ASX ANNOUNCMENT

www.cullenresources.com.au **ASX:CUL** **18 July 2019**

Copper grades up to 3.7%, in shallow drilling, Wongan Hills

A further programme of shallow reconnaissance air core drilling was completed in late June at the **Wongan Hills Project** with key results as follows:

- Copper-gold mineralisation (veinlets and/or disseminations of **pyrite – chalcopyrite + gold)** has now been intersected in air core holes 800m apart along strike in bedrock within the previously defined **Prospective Corridor.**

- The **Prospective Corridor** as defined by bedrock copper and VTEM anomalies now stretches for approximately 2.5km along strike.

- Best intersections to date (max 87m depth, angled downhole) include:

  - **1m @ 3.72% Cu with 0.3 g/t Au, 28 ppm Ag (Hole 19WAC64 from 36-37m)**
  - **1m @ 3.40% Cu with 1.5 g/t Au, 32 ppm Ag (Hole 19WAC48 from 55-56m) with 937ppm Bi, 45 ppm Mo and 1669 ppm Zn**
  - **5m @ 0.20% Cu from 45 - 50m (Hole 19WAC66).**

- Holes **19WAC65 and 68** intersected a quartz-veined quartzite/chert unit with elevated levels of **Ag, As, Bi, Cu and W** close to a VTEM anomaly (see Figures 2, 3 and Tables 1 and 2). This resistive unit, identified from the VTEM data by the Southern Geoscience Consultants, lies entirely within the Prospective Corridor and is **a strong vector for Volcanic-Hosted Massive Sulphide (VHMS) mineralisation**.

- Associated hydrothermal alteration assemblages intersected include **epidote - diopside - quartz – pyrite; pyrite - pyrrhotite +/- chalcopyrite;** and **magnetite**, hosted predominantly by mafic amphibolite.

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- Visual inspection of drill chips indicates sections of **meta-andesite** may be part of the stratigraphy. Petrological report pending, and interrogation and analysis of the extensive geochemical database is on-going.

- Mafic amphibolite may be locally hornfelsed by interpreted felsic intrusives within the Prospective Corridor.

- There are coincident **magnetic/VTEM anomalies** beneath the three strong, interpreted, west dipping drilled zones of copper anomalies +/- gold mineralisation around hole 19WAC48 (Figs. 4 and 5).

- In Cullen's opinion, the newly-discovered sulphide mineralisation, hydrothermal alteration and geological characteristics along the Prospective Corridor enhance the prospectivity of the **Wongan Hills Project** to host VHMS base metal and/or Boddington-type copper-gold deposits; and,

- Deeper drilling (RC/diamond, ~1000m) is a priority to test:

    - On-section of the interpreted, west dipping copper zones in drillholes (package ~75m in true thickness) around **19WAC48** (Fig.4) and thereafter to test the VTEM/Mag anomalies interpreted to be at depth further to the west (Fig.5) - VTEM model at ~150m depth, dip uncertain, may be steep; magnetic model steeply dipping east, from ~30m depth;

    - The chert horizon and nearby VTEM anomaly, at **19WAC65 and 68**; and,

    - The area of high-grade copper and on strike hydrothermal alteration around drill hole **19WAC64.**

WONGAN HILLS, E's 70/4882, 5162 and 5201, (Cullen 90% - Tregor Pty Ltd 10%): **~180 km north-east of Perth, base metals and gold project**

Background

In January 2019, Cullen Resources Limited ("Cullen "or "the Company") completed first pass air core drilling (Phase I - 47 holes for 1,940m) that intersected a sequence of mafic rocks and metasediments overlain by buried laterite (ASX: CUL, 21 Feb 2019). In March 2019, Cullen completed further air core drilling (Phase II - 5 holes for 290m , 19WAC48-52) below some of the better copper anomalies from the January air core programme. As in the January programme, the drilling encountered transported clay, a buried laterite horizon (+/- pisolites) and saprolitic bedrock above fresh, variably laminated quartz-amphibole rocks (interpreted to be mafics and/or metasediments).

Assays from these programmes defined a significant copper +/- multi-element trend in weathered bedrock, copper >300ppm in 5m composite or 1m samples, open in both directions along strike and coincident with a trend of interpreted VTEM bedrock conductors ("Prospective Corridor").

Hole "19WAC48", drilled within the Prospective Corridor in March 2019, returned the most significant result of **5m @ 0.82% Cu, 0.34 g/t Au with 215 ppm Bi** from 55-60m depth, composite sample. **1m re-sampling returned – 1m @ 3.40% Cu with 1.5 g/t Au from 55-56m**. The VTEM response around this drill hole was modelled by Southern Geoscience Consultants (SGC) as SSE striking along the Prospective Corridor over ~150m, and from a vertical depth of 150m. The magnetic model in this area is slightly displaced from the VTEM model, with a similar strike and interpreted steep dip but from a shallow (~30m) depth.

Air core drilling programme completed in the late June, (Phase III - 36 holes for 1350m, 19WAC 53-88) tested below drill hole 19WAC48, and along strike and across the extensive CHI-3 laterite anomaly in the area south-east of all previous drilling to date (Figs. 2 and 3). The results (Tables 1 and 2 and X-section, Fig.4) highlight occurrences of sulphides in bedrock, copper and gold mineralisation, sections of hydrothermal alteration, and interpreted felsic intrusives in the Prospective Corridor and nearby.

