravity of 3.04 g/cm^3, a volumetric weight of 3.02 g/cm^3, and a moisture content of 0.15%.
5. At the request of the Client, a flotation-based technological test work was conducted with the following reagent dosages: 5000 g/t of lime as the medium adjuster, 1360 g/t of potassium permanganate ($KMnO_4$) as the suppressant, 14 g/t of AERO MX5140 and 10 g/t of AERO MX5160, and 225 g/t of Potassium Butyl Xanthate (PBX) as the collector, and 48 g/t of Methyl Isobutyl Carbinol (MIBC) as the frother. The results, with a yield of 0.08%, a copper content of 25.83%, and a metal recovery of 94.35%, demonstrate that a high-quality copper concentrate can be obtained.
6. The gold content in the flotation products was determined to be 2.33 mg/kg in the concentrate, while the tailings contained less than 0.03 mg/kg of gold. This indicates that the gold is predominantly present in a refractory form, entrapped within the pyrite matrix, making it feasible to extract the non-free gold, which accompanies the copper concentrate during flotation, through smelting and subsequently separate it from the copper using hydrometallurgical techniques.
7. It is recommended that the client adopt the technological scheme for production, as presented in the diagram (Figure 6-5) of this report.

Figure 6-5. Recommended Technological Scheme for Production



8 RESOURCE ESTIMATION

We utilized the results from the planned exploration fieldwork, along with research materials and conclusions from previous studies, to evaluate potential parameters, grades, and other indicators for the Maikhan Uul copper-gold deposit. Based on this data, as of October 1, 2015, we delineated the ore bodies and calculated their significant component resources and ore volumes in accordance with the current guidelines and regulations, as part of the present study.

8.1 Methodology, principles, and rationale for resource estimation

The Maikhan Uul copper-gold deposit features a layered ore body with minimal thickness variation and relatively uniform grade distribution. The coefficient of variation of core and channel sample assays is 0.9 (90%), indicating that the deposit can generally be classified as Group 3 by shape and size; however, the low variability in thickness and grade stability also exhibit characteristics typical of Group 2 deposits. (Methodological Recommendations for Applying the Classification of Deposit Resources and Forecast Resources of Solid Minerals)

Therefore, an exploration grid density of 50 m between lines and 70–100 m between excavations was selected for the B-class blocks.

The copper-gold ore body was delineated by 14 surface drill channels spaced 50 meters apart and 15 drill holes positioned 155.6 to 398.7 meters along the dip. Based on the results, the resources were estimated and classified as Proven (B grade), Probable (C grade), and Inferred (P grade), with oxidized and primary ore types evaluated separately.

The resource estimate was based on 952 core samples from 15 boreholes and 212 channel samples from 14 channels. This was performed using Micromine 2014 software, with ordinary kriging as the primary geostatistical method and inverse distance weighting (IDW3) as the control method.

When a graph created to examine the relationship between copper and gold in the Maikhan Uul copper-gold deposit, эhe correlation coefficient was found to be 0.47%, indicating that copper and gold are not strongly correlated. Consequently, the ore body was delineated based on copper content, and the gold content within the ore body was calculated separately.

8.2 Resource Estimation Benchmarks

8.2.1 Cutoff Grade of the Ore Body

The cutoff grade of the deposit's ore body was estimated using geostatistical histograms and probability curves. For comparison, the benchmarks from the 2012 deposit exploration resource estimates were also referenced.

Based on the histogram and probability curves, the cutoff grade for copper was determined to be 1007.328 g/t, with a distinct fracture observed at this grade.

For comparison, the cutoff grade for copper in the 2010 exploration report was estimated at 0.1%. As a result, the surrounding copper cutoff grade for the ore body
was set at 1000 g/t or 0.1% (Figures 8-1 and Figures 8-2).

