

Boliden Summary Report

Mineral Resources and Mineral Reserves | 2024

Tara Mines



Prepared by
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1 SUMMARY

This report is issued annually to inform the public (shareholders and potential investors) of the mineral assets held by Boliden Tara Mines.

Tara Mines is located 2 km northwest of the town of Navan in Co. Meath Ireland and 50 km northwest of Dublin. The mine currently has a planned production target of 1.8mt per year (to increase to 2.2 over the next 5 years) and is one of the largest zinc mines in Europe. The ‘Tara Deep’ deposit is located approximately 1 km southeast of the main mine and is currently a major focus for exploration.

In 2024, the mine produced some 156 kilotonnes of mineralised material. A summary table of the calculated 2024 Mineral Resources and Mineral Reserves is presented in Table 1 below, along with the figures for 2023.

Tara Mines entered a period of Care and Maintenance in July 2023 which came to an end in August 2024. Production recommenced in October 2024. Resources and Reserves will be depleted by the tonnage mined from 18th October 2024 to 31st December 2024. There are no new designs or updates to Resources and Reserves in 2024.

Table 1. Mineral Resources and Mineral Reserves in Tara Mines 2024-12-31.

Classification	2024			2023		
	kt	Zn (%)	Pb (%)	kt	Zn (%)	Pb (%)
Mineral Reserves						
Proved	720	6.5	1.4	730	6.5	1.4
Probable	13,180	5.5	1.5	13,320	5.5	1.5
<i>Total</i>	<i>13,900</i>	<i>5.5</i>	<i>1.5</i>	<i>14,050</i>	<i>5.5</i>	<i>1.5</i>
Mineral Resources						
Measured	30	5.7	1.3	30	5.7	1.3
Indicated	2,130	4.9	1.8	2,130	4.9	1.8
<i>Total M&I</i>	<i>2,160</i>	<i>4.9</i>	<i>1.8</i>	<i>2,160</i>	<i>4.9</i>	<i>1.8</i>
Inferred Tara Mine	11,120	5.6	1.5	11,120	5.6	1.5
Inferred Tara Deep	27,000	8.4	1.6	27,000	8.4	1.6
<i>Total Inferred</i>	<i>38,120</i>	<i>7.5</i>	<i>1.6</i>	<i>38,120</i>	<i>7.5</i>	<i>1.6</i>

Notes on Mineral Resource and Mineral Reserve statement.

- Mineral Resources are reported exclusive of Mineral Reserves.
- Mineral Resources and Mineral Reserves is a summary of Resource estimations and studies made over time adjusted to mining situation of December 31.
- Mineral Resources are reported without dilution.
- To ensure Reasonable Prospect for Eventual Economic Extraction (RPEEE) of mineral resources, a grade shell tool is used to identify economic mineralisation. New resource wireframes are designed using similar mining parameters as reserves.

-
- Tonnes and grades are rounded which may result in apparent summation differences between tonnes, grade and contained metal content.

1.1 Competence

The 2024 Reserves and Resources were estimated and compiled by a team of geologists and engineers, outlined in Table 2 below.

Nils Steen took the role as lead competent person for Tara Mines 2024. Nils is a professional member of FAMMP and a Mining Engineer with more than 30 years' experience in the base metal mining industry (operations and mine project evaluation) with 7 years' experience in preparing mineral reserve estimates.

Kathryn Nolan took the role as competent person for geology for Tara Mines 2024. Kathryn is a Senior Exploration Geologist in Tara Mines and a professional member of the European Federation of Geologists (EFG) and the Institute of Geologists Ireland (IGI). Kathryn has over 12 years of experience in the Exploration and Mining Industry in Ireland.

Gunnar Agmalm took the role as competent person for resources for Tara Mines 2024. Gunnar is Senior Project Manager in Boliden with more than 30 years experience in the mining industry. He is a member of AusIMM (Australian Institute of Mining and Metallurgy) and FAMMP (Fennoscandian Association for Metals and Minerals Professional).

Sofia Höglund took the role as competent person for resources for Tara Deep 2024. Sofia is Boliden's Manager of Mineral Resources and Project Evaluation and a professional member of the Fennoscandian Association for Minerals and Metals Professionals (FAMMP). Sofia has over 15 years of experience in the Exploration and Mining Industry in Sweden, Ireland and Finland.

Seth Mueller is employed by Boliden as a Specialist Engineer in the Sustainability Department with over 20 years of experience in geochemistry, water management, and environmental permitting. Seth is Competent Person under PERC for reporting of Environmental Aspects and a professional member of FAMMP.

Table 2. Contributors and responsible competent persons for this report

<i>Definition</i>	<i>Contributors</i>	<i>Competent Persons</i>
R&R Coordinator	Ally Barrow	
Lead Competent Person		Nils Steen
Geology	Paul Henry	Kathryn Nolan
Mineral Resources Tara Mine	Ally Barrow	Gunnar Agmalm
Mineral Resources Tara Deep		Sofia Höglund
Mining and Mineral Reserve	Wicus du Preez, Nils Steen	
Mineral Processing	Noel McIntyre	
Environmental and legal permits	Paschal Walsh	Seth Mueller

2 GENERAL INTRODUCTION

This report is issued annually to inform the public (shareholders and potential investors) of the mineral assets in Tara Mines held by Boliden. The report is a summary of internal / Competent Persons' Reports for Tara Mines. Boliden's method of reporting Mineral Resources and Mineral Reserves intends to comply with the Pan-European Reserves and Resources Reporting Committee (PERC) "PERC Reporting Standard 2021".

The PERC Reporting Standard is an international reporting standard that has been adopted by the mining associations in Sweden (SveMin), Finland (FinnMin) and Norway (Norsk Bergindustri), to be used for exploration and mining companies within the Nordic countries.

Boliden is reporting Mineral Resources exclusive of Mineral Reserves.

2.1 Pan-European Standard for Reporting of Exploration Results, Mineral Resources and Mineral Reserves – The PERC Reporting Standard

PERC is the organisation responsible for setting standards for public reporting of Exploration Results, Mineral Resources and Mineral Reserves by companies listed on markets in Europe. PERC is a member of CRIRSCO, the Committee for Mineral Reserves International Reporting Standards, and the PERC Reporting Standard is fully aligned with the CRIRSCO Reporting Template.

The PERC standard sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in Europe.

2.2 Definitions

Public Reports on Exploration Results, Mineral Resources and/or Mineral Reserves must only use terms set out in the PERC standard.

