ASX ANNOUNCEMENT **2ND MARCH 2023**

COMPLETION OF CO-OPERATIVE RESEARCH CENTRE PROJECT

Australian Government funded critical mineral research and development success

KEY POINTS

- **AVL was awarded a $1.25 million Australian Government CRC-P Grant in February 2020.**
- **Grant partly funded industry-leading critical mineral research aimed at improving vanadium processing efficiency.**
- **Total research program included $4.9 million in cash and in-kind contributions.**
- **Industry and academic partners included Wood, ALS, Curtin University and the Australian Nuclear Science and Technology Organisation (ANSTO).**
- **Major outcome of project was the development of the salt-roast leach flowsheet, with vanadium extractions of 91% demonstrated at pilot scale.**

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") is pleased to announce the completion of its Australian Federal Government Cooperative Research Centres Project (CRC-P). The Company was awarded $1.25 million from the Australian Government in February 2020,[1] which formed the cornerstone for an overall project value of $4.9 million.

CEO, Graham Arvidson comments, *"The research AVL has undertaken during the CRC-P has provided significant benefit to the Company through the high level of technical understanding of methods for vanadium processing acquired. The research will also offer significant benefits to downstream applications of ultra-high purity vanadium products, such as in master alloys and vanadium redox flow batteries (VRFBs). These applications are a growing segment of the vanadium market. The research outcomes represent a significant, enduring economic benefit to Australia, as well as a strong strategic boost to Australia's critical minerals capability. Because of this, the Australian Federal Government's contribution of $1.25 million to the CRC-P has the potential to be returned in value many times over."*

Milestones completed

The CRC-P was divided into six sub-projects or milestones. These were given a broad scope to allow flexibility as the project progressed.

Milestone 1 - Pilot scale pelletising and roasting of the AVL concentrate

AVL has developed an innovative process of pelletising and roasting that optimises vanadium extraction and lowers operating expenditure. During piloting, extractions of up to 95% were achieved, a significant improvement to typical extractions reported by industry of less than 85%.[2] By pelletising the vanadium concentrate with a reactive salt, an intimate contact is generated, allowing rapid

[1] See ASX announcement dated 10th February 2020 *'AVL Awarded $1.25 Million Vanadium Research and Development Grant'*
[2] See ASX announcement dated 10th March 2021 *'Final Pyrometallurgy Results Confirm World Leading Vanadium Extraction'*

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formation of soluble sodium vanadate. The result can be visualised in the false-colour microscopic image of a pellet after roasting shown in Figure 1.(John de Laeter Centre, Curtin University). This shows the separation of vanadium from host iron oxide mineral particles.

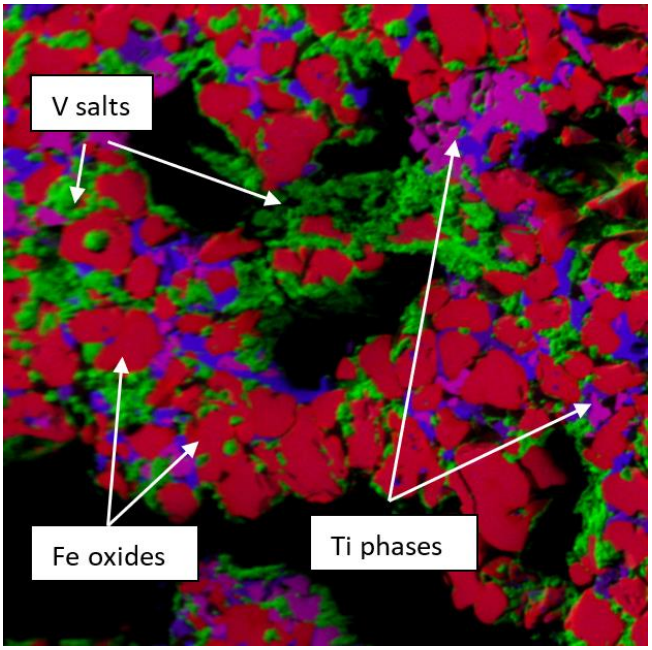

Figure 1 - False colour 0.2 x 0.2 mm microscope image showing soluble vanadium phases (green) separating from iron oxides (red). Titanium phases are also quite distinct as purple and magenta.