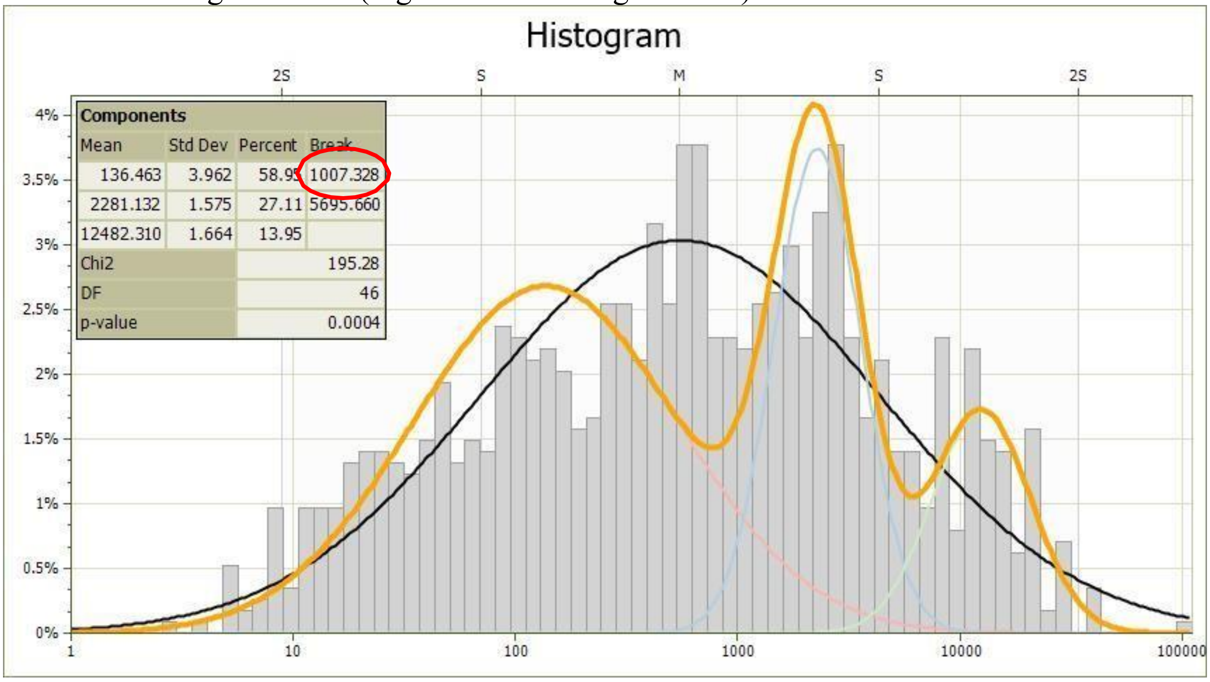


Figure 8-1: Histogram of the geological cutoff grade surrounding the ore body

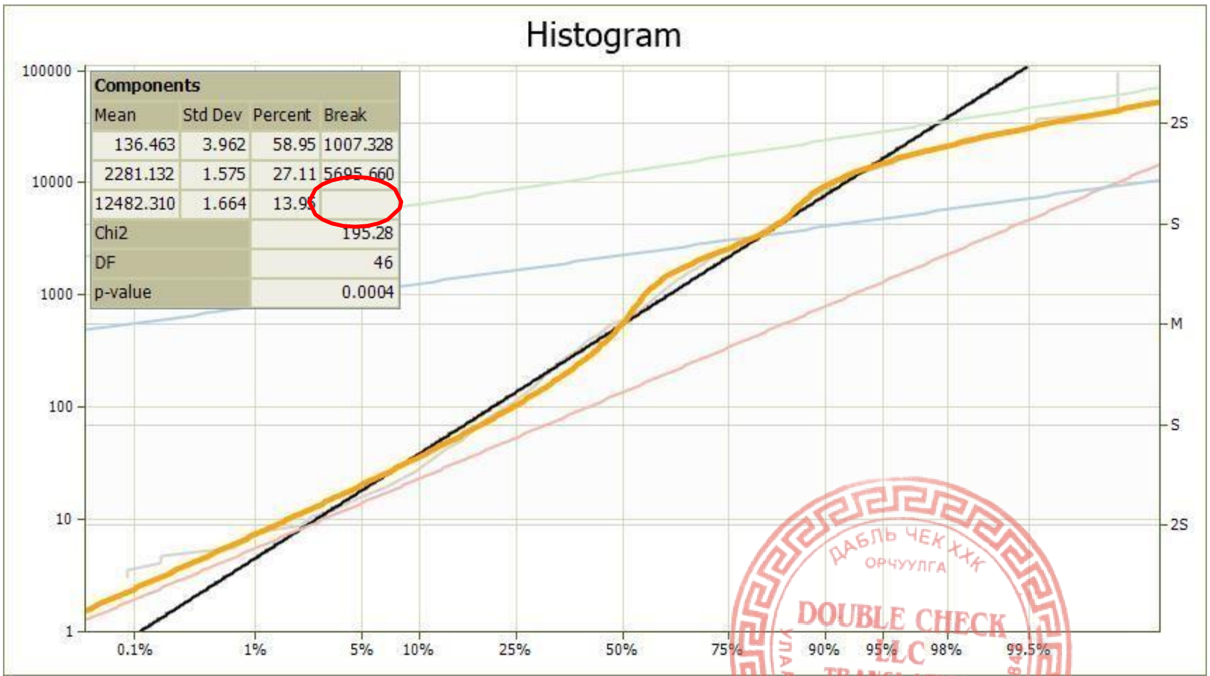


Figure 8-2. Probability curve of the geological cutoff grade surrounding the ore body.

