

#### FOR IMMEDIATE RELEASE

# Aton reports new metallurgical testwork results from Rodruin oxides with gold recoveries up to 93.4%

Vancouver, British Columbia, March 9, 2023: Aton Resources Inc. (AAN: TSX-V) ("Aton" or the "Company") is pleased to update investors on the results of further metallurgical testwork from its Rodruin advanced exploration project. Rodruin is located within the Company's 100% owned Abu Marawat Concession ("Abu Marawat" or the "Concession"), in the Eastern Desert of Egypt.

## **Highlights:**

- 5 composite samples representing the range of oxide mineralisation types at Rodruin underwent further metallurgical testwork investigating both heap leach and conventional CIL technologies. The composite samples were prepared from selected diamond drill half core intervals;
- 4 samples were selected for whole ore cyanidation leach tests at P<sub>80</sub> grind sizes of -75µm and -106µm. Test results showed slightly higher gold and silver extractions at the finer grind size. Gold recoveries ranged between 87.7% and 93.4%, after 48 hours of leaching. Silver recoveries ranged from 50.9% to 65.7%. At the P<sub>80</sub> grind size of -75µm gold and silver recoveries averaged 90.4% and 59.0% respectively;
- All 5 samples were subjected to coarse ore bottle roll leach testing at a crush size P<sub>100</sub> of -8mm. The test results showed average gold recoveries ranging between 66.2% and 75.3%, after 30 days of leaching. Average silver recoveries ranged from 19.3% to 30.8%;
- Whole ore and coarse ore bottle roll cyanidation leach tests indicate that all the Rodruin mineralisation types tested are amenable to processing via both conventional CIL and heap leach technologies.

"These metallurgical testwork results from the Rodruin oxides are again very encouraging, following on from the initial scoping level testwork which we undertook in 2021," said Tonno Vahk, Interim CEO. "The gold recoveries are good and indicate that the oxides from all the main mineralised zones at Rodruin will be amenable to processing by both conventional CIL and heap leach technologies. The Company is working towards its planned application for the mining licence at the Abu Marawat Concession in Q3 this year, based on the definition of "commercial discoveries" at both Rodruin and Hamama West, in accordance with our Concession Agreement with the Egyptian Mineral Resources Authority. The application will be based on planned mining projects on the oxides at both Rodruin and Hamama West, which will allow for the issuance of a 20-year mining licence, extendable for a further 10 years, which will be transformational for Aton. These latest metallurgical results provide us with the flexibility to evaluate various mining and processing options at Rodruin. Work is progressing on the mineral resource estimates at Rodruin and Hamama West, as well as further metallurgical testwork which is ongoing. In the field we are very close to completing the diamond drilling at Hamama, which is testing previously undrilled oxide mineralisation, and preparations are well underway for a 10,000m RC drilling programme planned to start in May on some of our excellent regional targets."

### Metallurgical testwork programme

5 composite samples were prepared from the Rodruin mineral deposit for metallurgical testing, which were representative of the various oxide mineralisation types. This testwork programme was specifically focused on the oxide mineralisation at Rodruin and was designed to follow up on an initial scoping level programme carried

out in 2021 (see news release dated August 3, 2021), which indicated that the Rodruin mineralisation is amenable to processing using conventional CIL technology.



Figure 1: Geological plan of the Rodruin area, showing the main mineralised zones

Samples were composited from selected diamond drill half core intervals (HQ and PQ size), to produce total sample weights between 30-45kg. 4 samples were composited from the 4 main mineralised zones, specifically the Central Buttress, Aladdin's Hill NE, and the GF zones, which are represented mainly by variably gossanous carbonate hosted mineralisation, and the Aladdin's Hill zone, which is represented by phyllic alteration (quartz-sericite-kaolinite) hosted mineralisation (Figure 1). A fifth sample was composited from low grade (<0.5 g/t Au) mineralisation from the Central Buttress and GF zones. Details of the samples are provided in Table 1.

