

刚果民主共和国坦噶尼喀省

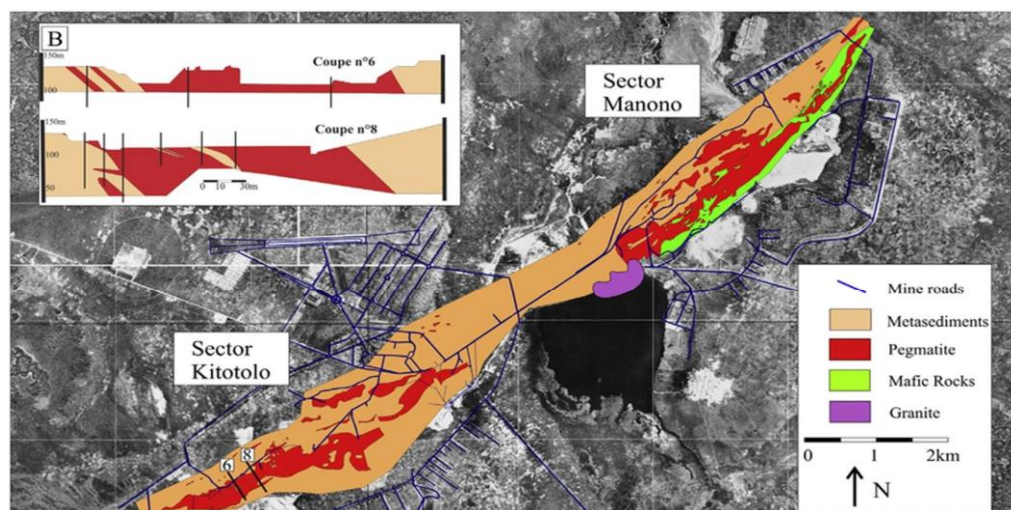
马诺诺锂项目

现场考察及数据审查

报告提交给：

AVZ 矿业有限公司

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AVZ 矿业有限公司

SRK (刚果)

刚果民主共和国

卢本巴希高尔夫区

Lukonzolwa 大道 2056 号

电邮: smaleba@srk.co.za

网址: www.srk.co.za

电话: +243 (0) 818701753

座机: +243 (0) 819999775

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编撰:

Paul Ngoy Wabikala
Geological Consultant 地质咨询师

电邮: smaleba@srk.co.za

同行审查:

Victor Simposya
Partner and Principal Geologist 合伙人、
主任地质师

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The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by AVZ Minerals Limited (AVZ). The opinions in this Report are provided in response to a specific request from AVZ to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

本报告中所表述的观点是基于 AVZ 矿业有限公司（“AVZ”）向 SRK（南非）（“SRK”）所提供的信息以及在 SRK 参与的质量监控下所获取的信息，应业主具体的要求做出的。SRK 对业主提供的信息进行了认真的研究，将所提供的重要数据与期望数值进行了比较，本报告研究结果和结论的准确性取决于以上信息的准确性和完整性。SRK 不对业主所提供信息中存在的任何错误或缺失负责，且不应承担由此而做出的商业决策或行动方面的连带责任。本报告所阐述的观点皆基于 SRK 现场调查期间之所见与之合理预见。由于 SRK 不能够也没有机会对报告之后的现场情况进行评价，所以报告不一定与其日期之后的现场情况一致。

1 Introduction and Scope of Report 简介及报告范围

AVZ Minerals Limited (AVZ) is a mineral exploration company listed on the Australian Securities Exchange (ASX: AVZ) which is focused on developing the Manono Lithium Project, potentially one of the world's largest lithium-rich LCT (lithium, caesium, tantalum) pegmatite deposits. The Manono Lithium Project (Manono) is located within Manono Territory of Tanganyika Province in the Democratic Republic of the Congo (DRC).

AVZ 矿业有限公司（“AVZ”）是澳大利亚证券交易所（ASX: AVZ）上市的一家矿业勘探公司，主要从事马诺诺锂项目的开发，该项目可能是世界上最大的富锂 LCT（锂、铯、钽）伟晶岩矿床。马诺诺锂项目（Manono）位于刚果民主共和国坦噶尼喀省马诺诺地区。

AVZ has been exploring the pegmatites in the Manono territory for the potential for LCT minerals through surface mapping, trenching and an initial diamond drilling programme.

AVZ 一直在对马诺诺地区的伟晶岩进行勘探，通过地表填图、槽探和初步的钻石钻探程序发掘 LCT 矿物潜力。

AVZ approached SRK Consulting Congo S. A. R. L. (SRK) for an independent opinion on the potential of Manono through the review AVZ's geological dataset collected on the project to date and a site visit to the project for verification of mapping, trenching and drill core samples.

AVZ 委托 SRK 刚果（SRK）通过审查 AVZ 项目迄今为止收集的地质数据集，并对该项目进行现场考察，以验证填图、槽探和钻芯样品，提供关于马诺诺潜力的独立意见。

2 Background and Brief 背景及摘要

2.1 Background of the project 项目背景

SRK was initially approached through the SRK Australian office, on behalf of their client, to undertake a site visit and review the exploration data including cores from the drilling on Manono and present their findings to the SRK Australian office.

起初，SRK 通过 SRK 澳大利亚办公室代表其客户进行接洽，现场考察和审查包括马诺诺钻芯在内的勘探数据，并将其结果呈报给 SRK 澳大利亚办公室。

Subsequently, AVZ approached SRK directly to review the exploration and drilling data collected and provide an independent opinion on the exploration potential of Manono.

随后，AVZ 直接联系 SRK，对收集的勘探和钻探数据进行审查，并提供对马诺诺勘探潜力的独立意见。

AVZ has set up a joint venture with the DRC state owned company with La Congolaise d'Exploitation Minière SA (COMINIÈRE SA) to explore and develop Manono.

AVZ 已与刚果民主共和国国有企业 La Congolaise d'Exploitation Minière SA (COMINIÈRE SA) 建立合资企业，对马诺诺进行勘探和开发。

2.2 Nature of the brief 摘要性质

The scope of work was for a 3 day site visit, which including travel time, meaning that the site technical visit was for one day. An additional 2 days was allowed for report writing.

工作范围为 3 天现场考察，其中包括行程时间，这意味着现场技术考察为一天。允许额外 2 天的报告撰写。

The planned activities for the site visit included:

计划的现场考察活动包括:

- field inspection of the outcrops, the trenches and examination of the cores from the recent AVZ drilling; and
- the review of all the compiled geological information inclusive of maps, sections, drillhole logs, assay data and available reports.
- 现场检验露头、探槽以及 AVZ 近期钻探的岩芯;
- 审查所有编制的地质信息, 包括填图、剖面图、钻孔编录、试验数据和可用报告。

The review is based on the information provided to SRK by AVZ which is included in the reference list.

审查是基于 AVZ 提供给 SRK 的信息, 其包含于参考文献列表中。

2.3 History of the project 项目背景

Manono has a history of tin (Sn) mining dating back to 1919 and the project landscape attests to that with a series of large historical workings, comprised of flooded open-pits, along with associated waste-dumps and tailings dumps. These workings were excavated by the company Geomines, which was part of Zairetain after about 1965. According to the 2011 Behre Dolbear, report, mining ceased in 2011, but most of the waste-dumps and tailings dumps are presently being re-worked by local artisanal miners, for the recovery of remnant cassiterite.

马诺诺的锡 (Sn) 矿采矿历史可追溯至 1919 年, 项目地形通过一系列大型历史巷道进行了证明, 包括淹没的露天矿以及相关的排土场和尾矿场。这些巷道由 Geomines 公司挖掘, 其在 1965 年左右成为 Zairetain 公司的一部分。根据 2011 年 Behre Dolbear 报告, 矿山在 2011 年停止生产, 但是目前当地手工采矿者对大多数排土场和尾矿场重新开始作业, 以回收残余的锡石。

One of the by-products of the Sn mining was columbite-tantalite, commonly referred to in the DRC as coltan.

锡矿的副产品之一是铌钽铁矿, 在刚果民主共和国通常被称为钶钽铁矿。

2.4 Local Geology 矿区地质

The Lithium Project has been subdivided in 2 sectors by AVZ: Kitotolo and Manono (图 2-1).