The minimum grade of the plant was determined using the following formula based on the feasibility studies of similar deposits and the preliminary feasibility study report and enrichment technology test report of the Maikhan Uul copper-gold deposit.

$$C_{\min kp\ Cu} = \frac{(Q_x + Q_b + Q_r) * C_{Cu}) + Q_T)}{Y * K} = \frac{\left((17924.36 + 29468.7 + 3797)MNT * 94.35\%\right) + 82500MNT}{5200 * 1450 * 25.83\%} = 0.11Cu\%$$

- The average cost of mining 1 ton of ore (Qx) is 17,924.36 MNT.
- The average cost of producing 1 ton of concentrate (Qb) is 29,468.7 MNT.
- The cost of geological supervision per ton of ore (Qr) is 379.7 MNT.
- The cost of transporting 1 ton of concentrate to the market (to the state border) is 250 MNT/ton/km (Qt), (with a total distance of 300 km, resulting in a transport cost is 82,500 MNT/ton.)
- The content of the concentrate (K) is Cu-25.83%.
- Metal recovery from concentrate (CCu) is Cu-94.35%.
- Market price (Y) for Cu is $5200 per ton (1 USD = 1450 MNT).

The market data was taken from the Infomine.com website, covering the period from January 3, 1989, to January 2, 2014, was used (Figure 8-3)

Although the minimum production grade in the resource block was found to be Cu-0.11%, we selected an average cutoff grade of Cu-0.2%, in line with the production grade used in similar international open-pit copper deposits, such as Copper Mountain (USA), Aqua Blanca (Mexico), and Lunding Mine (China).

Based on the borehole and channel logs, as well as the ore enrichment technology test report of the deposit, the ore was classified into two categories: oxidized and primary ore. A geotechnical and physical-mechanical study conducted at the Mining Institute determined that the volumetric density of the oxidized ore was 2.61 g/cm³, while the volumetric density of the primary ore was 3.02 g/cm³.

To determine whether there was an excessive grade restriction, the geostatistical histogram and multivariate analysis of the total results indicated that the deposit resource estimate for Cu grades above 3.63% was excessive.

The benchmarks for the Maikhan Uul copper-gold deposit resource estimate are as follows:

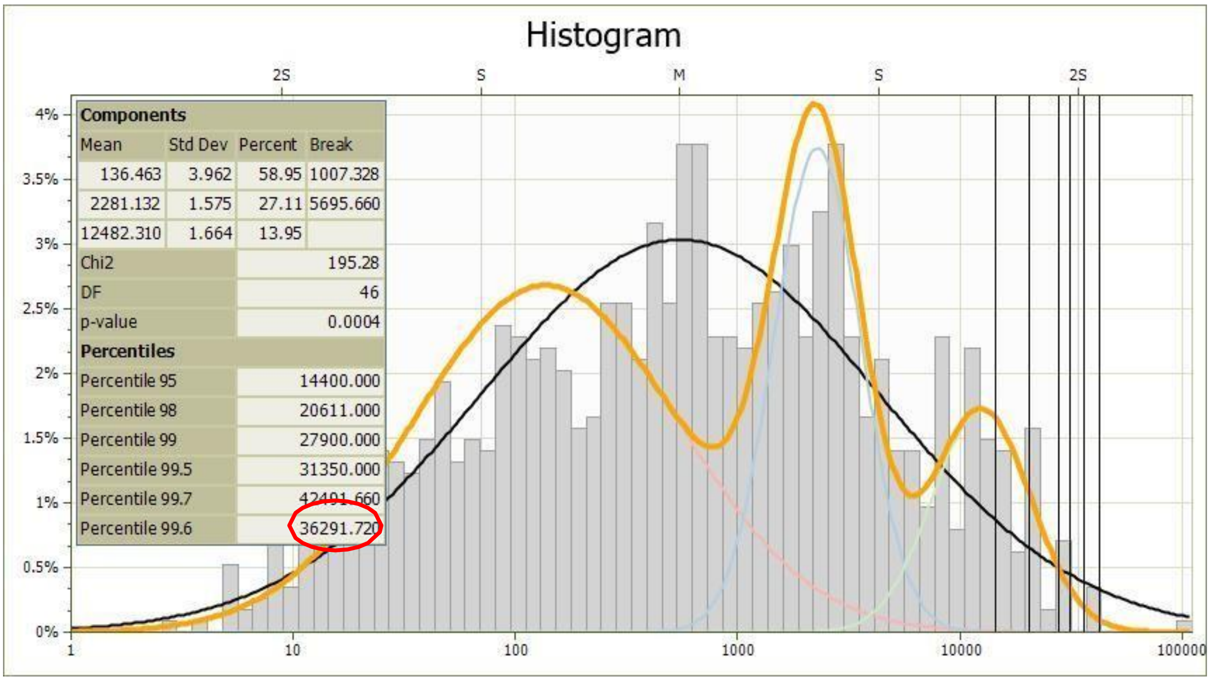
- The minimum Cu grade for ore body delineation is 0.1%.
- The maximum thickness of voids and low-grade overburden within the ore body is 2 m.
- The minimum production grade of Cu in the resource block is 0.2%.
- The boundaries of the B-grade resource blocks are defined through interpolation based on exploratory excavations.
- The boundaries of C-grade resource blocks are set at half the distance of B-grade excavations, or 25 m. Blocks defined by exploratory excavations that don't meet grid density requirements are classified as C blocks.

The reduction in the Inferred resource reported in 2015 compared to the 2010 estimate is attributed to the restriction of hanging wall blocks to 25 meters, increased drilling density, and more precise modeling of faults and structural features.