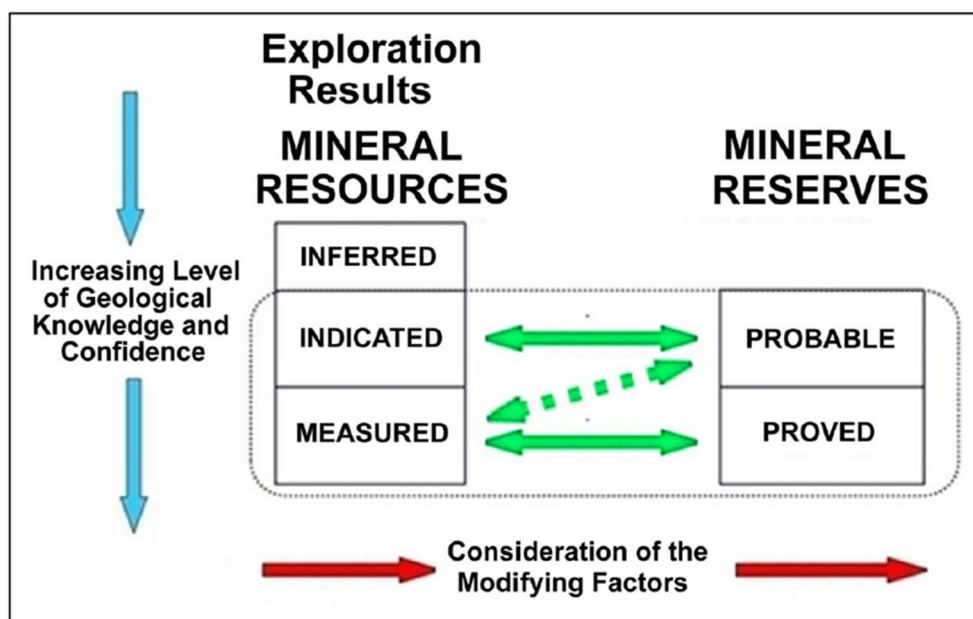


Figure 1. General relationship between Exploration Results, Mineral Resources and Mineral Reserves (PERC 2021)

2.2.1 Mineral Resource

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

2.2.2 Mineral Reserve

A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource.

It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

3 TARA MINES

3.1 Project Outline

Boliden Tara Mines is an underground zinc and lead mine with an annual development schedule typically, of 8-13km (with reduced figures in 2023 and 2024 owing to the period of care and maintenance) and nearly 250km of active tunnels, it is classed as one of the biggest zinc mines in Europe as well as one of the largest in global comparison. Tara Mine uses Drift and Slash and Long Hole Stopping as its main mining methods and has a current mining depth of around 1km.

The annual production target for 2025 is set at 1.8 million tonnes. Upon reopening in 2024 a ramp up plan has been followed to steadily increase production towards 2025 targets. The production target will increase to 2.2 million tonnes over a period of 4 years.

However, with planned conversion of Mineral Resources it has the potential to be extended further. New exploration campaigns will also continue targeting to achieve increased Inferred Mineral Resources in Tara Deep.

3.2 Major changes

There are no major changes to report in 2024 owing to the recent restart after a 14-month period of care and maintenance. Surface exploration diamond drilling has resumed with underground exploration and infill diamond drilling to commence in January 2025.

3.2.1 Technical studies

A PERC Technical Report was finalised in 2023 which provided a comprehensive overview of the Boliden Tara Mines DAC mine operation.

3.3 Location

Boliden Tara Mines is located 2km northwest of the town of Navan in County Meath, Ireland and 50 km northwest of Dublin (Figures 2 and 3) at coordinates (WGS84) 53°39'14"N 6°43'10"W. The area comprises gently rolling farmland with a mild Atlantic climate. The mine is well served by motorway and rail links to Dublin airport and port, current works on the Dublin Port rail infrastructure necessitates that concentrate be trucked to the port. The orebody extends from near surface for approximately 5km WSW to depths of nearly 1km. A satellite deposit, termed 'Tara Deep' was discovered in 2012, occurs at depths of 1-2 km below surface and is currently a major focus for exploration.

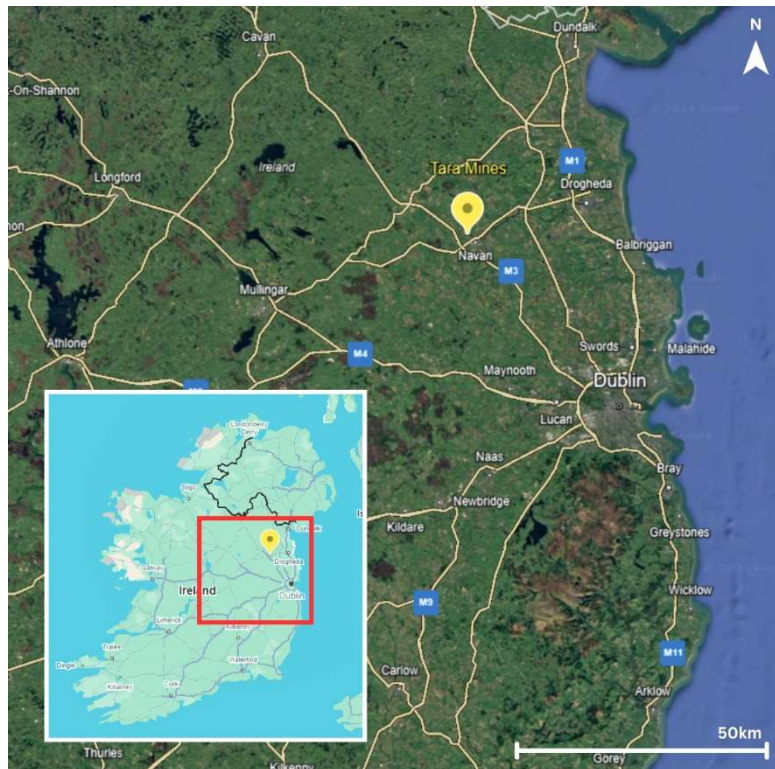


Figure 2. Map of eastern Ireland showing Navan, the location of Boliden Tara Mines and Dublin, in relation to the island of Ireland

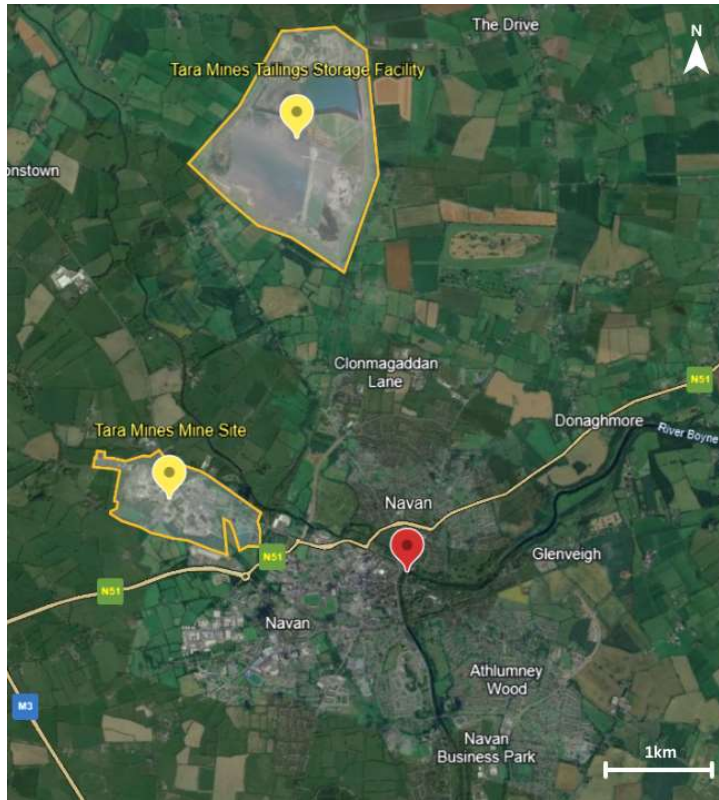


Figure 3. Map showing the footprints of the Tara Mines mine site and tailings storage facility in relation to the town of Navan

3.4 History

The Navan Orebody was discovered in 1970 and production started in 1977 (see timeline below in Table 3). Production has been scheduled at rates up to 2.6mt per year in recent years with the preceding 12 years production shown in Table 4.