AVZ 将锂矿项目分为两个区: Kitotolo 和 Manono (图 2-1)。

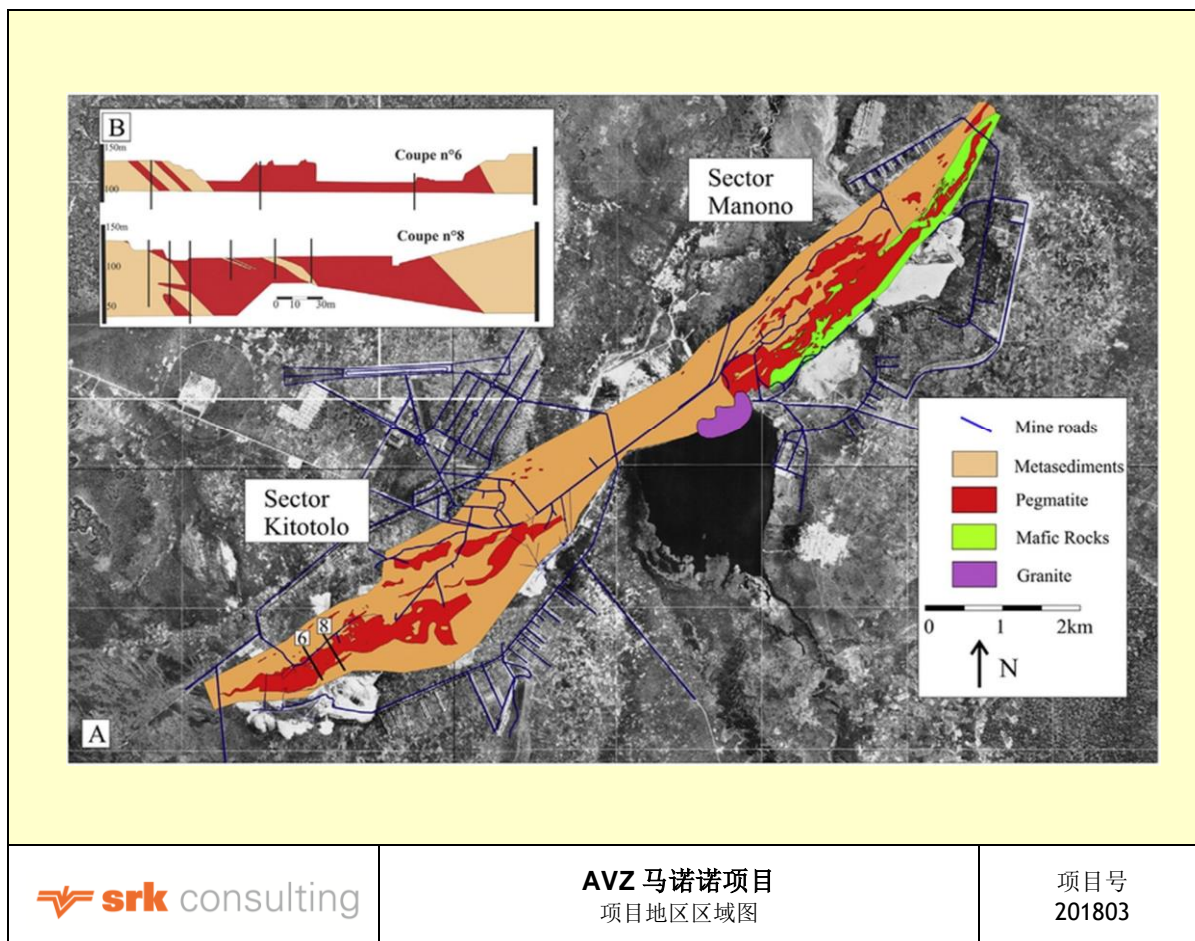


图 2-1: Project area regional map 项目地区区域图

Within the Manono area, several pegmatites have been identified, associated with a dyke swarm along a major linear fracture zone. The dip of the pegmatites is shallow to moderate angles and generally towards the southeast, cross-cutting the foliation and bedding of the host rock.

马诺诺地区发现了几个伟晶岩，以及一个主要线性断裂带上的岩脉群。伟晶岩的倾角为较小至中等，一般倾向为东南，横切主岩的叶理和层理。

3 Exploration work undertaken 开展的勘探工作

The exploration work undertaken by AVZ consists of surface mapping, trenching and preliminary diamond drilling.

AVZ 开展的勘探工作包括地表填图、槽探和初步金刚石钻探。

The initial surface work involved the mapping of the pegmatite host rock contacts to provide an understanding of the contact relationships between pegmatite and the host rock. AVZ has established a 13 km strike zone of pegmatites in total.

最初的地表工作涉及伟晶岩与主岩的接触，以提供对伟晶岩与主岩之间接触关系的理解。AVZ 已经建立了一条 13 公里的伟晶岩走向带。

A total of 2 797 m in 37 trenches were excavated or resampled from previous trenching. SRK inspected some of the trenches during the site visit and observed the presence of the lithium bearing mineral spodumene. From these trenches 1 205 composite rock-chip samples were collected, generally at 2 m intervals. Samples were shipped to the SGS laboratory in Lubumbashi for sample preparation then to SGS in Johannesburg for 4 acid digest analysis for lithium (Li).

从之前的探槽挖掘或重新采样 37 条探槽共计 2797 米。SRK 在现场考察期间检查了一些探槽，发现了含锂矿物锂辉石的存在。从这些探槽中收集了 1205 件组合岩屑样品，样段长度通常为 2 米。将样品运至卢本巴希的 SGS 实验室进行样品制备，然后运至约翰内斯堡的 SGS 进行 4 次锂（Li）酸消解分析。

At the time of the SRK site visit, assay results have been received for 461 samples. These assays results ranged from 0 ppm Li to 11 800 ppm Li (equivalent to 2.54% lithium oxide or lithia (Li₂O)).

SRK 现场考察期间，收到了 461 件样品的试验结果。这些试验结果的范围在 0 ppm Li 至 11 800ppm Li（相当于 2.54%的氧化锂（Li₂O））。

SRK understands that the remaining assay results for 744 samples have now been received and published by AVZ on their website, but SRK has not reviewed these.

SRK 了解到 744 件样品的剩余试验结果现已收到，并在 AVZ 的网站进行了公布，但 SRK 并未对其进行评估。

An initial due diligence diamond drilling exercise was undertaken along the strike of pegmatites in the Kitlotolo Sector and at the Carriere de L'est Pegmatite in the Manono Sector to verify the depth extensions of the anomalies picked up from the surface mapping and trench sampling. To date 7 holes have been completed and samples sent to the ALS laboratory Lubumbashi for sample preparation work and then to ALS Perth, Western Australia for lithium analysis using optimal sodium peroxide fusion recovery methods.

沿 Kitlotolo 区伟晶岩走向和马诺诺区 Carriere de L'est 伟晶岩进行的初步尽职调查金刚石钻探工作，是为了验证地表填图和探槽取样中发现的异常的深度延伸。到目前为止，已完成了 7 个钻孔，并将样品送到卢本巴希 ALS 实验室进行样品制备工作，然后送至西澳 ALS 珀斯实验室，用最佳的过氧化钠熔融回收方法进行锂分析。

3.1 Surface mapping and trenching 地表填图及槽探

Based on the preliminary work, AVZ has delineated the extent of all outcropping pegmatites and these are shown in 图 3-1 and the approximate dimensions presented in 表 3-1.