8.2.2 Excessive Grade Limit

To determine the excessive grade limit, a histogram analysis was performed, revealing fractures in 99.6% of the total samples. The excessive grade limit was set at 36,291.72 g/t, or 3.63% copper. All three samples exceeding this threshold were recalculated using the 3.63% copper limit (Figure 8-4). (Figure 8-4).

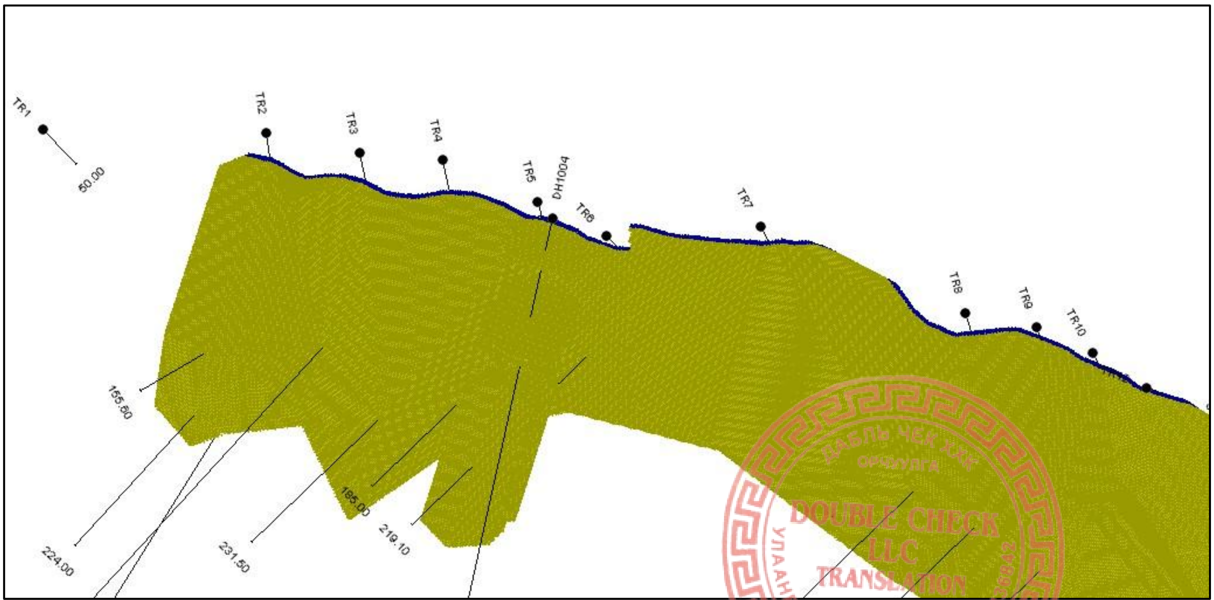
Figure 8-4: Excessive Grade Limit Histogram



8.2.3 Oxidation zone

The oxidation zone, extending up to 2 meters below the surface, was determined based on the geological logs of core samples and channel records (Figure 8-5).

Figure 8-5. Primary ore and oxidized ore



8.2.4 Volumetric Weight

As part of the 2010 exploration program, samples from both the oxidized and primary ores were collected from boreholes and channels and analyzed at the Mining Institute for rock strength characteristics and elastic properties.

The analysis determined the following volumetric weights:

- Oxidized ore: 2.61 g/cm³
- Primary ore: 3.02 g/cm³

These values were used in the resource calculation.

8.3 Resource Estimates

Resources for the Maikhan Uul copper-gold deposit were estimated separately for oxidized ore (Table 8-1) and primary ore (Table 8-2), Additional estimates were made for individual ore blocks (Table 8-3 and Table 8-4),as well as for the combined oxidized and primary ore of the entire deposit (Table 8-5).

Table 8-1. Oxidized ore resource blocks

Resource blocks	Cut-off grade Cu %	Volume, m^3	Specific gravity g/cm^3	Ore, t	Grade of Cu %	Metal Cu, t	Grade of Au g/t	Metal Au, t
1-B-1	0.1	1078.30	2.61	2814.360	0.765	21.530	0.097	0.003
1-B-2	0.1	1264.85	2.61	3301.250	0.703	23.208	0.148	0.005
1-B-3	0.1	974.39	2.61	2543.160	0.376	9.562	0.140	0.004
2-B-1	0.1	3262.98	2.61	8516.370	0.714	60.807	0.164	0.014
2-B-2	0.1	2265.53	2.61	5913.030	0.819	48.428	0.190	0.011
2-B-3	0.1	1879.57	2.61	4905.670	1.210	59.359	0.126	0.006
2-B-4	0.1	818.86	2.61	2137.210	0.722	15.431	0.322	0.007
1-C-1	0.1	1758.17	2.61	4588.830	0.449	20.604	0.099	0.005
1-C-2	0.1	1889.39	2.61	4931.300	0.593	29.243	0.105	0.005
1-C-6	0.1	421.05	2.61	1098.950	0.249	2.736	0.120	0.001
1-C-7	0.1	482.91	2.61	1260.390	0.270	3.403	0.091	0.001
2-C-1	0.1	1230.68	2.61	3212.070	0.652	20.943	0.142	0.005
2-C-6	0.1	177.03	2.61	462.060	0.491	2.269	0.607	0.003
4-C	0.1	6.99	2.61	18.250	0.101	0.018	0.020	0.000
Total of	**0.1**	**11544.48**	**2.61**	**30131.050**	**0.791**	**238.324**	**0.164**	**0.049**
Total of C	**0.1**	**5966.22**	**2.61**	**15571.850**	**0.509**	**79.216**	**0.126**	**0.020**
Total of	**0.1**	**17510.69**	**2.61**	**45702.900**	**0.695**	**317.540**	**0.151**	**0.069**