Metallurgical sample ID	Drill hole ID	Zone	Mineralisation type	Estimated Au grade (g/t) <sup>1</sup>			
ROMO-001	ROD-052/053/055/084	Aladdin's Hill	Phyllic alteration	2.35			
ROMO-002	ROD-052/053/055/083/084	Aladdin's Hill NE	Gossanous carbonate	1.27			
ROMO-003	ROD-062/063/069/078/079	Central Buttress Zone	Gossanous carbonate	1.11			
ROMO-004	ROD-098/101/102/109	GF Zone	Gossanous carbonate	0.61			
ROMO-005	ROD-076/083/085/100/102	Central Buttress/GF Zones	Gossanous carbonate	0.33 <sup>2</sup>			
Notes:           Notes:           1) Sample grade estimated from the weighted average assays of the sampled drill core intervals           2) Sample ROMO-005 represented <0.5 g/t Au mineralisation							

Table 1: Details of the metallurgical samples

The 5 composite samples were dispatched from Egypt to Wardell Armstrong International Ltd ("WAI") in December 2022, for metallurgical testing at their laboratory located in Cornwall, UK, with testwork commencing in January 2023. The samples were submitted for a process evaluation testwork programme consisting of head assays, XRD analysis, and fine whole ore and coarse ore bottle roll cyanide leach testing.

# Head assays

Sub-samples of the 5 composite metallurgical samples were sent by WAI for head assay analysis at ALS Minerals' geochemical laboratory at Loughrea, Ireland, and were analysed for Au (screen fire assay), Ag, Cu, Pb, Zn, As, Fe and S. The results of the head assays are provided below in Table 2:

Head assay results								Estimated	
Metallurgical sample ID	Assay (ppm)							Assay (%)	
	Au <sup>1</sup>	Ag	Cu	Pb	Zn	As	Fe	S	(g/t) <sup>2</sup>
ROMO-001	2.42	12.75	1,545	483	644	126	4.18	0.08	2.35
ROMO-002	1.17	9.98	1,110	123	7,050	185	8.26	0.06	1.27
ROMO-003	1.20	20.60	525	1,310	3,060	79	12.75	0.17	1.11
ROMO-004	0.62	6.44	260	516	2,130	17	6.89	0.08	0.61
ROMO-005	0.36	4.56	79	53	3,170	73	12.10	0.09	0.33
Notes:									
<ol> <li>Au by screen fire assay (ALS Minerals. Loughrea, Ireland)</li> <li>Sample grade estimated from the weighted average assays of the sampled drill core intervals</li> </ol>									

Table 2: Head assay results

The Au head assays measured by screen fire assay showed good correlation with the estimated grade of the composited drill core samples (Table 2 above).

The good correlation in assay results indicates that the composite samples prepared for metallurgical testwork were representative of the drill core intervals sampled.

# **Mineralogical analysis**



The results of the XRD analysis are shown in Figure 3:

The XRD results showed most of the samples as being gangue dominated. The ROMO-001 composite sample was mainly composed of quartz, and the ROMO-003, ROMO-004 and ROMO-005 samples were mostly

Figure 2: Results of XRD analysis

composed of dolomite, with iron oxides (hematite and goethite) present. The ROMO-002 composite sample contained a mixture of dolomite, quartz and iron oxides.

# Whole ore leach tests

A series of whole ore leach tests were conducted on composite samples ROMO-001 to ROMO-004 to investigate the amount of gold and silver that can be recovered from each sample by means of processing by conventional CIL technology. The whole ore cyanidation leach tests were carried out at  $P_{80}$  grind sizes of -75µm and -106µm to determine the effect of degree of liberation on gold and silver extraction. Results are summarised in Table 3 below.