在前期工作的基础上，AVZ 划定了所有露头伟晶岩的范围，如图 3-1 所示，其大致尺寸见表 3-1。

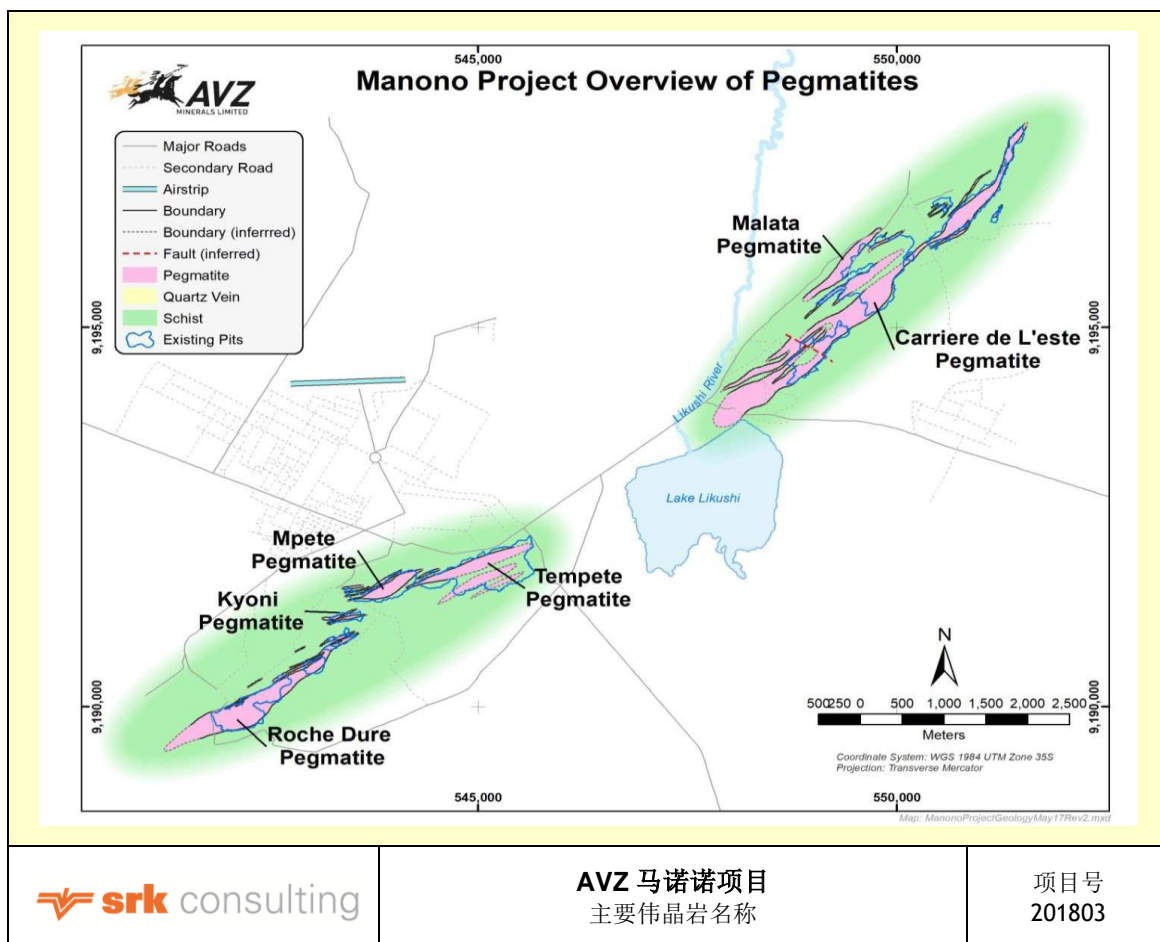


图 3-1: Names of Main Pegmatites 主要伟晶岩名称

表 3-1: Dimensions of the main Manono pegmatites 主要马诺诺伟晶岩尺寸

Pegmatite	Length, m	Thickness, m	General dip, SE
Roche Dure	2 700	220	40°
Kyoni	400	20	26°
Mpete	1 000	60	26°
Tampete	1 700	60	26°
Carriere de L'est	5 400	230	20-40°
Malata	1 300	20	10-15°

伟晶岩	长度 (m)	厚度 (m)	一般倾角, 东南
Roche Dure	2 700	220	40°
Kyoni	400	20	26°
Mpete	1 000	60	26°
Tampete	1 700	60	26°
Carriere de L'est	5 400	230	20-40°
Malata	1 300	20	10-15°

These dimensions suggest that the Carriere de L'est Pegmatite is the largest LCT pegmatite in the Manono sector area with the Roche Dure Pegmatite the second largest in the Kitotolo Sector area.

Given the presence of at least six large to very large LCT pegmatites, including probably the largest LCT pegmatite in the world, it is reasonable to conclude that the Manono Lithium Project has the potential to contain the largest hard-rock lithium resource in the world.

上述尺寸表明，马诺诺区 Carriere de L'est 伟晶岩为最大的 LCT 伟晶岩，Kitotolo 区 Roche Dure 伟晶岩为第二大 LCT 伟晶岩。鉴于至少有 6 个大到特大的 LCT 伟晶岩，其中包括可能是世界上最大的 LCT 伟晶岩，所以有理由推断马诺诺锂矿项目可能拥有世界上最大的硬岩锂资源。

The mapping and preliminary drilling completed by AVZ has provided some initial quantification of the pegmatite dimensions and orientations (表 3-2).

AVZ 完成的填图和初步钻探提供了伟晶岩尺寸和方向的初步量化（表 3-2）。

表 3-2: Trench results 探槽结果

Trench ID (initial use)	Trench ID (current)	Intervals greater than 0.5% Li ₂ O	Comment
Roche Dure TR001	T1	nil	Extremely weathered pegmatite
Roche Dure TR002	T2	14-26 m; 8 m @ 0.54 % Li ₂ O	Weathered pegmatite
		26 -48 m; 22 m @ 0.65 % Li ₂ O	Weathered pegmatite
		56 -60 m; 4 m @ 0.81 % Li ₂ O	Weathered pegmatite
Roche Dure TR003	T3	0-30 m; 30 m @ 0.76 % Li ₂ O	Weathered pegmatite
		124 – 128 m; 4 m @ 1.01 % Li ₂ O	Relatively unweathered pegmatite
Roche Dure TR004	T4	136m - 140m; 4m @0.63 % Li ₂ O	Weathered pegmatite
Roche Dure TR005	T5	0-197 m; 197m @ 0.56 % Li ₂ O, Includes:	Most of samples weathered pegmatite
		12-40 m; 38 m @ 1.29 % Li ₂ O	Relatively unweathered pegmatite and
		60 -89 m; 29 m @ 1.54% Li ₂ O	Relatively unweathered pegmatite Malata
Malata TR001	T14	198-124 m; 26 m @ 0.54 %Li ₂ O	Weathered pegmatite

探槽编号 (首次使用)	探槽编号 (目前使用)	样段长度大于 0.5% Li ₂ O	评述
Roche Dure TR001	T1	无	严重风化的伟晶岩
Roche Dure TR002	T2	14-26 m; 8 m @ 0.54 % Li ₂ O	风化的伟晶岩
		26 -48 m; 22 m @ 0.65 % Li ₂ O	风化的伟晶岩
		56 -60 m; 4 m @ 0.81 % Li ₂ O	风化的伟晶岩
Roche Dure TR003	T3	0-30 m; 30 m @ 0.76 % Li ₂ O	风化的伟晶岩
		124 – 128 m; 4 m @ 1.01 % Li ₂ O	相对未风化的伟晶岩
Roche Dure TR004	T4	136m - 140m; 4m @0.63 % Li ₂ O	风化的伟晶岩
Roche Dure TR005	T5	0-197 m; 197m @ 0.56 % Li ₂ O, Includes:	大部分样品为风化的伟晶岩
		12-40 m; 38 m @ 1.29 % Li ₂ O	相对未风化的伟晶岩
		60 -89 m; 29 m @ 1.54% Li ₂ O	相对未风化的伟晶岩
Malata TR001	T14	198-124 m; 26 m @ 0.54 %Li ₂ O	风化的伟晶岩

The assay results of the trench samples also include intervals of very strong Sn anomalies, which is to be expected when one considers that the historical mining focused upon production of Sn. AVZ indicate that Sn was considerably higher in the footwall greisen with up to about 5% Sn being reported. If mining for lithium is initiated, it is possible that Sn could be a valuable by-product of lithium production.

探槽样品的试验结果显示了 Sn 强异常区间，考虑到历史开采主要针对 Sn 的生产，该结果是意料之中的。AVZ 表明 Sn 在下盘云英岩含量更高，高达 5% Sn。如果开始锂的开采，锡可能成为锂生产过程中的有价值副产品。

3.2 Diamond drilling 金刚石钻探

The historical drilling of 42 vertical drill holes, demonstrated the presence of the lithium minerals in the area of historical Sn mining. The holes were very shallow, less than 50 m vertical depth, and focused in the weathered and leached zones where the Sn was liberated by weathering processes.