Table 3. Historical timeline of Tara Mines

Year	Event
1968	Reports by the Irish agricultural institute highlights high concentrations of Zn and Pb in stream sediments west of Navan
1969-1973	Tara Exploration & Development company acquires prospecting licenses in the area. Shallow soil surveys show Zn, Pb anomalies north of the River Blackwater. Follow up surveys show large 900m x 400m anomaly of up to 5000ppm Zn and 2000ppm Pb, field mapping finds mineralised boulders and outcrops north of the river and induced polarization and resistivity shows anomalies north and south of the river.
1973-1977	Underground development and production begins
1986	Acquired by Outokumpu

1990s	Exploration drilling discovers SWEX – south west extension raising the total pre-mining size of the ore body to 120mt +
2001	Nevinstown, north of the River Blackwater – purchased from Bula Ltd increasing the resource by 9Mt
2002	Acquired Liscartan part of the Navan Orebody from Glencar Plc
2004	Acquired by Boliden
2012	Discovery of Tara Deep, SE of the main ore body following exploration drilling of a seismic anomaly.
2017	Development of Tara Deep Exploration access drift
2023	Tara Mines goes into Care & Maintenance in July due to a combination of factors including operational challenges, a decline in the price of zinc, high energy prices, and general cost inflation.
2024	Tara Mines reopens in August with production starting in October

Table 4. Milled tonnages and grades from Boliden Tara Mines over the period 2012-2024.

YEAR	PRODUCTION													
	TONNAGE	GRADE			ZINC CONCENTRATE				LEAD CONCENTRATE				SILVER	
	MILLED	% Zinc	% Lead	% Iron	Tonnes	% Zinc	% Rec.	Metal	Tonnes	% Lead	% Rec.	Metal	g/t	t
2012	2,502,278	7.00	1.44	2.87	305,170	54.4	94.8	166,021	40,807	55.2	62.4	22,517	41	1.67
2013	2,493,240	7.05	1.46	2.74	297,944	55.9	94.7	166,462	38,604	56.1	59.5	21,672	31	1.20
2014	2,286,701	6.92	1.55	2.69	267,242	56.0	94.5	149,646	41,940	53.1	62.8	22,262	58	2.43
2015	2,196,814	6.37	1.25	2.71	242,777	54.8	95.1	133,034	34,400	50.0	62.7	17,182	37	1.27
2016	2,602,863	5.96	1.15	2.70	267,851	55.2	95.3	147,797	37,091	52.8	65.6	19,582	29	1.08
2017	2,310,634	5.92	1.14	2.71	239,038	54.6	95.4	130,580	31,258	54.7	64.9	17,083	43	1.34
2018	2,200,154	6.28	1.20	2.72	242,264	54.4	95.3	131,742	29,299	57.0	63.3	16,712	40	1.16
2019	2,461,391	5.24	1.03	2.39	222,872	54.9	94.9	122,463	29,258	54.9	63.3	16,053	54	1.58
2020	2,316,337	5.76	1.03	2.39	229,843	55.3	95.3	127,008	27,404	52.6	60.3	14,401	34	0.92
2021	2,149,022	5.49	1.02	2.18	205,591	54.6	95.1	112,249	24,430	54.0	59.9	13,192	55	1.34
2022	2,090,073	5.22	1.03	2.14	188,949	54.7	94.6	103,264	27,354	51.8	66.1	14,181	101	2.75
2023	1,092,620	5.16	0.98	1.94	101,685	52.4	94.7	53,327	12,845	54.7	65.3	7,019	78	1.00
2024	155,801	4.29	0.92	1.97	12,370	51.3	94.9	6,348	1,500	57.4	60.3	861	N/A	N/A
Total	26,857,928	6.08	1.20	2.55	2,823,596	54.9	95.0	1,549,941	376,190	53.9	62.8	202,717	47	1.8

3.5 Ownership and Royalties

Boliden Tara Mines DAC is a wholly owned subsidiary of Boliden Mineral AB part of the Boliden Group, Sweden.

3.6 Environmental and Social Governance (ESG)

3.6.1 Existing Permits

The Boliden Tara Mines operation has several permits that include:

- Five Prospecting Licences granted by the Department of Environment, Climate and Communications that extend outwards from the mine for several kilometres and convey rights to explore and apply for State Mining Facilities. These are renewed every six years, subject to official review and fulfilment of licence commitment expenditures on a two-yearly basis.
- State Mining Facilities comprising three Leases and five Licences granted by the Department of Environment, Climate and Communications. These facilities are in the process of renewal. Agreement has been reached on the royalty rates and the term (LOM Plus closure) for the new State Mining Facilities (SMF's). The agreed rates are as follows: waived royalty payments for the remainder of 2024 and the

whole of 2025, with a reduced rate for 2026 (1.0% for State and 0.5% for private) and 2027 (2.75% and 1.375%). Thereafter for the remainder of the SMF period the royalty rate will be 3.0% for State minerals and 1.5% for Private Minerals.

- An Industrial Emissions licence from the Environmental Protection Agency was granted in September 2018. The Industrial Emissions Licence is currently being reviewed with an expected renewal in Q1 2025.
- Tara Deep is currently licensed by a Prospecting Licence for surface exploration drilling. The continuation of the Tara Deep exploration tunnel will require planning permission. A six-year prospecting licence (PL 4502) was granted by the Department of the Environment in December 2024.

3.6.2 Necessary permits

- Boliden Tara Mines have expectations that application for new permits and renewals of existing permits will be granted by the relevant authorities.

3.6.3 Environmental, Social and Governance considerations

3.6.3.1 ESG Commitments

Our business model set our ESG priorities, and take into consideration the risks and opportunities identified by business intelligence and risk mapping, as well as applicable requirements and expectations such as:

- Stakeholder expectations
- Current and potential legislative trends
- ISO 9001, 45001, 14001 and 50001 standards and Forest Stewardship Council (FSC® COC-000122)
- OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-affected and High-risk Areas
- GRI Standards (Global Reporting Initiative)
- UN Sustainable Development Goals (SDGs)
- UN Global Compact
- ICMM (International Council on Mining and Metals) Mining principles
- GISTM (Global Industry Standard for Tailings Management)

We regularly consult prioritized stakeholder groups on our sustainability performance from a broader perspective. These stakeholders are asked to comment on Boliden's performance to drive further improvement.

Boliden is a member of ICMM and the national mining associations in the countries where Boliden Mines operates. These commitments imply implementing relevant international and national Environmental Management System (EMS) standards and guidelines, such as, e.g., the

Global Industry Standard on Tailings Management on an international level and Mining RIDAS on a national level. In addition to this, Boliden Mines is certified according to a series of standards, such as:

- ISO 14001:2015 - Environmental management systems.
- ISO 45001:2018 - Occupational health and safety management systems.
- ISO 50001:2018 - Energy management systems.

Boliden has implemented an integrated management system (Boliden Management System, BMS) which sets a common base for all activities developed within the company.