AVL have applied the grate-kiln system for roasting. The grate-kiln is a modern, low-cost, low-emission system commonly used for preparation of pellets from iron ore fines. The system recycles hot off-gasses to maximise energy efficiency, producing hardened pellets that create less dust, produce fewer problematic coatings inside the kiln, and allow easier downstream handling. Images from the pilot program conducted with Metso-Outotec are shown in Figure 2.

Figure 2 – Pilot process for pelletised roasting

Milestone 2 - Hydrometallurgical testing, including high purity processes for battery applications

A two-stage leach process was developed that is designed specifically for a pelletised feed. It comprises a 90°C drum leach that directly follows the salt-roast and recovers about 88% of the vanadium, followed by a heap wash that recovers another 3%, which is the remaining soluble

vanadium, for a total of about 91%[3].The pilot arrangement is shown in Figure 3. On the left is stage one, where the pellets are fed to the heated drum, leached, and exit onto a filter. The image on the right shows stage two, where the pellets are placed in plastic columns irrigated with process water in a counter-current fashion.

Figure 3 - Pilot scale leach process utilising a primary drum leach followed by a column leach

This process yielded a highly concentrated solution of sodium vanadate that was relatively clean of impurities such as chromium. This simplifies the recovery of vanadium from solution, allowing the conventional ammonium metavanadate (AMV) process. Alternative processes such as the ammonium polyvanadate (APV) process were investigated, but fundamental work by Curtin University demonstrated they were not required or applicable for the highly concentrated, clean leach solutions produced by AVL.

Another research area under this milestone was the production of ultra-high purity vanadium, which is defined as being over 99.9% V_2O_5. It is used for high-tech alloys and batteries and attracts a price premium compared to 99.5% V_2O_5. AVL and ANSTO applied a nano-filtration/solvent extraction process to AVL's leach liquors, removing many impurities to below detection limits. It is anticipated that a final V_2O_5 concentration above 99.9% will be generated in further pilot work. The lab-scale facility is shown in Figure 4. A pilot-scale program based on this work and funded by the Modern Manufacturing Initiative is scheduled to commence in March 2023.

[3] See ASX announcement dated 6th April 2022 *'Bankable Feasibility Study for The Australian Vanadium Project'*

Figure 4 – ANSTO's nano-filtration apparatus

Milestone 3 - Downstream production of a vanadium electrolyte

Downstream electrolyte production is an attractive value-adding process that can generate significant revenue, even from third-party feedstocks. AVL's process is a mature method licensed from US Vanadium in 2021.[4] Curtin University and AVL ran a research program to review and optimise this process and develop a laboratory certification methodology. This led to improvements in the understanding of the electrolyte generation, with changes in the plant design to improve quality and lower processing time. A protocol for lab analyses was also developed, ready for implementation upon commissioning of the plant.

Milestone 4 - Development of a process to recover vanadium from mine waste.

This milestone was initially envisaged as a low-cost process using Curtin University's patented leaching systems that are typically used for gold. However, scoping testwork indicated that these leaching systems are not applicable to vanadium. Vanadium occurs in the lattice of iron oxides, resembling the so-called "refractory gold" that is un-leachable without initial roasting to break down host minerals. Efforts were instead directed towards precipitation chemistry and the evaluation of the AMV and APV processes mentioned in Milestone 2.

Milestone 5 - Value adding to process waste streams.

This milestone focussed on options for treating and marketing the leach residue from the process plant. Several options for value-adding were investigated in a trade-off study, from which it was determined that a simple washing process to generate a clean, low impurity iron-titanium product was the most practical during the initial years of production. This is used as a blending feedstock for blast furnace refractory protection in steel production.