Table 8-2: Primary ore resource blocks

Resource blocks	Cut-off grade Cu %	Volume, m^3	Specific gravity g/cm^3	Ore, t	Grade of Cu %	Metal Cu, t	Grade of Au g/t	Metal Au, t
1-B-1	0.1	39092.26	3.02	118058.63	0.49	582.56	0.07	0.01
1-B-2	0.1	59806.67	3.02	180616.16	0.52	941.05	0.08	0.01
1-B-3	0.1	59664.84	3.02	180187.8	0.34	618.82	0.11	0.02
2-B-1	0.1	122032.01	3.02	368536.67	0.72	2654.22	0.15	0.06
2-B-2	0.1	64733.62	3.02	195495.55	0.75	1459.29	0.17	0.03
2-B-3	0.1	67759.36	3.02	204633.27	0.93	1903.89	0.12	0.02
2-B-4	0.1	19453.82	3.02	58750.55	0.67	393.02	0.18	0.01
1-C-1	0.1	59687.26	3.02	180255.52	0.46	822.29	0.09	0.02
1-C-2	0.1	132499.67	3.02	400149	0.49	1976.46	0.08	0.03

Resource blocks	**Cut-off grade Cu %**	**Volume, m³**	**Specific gravity g/cm³**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
1-C-3	0.1	13959.36	3.02	42157.27	0.70	295.69	0.15	0.01
1-C-4	0.1	27268.48	3.02	82350.81	0.61	504.95	0.23	0.02
1-C-5	0.1	17459.52	3.02	52727.75	0.64	338.93	0.29	0.02
1-C-6	0.1	106610.89	3.02	321964.89	0.35	1123.48	0.13	0.04
1-C-7	0.1	35839.54	3.02	108235.41	0.32	343.50	0.06	0.01
2-C-1	0.1	83651.22	3.02	252626.69	0.73	1854.62	0.13	0.03
2-C-2	0.1	20723.20	3.02	62584.06	0.79	495.25	0.13	0.01
2-C-3	0.1	18745.28	3.02	56610.75	0.96	543.41	0.13	0.01
2-C-4	0.1	18802.88	3.02	56784.7	0.95	540.80	0.10	0.01
2-C-5	0.1	8088.64	3.02	24427.69	0.94	228.93	0.10	0.00
2-C-6	0.1	25115.19	3.02	75847.88	0.86	649.83	0.34	0.03
3-C	0.1	4358.40	3.02	13162.37	0.58	75.98	0.01	0.00
4-C	0.1	438.45	3.02	1324.12	0.10	1.34	0.02	0.00
5-C	0.1	3168.96	3.02	9570.26	0.13	12.25	0.04	0.00
6-C	0.1	6399.04	3.02	19325.1	0.52	101.34	0.05	0.00
7-C	0.1	9435.52	3.02	28495.27	0.57	161.94	0.20	0.01
8-C	0.1	6355.52	3.02	19193.67	0.48	92.72	0.31	0.01
9-C	0.1	9432.96	3.02	28487.54	0.10	29.70	0.09	0.00
10-C	0.1	630.72	3.02	1904.77	0.18	3.41	0.02	0.00
11-C	0.1	2317.76	3.02	6999.64	0.20	13.65	0.07	0.00
12-C	0.1	705.60	3.02	2130.91	0.30	6.48	0.01	0.00
13-C	0.1	605.12	3.02	1827.46	0.10	1.90	0.01	0.00
14-C	0.1	13435.52	3.02	40575.27	0.50	202.47	0.13	0.01
15-C	0.1	2928.00	3.02	8842.56	0.11	9.73	0.04	0.00
16-C	0.1	2926.72	3.02	8838.69	0.50	44.28	0.07	0.00
17-C	0.1	11357.76	3.02	34300.44	0.23	77.10	0.10	0.00
18-C	0.1	7769.60	3.02	23464.19	0.18	43.21	0.01	0.00
19-C	0.1	72298.56	3.02	218341.65	0.89	1942.13	0.16	0.04
20-C	0.1	21450.24	3.02	64779.73	0.25	164.24	0.12	0.01
21-C	0.1	130520.96	3.02	394173.3	0.46	1801.26	0.27	0.11
22-C	0.1	82470.40	3.02	249060.61	0.91	2252.85	0.35	0.09
23-C	0.1	62178.88	3.02	187780.22	0.40	742.96	0.17	0.03
24-C	0.1	202920.32	3.02	612819.37	0.45	2774.45	0.22	0.13
25-C	0.1	18370.24	3.02	55478.13	0.30	167.75	0.04	0.00
26-C	0.1	16805.76	3.02	50753.4	0.20	100.88	0.11	0.01
27-C	0.1	8032.00	3.02	24256.64	0.11	27.17	0.01	0.00
28-C	0.1	3935.36	3.02	11884.79	0.13	15.21	0.05	0.00
29-C	0.1	18849.60	3.02	56925.79	0.13	74.32	0.03	0.00
30-C	0.1	8044.16	3.02	24293.36	0.21	51.38	0.05	0.00
Total of	**0.1**	**432542.58**	**3.02**	**1306278.63**	**0.65**	**8552.84**	**0.13**	**0.16**
Total of C	**0.1**	**1296593.26**	**3.02**	**3915711.67**	**0.50**	**20710.23**	**0.17**	**0.66**
Total of	**0.1**	**1729135.87**	**3.02**	**5221990.32**	**0.56**	**29263.07**	**0.16**	**0.82**