Boliden strive to run a responsible business and expect it's business partners to do the same. Good business ethics is essential for sustainable and successful business. Boliden has an ethics and compliance department to boost its compliance work. The department is responsible for the strategic development and coordination of Boliden's work regarding anti-money laundering, anti-corruption, competition law, sanctions, human rights, data protection, whistleblowing and Boliden's employees and management work together to create a compliance culture in which everyone knows what is expected of them - Boliden's codes of conduct. Regular risk assessments, trainings, audits and effective controls are important parts of Boliden's compliance efforts. The Group's whistle-blower channel enables all employees and external stakeholders to report suspected and actual misconduct confidentially and anonymously. If misconduct is proven, disciplinary actions must be taken. Reprisals against anyone reporting misconduct in good faith will not be tolerated. Group management and the Board of Directors receive regular reports on risks, non-compliance and the status of initiatives in progress.

Boliden's Code of Conduct provides a framework for corporate responsibility based on the company's values and ethical principles. All employees and members of the Board are subject to the Code, which is based on international standards and relevant legislation. As a complement to the Code, there are internal policies that all employees are expected to comply with. Boliden strives for a sustainable value chain and therefore applies an overarching business ethics and risk management strategy when selecting business partners. The Business Partner Code of Conduct reflects the requirements placed on Boliden's own organization and sets the lowest standard of ethical conduct required of all parties in the value chain, whether Boliden is the buyer or seller. As with the internal Code of Conduct, this code is based on international standards such as the UN's Global Compact, the ILO's standard core conventions and guidance from the OECD. Compliance and sustainability risks are assessed when selecting business partners. If there is a risk of non-compliance by a business partner, a more detailed review is made. Depending on the outcome, an action plan may be developed and agreed upon, or the business relation may be terminated or rejected.

Boliden is a member of the United Nations Global Compact and works constantly to implement its ten principles, including preventing and limiting negative impact in the own operations and those of its external business partners. Boliden runs operations in countries where the risk of human rights violations is considered low. No operations are conducted anywhere in UNESCO's World Heritage List. Boliden supports the right of indigenous peoples to consultations under Svemin's interpretation of Free, Prior and Informed Consent (FPIC). Other important aspects are fair working conditions, and the position Boliden has adopted against any form of harassment, discrimination and other behaviour that may be considered as

victimisation by colleagues or related parties. In addition to this, aspects such as child and forced labour as well as the freedom to form and join trade unions are considered when evaluating business partners.

Anti-corruption forms a central part of the ethics and compliance work, and Boliden has a zero-tolerance policy regarding all types of bribery and corruption. Boliden has an anti-money laundering policy for identifying and managing risks in various parts of the business and to strengthen its anti-money laundering efforts.

3.6.3.2 Socio-economic Impact

Located in Ireland, 30 minutes from the capital Dublin, Boliden Tara Mines has co-existed with the community of Navan, Meath for over 45 years. As one of Europe's largest zinc mines, Tara Mines has been a significant employer in the region since the commencement of mining in 1977. During normal operations, Tara mines provide direct employment for c. 500 employees and contractors, the majority of which live in the locality. In addition, Tara helps to support over 1000 jobs indirectly through the supply chain.

In essence, the community around Tara develops in tandem with the mine, where the local economy in the Northeast area and beyond, benefits from its continued success. The secure employment that Tara Mines has provided to thousands of people over the past 45 years has helped the local community to thrive. Tara Mines is committed to societal development and through local partnerships with schools, colleges, charities and sporting clubs, continuously strengthening its bond with the local community and investing in its development.

3.6.3.3 Community and Landowners

Environmental management has been at the core of operations at Tara since the development of the mine. As such, Tara strives to be an active stakeholder and play a positive role in the community in which it operates. Tara has community liaison committee(s) in place for families resident around the mine and communication with locals is a regular and important occurrence. Tara Mines strives to create and maintain a proactive safety culture and as such, welcomes and encourages both its workforce and the external community to report risks, suggest improvements and exchange experiences.

3.7 Geology

The Navan Orebody is a world-class carbonate-hosted Zn-Pb deposit comprising complex tabular lenses within Lower Carboniferous limestones and excluding depletion, would be over 130Mt in size. Detailed descriptions of the geology are available in several publications of which Ashton et al., (2015) is the most recent. The discovery of the Tara Deep deposit and outline geology are summarized in Ashton et al., (2018).

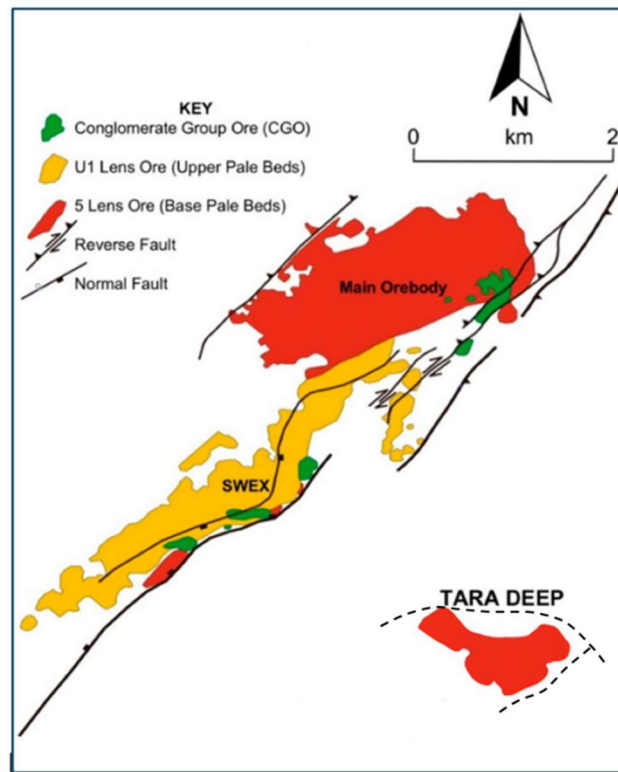


Figure 4. Plan of the Navan and Tara Deep deposits showing location of mineralised lenses

3.7.1 Regional

Central Ireland comprises generally flat lying sequences of Lower Carboniferous limestones with common inliers of sedimentary Lower Palaeozoic and Devonian rocks. The limestones are cut by numerous, locally syn-depositional NW to ENE trending major normal faults. These faults control the location of several carbonate hosted Zn-Pb deposits, of which Navan is by far the largest.

3.7.2 Local

In eastern Ireland, the Carboniferous Limestones are part of the Dublin Basin, a significant feature that after extensional basin-margin faulting and later Hercynian inversion, exposes some large Lower Palaeozoic inliers at its margins and exhibits some outliers of Namurian and later Permo-Triassic sediments.

3.7.3 Property

The Navan Orebody is located on the footwall (northern) side of a major south-dipping normal fault that constitutes a basin controlling feature. The orebody itself is controlled by a complex array of Lower Carboniferous normal faulting and slides on the uplifted footwall of this major fault. The Navan orebody generally dips at about 10-15 degrees to the WSW and comprises several, locally stacked, tabular stratiform to strata bound lenses, oriented in general concordance with the host limestones (Figure 5). The mineralisation ranges from a few meters to over 70m in vertical thickness. A major slide and overlying debris flow, cuts the orebody

obliquely and is also mineralised. The deposits are effectively masked from surface by a thick succession of deep-water calc-turbidites that comprise the Dublin Basin infill sequence.