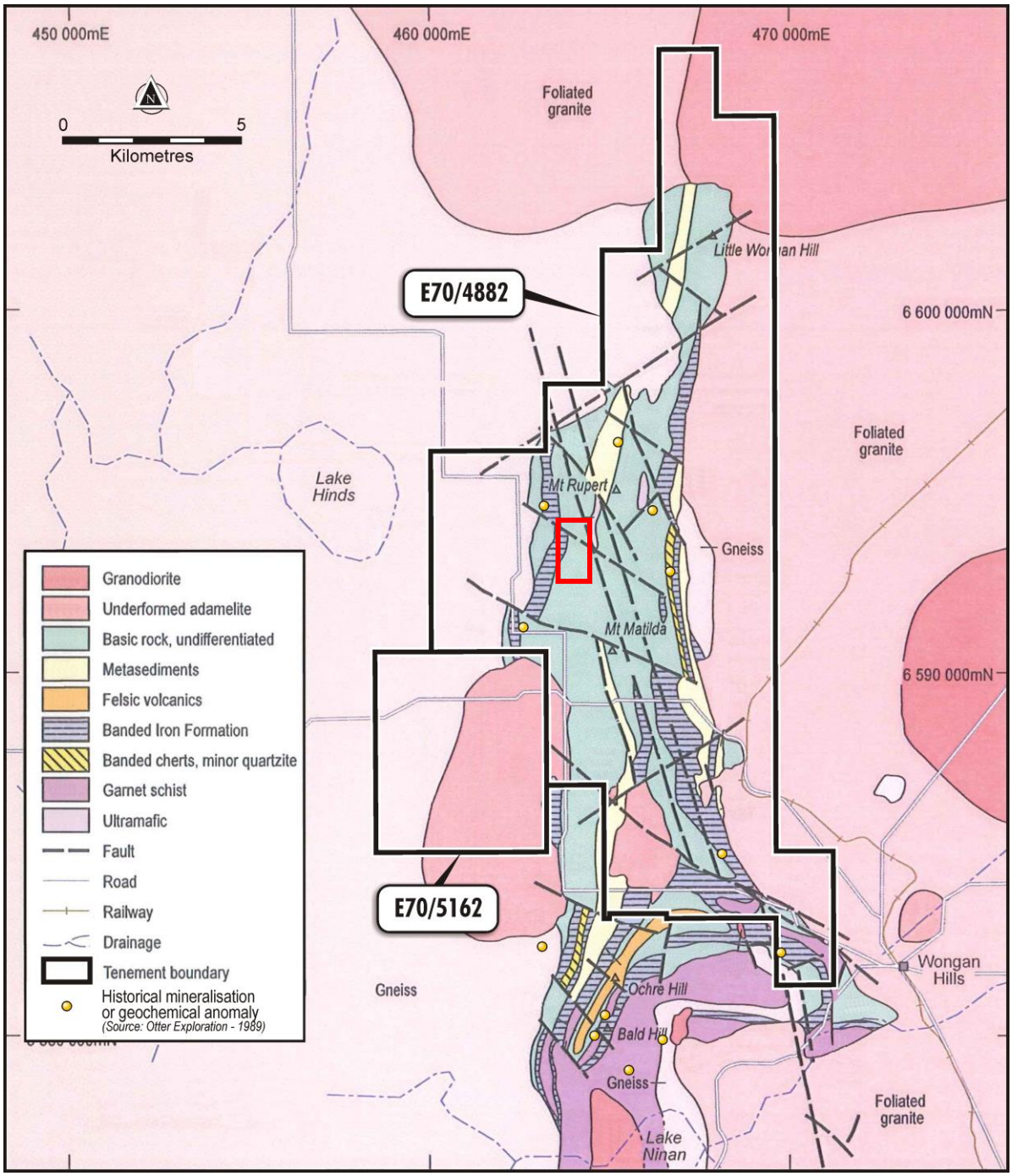

Fig. 1 Geology of the Wongan Hills greenstone belt and location of drilling to date (red box) targeting the" Prospective Corridor".

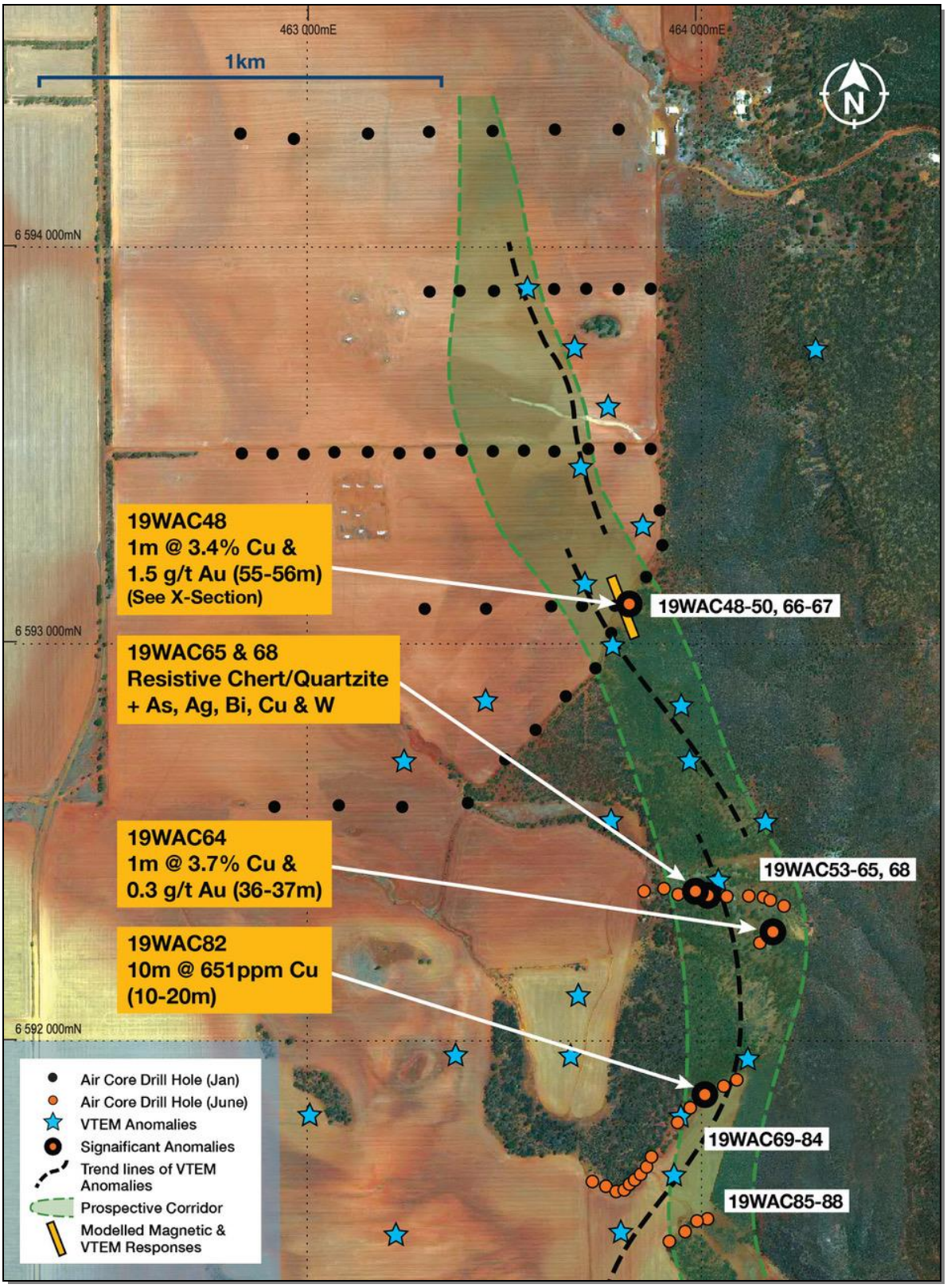

Fig. 2 Air core traverses completed to date along the ”Prospective Corridor”

Note: The VTEM and Mag responses around “19WAC48” modelled by Southern Geoscience Consultants (SGC) are parallel to the strike of the Prospective Corridor, with the magnetic model slightly displaced from the VTEM model (Fig.5).