Table 8-3. Oxidized ore resources (by cut-off grades)

Resource classification	**Cut-off grade Cu %**	**Volume, m^3**	**Specific gravity g/cm^3**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
B	0.5+	9393.01	2.61	24515.77	0.881	215.866	0.162	0.004
B	0.4	10526.26	2.61	27473.55	0.835	229.407	0.167	0.005
B	0.3	11277.77	2.61	29434.99	0.803	236.273	0.165	0.005
B	**0.2**	**11544.46**	**2.61**	**30131.03**	**0.791**	**238.27**	**0.164**	**0.005**
B	0.1	11544.46	2.61	30131.03	0.791	238.27	0.164	0.005
C	0.5+	2233.05	2.61	5828.27	0.718	41.866	0.134	0.001
C	0.4	4508.15	2.61	11766.26	0.576	67.763	0.134	0.002
C	0.3	5251.8	2.61	13707.19	0.545	74.699	0.128	0.002
C	**0.2**	**5867.37**	**2.61**	**15313.84**	**0.514**	**78.733**	**0.126**	**0.002**
C	0.1	5966.23	2.61	15571.86	0.509	79.217	0.126	0.002
Total of	0.5+	11626.07	2.61	30344.03	0.849	257.732	0.157	0.005
Total of	0.4	15034.41	2.61	39239.81	0.757	297.17	0.157	0.006
Total of	0.3	16529.57	2.61	43142.18	0.721	310.972	0.153	0.007
Total of	**0.2**	**17411.83**	**2.61**	**45444.87**	**0.698**	**317.003**	**0.151**	**0.007**
Total of	0.1	17510.69	2.61	45702.89	0.695	317.487	0.151	0.007

Table 8-4: Primary ore resources (by cut-off grades)

Resource classification	**Cut-off grade Cu %**	**Volume, m^3**	**Specific gravity g/cm^3**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
B	0.5	326549.55	3.02	986179.64	0.746	7360.579	0.134	0.132
B	0.4	370157.82	3.02	1117876.6	0.712	7961.223	0.13	0.146
B	0.3	406755.58	3.02	1228401.9	0.68	8351.451	0.129	0.158
B	**0.2**	**432542.59**	**3.02**	**1306278.6**	**0.655**	**8552.837**	**0.126**	**0.164**
B	0.1	432542.59	3.02	1306278.6	0.655	8552.837	0.126	0.164
C	0.5	548418.81	3.02	1656224.8	0.782	12951.615	0.218	0.361
C	0.4	831187.26	3.02	2510185.5	0.669	16784.083	0.194	0.487
C	0.3	1044312.1	3.02	3153822.5	0.604	19053.837	0.184	0.582
C	**0.2**	**1218207.5**	**3.02**	**3678986.5**	**0.554**	**20367.324**	**0.175**	**0.644**
C	0.1	1296593.3	3.02	3915711.7	0.529	20710.231	0.168	0.656
Total of	0.5	874968.36	3.02	2642404.4	0.769	20312.194	0.187	0.493
Total of	0.4	1201345.1	3.02	3628062.1	0.682	24745.306	0.174	0.632
Total of	0.3	1451067.7	3.02	4382224.3	0.625	27405.288	0.169	0.74
Total of	**0.2**	**1650750.1**	**3.02**	**4985265.1**	**0.58**	**28920.162**	**0.162**	**0.808**
Total of	0.1	1729135. 9	3.02	5221990.3	0.56	29263.069	0.157	0.82

Table 8-. Consolidated table of resource estimation

Resource classification	**Cut-off grade Cu %**	**Volume, m^3**	**Specific gravity g/cm^3**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
B	0.5+	335942.56	3.01	1010695.4	0.75	7576.445	0.135	0.136
B	0.4	380684.08	3.01	1145350.16	0.715	8190.63	0.131	0.15
B	0.3	418033.35	3.01	1257836.84	0.683	8587.724	0.13	0.163
B	**0.2**	**444087.05**	**3.02**	**1336409.66**	**0.658**	**8791.108**	**0.127**	**0.169**