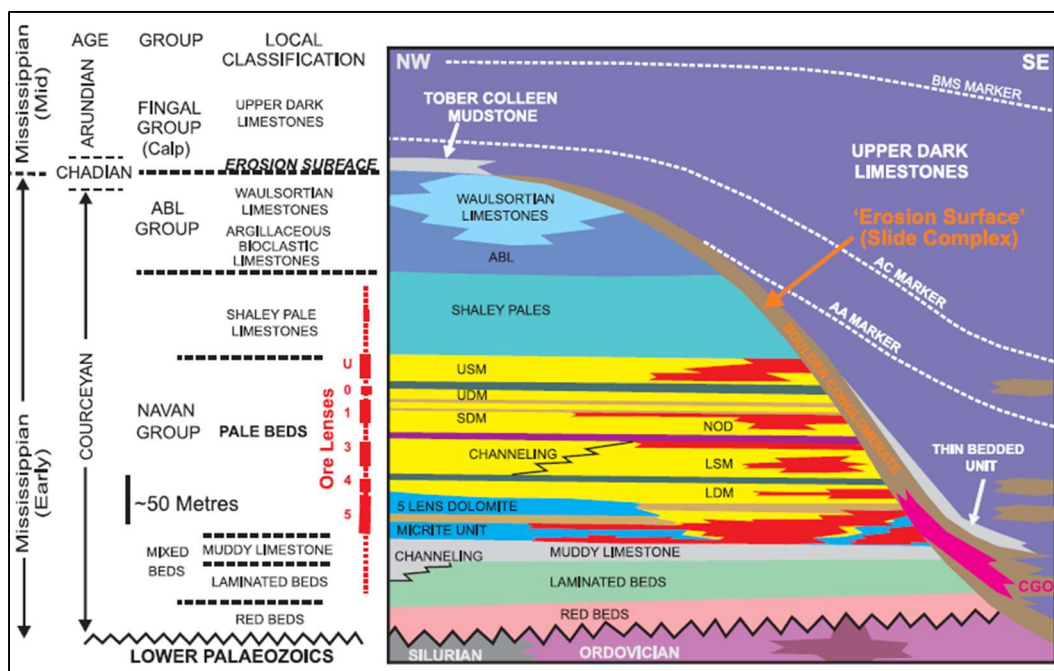


Figure 5. Geology of the Navan Orebody and position of mineralisation

3.7.4 Mineralisation

Although there are number of significant lenses and fault blocks at Navan, >95% of the mineralisation occurs as sphalerite and galena in partly dolomitized limestones as complexly textured replacements, veining and open-space infill where Zn:Pb ratios are typically around 4 or 5 to 1. Gangue mineralisation comprises subsidiary calcite, pyrite, marcasite, dolomite and barite. The remainder of the mineralisation occurs as massive pyritic lenses containing sphalerite and galena hosted by debris-flow conglomerates that overlie the deposit. This material contains often abundant fine-grained pyrite which has the potential of degrading the normally excellent metallurgy if not blended with normal run of mine ore.

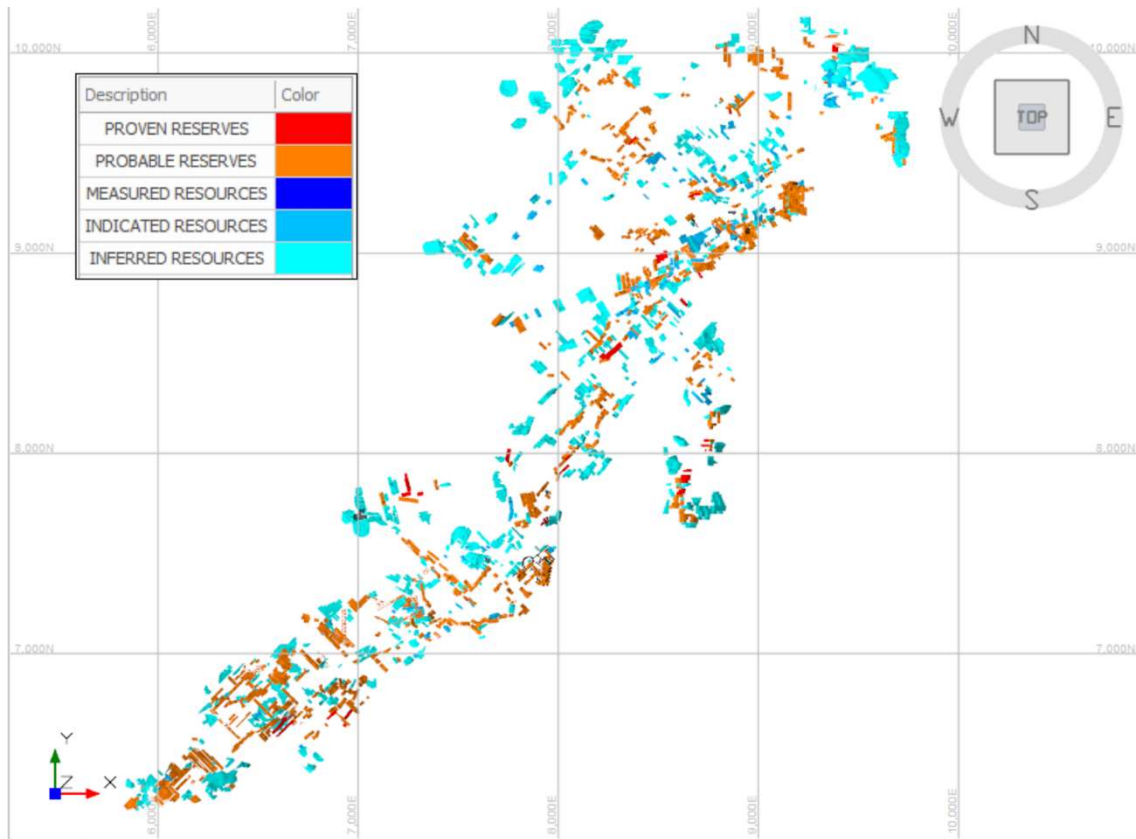


Figure 6. Resource and Reserve distribution at Tara Mines at the end of 2024, coloured according to PERC resource category