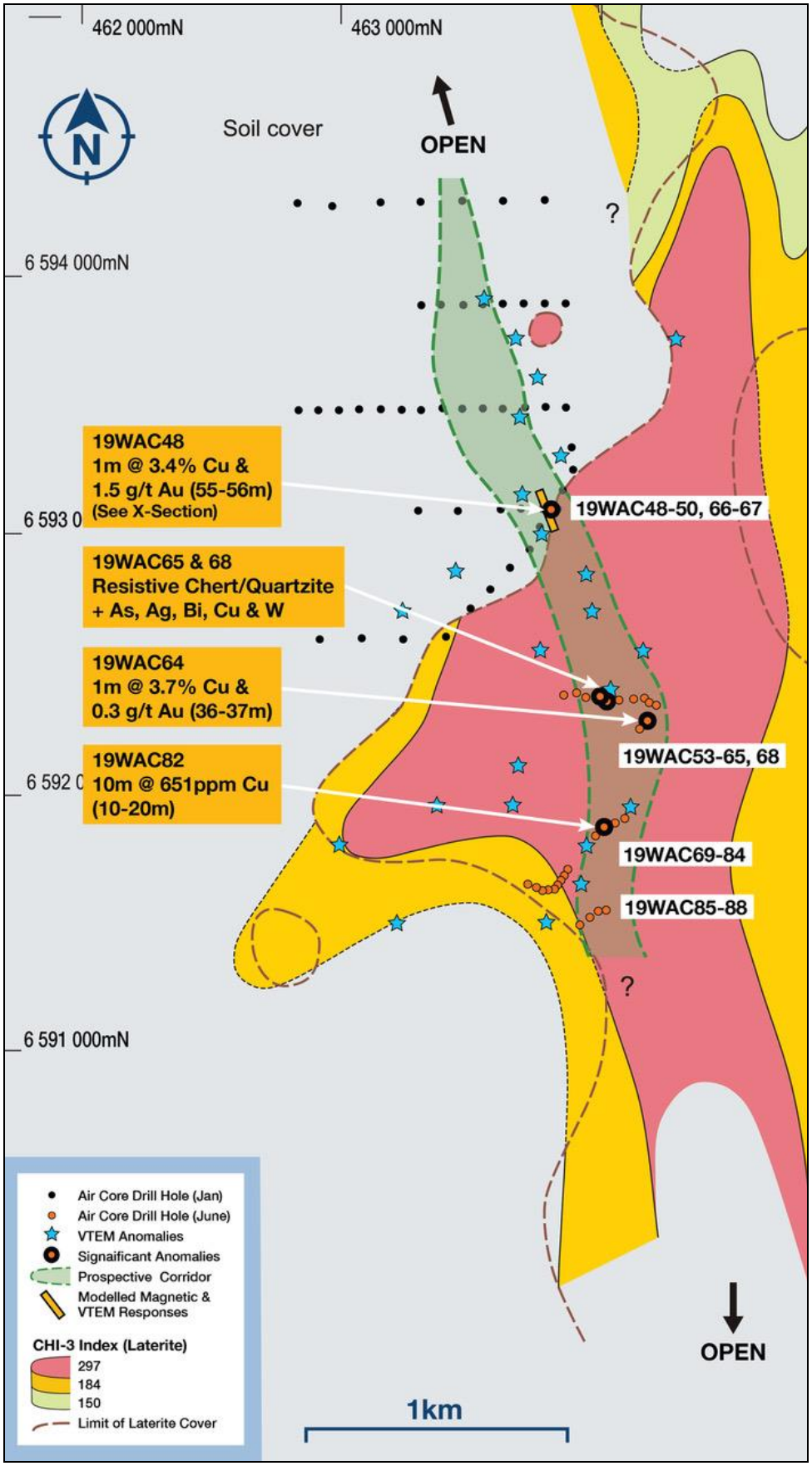

Fig. 3 June Air core traverses targeted the" Prospective Corridor" and the core of the major laterite geochemical anomaly where CHI-3 = As+3Sb+10Bi+10Cd+10In+3Mo+30Ag+30Sn