Some potential for the upgrade and separation of iron and titanium was demonstrated by roasting the calcine in a reducing environment, generated by the addition of pulverised coal. An image showing the metallic iron formed in this process is shown in Figure 5. While this work is not immediately applicable to AVL's planned operations, the company is looking to apply the fundamental lessons learned to green steel processes that are currently under development elsewhere.

[4] See ASX announcement dated 11th August 2021 *'AVL Secures Vanadium Electrolyte Manufacturing Technology'*

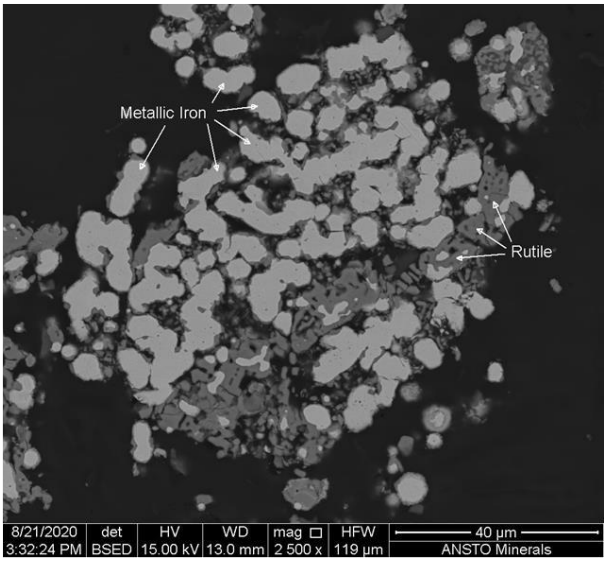

Figure 5 - Scanning electron micrograph showing metallisation of iron after reduction roasting

Milestone 6 - Process set point improvement

A model for vanadium recovery was developed based on magnetic susceptibility and iron head grade which is used to drive stockpiling and blending strategies for the crushing, milling and beneficiation (CMB) plant. This model was based on the results of laboratory scale magnetic separation tests with Davis tubes and wet high intensity magnetic separators (WHIMS), as well as flotation. A typical magnetic separation and lab flotation test is shown in Figure 6. A number of drill hole composite samples with varying degrees of oxidation, vanadium grade were used for this testwork. An important finding showed potential for higher grades of vanadium and iron in the concentrate derived from the southern blocks of AVL's Gabanintha deposit, driving the decision to commence mining in this area.

Figure 6 - Typical lab magnetic separation (left) and flotation (right)

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This announcement has been produced in accordance with the Company's published continuous disclosure policy and has been approved by the Board.

ABOUT AUSTRALIAN VANADIUM LTD

AVL is a resource company focused on vanadium, seeking to offer investors a unique exposure to all aspects of the vanadium value chain – from resource through to steel and energy storage opportunities. AVL is advancing the development of its world-class Australian Vanadium Project ("the Project") at Gabanintha. The Project is one of the most advanced vanadium projects being developed globally, with 239Mt at 0.73% vanadium pentoxide (V_2O_5), containing a high-grade zone of 95.6Mt at 1.07% V_2O_5 and an Ore Reserve of 30.9Mt at 1.09% V_2O_5 comprised of a Proved Reserve of 5Mt at 1.11% V_2O_5 and a Probable Reserve of 20.4Mt at 1.07% V_2O_5, reported in compliance with the JORC Code 2012 (see ASX announcement dated 1st November 2021 *'Mineral Resource Update at the Australian Vanadium Project'* and ASX announcement dated 6th April 2022 *'Bankable Feasibility Study for the Australian Vanadium Project'*).

The Project is one of the most advanced vanadium projects being developed globally. It is based on a high-grade V-Ti-Fe Mineral Resource[5] located approximately 43kms south of the mining town of Meekatharra in Western Australia and 740km north-east of Perth (see Figure 8).