Sample ID	Test ID	Grind size P <sub>80</sub> (μm)	Recovery af	ter 48hrs (%)	NaCN consumption	Lime consumption (kg/t)	
			Au	Ag	(kg/t)		
ROMO-001	LT1	106µm	87.3	61.5	1.65	0.56	
	LT2	75µm	87.7	65.6	1.47	0.51	
ROMO-002	LT1	106µm	88.2	48.4	2.22	0.44	
	LT2	75µm	88.7	50.9	2.07	0.45	
ROMO-003	LT1	106µm	90.8	65.3	1.32	0.24	
	LT2	75µm	91.7	65.7	1.20	0.31	
ROMO-004	LT1	106µm	91.8	51.6	0.98	0.31	
	LT2	75µm	93.4	53.7	1.09	0.40	

 Table 3: Whole ore cyanidation leach test results

The test results for the samples leached to a grind size  $P_{80}$  of -75µm showed final gold recoveries to range from 87.7% (ROMO-001) to 93.4% (ROMO-004), averaging 90.4% from the 4 samples, after 48 hours of leaching. Silver recoveries ranged from 50.9% (ROMO-002) to 65.7% (ROMO-003), averaging 59.0%. Leach kinetic profiles indicate that most of the gold was extracted after 24 hours.

The test results for the samples leached to a grind size  $P_{80}$  of -106µm showed final gold recoveries to range from 87.3% (ROMO-001) to 91.8% (ROMO-004), averaging 89.5%, after 48 hours of leaching. Silver recoveries ranged from 48.4% (ROMO-002) to 65.3% (ROMO-003) averaging 56.7%. Leach kinetic profiles indicate that most of the gold was extracted after 24 hours.

## Coarse ore bottle roll leach tests

A series of coarse ore bottle roll leach tests were conducted on each of the composite samples to investigate the amount of gold and silver that can be recovered from each sample by means of processing by heap leach technology. The coarse ore bottle roll cyanidation leach tests were carried out at P<sub>100</sub> crush size of -8mm to determine the gold and silver extractions at a fine crush size. Results are summarised in Table 4 below.

	Metal extraction (back calculated head)								
Sample ID	BLT1 % Au	BLT2 % Au	Average % Au	BLT1 % Ag	BLT2 % Ag	Average % Ag			
ROMO-001	70.2	67.2	68.7	18.9	20.6	19.7			
ROMO-002	73.3	75.6	74.5	18.9	19.7	19.3			
ROMO-003	74.6	76.0	75.3	37.4	38.8	38.1			
ROMO-004	76.7	75.8	76.2	22.3	22.8	22.5			
ROMO-005	66.5	65.8	66.2	31.3	30.4	30.8			

**Table 4:** Coarse ore bottle roll cyanidation leach test results

The test results for the samples leached at a crush size  $P_{100}$  of -8mm showed average gold recoveries to range from 66.2% (ROMO-005) to 76.2% (ROMO-004), averaging 72.2% from the 5 samples, after 30 days of

leaching. Average silver recoveries ranged from 19.3% (ROMO-002) to 30.8% (ROMO-005), averaging 26.1%. Leach kinetic profiles indicate that most of the gold was extracted after 10 days.

## **Discussion of results**

The gold head assays reported by ALS correlated well with the estimated composite sample grades, calculated from the weighted diamond drill hole assays, and indicate that the composite metallurgical samples were representative of the sampled intervals.

The mineralogical (XRD) analysis indicates that the samples can be sub-divided into 3 broad categories of mineralisation, as follows:

- Sample ROMO-001 represented the phyllic alteration hosted mineralisation from the Aladdin's Hill zone, and was comprised predominantly of quartz, with subsidiary iron oxide and phyllosilicate minerals including kaolinite and sericite (illite and mica in Figure 2), and chlorite. This mineralisation occurs within intensely phyllic altered volcaniclastic sediments and tuffs.
- Samples ROMO-003, ROMO-004 and ROMO-005 from the Central Buttress and GF Zones, were comprised predominantly of dolomite, with subsidiary quartz and iron oxide (goethite). These results confirm that the mineralisation represented by these 3 samples occurs within gossanous (iron oxide bearing) carbonate-silica rocks.
- Sample ROMO-002 from the Aladdin's Hill NE zone also consisted predominantly of dolomite, with subsidiary quartz, iron oxide (goethite), and chlorite. The increased quartz and chlorite content of this sample relative to samples ROMO-003 to ROMO-005 was indicative of the fact that while the bulk of the mineralisation at Aladdin's Hill NE is again hosted in gossanous carbonate-silica rocks, a minor component of the mineralisation is also hosted in volcaniclastic sediments and tuffs.