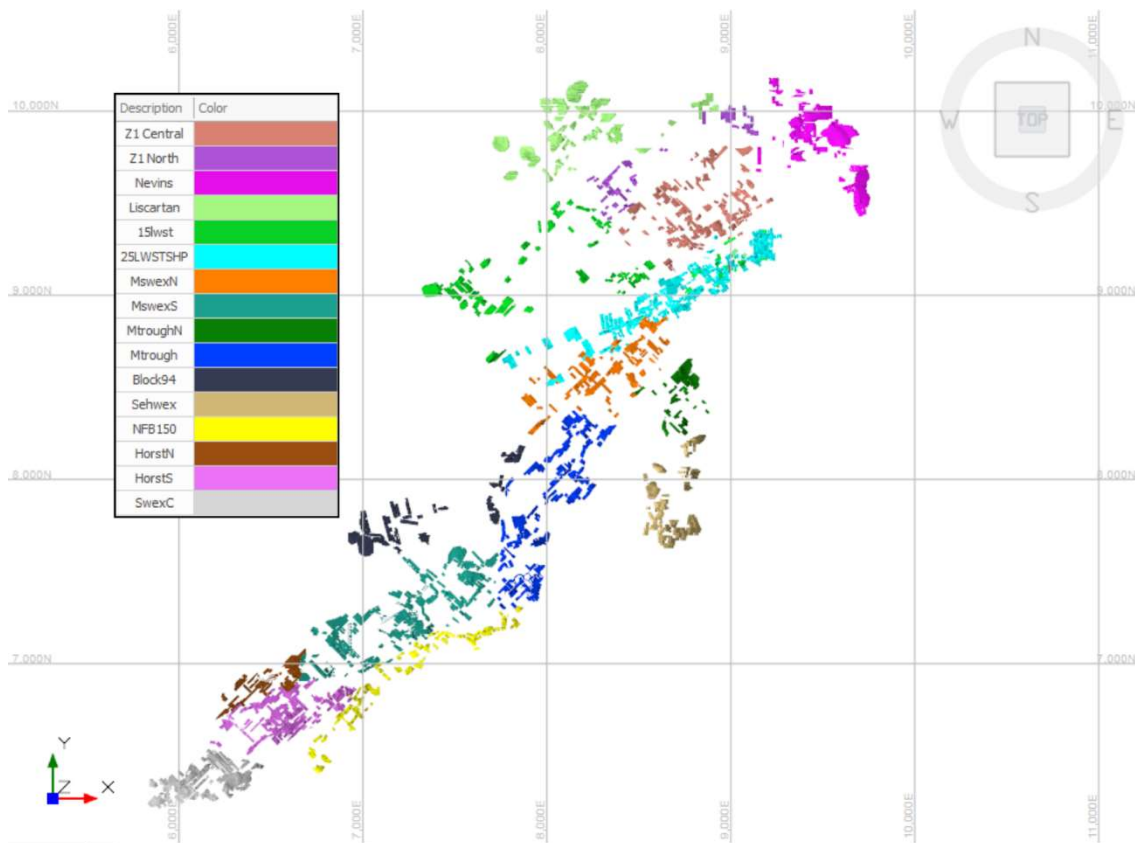


Figure 7. Resource and Reserve distribution at Tara Mines at the end of 2024, coloured according to model area

3.8 Drilling procedures and data

Exploration at Navan comprises surface exploration and underground exploration. Surface exploration comprises several geochemical and geophysical techniques, with 2D and 3D seismic surveys also providing structural profiles through the host geology. The primary exploration tool is deep diamond drilling, and this extensively uses navigational drilling enabling many intersections to be drilled from a single ‘mother’ hole with resultant benefits to timing and reduced impact on the environment.

Most underground diamond drilling is for the purpose of delineation of mineralisation in order to upgrade Inferred resources to Indicated or Measured resources, as well as informing development position. Underground diamond drilling is initially carried out from hanging-wall drifts located tens of meters above the orebody, which are then subsequently used for ventilation, dewatering, geotechnical and backfill purposes. Infill drilling is carried out from the same hangingwall drifts or another suitable development location. Subsequent in-stope drilling is used to upgrade Indicated to Measured reserves prior to production, where infill drilling was not possible.

3.8.1 Drilling techniques

Drilling comprises wireline or conventional diamond drilling with NQ diameter core for surface holes and AQTK or BQ core for underground core. Core recovery is typically close to 100%. All drilling is completed by contractors, currently Priority Drilling Ltd.

3.8.2 Collar and Downhole surveying

All underground Diamond drillholes are set out using a north seeking, gyroscopic azimuth aligner tool. Downhole surveying is accomplished by the drilling contractor using Reflex electronic multi-shot equipment (the host rocks at Navan are not magnetic). Measurements are taken every 15 metres. Production holes shorter than 25m are generally not surveyed as they are frequently vertical or steeply inclined.

Set up data and drillhole surveys are uploaded to the Reflex IMDEXHUB cloud-based database by the driller. Set up data is validated by the mine geologists who then update the azimuth and dip of the drillhole in the database. Drillhole surveys are validated by the mine geologists and subsequently downloaded and transferred to the diamond drillhole database.

Collar positions of underground drillholes are measured by the survey team using a Leica TS16 total station or a Leica MS60 multi-station. A single point is measured at the collar of each drill hole, and the coordinates are subsequently provided to the mine geology department and changed from the planned coordinates in the diamond drillhole database.

3.8.3 Sampling

All surface (NQ diameter) core is split prior to sampling and most core is retained for possible future examination. All underground core (AQTK / BQ diameter) is sampled whole, and the remainder completely discarded. Sampling intervals are governed by ore-waste zones, lithological contacts and mineralisation styles. It is noted that the mineralisation at Tara Mines is extremely variable in its distribution and textural styles, so it is impossible to aim for strict homogeneity in material sampled. Zones of mineralisation are sampled in their entirety, with 'buffer samples' of waste taken either side of these zones. Sample length typically ranges from 0.3m to 3m and averages around 1.6m. All samples are recorded in mineral logs where textural styles and a visual estimate of Zn+Pb% recorded. The geology and estimated combined grade of all development faces are mapped and recorded and this information is used for geological interpretation, however it is not currently used for resource grade estimation. No samples are collected for assay.

3.8.4 Logging

Logging across site is carried out using tablets or laptops. Data is entered into an in-house produced application (in the case of Mine Geology) or into WellCAD (in the case of Exploration) and uploaded to a Tara specific diamond drillhole SQL database. The geology is split into lithology, structure, alteration and mineralisation with visual estimates and mineralisation textures given for any mineralisation noted in the core prior to assaying. Major faults are used as domain boundary structures and are either logged as individual intervals depending on the importance of the fault or combined into the lithology. Once the core is logged photographs are taken using the Seequent Imago Capture X application and uploaded to the Imago cloud-based database. Logging data is used to inform 3D geological models in Leapfrog.

3.8.5 Density

Density is estimated from a set of multiple regression equations that relate density to sample Zn, Pb and Fe grades ($\text{Density} = \text{Zn} * x + \text{Pb} * y + \text{Fe} * z + \text{waste rock Density}$) and which were created by experimental work relating measured density to assays. In general, the density of the ore is not much higher than the host rock (e.g., 2.8-3.2), unless high Pb and/or Fe grades are present and in these areas the regression curves take these variances into effect. These stoichiometric formulas are applied to the different lenses in the geological models for the deposit.

3.8.6 Analysis and QAQC

Prior to the period of care and maintenance, samples were sent to Boliden Tara Mines Laboratory (BTML), an on-site laboratory for comminution and assay via conventional processes (crushing, milling, XRF assay etc). Core samples are subject to checks between estimated Zn+Pb% grades and assayed Zn+Pb% grades. In the case of disparity, samples are re-analysed and in the case of surface drill holes the split core is re-examined to check the assay estimate. In the case of Tara Deep core, all mineralized coarse rejects from the in-house lab are independently comminuted and assayed in an external laboratory (ALS Loughrea, Co Galway). When diamond drilling resumes at Tara Mines, drillcore analyses will be carried out by ALS Laboratories, Loughrea. ALS laboratories are accredited according to ISO/IEC 17025

Implementation of an enhanced QAQC process for sampling was achieved in 2023 immediately prior to closure with the introduction of blanks, standards and duplicates. These 3 types of QAQC samples account for 5% of total samples analysed. Validation of the QAQC samples analyses and assessment of their performance will be carried out by mine geologists once diamond drilling resumes.