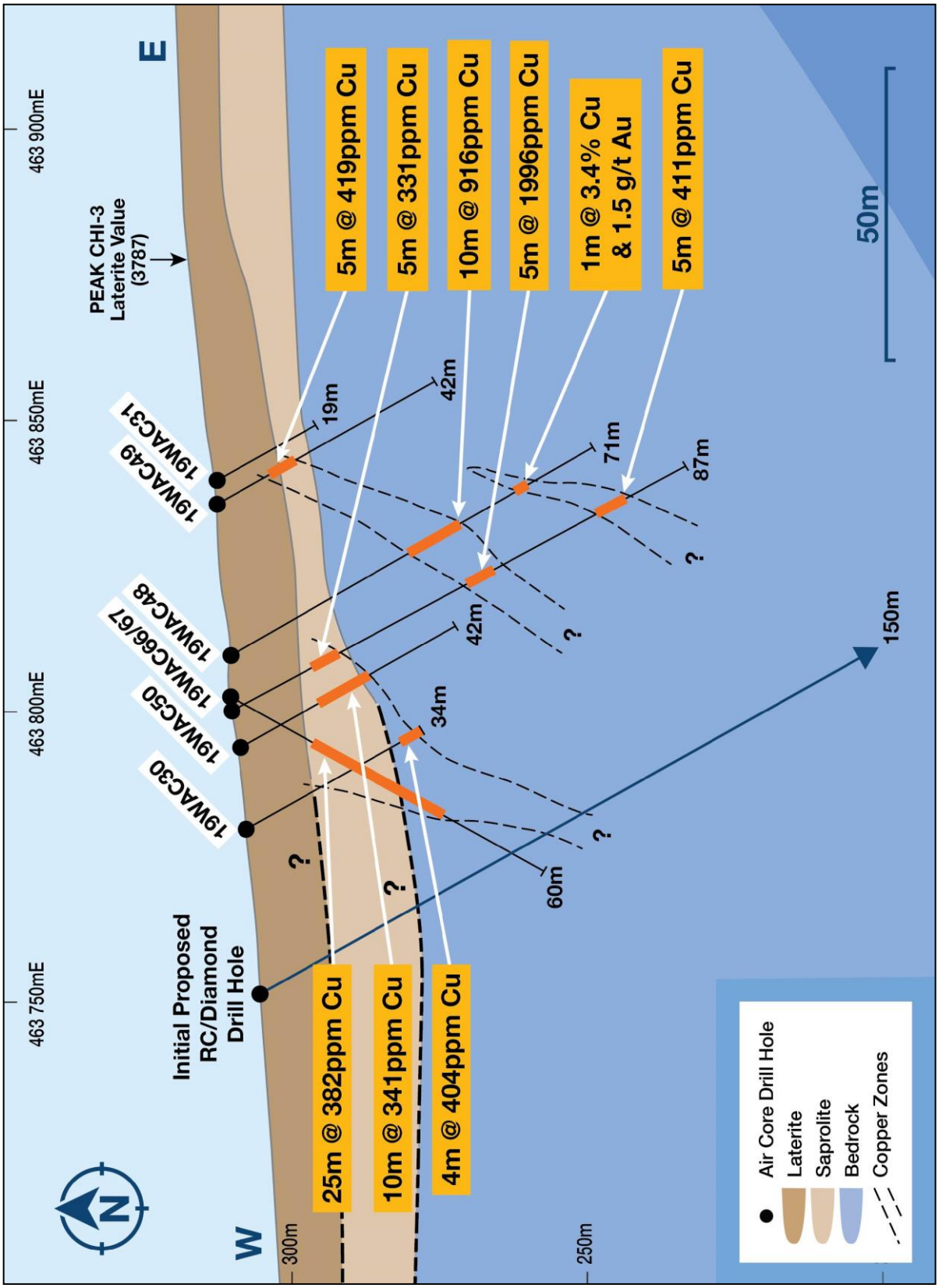

Fig. 4 East – West X-section, 6,593,100mN.
Notes – "Laterite" includes transported and in-situ layers; and, early diamond drilling would be optimal to provide key structural information.

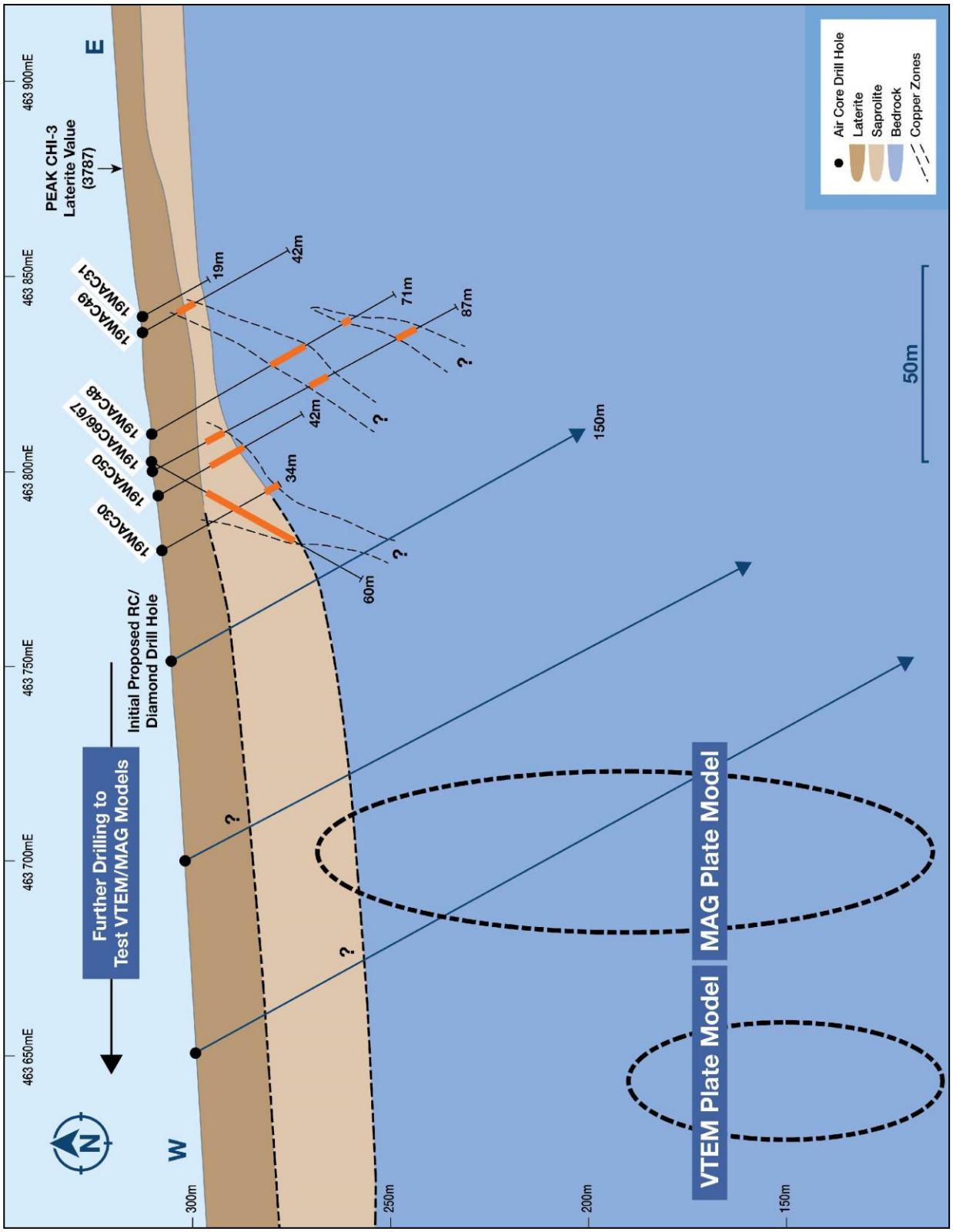

Fig. 5 East - West X-section, 6,593,100mN showing approximate position of Mag and VTEM responses, VTEM dip is uncertain, Mag steep dip.

ATTRIBUTION: Competent Person Statement

The information in this report that relates to exploration activities is based on information compiled by Dr. Chris Ringrose, Managing Director, Cullen Resources Limited who is a Member of the Australasian Institute of Mining and Metallurgy. Dr. Ringrose is a full-time employee of Cullen Resources Limited. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined by the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr. Ringrose consents to the report being issued in the form and context in which it appears.