Resource classification	Cut-off grade Cu %	Volume, m^3	Specific gravity g/cm^3	Ore, t	Grade of Cu %	Metal Cu, t	Grade of Au g/t	Metal Au, t
B	0.1	444087.05	3.02	1336409.66	0.658	8791.108	0.127	0.169
C	0.5+	550651.86	3.02	1662053.06	0.782	12993.481	0.217	0.361
C	0.4	835695.4	3.02	2521951.78	0.668	16851.846	0.194	0.488
C	0.3	1049563.87	3.02	3167529.64	0.604	19128.535	0.184	0.583
C	**0.2**	**1224074.82**	**3.02**	**3694300.35**	**0.553**	**20446.057**	**0.175**	**0.646**
C	0.1	1302559.5	3.02	3931283.55	0.529	20789.448	0.167	0.658
B+C	0.5+	886594.42	3.01	2672748.47	0.77	20569.926	0.186	0.498
B+C	0.4	1216379.49	3.02	3667301.94	0.683	25042.476	0.174	0.638
B+C	0.3	1467597.22	3.02	4425366.47	0.626	27716.259	0.169	0.746
B+C	**0.2**	**1668161.87**	**3.02**	**5030710.01**	**0.581**	**29237.165**	**0.162**	**0.815**
B+C	0.1	1746646.55	3.02	5267693.21	0.562	29580.555	0.157	0.827

8.4 Results of the resource estimations

The resource estimate was calculated using the ordinary kriging method, separating the Proven (B-grade) and Probable (C-grade) resources for both oxidized and primary ores. The results of the resource estimate for the entire MV-019681 exploration license area are summarized in Table 8-1-to Table 8-5.

According to the calculations, the Proven B-grade of the Maikhan Mountain copper-gold deposit includes: 30,131.03 tons of oxidized ore with an average grade of Cu-0.791%, Au-0.164 g/t, containing 238.27 tons of copper and 0.005 tons of gold; 1,306,278.6 tons of primary ore with an average grade of Cu-0.655%, Au-0.126 g/t, containing 8,552.837 tons of copper and 0.164 tons of gold. For the Probable C-grade: in 5,313.84 tons of oxidized ore with an average grade of Cu-0.514%, Au-0.126 g/t, containing 78.733 tons of copper and 0.002 tons of gold; and 3,678,986.5 tons of primary ore with an average grade of Cu-0.554%, Au-0.175 g/t, containing 20,367.324 tons of copper and 0.644 tons of gold.

The total ore resources of the Maikhan Uul deposit include 1,336,409.66 tons of Proven (B grade) ore with an average grade of 0.658% Cu and 0.127 g/t Au, containing 8,791.11 tons of copper and 0.169 tons of gold; and 3,694,300.35 tons of Probable (C grade) ore with an average grade of 0.553% Cu and 0.175 g/t Au, containing 20,446.06 tons of copper and 0.646 tons of gold. In total, the combined B + C grade resources amount to 5,030,710.01 tons of ore with an average grade of 0.581% Cu and 0.162 g/t Au, containing 29,237.17 tons of copper and 0.815 tons of gold.

8.4.1 Inferred reserve estimate

The inferred resources were calculated considering the ore body down to a depth of 1500 meters along the dip (Figure 8-6).

The Inferred (P grade) resource comprises 2,883,186.95 tons of ore with an average grade of 0.581% Cu and 0.162 g/t Au, containing approximately 16,751.32 tons of copper and 0.467 tons of gold.