历史上钻探了 42 个垂直钻孔，表明历史锡矿区锂矿物的存在。这些钻孔很浅，垂直深度小于 50 米，集中于风化过程中产生锡的风化带和浸出带上。

It was obviously very important to carry out further drilling to test both the strike extent and down dip extension of the length along the pegmatites strike. Following agreement with Cominiere SA, AVZ commenced management and due diligence of the Manono Lithium Project.

对于进一步的钻探以测试沿伟晶岩倾向和走向范围的延伸长度显然十分重要。在与 Cominiere SA 达成协议后，AVZ 开始对马诺诺锂矿项目进行管理和尽职调查。

AVZ initiated a diamond drilling programme with the following objectives:

AVZ 开展了一项金刚石钻探计划，其目标如下：

- confirm the dimensions and continuity of the pegmatites; and
- Mineral Resource definition, compliant with the 2012 JORC Code.
- 确认伟晶岩的尺寸和连续性；
- 按照 2012 年版 JORC 规范定义矿产资源。

From April 2017 onward, an initial diamond drilling exercise was undertaken along the strike of pegmatites to verify the depth extensions of the mineralised zones outlined by the surface mapping and trench sampling. To date seven holes have been completed for a total of 1450m, with individual metre samples of pegmatite were sent to the Perth ALS laboratory for analyses.

从 2017 年 4 月开始，沿伟晶岩走向进行了初步的金刚石钻探活动，以验证地表填图和探槽采样概述的矿化带的深度延伸情况。到目前为止，已完成 7 个钻孔，总进尺 1,450 米，伟晶岩的个别米样品被送往珀斯 ALS 实验室进行分析。

As part of the initial phase of seven holes drilled, six were located in the Kitotolo Sector and one in the Manono Sector.

作为初始阶段七个钻孔的一部分，其中六个位于 Kitotolo 区，一个位于马诺诺区。

表 3-3 lists the seven holes completed by pegmatite name, with the drilled length of pegmatite intersected and the average % Li₂O grade over the length of the pegmatite.

表 3-3 列出了以伟晶岩命名的七个已完成钻孔信息、伟晶岩的钻孔长度，以及伟晶岩长度上的平均 % Li₂O 品位等信息。

表 3-3 List of boreholes completed 已完成钻孔列表

Hole -ID	Main Pegmatite intersected	Dip (deg)	Azimuth (deg)	End Of Hole (m)	Length of pegmatite (m)	Li ₂ O (%)	Comment
M017DD001	Roche Dure	-60	330	310.00	235.00	1.66	1.89 m @5.39 % Sn
M017DD002	Roche Dure	-50	330	300.70	202.00	1.60	
M017DD003	Kyoni	-70	330	234.00	18.30 51.19	0.15 0.74	
M017DD004	Roche Dure	-60	330	163.68	43.08 5.04 11.30 30.02	0.07 0.03 0.25 0.83	Weathered and leached
M017DD005	Mpete	-70	330	138.50	5.15 45.74	0.24 1.59	Weathered
M017DD006	Tampete	-70	330	250.25	65.86	1.51	
M017DD007	Carriere de L'est	-70	310	351.00	250.93	1.48	

钻孔 ID	主要伟晶岩穿矿	倾角 (度)	方位角 (度)	终孔 (m)	伟晶岩长度(m)	Li ₂ O (%)	评论
M017DD001	Roche Dure	-60	330	310.00	235.00	1.66	1.89 m @5.39 % Sn
M017DD002	Roche Dure	-50	330	300.70	202.00	1.60	
M017DD003	Kyoni	-70	330	234.00	18.30 51.19	0.15 0.74	
M017DD004	Roche Dure	-60	330	163.68	43.08 5.04 11.30 30.02	0.07 0.03 0.25 0.83	风化和淋溶
M017DD005	Mpete	-70	330	138.50	5.15 45.74	0.24 1.59	风化
M017DD006	Tampete	-70	330	250.25	65.86	1.51	
M017DD007	Carriere de L'est	-70	310	351.00	250.93	1.48	

Based on the review of the average grades intersected within the holes drilled, relatively higher grades were intersected in the 2 holes drilled in the south-west of in the Roche Dure Pegmatite in the extreme south west of the Kitotolo Sector, where there is less surface weathering. However, drillhole MO17DD004 indicates that the in northern portion of the Roche Dure Pegmatite, leaching of lithium from the spodumene has occurred within the highly weathered surface zone. Results show increasing lithium grade with depth in holes MO17DD003, MO17DD004 and MO17DD005.

从对钻孔内穿矿的平均品位审查来看，Kitotolo 区最西南端 Roche Dure 伟晶岩西南两个钻孔的穿矿品位相对较高，地表风化较少。然而，MO17DD004 钻孔表明，Roche Dure 伟晶岩北部锂辉石的锂浸出发生在高度风化地表带内。结果表明，MO17DD003、MO17DD004 和 MO17DD005 钻孔中的锂品位随深度递增。

The Kyoni and Mpete Pegmatites also indicate relatively low concentrations near the surface, while the Tampete Pegmatite has similar grade intersections to the southern portion of the Roche Dure Pegmatite.

Kyoni 和 Mpet 伟晶岩也表明在地表附近存在的浓度相对较低，而 Tampete 伟晶岩与 Roche Dure 伟晶岩南部区域具有相似的穿矿品位。

The Carriere de L'est Pegmatite in the Manono Sector is intersected by one drillhole which has grades comparable to the Roche Dure Pegmatite.

马诺诺区的 Carriere de L'est 伟晶岩被一个钻孔穿矿，该钻孔品位比得上 Roche Dure 伟晶岩。

3.2.1 Kitotolo Sector with 3 targets: Roche Dure, Mpete and Tampete Kitotolo 区的 3 个靶区: Roche Dure、Mpete 和 Tampete

The southern Kitotolo Sector, localised in the southern portion of the Manono project area (图 2-1), has been initially selected for the next phase of the AVZ exploration. There has been historical mining for Sn and coltan in the weathered zone here although later attempts to mine from fresh rock were unsuccessful due to increased mining costs and low grades.

最初选定位于马诺诺项目区南部（图 2-1）的南 Kitotolo 区域作为 AVZ 下一阶段的勘探目标。此区域的风化带曾有过锡矿和钶钽铁矿的开采历史，但是由于开采成本增加且品位低，所以后来试图开采新鲜岩石的尝试都失败了。

The locations of the AVZ drillholes within the sector are shown in 图 3-2:

该区内的 AVZ 钻孔位置见图 3-2:

- three drillholes, MO17DD001, MO17DD002 and MO17DD004 were drilled in the main body of the southernmost Roche Dure Pegmatite;
- drillhole MO17DD003 was drilled into the outcrop gap between Roche Dure and Mpete;
- MO17DD005 intersected the main the Mpete Pegmatite in the centre; and
- MO17DD006 was drilled into the Tampete Pegmatite towards the north-east of the Kitotolo Sector.
- 在最南端的 Roche Dure 伟晶岩主矿体完成了三个钻孔：MO17DD001、MO17DD002 和 MO17DD004 钻孔；
- MO17DD003 钻孔钻入 Roche Dure 和 Mpete 之间的露头间隙；
- MO17DD005 钻孔穿过主 Mpete 伟晶岩中心；
- MO17DD006 钻孔钻入 Kitotolo 区东北部的 Tampete 伟晶岩。