Information in this report may also reflect past exploration results, and Cullen's assessment of exploration completed by past explorers, which has not been updated to comply with the JORC 2012 Code. The Company confirms it is not aware of any new information or data which materially affects the information included in this announcement.

ABOUT CULLEN: Cullen is a Perth-based minerals explorer with a multi-commodity portfolio including projects managed through a number of JVs with key partners (Fortescue and Liontown), and a number of projects in its own right. The Company's strategy is to identify and build targets based on data compilation, field reconnaissance and early-stage exploration, and to pursue further testing of targets itself or farm-out opportunities to larger companies. Projects are sought for most commodities mainly in Australia but with selected consideration of overseas opportunities. Cullen has a **1.5% F.O.B. royalty** up to 15 Mt of iron ore production from the Wyloo project tenements, part of Fortescue's proposed Western Hub/Eliwana project, and will receive $900,000 cash if and when a decision is made to commence mining on a commercial basis – E47/1649, 1650, ML 47/1488-1490, and ML 08/502. Cullen has a **1% F.O.B. royalty** on any iron ore production from the following tenements – E08/1135, E08/1330, E08/1341, E08/1292, ML08/481, and ML08/482 (former Mt Stuart Iron Ore Joint Venture – Baosteel/Aurizon/Posco/AMCI) and will receive $1M cash upon any Final Investment Decision. The Catho Well Channel Iron Deposit (CID) has a published in situ Mineral Resources estimate of 161Mt @ 54.40% Fe (ML 08/481) as announced by Cullen to the ASX – 10 March 2015.

FORWARD - LOOKING STATEMENTS

This document may contain certain forward-looking statements which have not been based solely on historical facts but rather on Cullen's expectations about future events and on a number of assumptions which are subject to significant risks, uncertainties and contingencies many of which are outside the control of Cullen and its directors, officers and advisers. Forward-looking statements include, but are not necessarily limited to, statements concerning Cullen's planned exploration program, strategies and objectives of management, anticipated dates and expected costs or outputs. When used in this document, words such as "could", "plan", "estimate" "expect", "intend", "may", "potential", "should" and similar expressions are forward-looking statements. Due care and attention has been taken in the preparation of this document and although Cullen believes that its expectations reflected in any forward looking statements made in this document are reasonable, no assurance can be given that actual results will be consistent with these forward-looking statements. This document should not be relied upon as providing any recommendation or forecast by Cullen or its directors, officers or advisers. To the fullest extent permitted by law, no liability, however arising, will be accepted by Cullen or its directors, officers or advisers, as a result of any reliance upon any forward looking statement contained in this document.

Table 1: Location of drill holes, E70/4882, Wongan Hills, June 2019.

Hole ID	easting	northing	Depth	Azi	RL
19WAC53	463848	6592378	38	270	322.5
19WAC54	463899	6592386	41	270	323.1
19WAC55	463933	6592370	38	270	325.1
19WAC56	464012	6592371	35	270	327.7
19WAC57	464060	6592360	36	270	330
19WAC58	464115	6592363	39	270	332.1
19WAC59	464158	6592364	20	270	333.2
19WAC60	464175	6592354	24	270	336.7
19WAC61	464196	6592341	9	270	338.1
19WAC62	464203	6592341	39	90	338.2
19WAC63	464144	6592246	69	90	340.1
19WAC64	464177	6592277	41	90	338.9
19WAC65	463981	6592367	62	270	326
19WAC66	463800	6593100	87	90	306.3
19WAC67	463802	6593105	60	270	306.4
19WAC68	463986	6592374	54	270	326
19WAC69	463727	6591651	58	300	318.1
19WAC70	463748	6591630	71	300	318.4
19WAC71	463771	6591618	60	300	319.9
19WAC72	463790	6591617	49	300	320.4
19WAC73	463814	6591620	51	300	320.4
19WAC74	463827	6591640	61	220	323.1
19WAC75	463839	6591655	46	220	323.9
19WAC76	463852	6591674	55	220	324.5
19WAC77	463865	6591697	51	220	325.1
19WAC78	463940	6591793	7	220	333
19WAC79	463970	6591830	18	220	334.1
19WAC80	464000	6591862	6	130	337
19WAC82	464002	6591862	37	220	338.1
19WAC81	464023	6591072	19	130	338.1
19WAC83	464048	6591881	8	220	339.1
19WAC84	464083	6591889	5	220	341.2
19WAC85	463984	6591536	3	270	324.9
19WAC86	464010	6591540	3	270	328.6
19WAC87	463951	6591512	16	270	324.4
19WAC88	463914	6591486	34	270	324.7

GDA94 Zone 50, all drilled -60°

Table 2: Assay data from Wongan Hills air core, June 2019.