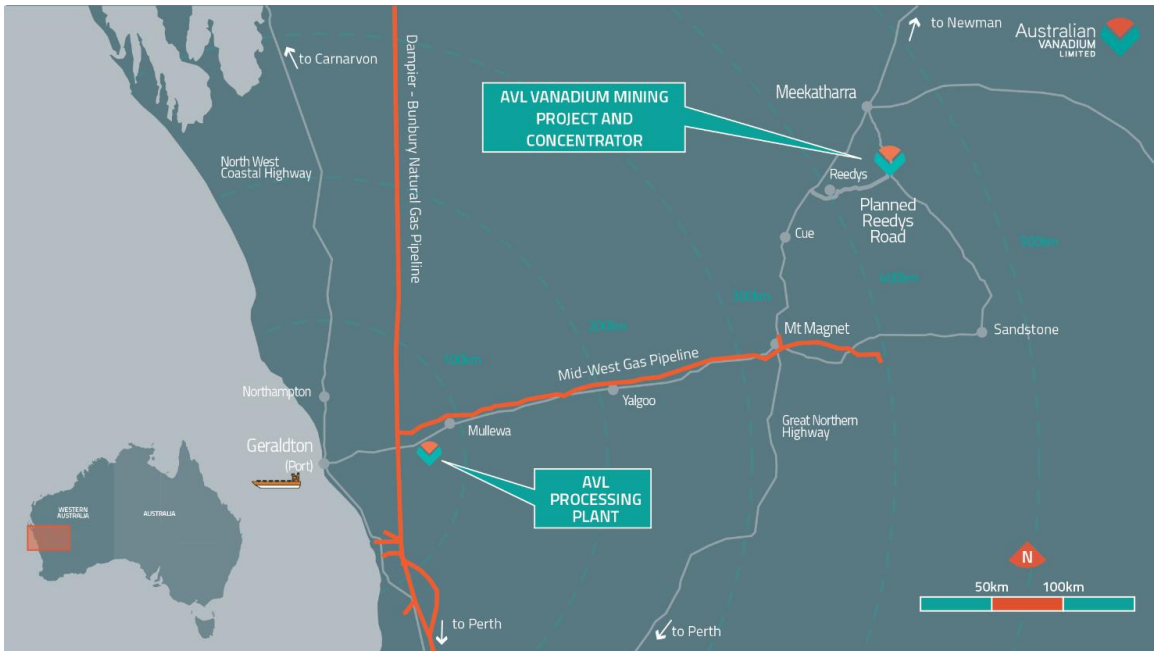

Figure 8 - The Australian Vanadium Project Site Locations

Open cut mining and a CMB will be located south of Meekatharra and a vanadium pentoxide processing plant will be located near the port city of Geraldton. The Project will produce a vanadium concentrate at the resource site and complete production of a high purity vanadium oxide for the steel, titanium master-alloy and energy storage markets, as well as an iron titanium (FeTi) coproduct for export through Geraldton, at its planned processing plant.

VSUN Energy is AVL's 100% owned renewable energy and energy storage subsidiary which is focused on developing the Australian market for vanadium redox flow batteries for long duration energy storage. VSUN Energy was established in 2016 and has since become well known for its VRFB expertise. AVL's vertical integration strategy incorporates processing vanadium to high purity, manufacturing vanadium electrolyte and working with VSUN Energy as it develops projects based on renewable energy generation and VRFB energy storage.

[5] See Appendix 1 for Mineral Resource details

APPENDIX 1

The Australian Vanadium Project – Mineral Resource estimate by domain and resource classification using a nominal 0.4% V_2O_5 wireframed cut-off for low-grade and nominal 0.7% V_2O_5 wireframed cut-off for high-grade (total numbers may not add up due to rounding).