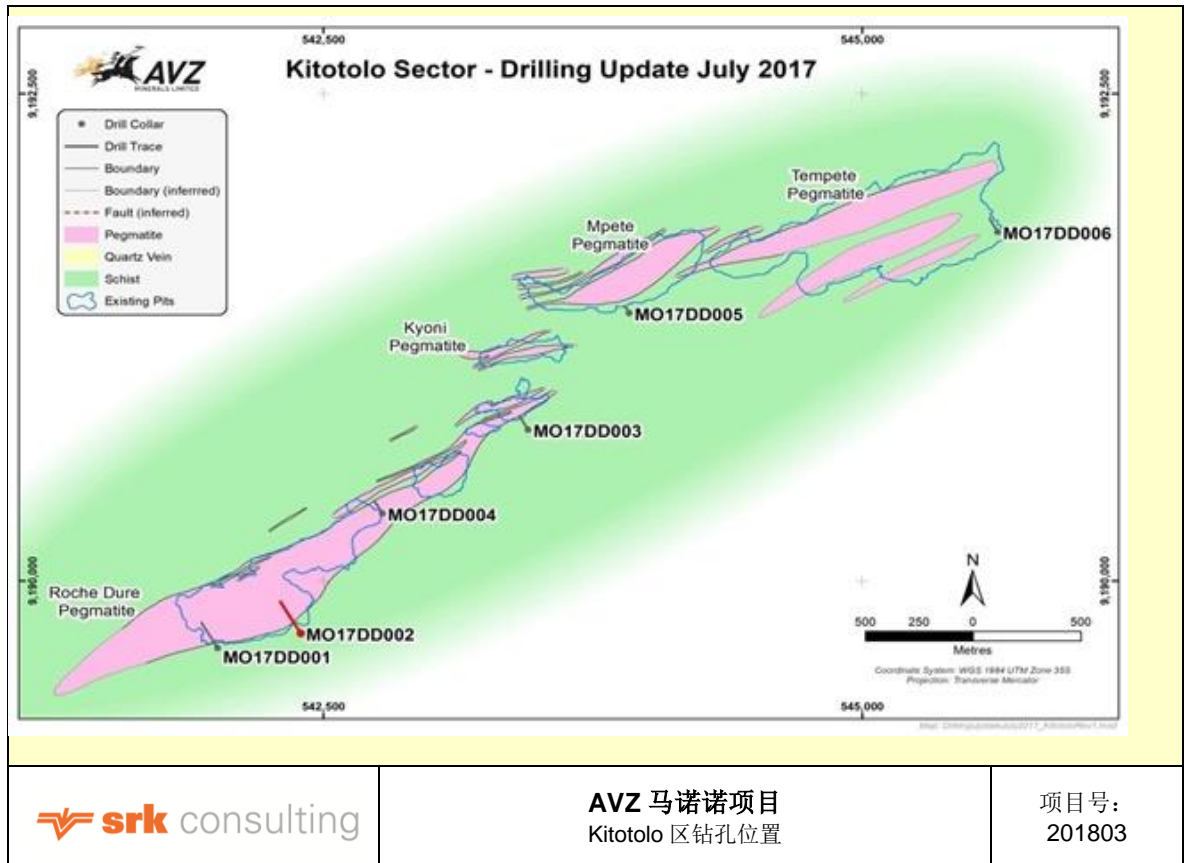


图 3-2 Location of boreholes drilled in Kitotolo Sector Kitotolo 区钻孔位置图

图 3-3 到 图 3-8 are section views showing the drillhole pegmatite intersections and the concentrations of lithium bearing minerals intersected within Kitotolo Sector. Figure 3-3 also shows high grade Sn intercepts within footwall greisens.