3.9 Exploration activities and infill drilling

3.9.1 Surface Drilling

In total 5 surface holes were completed or collared during 2024. Surface drilling resumed during June with a gradual ramp-up over the second half of 2024 with a total of 6.5km of drilling completed, including navigational drilling. The surface drilling focussed on new target areas surrounding the Tara Deep deposit (see Figure 8). This is a structurally complex area with several generations of debris flows, slide packages and extensional faulting associated with rifting in the Dublin Basin.

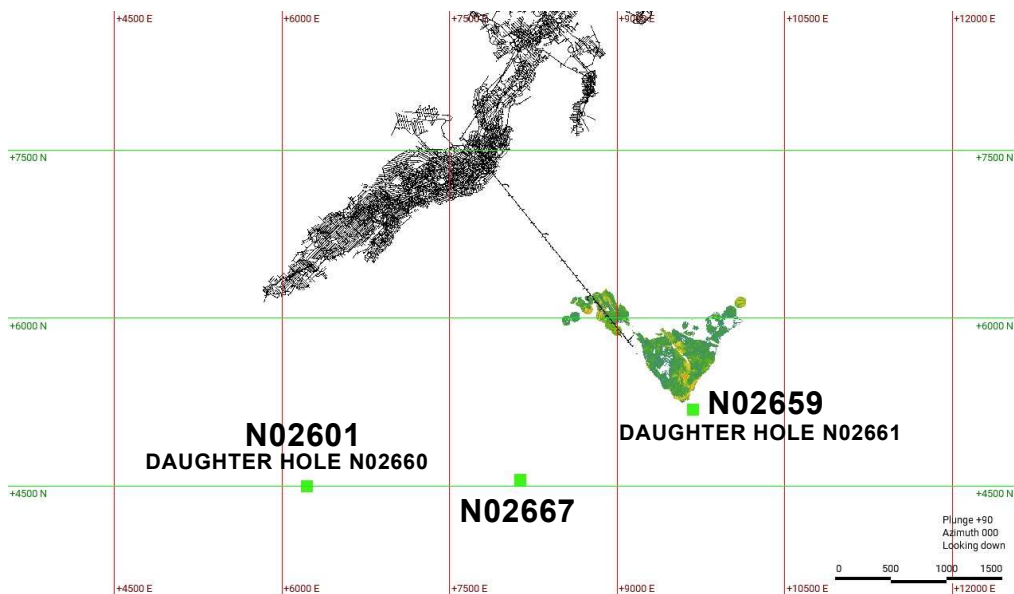


Figure 8. Surface exploration drilling 2024 – collars of 3 mother holes in relation to the main mine development and Tara Deep deposit as represented by block model

3.9.2 Underground Exploration Drilling

No underground exploration drilling has taken place since the mine reopened in August 2024. Underground diamond drilling will recommence in January 2025.

3.9.3 Underground Development and Production Drilling

No underground development or production drilling has taken place since the mine reopened in August 2024. Underground diamond drilling will recommence in January 2025.

3.10 Mining methods, mineral processing and infrastructure

The Boliden Tara Mines in Navan started development in 1974 with production commencing in 1977. Over the years, the mining methods evolved from top-slice and bench to various types of open stoping. Milling is straightforward and comprises standard froth flotation to give Zn and Pb concentrates which are railed to Dublin Port and subsequently to smelters overseas. The majority of the Zn concentrate goes to Boliden smelters in Norway and Finland.

Since start-up, the mine has mined and processed over 100Mt of ore and established much confidence in the processes running from exploration and mine geology, through planning, mining and backfill to milling operations. As the mine gets deeper, increasingly thinner areas of ore are being encountered and this requires continual focus on costs, diamond drilling and optimal mining methods.

3.10.1 Mining methods

Development is advanced in a mechanical mining method utilising specialised equipment for the full development cycle. Face drilling with burn cuts are used for all lateral advance in a range of profiles, most commonly 5.5mWx5.6mH for capital access development and 5.0mWx5.0mH for operational access development.

Vertical development for ventilation or access is developed either by the production long hole or raise bore advance and a standalone project scope.

The mining methods for the production operation are split into long hole open stoping and drift and slash stoping. Long hole open stopes are production extractions at a height greater than the drift height of the development cycle (i.e., 5.0m), drift and slash stoping is at drive height. Stopes vary from 12 to 20m in width, the width section is guided by the geotechnical interpretation of the span formed.

In most areas of the mine open-stopings are designed parallel to the strike direction of the orebody such that in-stope development is sub-horizontal, whereas in the upper-near surface sections the open stopes are along dip and may necessitate slightly more complex development. In both cases, ore thicknesses up to about 20m can be mined via a single footwall drift with blast-hole drilling drilled upwards. Thicker ore sections necessitate hanging-wall drifts and hence additional development.

In both cases, development is advanced to the end of the stope, and a slot drive created from where a raise is blasted using longhole techniques to the orebody hanging wall or the vertical extent of the contact. Subsequent longhole blasting opens a slot over full stope width and creates a blasted ore muck pile in the stope which is mucked out using line of sight remote control and increasingly tele-remote operations. Areas of weak ground, often related to faulting may occur in the back and/or sidewalls of stopes. These are secured using various cable bolts patterns as dictated by the geotechnical design and past performance.

The stopes are split into primary and secondary stopes, where the primaries are mined first, and the secondary stopes act as pillars and allow the extraction of two or more primary stopes simultaneously.

Post extraction, the primary stopes are backfilled with hydraulic sandfill. The backfill will act as support for the secondary stopes when they are mined. The backfill can be partially waste fill if there is waste material available close by, otherwise the stopes will be also backfilled with hydraulic sandfill.

3.10.2 Mineral processing

In the underground mining operations, the ore is crushed in the primary crushing stations before hoisting to the surface and is transferred by a conveyor system to the coarse ore storage building. Ore processing in the mill is achieved by grinding, flotation, and dewatering. These processes are automated, monitored and controlled by a process control system. The grinding circuit, including an Autogenous mill, is designed to reduce the ore particle size to a size range suitable for separation, typically in the 10-to-75-micron range, and a maximum size less than 120 microns. The finely ground ore slurry is pumped from the grinding circuit to flotation cells where lead concentrate is recovered firstly and then followed by zinc concentrate. Following flotation, concentrates are dewatered using thickening and filtration in Metso pressure and air filters. The final concentrates are transported to Dublin via road transport and then shipped to various smelters in Europe, with the bulk of the Zn concentrate going to Boliden's smelters at Kokkola (Finland) and Odda (Norway).

For new potential mining areas laboratory test work is carried out on both the ore and waste to distinguish best performing milling techniques for the type of mineralisation that is to be mined.

3.10.3 Infrastructure

Access to underground operations is through 2 major declines, one location located in the shaft pillar area, which also contains the main production hoist. Subsidiary access-drifts then enter mining blocks that contain the stopes and are then used for truck haulage of ore to several underground crushers feeding conveyors that take the ore to the base of the main production shaft and then to surface. The coarse fraction of the mill waste product is used for backfilling while the remnant tailings are pumped 2km to a tailings management facility.

3.11 Prices, terms and costs

Boliden's planning prices, which are an expression of the anticipated future average prices for approximately 10 years, are presented in Table 5. The life of mine plan was designed using 2022 prices and was since recalculated using 2023 prices. There have been no other changes to the life of mine plan since 2022.