Results of the whole ore cyanidation leach tests showed high gold leach extraction for all of the Rodruin oxide composites tested. At a grind size of 75 $\mu$ m average gold and silver leach extractions from the 4 samples were 90.4% and 59.0% respectively, while at a grind size of 106 $\mu$ m average gold and silver leach extractions from the 4 samples were 89.5% and 56.7% respectively. The grind size optimisation test results indicated that a finer grind size P<sub>80</sub> of -75 $\mu$ m resulted in both higher gold and silver leach extractions, however these did not significantly increase at the finer 75 $\mu$ m grind size, relative to the coarser 106 $\mu$ m grind size. Leach kinetics were very rapid with the majority of the gold extracted after 24 hours of leaching.

Results of the coarse ore bottle roll leach tests showed average gold and silver leach extractions from the 5 samples of 72.2% and 26.1% respectively, at a fine crush size  $P_{100}$  of -8mm, and after 30 days of leaching. Leach kinetics were fairly rapid with the majority of the gold extracted after 10 days of leaching.

These initial whole ore and coarse ore bottle roll cyanidation leach test results indicate that the oxide mineralisation types from the Aladdin's Hill, Central Buttress Zone, Aladdin's Hill NE, and GF Zones tested in this variability programme will all be amenable to processing via both heap leach and conventional CIL technologies. The coarse ore bottle roll cyanidation leach test results from sample ROMO-005 (<0.5 g/t Au gossanous carbonate hosted mineralisation from the Central Buttress and GF zones) indicate that this low grade mineralisation type is also amenable to processing using heap leach technology.

## **Exploration activity update**

• A short *c*. 1,500m programme of diamond drilling programme at Hamama is expected to be completed this week. Drilling was carried out at the previously largely untested Hamama East and Hamama Central zones, as well as at the Crocs Nose Zone at Hamama West. Results are expected soon, and will be published when they become available.

 Field mapping and sampling is continuing at the company's Abu Gaharish, Semna, Bohlog, Zeno, Sir Bakis and Massaghat regional prospects, ahead of reverse circulation percussion ("RC") drilling programmes planned to commence at the beginning of May, following the Eid-al-Fitr holiday at the end of the holy month of Ramadan. Site preparation for these programmes will commence this week, with drilling starting at the West Garida prospect, 3 km from Hamama West, where Aton intersected high grade mineralisation, returning grades of up to 41.7 g/t Au, in a short 5 hole RC drilling programme in 2022 (see news release dated September 1, 2022).

#### About Aton Resources Inc.

Aton Resources Inc. (AAN: TSX-V) is focused on its 100% owned Abu Marawat Concession ("Abu Marawat"), located in Egypt's Arabian-Nubian Shield, approximately 200 km north of Centamin's world-class Sukari gold mine. Aton has identified numerous gold and base metal exploration targets at Abu Marawat, including the Hamama deposit in the west, the Abu Marawat deposit in the northeast, and the advanced Rodruin exploration prospect in the south of the Concession. Two historic British gold mines are also located on the Concession at Sir Bakis and Semna. Aton has identified several distinct geological trends within Abu Marawat, which display potential for the development of a variety of styles of precious and base metal mineralisation. Abu Marawat is 447.7 km<sup>2</sup> in size and is located in an area of excellent infrastructure; a four-lane highway, a 220kV power line, and a water pipeline are in close proximity, as are the international airports at Hurghada and Luxor.

#### **Qualified person**

The technical information contained in this News Release was prepared by Gary Patrick BSc, MAusIMM, CP (Met), Principal Consultant of Metallurg Pty Ltd. Mr. Patrick is a qualified person (QP) under National Instrument 43-101 Standards of Disclosure for Mineral Projects.

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Some of the statements contained in this release are forward-looking statements. Since forward-looking statements address future events and conditions; by their very nature they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements.

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