钻孔伟晶岩穿矿点及 Kitotolo 区内穿矿的含锂矿物浓度截面图见图 3-3 至图 3-8。图 3-3 还显示了下盘云英岩中的高品位锡截距。

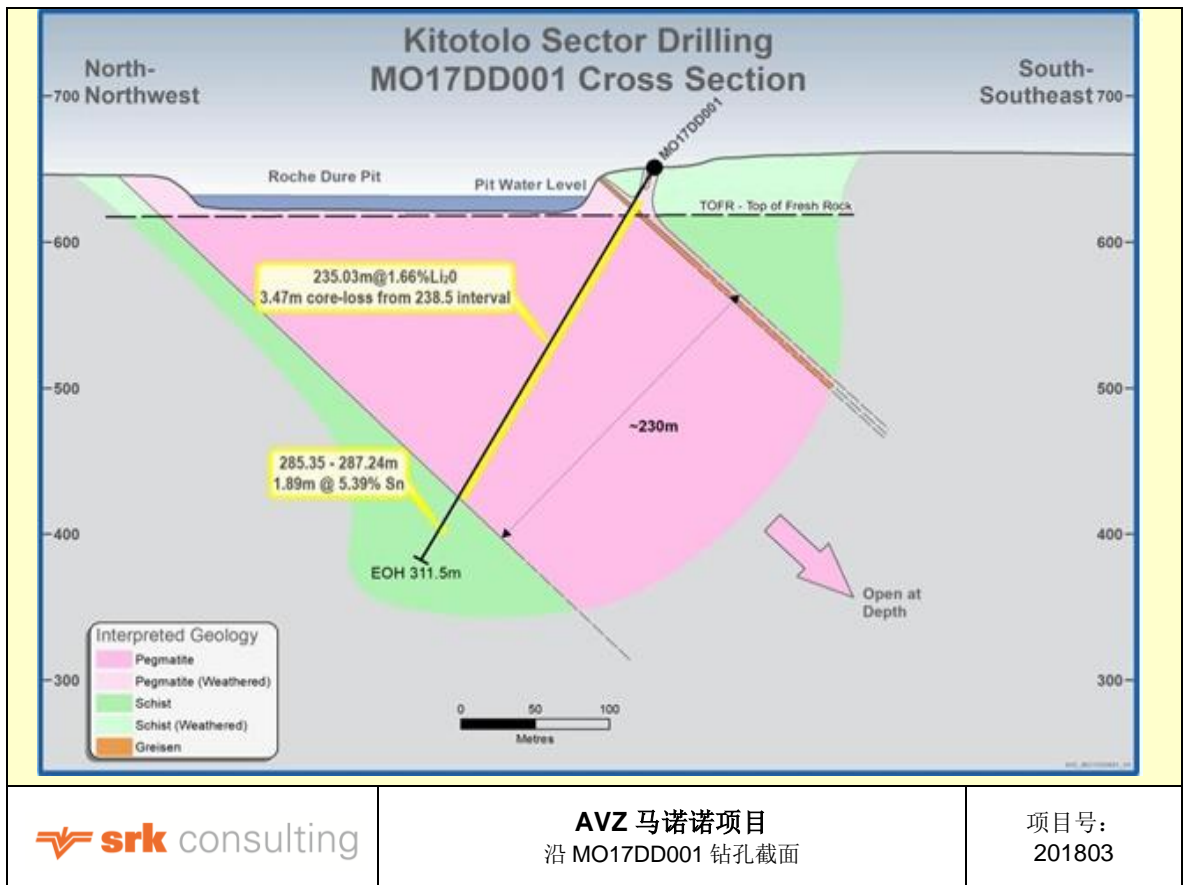


图 3-3 Section along drillhole MO17DD001 沿 MO17DD001 钻孔截面

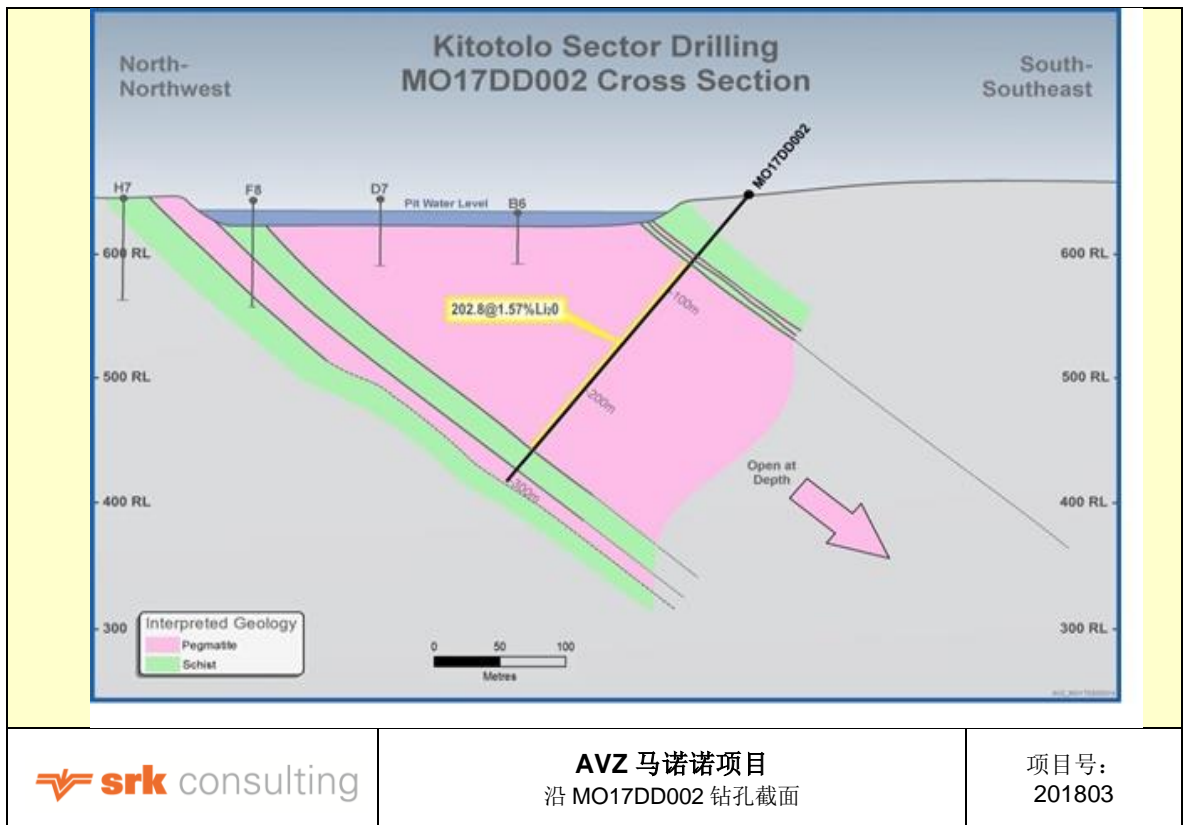


图 3-4 Section along drillhole MO17DD002 沿 MO17DD002 钻孔截面

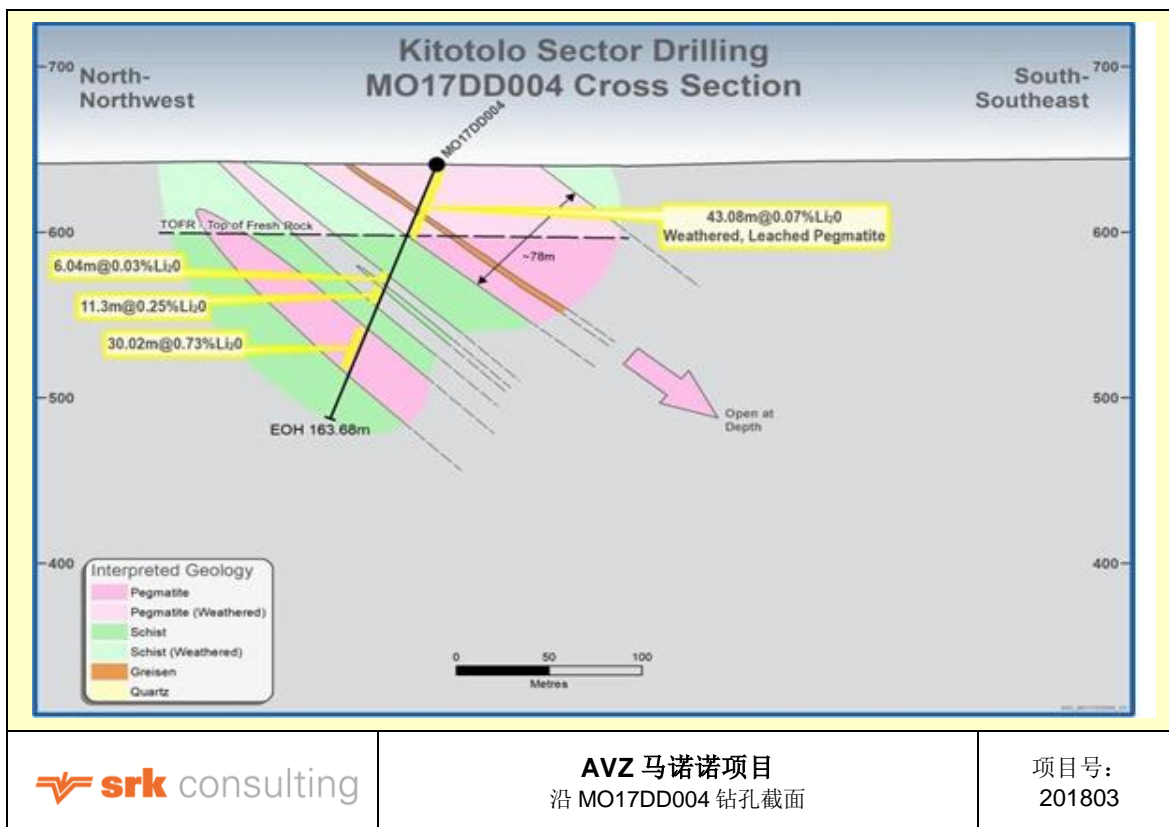


图 3-5 Section along drillhole MO17DD004 沿 MO17DD004 钻孔截面

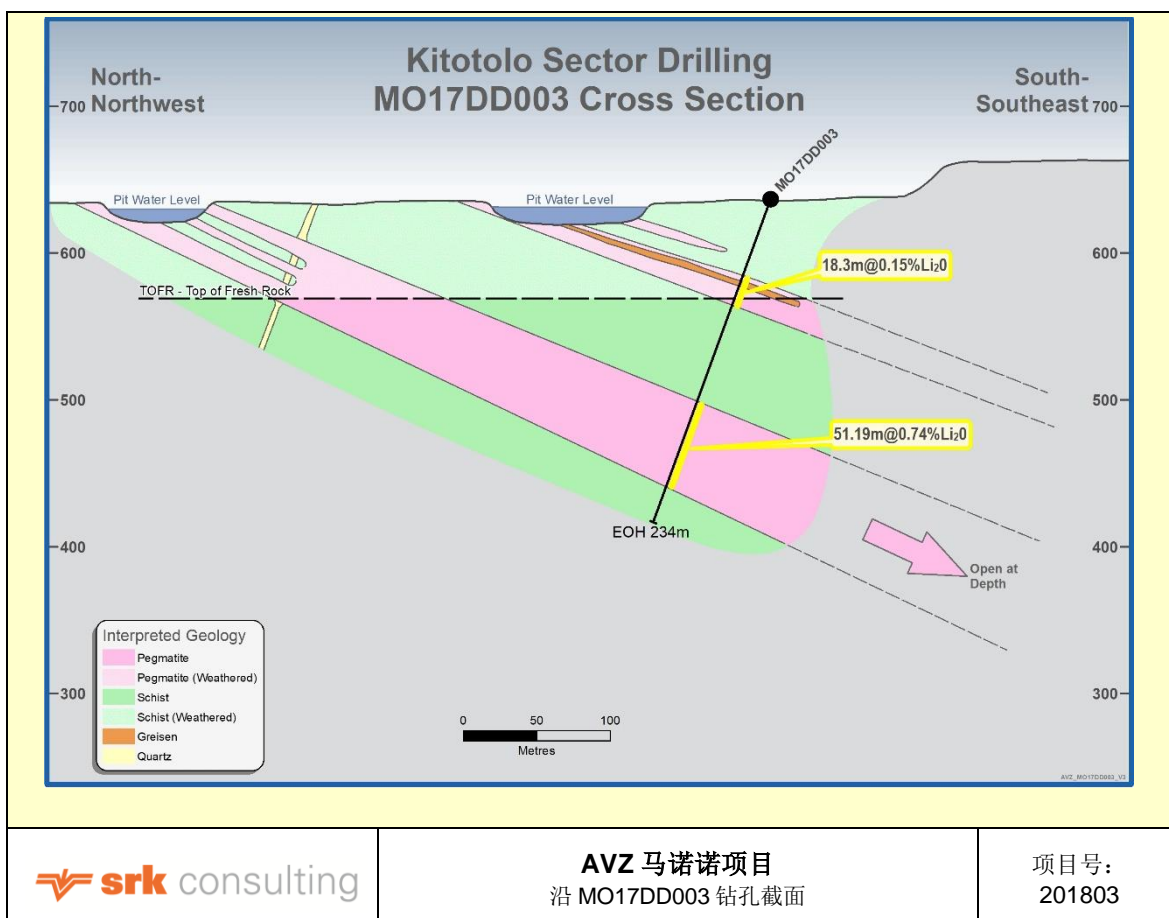


图 3-6 Section along drillhole MO17DD003 沿 MO17DD003 钻孔截面

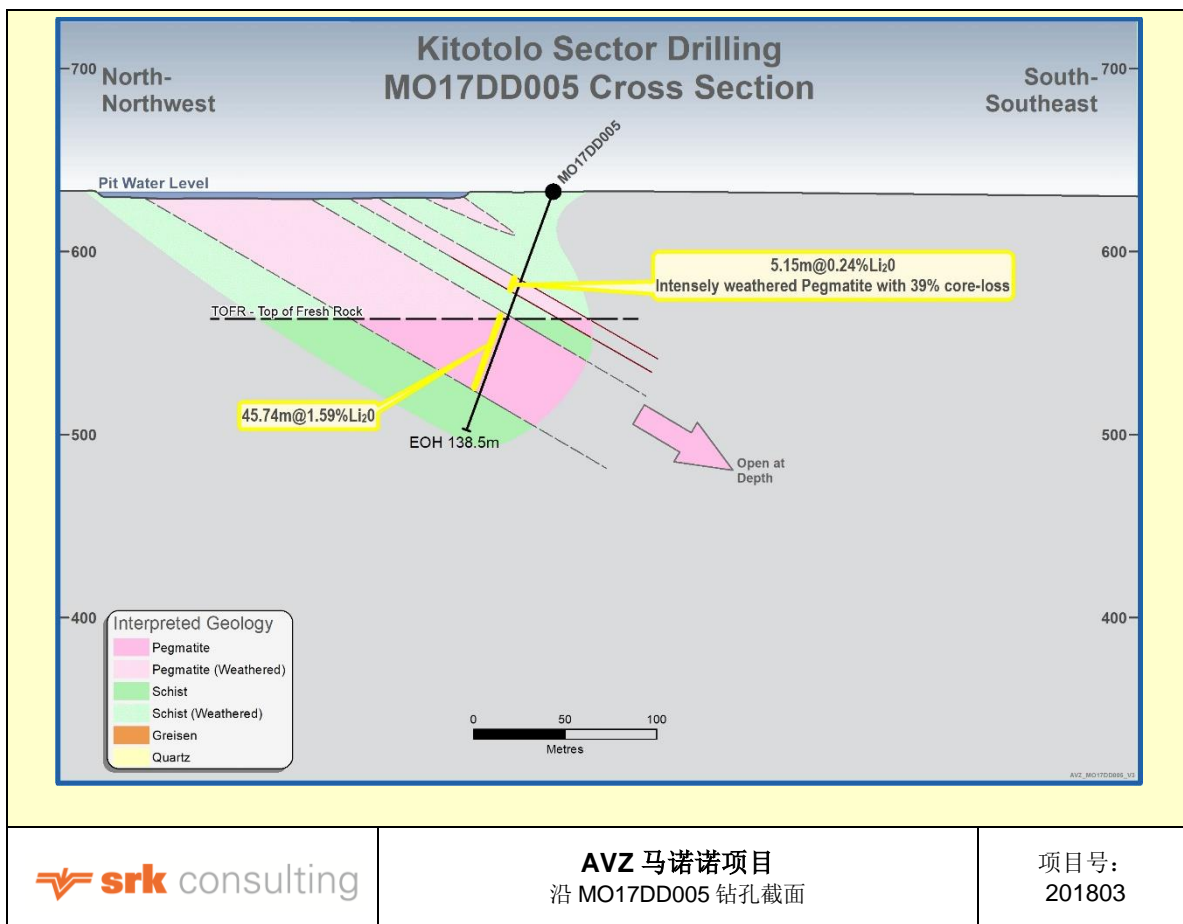