Lab Elements			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
Unit Codes			ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LDETECTION			0.01	0.5	1	0.01	0.1	0.5	0.05	0.2	0.2	0.5	0.01	0.05	2	10
UDETECTION			100	10000	4000	10000	10000	10000	10000	10000	10000	10000	500	10000	10000	500000
Hole ID	from	to	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	AR25	MA41
19WAC53	0	5	0.06	5.4	5	2.2	14.4	110.2	0.83	30.8	6.4	0.8	<0.01	0.16	21	
	5	10	0.05	4.7	3	0.54	1.3	28.1	0.93	3.7	2.1	0.6	<0.01	0.08	2	
	10	15	0.13	13.2	5	1.15	2.1	81	0.69	5.4	2.6	0.7	0.02	0.12	4	
	15	20	0.2	41	3	1.02	2.2	83	0.54	7.8	3.8	1.4	0.08	0.27	4	
	20	25	0.19	48.3	5	0.54	5.3	320.2	0.25	23.1	11.2	0.6	0.04	0.22	24	
	25	30	0.15	38.9	3	0.78	18.3	219.2	0.2	26.3	8.2	0.6	0.02	0.22	30	
	30	35	0.07	12.4	5	0.33	74.4	136.5	0.18	60.8	3	0.6	0.01	0.41	89	
	35	38	0.05	6.5	18	0.27	50.1	56.3	0.13	47.2	1.3	<0.5	<0.01	0.3	61	
19WAC54	0	5	0.2	9.9	5	1.69	4.2	68.2	1.14	9.4	4.9	1	<0.01	0.08	7	
	5	10	0.15	33.9	10	1.04	4.6	127.7	0.49	7.3	4	0.8	<0.01	0.11	7	
	10	15	0.15	57.7	3	0.51	3.2	117.6	0.16	9.7	6.3	0.8	0.03	0.21	4	
	15	20	0.19	46.4	3	0.62	12.8	390	0.32	25.2	9.2	1.1	0.09	0.19	24	
	20	25	0.52	14.1	5	0.36	235	421.8	0.5	124.6	8.4	0.5	0.01	0.09	107	
	25	30	0.4	17.4	7	1.83	118	448.9	0.46	64.3	7.1	1	0.05	0.06	59	
	30	35	0.52	23.4	2	0.7	51.7	398.2	0.5	94.2	4.6	1	0.02	0.21	98	
	35	40	0.03	7.9	10	0.37	40.9	165.6	0.21	83.8	7.9	<0.5	0.01	0.12	108	
	40	41	0.09	9.8	2	0.39	48.6	163.5	0.24	88.8	2.8	<0.5	0.01	0.1	114	
19WAC55	0	5	0.09	15.2	5	0.51	5.7	102	0.87	12.4	6.4	1	0.03	0.15	15	
	5	10	0.02	30.2	<1	0.12	5.2	105.8	0.18	9.3	4.1	<0.5	0.03	0.12	11	
	10	15	0.04	27.1	<1	0.96	2.2	91	0.29	8.9	3.8	0.7	0.04	0.35	86	
	15	20	0.08	34.4	1	0.65	16.7	112	0.34	23.1	5.9	1	0.04	0.59	42	
	20	25	0.16	32.7	2	0.36	47.2	194.7	0.33	95.7	9.7	1.9	0.02	0.14	95	
	25	30	0.5	76.4	4	2.1	7.7	180.2	0.62	60.1	3.9	2.4	0.01	0.23	49	
	30	35	0.07	64.4	3	2.22	44.6	88.4	0.36	184.2	4.7	2.2	0.03	0.97	119	
	35	38	0.04	29.3	6	0.27	77.6	47.4	0.24	257.3	2.1	0.8	0.01	0.48	85	
19WAC56	0	5	0.11	27.4	4	1.13	6.9	127.7	0.6	16.8	8.3	0.8	0.01	0.1	13	
	5	10	0.18	39.4	2	1.81	4.2	210.5	0.49	16	6.1	1	<0.01	0.09	20	
	10	15	0.08	30.7	4	2.96	6.1	267.9	0.29	27.8	10.4	0.8	0.06	0.2	37	
	15	20	0.21	19.3	2	0.37	17.7	241	0.34	57.4	7.1	0.6	0.03	<0.05	68	
	20	25	0.07	24.2	1	0.55	99	83.5	0.2	209.7	3.6	<0.5	0.03	0.06	312	
	25	30	0.03	25	4	0.23	82.7	11.7	0.28	186.3	2.4	<0.5	<0.01	<0.05	187	
	30	35	0.02	8.7	3	0.15	36.1	11	0.15	71.2	1.2	<0.5	<0.01	<0.05	82	
19WAC57	0	5	0.14	18.3	4	1.01	8.7	188.7	0.54	19.1	8.7	0.8	0.02	0.14	14	
	5	10	0.06	10.8	<1	0.55	5.4	145.1	0.19	16.5	5.4	0.5	0.05	0.05	33	
	10	15	0.07	12.8	<1	0.4	6.4	321.2	0.29	25.9	7.9	0.7	0.05	0.1	40	
	15	20	0.21	10.4	1	0.55	10.8	224.9	0.28	59.4	4.2	1.1	0.04	0.08	80	
	20	25	0.02	16.9	<1	0.71	14.1	140.1	0.31	78.5	3.6	1.8	0.05	0.14	109	
	25	30	0.06	10.5	1	0.57	20.8	124.4	0.26	59.2	16.6	1.3	0.06	0.08	67	
	30	35	0.03	3.6	9	0.19	30.5	220.8	0.09	94.4	2	<0.5	<0.01	<0.05	88	
	35	36	0.21	6.4	10	0.12	79.9	227.1	0.14	153.7	2.1	<0.5	<0.01	<0.05	106	
19WAC58	0	5	0.25	28.9	4	0.49	10	197.2	0.6	26.4	7.3	1.5	0.04	<0.05	21	
	5	10	0.03	23.9	1	0.3	7	404.9	0.41	28.7	6.8	1.1	0.04	0.08	29	
	10	15	0.12	9.2	<1	0.28	5.3	298.5	0.4	35.8	4.1	1.4	0.02	<0.05	27	
	15	20	0.08	14.5	<1	0.35	20	283.7	0.3	52	2.1	0.7	0.02	<0.05	25	
	20	25	0.29	10.7	7	0.3	117	207.2	0.51	336.8	3.4	<0.5	0.02	<0.05	159	
	25	30	0.03	3.5	10	0.22	58.8	118.3	0.07	379.8	1.5	<0.5	<0.01	<0.05	197	
	30	35	0.04	2.7	2	0.24	61.3	201.9	0.05	399.7	2.9	0.6	0.01	<0.05	158	
	35	39	0.05	7.6	4	0.2	36.8	179.4	0.05	259.7	3	0.6	<0.01	<0.05	102	
19WAC59	0	5	0.08	37.9	4	0.35	7.8	358.1	0.45	27.8	8.7	0.9	0.04	0.08	26	
	5	10	<0.01	12	<1	0.28	15.2	309.7	0.39	46.9	10	0.5	0.07	<0.05	36	
	10	15	0.01	2	<1	0.28	11	209.8	0.22	32.5	4.3	0.6	0.02	<0.05	29	