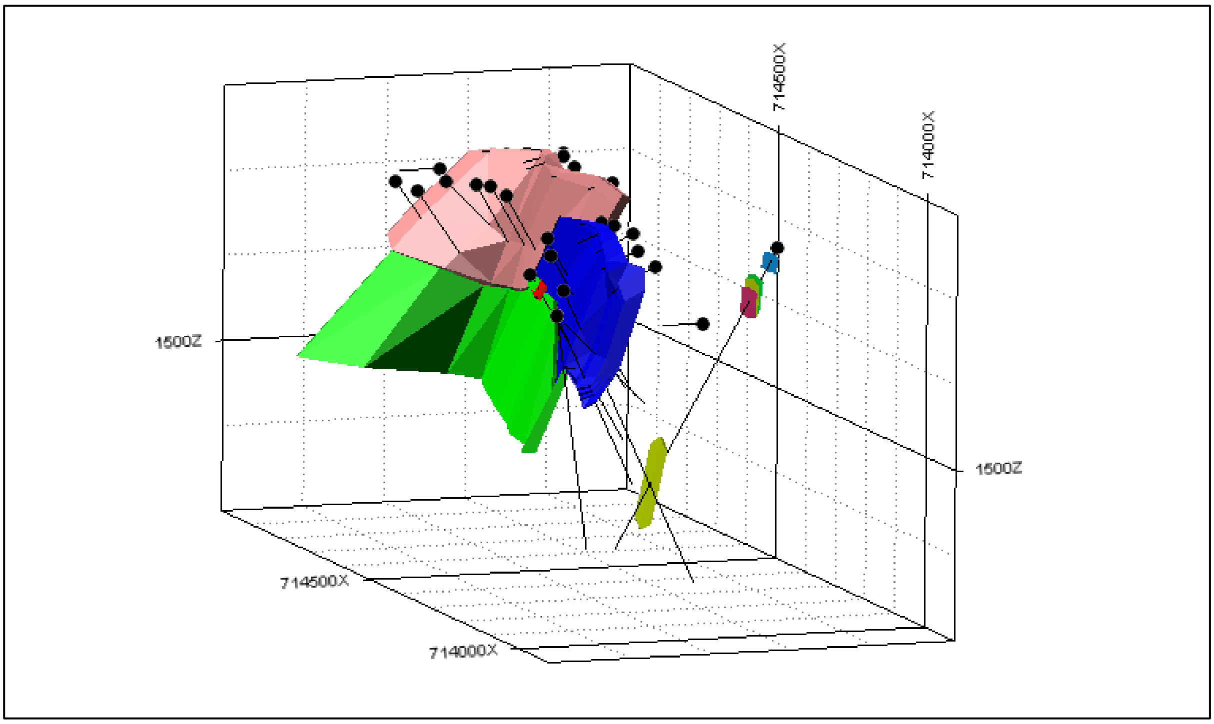


Table 8-6. Exploration target estimate

Resource block	**Cut-off grade Cu %**	**Volume, m³**	**Specific gravity g/cm³**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
P	0.1	954697.67	3.02	2883186.95	0.581	16751.316	0.162	0.4670763

8.4.2 Inverse Distance method

To verify the resource estimates obtained through the point kriging method, we recalculated the resources using the inverse distance method (Table 8-8). The geostatistical parameters applied for the inverse distance method are presented in Table 8-7).

Table 8-7. Inverse distance method geostatistical parameters

Search	Search radius	Maximum number of points in one sector of the search sphere	Minimum number of point values in the search sphere	Maximum number of point values to be used from one borehole	Minimum number of point values to be used from one borehole
1	110	20	8	3	5
2	220	20	8	2	5
3	1000	20	1	1	5

Table 8-8. Results of Resource Estimation Using the Inverse Distance Method

Resource classifica tion	**Cut-off grade Cu %**	**Volume, m³**	**Specific gravity g/cm³**	**Ore, t**	**Grade of Cu %**	**Metal Cu, t**	**Grade of Au g/t**	**Metal Au, t**
B	+0. 5	295302.78	3.01	888196.45	0.795	7060.444	0.142	0.126
B	0.4	353774.78	3.01	1064292.03	0.737	7842.731	0.135	0.143

Resource classifica tion	Cut-off grade Cu %	Volume, m^3	Specific gravity g/cm^3	Ore, t	Content of Cu %	Metal Cu, t	Content of Au g/t	Metal Au, t
B	0.3	419368.77	3.01	1261996.69	0.677	8547.629	0.129	0.163
B	0.2	442470.70	3.01	1331574.61	0.656	8733.619	0.127	0.169
B	0.1	444087.05	3.01	1336409.66	0.654	8742.215	0.127	0.169
C	+0.5	587493.88	3.02	1773386.16	0.819	14524.420	0.214	0.379
C	0.4	833235.72	3.02	2514947.62	0.709	17818.473	0.192	0.482
C	0.3	1049586.93	3.02	3167787.04	0.634	20093.656	0. 184	0.583
C	0.2	1202088.58	3.02	3628196.39	0.586	21276.317	0.177	0.641
C	0.1	1302317.58	3.02	3930552.95	0.553	21721.129	0.167	0.658
TOTAL	+0.5	882796.65	3.01	2661582.61	0.811	21584.864	0.190	0.505
TOTAL	0.4	1187010.50	3.02	3579239.65	0.717	25661.204	0.175	0.625
TOTAL	0.3	1468955.70	3.02	4429783.72	0. 647	28641.284	0.168	0.746
TOTAL	0.2	1644559.28	3.02	4959771.00	0.605	30009.936	0.163	0.810
TOTAL	0.1	1746404.63	3.02	5266962.61	0.578	30463.344	0.157	0.827

Table 8-9. Difference in resource estimates using Kriging and Inverse Distance methods

Point Kriring	0.2	1668161.87	3.02	5030710.01	0.581	29237.165	0.162	0.815
Inverse Distance	0.2	1644559.28	3.02	4959771.00	0.605	30009.936	0.163	0.810
Difference		23602.59		70939.01		772.77		0.005
Difference		1.44		1.43		2.58		0.62

Comparing the above estimates, the difference between the resource estimates calculated using point kriging and the inverse distance method is less than 5%, which confirms the accuracy of the resource estimation (Table 8-9).