图 3-7 Section along drillhole MO17DD005 沿 MO17DD005 钻孔截面

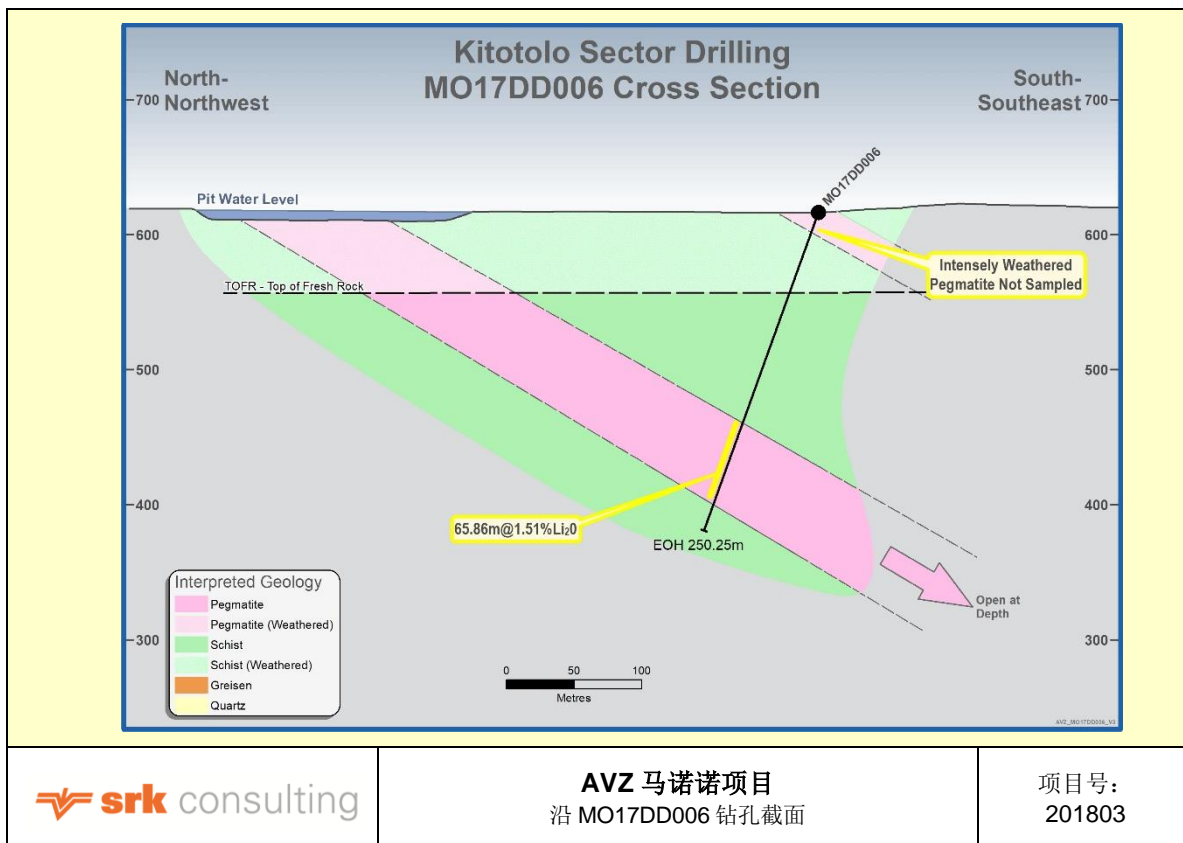


图 3-8 Section along drillhole MO17DD006 沿 MO17DD006 钻孔截面

3.2.2 Manono Sector showing multiple mineralised horizons at Carriere de L'est 马诺诺区 Carriere de L'est 的多重矿化层

The Manono Sector was also the subject of historical mining for Sn. The bulk of the exploration completed by AVZ in the Manono Sector consists of surface mapping, trenching and pitting and the drilling of one hole, MO17DD007 in August 2017 (图 3-9).