			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
	15	20	0.04	10.4	6	0.29	40.5	503.2	0.33	67.7	1.7	0.6	0.04	0.14	78	
19WAC60	0	5	0.03	23.9	2	0.54	7.8	426.4	0.24	24.1	7.5	0.9	0.02	<0.05	34	
	5	10	0.06	10	<1	0.48	8.7	344.8	0.28	32.2	9.4	0.8	0.06	<0.05	54	
	10	15	0.08	15.8	<1	0.45	35.4	352.3	0.35	73	6.1	1.7	0.16	<0.05	200	
	15	20	0.16	36.5	15	0.76	126	392.4	0.63	168.1	35.3	0.6	0.61	0.08	390	
	20	24	0.05	37.5	15	0.24	22.9	442.7	0.17	67.6	6.8	0.7	0.11	<0.05	186	
19WAC61	0	5	0.02	28.3	2	0.24	7.4	308.6	0.42	15	8.2	0.6	0.02	<0.05	25	
	5	9	<0.01	2.3	2	0.03	14.6	319.3	0.28	32.3	4.1	<0.5	0.01	<0.05	58	
19WAC62	0	5	0.04	11.8	4	0.17	18.2	262.6	0.54	28.6	4.4	0.6	0.02	0.06	42	
	5	10	0.03	2.1	5	0.03	30.2	220.1	0.75	31.7	0.8	<0.5	0.01	0.18	57	
	10	15	0.06	9.9	7	0.02	37.5	271.7	0.8	40.8	0.6	<0.5	0.02	0.35	65	
	15	19	0.06	4.6	4	0.05	26.3	194.1	0.96	29.8	0.8	<0.5	0.02	1.36	64	
	19	20	0.1	16.1	6	0.91	18.1	154.8	1.17	18.8	6.6	0.7	0.04	2.19	24	
	20	21	0.11	7.9	5	0.36	15.1	152.9	0.93	18	4	<0.5	0.02	1.95	94	
	21	22	0.32	18	9	0.89	21.2	397.1	0.97	23.8	9.3	1.2	0.06	2.36	27	
	22	23	0.2	5	8	0.58	20.7	308.1	1.04	26.6	1.5	<0.5	0.03	1.9	40	
	23	24	0.16	10.2	8	0.46	21.6	254.2	1.01	20.8	2.2	<0.5	0.03	2.35	32	
	24	25	0.18	2.7	4	0.21	26	247.3	0.92	32.2	1.6	<0.5	0.02	1.39	56	
	25	26	0.08	1.1	2	0.19	25.1	126.1	0.99	55	1.3	<0.5	0.01	1.03	56	
	26	27	0.23	6.5	10	0.18	22.3	342.3	1.08	32.8	3.3	<0.5	0.03	3.32	77	
	27	28	0.19	2.8	4	0.08	25.3	249.7	0.99	37.3	2.9	<0.5	0.01	1.03	70	
	28	29	0.23	3.3	2	0.19	20.8	296.1	0.79	34.9	2.2	<0.5	<0.01	1.44	76	
	29	30	0.11	12.5	4	0.4	23.9	159.7	0.82	34.5	1.9	<0.5	0.02	1.21	61	
	30	31	0.44	22.3	4	0.06	25.1	605.3	0.99	24.2	3.3	<0.5	0.02	1.51	98	
	31	32	0.15	3.5	2	0.06	23.6	182.2	0.74	38.3	2.9	<0.5	0.01	1.5	73	
	32	33	0.22	2.6	5	0.06	20.3	249.7	0.87	32.4	2.8	<0.5	0.02	1.87	64	
	33	34	0.14	9	<1	0.11	24	169.5	0.78	36.4	2.4	<0.5	0.02	1.45	69	
	34	35	0.16	2.9	2	0.06	26.3	207.9	0.89	43.1	3.3	<0.5	<0.01	1.85	85	
	35	36	0.16	7.9	2	0.07	31.8	211.8	0.91	46.4	4.6	<0.5	<0.01	1.33	144	
	36	37	0.17	4.9	1	0.08	26	220.8	0.84	42.5	2.8	<0.5	0.01	1.75	77	
	37	38	0.12	0.6	2	0.05	22	144.1	0.86	36.2	2.7	<0.5	<0.01	1.46	76	
	38	39	0.14	2.3	3	0.05	22.2	189.9	0.78	34.5	4.4	<0.5	<0.01	1.3	73	
19WAC63	0	5	0.1	21.7	<1	2.62	28.7	1040	0.65	81.1	10.1	1.3	0.06	0.1	61	
	5	10	0.02	7.7	<1	0.89	13.8	422.4	0.31	72.6	8	1.1	0.03	<0.05	45	
	10	15	0.05	8.6	2	0.51	39.9	243.7	0.34	173.7	3.3	0.6	0.02	<0.05	85	
	15	20	0.05	7.6	<1	0.28	131	330.2	0.2	280.4	2.9	0.7	0.01	0.22	172	
	20	25	0.02	12	<1	0.28	144	879.2	0.29	256.5	1.7	0.8	0.04	0.07	147	
	25	30	0.04	7	13	0.11	36.8	36.1	0.81	70	0.8	<0.5	<0.01	0.07	45	
	30	35	0.11	3.8	3	0.13	20.6	177.3	1.2	28.8	1.8	<0.5	0.01	0.44	41	
	35	40	0.12	24.7	2	0.13	39.7	171.4	1.4	41	4	<0.5	0.02	1.5	48	
	40	45	0.09	7.4	4	0.1	27.7	177.1	1.4	63.4	1.5	<0.5	0.01	0.7	50	
	45	50	0.18	3.7	8	0.16	35.4	359	1.27	82.3	0.9	<0.5	0.06	1.69	33	
	50	55	0.1	4.7	4	0.13	27.9	162.1	1.09	40.5	0.6	<0.5	0.03	1.78	42	
	55	60	0.17	2.1	5	0.13	28.3	248.3	1.16	34.8	1.3	0.5	0.03	1.83	43	
	60	65	0.23	3	4	0.11	22.6	316.6	1.2	29.7	1.9	0.6	0.03	1.95	45	
	65	69	0.16	1.5	4	0.08	22.1	222.3	0.98	33.3	1.2	<0.5	<0.01	1.68	43	
19WAC64	0	5	<0.01	17.5	<1	0.37	9.5	636.2	0.5	29.6	4.6	0.7	0.03	<0.05	21	
	5	10	<0.01	8.6	<1	0.25	9	312.5	0.37	50.9	2.8	0.6	0.01	0.05	84	
	10	15	0.04	2.3	5	1.95	36	202.4	0.61	62.6	1.1	<0.5	0.61	<0.05	58	
	15	20	0.02	5.7	7	0.16	37.9	396.6	0.72	65	0.9	<0.5	0.04	0.07	48	
	20	25	0.05	7.9	7	0.18	39.6	212.1	0.75	55.8	0.7	<0.5	0.06	0.17	49	
	25	30	0.14	2.1	3	0.13	22.6	222.1	1.39	35.1	0.9	0.9	0.04	1.2	46	
	30	35	0.17	2.1	4	0.17	22.7	250.4	1.07	29.8	1.1	1	0.04	1.97	39	
	35	36	0.06	1.6	2	0.18	19.4	79.6	1.2	24.3	1	0.6	0.01	2.17	43	
	36	37	28.57	122.5	297	9.03	367	>10000.0	0.93	106.3	2.2	0.6	0.39	1.14	317	37245
	37	38	0.24	1.1	2	0.19	19.8	306	1.22	24.2	2.6	0.5	0.02	2.18	49	
	38	39	0.18	1.1	3	0.09	18.4	231	1.21	23	2.3	<0.5	<0.01	2.33	45	
	39	40	0.14	0.9	3	0.08	22	187.8	1.1	31.7	1	<0.5	0.01	2.18	50	
	40	41	0.15	1	3	0.1	25.2	218.7	1.11	33	1	0.8	0.01	2.67	55	