Zone	Category	Mt	V_2O_5 %	Fe %	TiO_2 %	SiO_2 %	Al_2O_3 %	LOI %
HG	Measured	11.3	1.14	43.8	13.0	9.2	7.5	3.7
	Indicated	27.5	1.10	45.4	12.5	8.5	6.5	2.9
	Inferred	56.8	1.04	44.6	11.9	9.4	6.9	3.3
	Subtotal	**95.6**	**1.07**	**44.7**	**12.2**	**9.1**	**6.8**	**3.2**
LG	Indicated	54.9	0.50	24.9	6.8	27.6	17.1	7.9
	Inferred	73.6	0.48	25.0	6.4	28.7	15.4	6.6
	Subtotal	**128.5**	**0.49**	**24.9**	**6.6**	**28.2**	**16.1**	**7.2**
Transported	Inferred	14.9	0.66	29.0	7.8	24.5	15.1	7.8
	Subtotal	**14.9**	**0.66**	**29.0**	**7.8**	**24.5**	**15.1**	**7.8**
Total	Measured	11.3	1.14	43.8	13.0	9.2	7.5	3.7
	Indicated	82.4	0.70	31.7	8.7	21.2	13.5	6.2
	Inferred	145.3	0.71	33.0	8.7	20.7	12.0	5.4
	Subtotal	**239.0**	**0.73**	**33.1**	**8.9**	**20.4**	**12.3**	**5.6**

The Australian Vanadium Project - Ore Reserve Statement as at April 2022, at a cut-off grade of 0.7% V_2O_5.

Ore Reserve	Mt	V_2O_5%	Fe%	TiO_2%	SiO_2%	LOI%	V_2O_5 production kt	Ore Reserve	Mt
Proved	10.5	1.11	61.6	12.8	9.5	3.7	70.9	Waste	238.5
Probable	20.4	1.07	63.4	12.2	9.2	3.0	152.9	Total Material	269.4
Total Ore	**30.9**	**1.09**	**62.8**	**12.4**	**9.3**	**3.2**	**223.8**	Strip Ratio	7.7

ASX CHAPTER 5 COMPLIANCE AND CAUTIONARY AND FORWARD-LOOKING STATEMENTS

ASX Listing Rules 5.19 and 5.23

ASX Listing Rule 5.19

The information in this announcement relating to production targets, or forecast financial information derived from a production target, is extracted from the announcement entitled 'Bankable Feasibility Study for the Australian Vanadium Project' released to the ASX on 6th April 2022 which is available on the Company's website www.australianvanadium.com.au.

The Company confirms that all material assumptions underpinning the production target, or the forecast financial information derived from a production target, in the original market announcement continue to apply and have not materially changed.

ASX Listing Rule 5.23

The information in this announcement relating to exploration results and mineral resource and ore reserve estimates for the Australian Vanadium Project is extracted from the announcement entitled 'Bankable Feasibility Study for the Australian Vanadium Project' released to the ASX on 6th April 2022 which is available on the Company's website www.australianvanadium.com.au.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement, and that all material assumptions and technical parameters underpinning the estimates in the original market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the competent person's findings are presented have not been materially modified from the original market announcement**.**

Forward-Looking Statements

This release may contain certain forward-looking statements with respect to matters including but not limited to the financial condition, results of operations and business of AVL and certain of the plans and objectives of AVL with respect to these items.

These forward-looking statements are not historical facts but rather are based on AVL's current expectations, estimates and projections about the industry in which AVL operates and its beliefs and assumptions.

Words such as "anticipates," "considers," "expects," "intends," "plans," "believes," "seeks," "estimates", "guidance" and similar expressions are intended to identify forward looking statements and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those risks or uncertainties inherent in the industry in which AVL operates.

These statements are not guarantees of future performance and are subject to known and unknown risks, uncertainties, and other factors, some of which are beyond the control of AVL, are difficult to predict and could cause actual results to differ materially from those expressed or forecasted in the forward-looking statements. Such risks include, but are not limited to resource risk, metal price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the countries and states in which we sell our product to, and government regulation and judicial outcomes. For more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Company's other filings.

AVL cautions shareholders and prospective shareholders not to place undue reliance on these forward-looking statements, which reflect the view of AVL only as of the date of this release.

The forward-looking statements made in this announcement relate only to events as of the date on which the statements are made.

AVL will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this announcement except as required by law or by any appropriate regulatory authority.