The NSR used for the life of mine plan is of the order of 88 US\$/t and is based on grades, metal prices, process recoveries, penalty elements and concentrate terms (Including smelting and refinery costs). The calculations were done based on the costs for the life of mine plan with full years of 2.6Mt production.

For the reserves, the total costs were used and the cut off corresponds to a combined grade of Zinc and Lead of 5.5%. For the resources, the capital costs were excluded and the cut-off grade for Zinc and Lead combined is 5.1%.

Table 5. Long term planning prices used for reported mineral resource and reserves 2024 in Tara Mines, including exchange rates

Planning prices, 2023	
Copper	USD 7,800/tonne
Zinc	USD 2,800/tonne
Lead	USD 2,000/tonne
Nickel	USD 20,000/tonne
Gold	USD 1,400/tr.oz
Silver	USD 20/tr.oz
Palladium	USD 1,300/tr.oz
Platinum	USD 900/tr.oz
Cobalt	USD 20/lb
USD/SEK	9
EUR/USD	1.10

3.12 Mineral Resources

Mineral Resources in Tara mine are defined by mineralisation defining intersections of at least 5% Zn+Pb at thicknesses of 4m or more. Breakdown of resources into confidence intervals is based on diamond drill hole spacing, search radius and on the experience of the geologist. In brief, the confidence levels are defined as follows:

Inferred Resources:

Defined by surface and underground drilling: centres ranging from 25-35-50m.

Indicated Resources:

Defined by surface and underground drilling: centres 15-25m

Measured Resources:

Defined by surface and underground drilling: centres 15m or less.

In Tara Deep the inferred resource is defined by surface drilling on a drill pattern ranging from 50-80m.

3.13 Mineral Reserves

Mineral Reserves are the economic, diluted recoverable resources selected by the planning engineer for mining so that Measured Resources would be re-classified as Proven Reserves and Indicated Resources would be re-classified as Probable Reserves. In practical terms the Probable Reserves, having been drilled-off from hanging-wall drift exploration headings, would usually need an additional program of infill or in-stope drilling to be classified as Proven Reserves. Dilution and recovery factors are applied to calculate financial viability during the process of conversion from resources to reserves. These factors vary depending on the unit being mined, its size, ore thickness, location etc. Tables 6 & 7 illustrates resources and reserves figures comparing 2024 and 2023.

For the 2024 resource and reserve exercise, all block models calculated across Tara and Tara Deep have been combined into four main areas - Main Mine, Upper Swex, Lower Swex and Tara Deep. Figure 9 below shows the spatial location of these four areas.

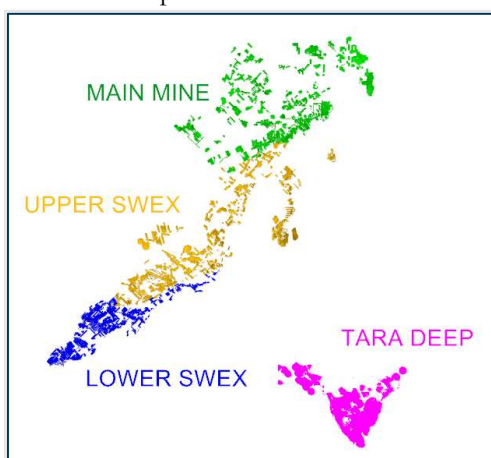


Figure 9. Mineral Resources and Reserves split by area

Table 6. Mineral Resources and Mineral Reserves Tara Mine 2024-12-31.

2024 MINERAL RESOURCES AND ORE RESERVES								
MAIN MINE	Mineral Resources	MAIN MINE			Ore Reserves	MAIN MINE		
		Tonnes (kt)	Zn %	Pb %		Tonnes (kt)	Zn %	Pb %
	Measured	32	5.7	1.3	Proven	172	4.6	1.5
	Indicated	1540	4.8	2.1	Probable	6259	5.5	1.9
	Resources	6652	5.0	1.8	Reserves	6431	5.4	1.9
Upper SWEX	Mineral Resources	Upper SWEX			Ore Reserves	Upper SWEX		
		Tonnes (kt)	Zn %	Pb %		Tonnes (kt)	Zn %	Pb %
	Measured	0	0.0	0.0	Proven	370	7.1	1.4
	Indicated	444	5.1	1.0	Probable	3719	5.0	1.0
	Resources	4858	5.5	1.1	Reserves	4089	5.2	1.1
Lower SWEX	Mineral Resources	Lower SWEX			Ore Reserves	Lower SWEX		
		Tonnes (kt)	Zn %	Pb %		Tonnes (kt)	Zn %	Pb %
	Measured	0	0.0	0.0	Proven	179	6.9	1.3
	Indicated	141	4.9	1.0	Probable	3198	5.9	1.1
	Resources	1772	5.7	1.1	Reserves	3377	5.9	1.1
TARA DEEP	Mineral Resources	TARA DEEP			Ore Reserves	TARA DEEP		
		Tonnes (kt)	Zn %	Pb %		Tonnes (kt)	Zn %	Pb %
	Measured				Proven			
	Indicated				Probable			
	Resources	27000	8.4	1.6	Reserves	0.0	0.0	0.0
ALL	Mineral Resources	GRAND TOTAL			Ore Reserves	GRAND TOTAL		
		Tonnes (kt)	Zn %	Pb %		Tonnes (kt)	Zn %	Pb %
	Measured	32	5.7	1.3	Proven	721	6.5	1.4
	Indicated	2125	4.9	1.8	Probable	13176	5.5	1.5
	Resources	40282	7.4	1.6	Reserves	13897	5.5	1.5

Table 7. Mineral Resources and Mineral Reserves Tara Mine 2024-12-31.

Classification	2024			2023		
	kt	Zn (%)	Pb (%)	kt	Zn (%)	Pb (%)
Mineral Reserves						
Proved	720	6.5	1.4	730	6.5	1.4
Probable	13,180	5.5	1.5	13,320	5.5	1.5
<i>Total</i>	<i>13,900</i>	<i>5.5</i>	<i>1.5</i>	<i>14,050</i>	<i>5.5</i>	<i>1.5</i>
Mineral Resources						
Measured	30	5.7	1.3	30	5.7	1.3
Indicated	2,130	4.9	1.8	2,130	4.9	1.8
<i>Total M&I</i>	<i>2,160</i>	<i>4.9</i>	<i>1.8</i>	<i>2,160</i>	<i>4.9</i>	<i>1.8</i>
Inferred Tara Mine	11,120	5.6	1.5	11,120	5.6	1.5
Inferred Tara Deep	27,000	8.4	1.6	27,000	8.4	1.6
<i>Total Inferred</i>	<i>38,120</i>	<i>7.5</i>	<i>1.6</i>	<i>38,120</i>	<i>7.5</i>	<i>1.6</i>

Some 60,278 tonnes of ore (from surface material, tips and development) was received into the mill which due to lack of data and resources, could not be attributed to specific areas. This figure has been distributed evenly across mined reserves in model areas that were mined in 2024 (equivalent to 8.61kt per area).

3.14 Comparison with previous year/estimation

Due to the mine being in care and maintenance for much of the year, the review of additions to R&R was postponed and will be completed 2025. Figures reported in Table 1 and Table 7 represent the subtraction of mined out material during 2024 from the reserves and resources in comparison to 2023.

4 REFERENCES

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