马诺诺区也是历史锡开采的主体。AVZ 在马诺诺区完成的大部分勘探工作包括地表填图、槽探、坑探以及在 2017 年 8 月钻进了 1 个钻孔，即 MO17DD007 钻孔（图 3-9）。

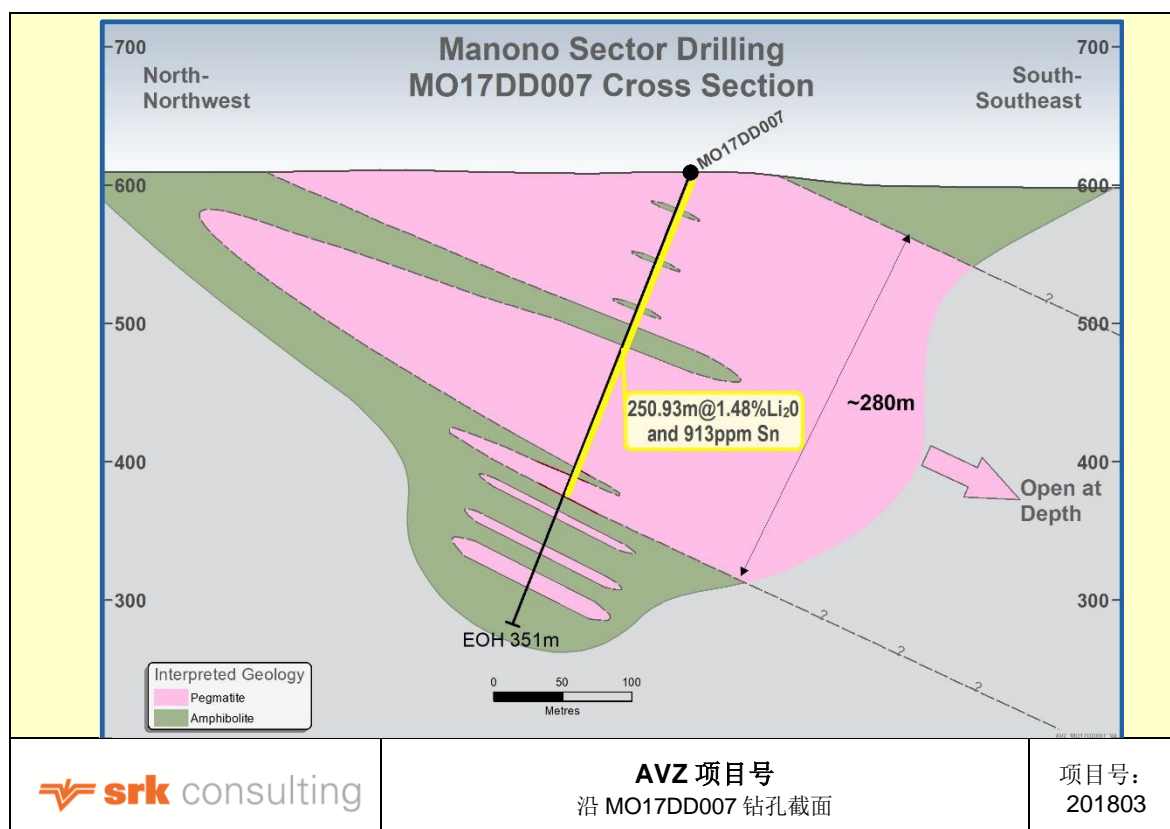


图 3-9 Section along drillhole MO17DD007 沿 MO17DD007 钻孔截面

The purpose of drilling the seven holes was to investigate the width, grade and nature of lithium mineralisation within the pegmatites. The seven holes confirmed the presence of lithium bearing minerals and in significant concentrations to warrant the next phase of drilling for resource definition.

完成 7 个钻孔的目的是调查伟晶岩内锂矿化的宽度、品位和性质。这 7 个钻孔证实了含锂矿物的存在，且浓度很高，确保可进行基于资源定义目的的下一阶段钻探工作。

4 Conclusions and Recommendations 结论和建议

SRK visited the Manono project from the 20 to 22 December 2017, to get an appreciation of the ongoing exploration work being undertaken by AVZ and to verify the data presented by AVZ.

SRK 于 2017 年 12 月 20 日至 22 日考察了马诺诺项目，了解 AVZ 正在进行的勘探工作，并验证 AVZ 提供的数据。

SRK's scope of work was to comment on the potential of the Manono project based on the site observations and the review of the information from mapping, trenching and drilling. The main lithium bearing mineral observed in the pegmatitic outcrops and in the 7 drillholes completed in 2017 was

spodumene, but other minerals including petalite, lepidolite, were also identified in smaller quantities especially in the north-eastern outcrops of the Manono Sector.

SRK 的工作范围是根据现场观察以及对填图、槽探和钻探信息的审查，来评论马诺诺项目的潜力。在伟晶岩露头和 2017 年完成的 7 个钻孔中观察到的主要含锂矿物是锂辉石，但也发现了少量的透锂长石、锂云母矿物，尤其是在马诺诺区的东北露头部分。

Based on the review of the average grades intersected within the holes drilled, relatively higher grades occur in two holes drilled into Roche Dure Pegmatite in the extreme south west of the Kitotolo Sector. Another hole drilled in the northern section of Roche Dure Pegmatite, seems to indicate that the northern portion of the Roche Dure Pegmatite may be leached of lithium in the weathered zone although fresh material has not been drilled there yet.

从对钻孔内穿矿的平均品位审查来看，Kitotolo 区最西南端 Roche Dure 伟晶岩的两个钻孔品位相对较高。Roche Dure 伟晶岩北部的另一个钻孔似乎表明显示，Roche Dure 伟晶岩北部的风化带内发生过锂浸出，但是该处尚未进行新鲜物料钻探。

The Kyoni and Mepete Pegmatites also indicate relatively low concentrations within weathered and leached areas and grade seems to increase with depth, while the Tampete Pegmatite has similar grade intersections to the southern portion of the Roche Dure Pegmatite.

Kyoni 和 Mpet 伟晶岩也表明在风化和淋溶区域内的浓度相对较低，而且品位随深度递增；Tampete 伟晶岩则与 Roche Dure 伟晶岩南部区域具有相似的穿矿品位。

The Manono Sector is intersected by one drillhole which has grades comparable to the Roche Dure Pegmatite.

马诺诺区被一个钻孔穿矿，该钻孔品位比得上 Roche Dure 伟晶岩。

SRK recommends the focus of any planned drilling for resource delineations should be on the Roche Dure Pegmatite in the Kitotolo Sector and on the Carriere de L'est Pegmatites in the Manono Sector.

SRK 建议，任何基于资源圈定目的的钻探计划都应重点放在 Kitotolo 区的 Roche Dure 伟晶岩和马诺诺区的 Carriere de L'est 伟晶岩上。

There is a need to undertake additional drilling to increase geological knowledge and confirm continuity of mineralisation.

有必要进行额外的钻探工作，以增加地质认识，并确认成矿的连续性。

The work completed by AVZ to-date has demonstrated the enormous potential for the Manono Lithium Project and based on site observations, discussions with the project geologists and the review of information provided by AVZ, SRK is of the opinion that the Manono project has been demonstrated to be highly prospective.

AVZ 迄今为止所完成的工作已证明了马诺诺锂项目的巨大潜力。根据现场观察、与项目地质人员的讨论以及对 AVZ 提供的信息的审查，SRK 认为马诺诺项目已被证明具有很高的前景。

Prepared by 编制人



Paul Ngoy

Geological Consultant 地质咨询师

Reviewed by 评审人



Partner 合伙人

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

所有用作源文件的数据以及本文件的文本、图表和附件均已按照公认的专业工程和环境实践进行审查和准备。

5 References 参考文献

Spitalny, P. (2017) Manono Lithium Project Initial Report to AVZ Minerals Ltd of technical matters pertaining to the Manono Lithium Project, Democratic Republic of the Congo (Unpublished Internal company report).

Spitalny, P. (2017 年), AVZ 矿业有限公司, 与刚果民主共和国马诺诺锂项目有关的技术事宜《马诺诺锂项目初步报告》(公司内部未发布报告)。

Nigel Ferguson (2017) AVZ planned ASX released

Nigel Ferguson (2017 年), AVZ 计划的 ASX (澳交所) 发布文件

Behre Dolbear (2011) Global Tin Corporation Competent Person's Report. The Manono Tin, Tantalum and Lithium Project in the Democratic Republic of the Congo. (Behre Dolbear J10-196) no author stated (unpublished)

Behre Dolbear (2011 年), 《全球锡业公司胜任人报告》。刚果民主共和国马诺诺锡、钽和锂项目。(Behre Dolbear J10-196), 无署名作者(未发布)

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