			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
19WHAC65	0	5	0.13	24.7	4	0.82	3.9	118.8	0.91	12	7.3	1.3	0.02	0.2	9	
	5	10	0.03	43.7	2	1.3	9.9	119.1	0.55	15.1	2.7	0.8	0.03	0.37	9	
	10	15	0.21	32.6	1	6.02	30.1	214.7	0.32	30.8	6.2	<0.5	0.03	0.11	29	
	15	20	0.61	80.4	2	2.63	18.5	345.8	0.97	40.2	21.8	1.7	0.15	0.48	34	
	20	25	0.09	14.5	1	0.34	30.6	213.5	0.42	91	10.5	<0.5	0.22	0.25	58	
	25	30	0.02	7.2	3	0.26	23	205.8	0.31	82.8	3.5	<0.5	0.22	<0.05	97	
	30	35	<0.01	3.6	2	0.33	36.7	184.3	0.12	141.2	3.2	<0.5	0.36	<0.05	162	
	35	40	0.07	12.2	4	0.25	87.5	174.6	0.2	197	5	<0.5	0.13	<0.05	222	
	40	45	0.05	20.7	30	0.56	49.5	438.9	1.13	102.2	2.2	1.1	0.37	0.22	128	
	45	50	0.04	1.8	2	0.42	17.4	56.4	0.56	37.2	0.6	<0.5	0.73	0.94	30	
	50	55	0.07	1	5	0.29	45.9	109.9	0.32	86	0.7	<0.5	0.25	0.15	70	
	55	60	0.07	<0.5	3	0.26	34	92.4	0.48	68	0.6	<0.5	0.23	0.17	54	
	60	62	0.1	0.8	5	0.23	29.6	160.5	0.79	61.6	0.6	<0.5	0.29	0.33	47	
19WAC66	0	5	0.03	1.2	2	1.5	2.7	24.9	0.8	15.6	7.6	0.6	<0.01	0.15	<2	
	5	10	0.16	17.7	4	3.14	2.3	74.5	0.46	6.7	3.6	0.5	<0.01	0.07	6	
	10	15	0.2	22.1	3	2.37	7.4	186	0.34	23.8	8.1	<0.5	0.03	0.15	11	
	15	20	0.38	22.5	2	1.62	10.8	331.4	0.11	47	9	<0.5	0.03	<0.05	87	
	20	25	0.11	7.2	7	0.26	27	84.3	0.63	42.7	1.3	<0.5	0.02	0.11	61	
	25	30	0.08	10.3	8	1.33	29.4	181.4	0.74	56.3	5	<0.5	0.03	1.16	86	
	30	35	0.1	5.8	5	0.36	15.5	123.4	0.98	34.6	2.4	<0.5	0.02	1.43	135	
	35	40	0.04	8	4	0.31	15.7	49.1	0.81	37.8	1.6	<0.5	0.02	0.78	72	
	40	45	0.08	16	3	0.65	27	122.1	0.83	55.6	1.5	<0.5	0.02	2.19	121	
	45	50	1.6	22.5	54	34.92	24.5	1997	1.78	49	9.9	<0.5	0.06	417.55	161	
	50	55	0.18	5.7	5	1.23	19.6	114.4	1.01	44.5	2.1	<0.5	0.02	4.85	64	
	55	60	0.1	20.8	2	0.41	28.5	199.9	0.87	56	2.2	<0.5	0.01	3.09	74	
	60	65	0.12	20.5	4	1.7	25.7	212.8	1.15	49.7	2.2	<0.5	0.03	2.2	70	
	65	70	0.13	7.4	5	2.76	19.8	170.8	1.62	39.8	3.7	<0.5	0.02	2.17	56	
	70	75	0.32	16.9	36	9.15	19.7	411.9	1.83	38.3	2.9	0.7	0.07	100.71	62	
	75	80	0.15	9.3	6	1.83	16.5	151.6	2.21	35.5	4.6	0.7	0.02	7.84	57	
19WAC66	80	81	0.36	14.3	9	4.37	32.9	524	2.62	46.3	5.8	0.8	0.03	8.69	65	
	81	82	0.71	10.5	12	1.59	26.1	831	2.07	36.2	5.8	0.8	0.03	1.99	38	
	82	83	0.15	5.7	9	0.97	17.2	218	1.92	35.2	4	0.6	0.01	1.35	53	
	83	84	0.07	5.2	4	0.6	17.4	91.2	2.03	35.4	4.5	<0.5	0.01	1.18	71	
	84	85	0.16	2.4	6	1.04	7.1	240.7	1.67	20.9	6.1	0.6	<0.01	0.68	44	
	85	86	0.07	3.2	5	0.88	10.1	86.2	4.14	24.1	5.6	0.6	<0.01	0.66	31	
	86	87	0.06	14	4	1.55	6.1	76.8	1.95	19.1	7.2	0.7	<0.01	2.52	12	
19WAC67	0	5	0.1	3.5	8	2.36	2.4	43.3	0.83	9.8	5.8	0.6	0.01	0.19	4	
	5	10	0.11	25.1	2	3.42	1.9	66.9	0.81	6.8	3.7	0.8	<0.01	0.15	3	
	10	15	0.24	18.3	11	2.05	4.8	96.7	0.4	13.8	5.2	<0.5	0.02	0.15	4	
	15	20	0.27	26.1	8	3.96	5.1	354.6	0.16	25.4	9.2	0.9	0.03	0.19	18	
	20	25	0.33	18.4	5	2	6.3	307.6	0.14	24.8	13.1	<0.5	0.03	0.14	32	
	25	30	0.32	10.5	6	1.49	7.4	397.9	0.12	34.1	18	<0.5	0.03	0.09	56	
	30	35	0.81	25.4	4	0.77	10.4	510.9	0.11	48.6	16.1	<0.5	0.02	0.06	95	
	35	40	0.45	25.2	3	0.76	29.2	339.3	0.21	89.4	7	<0.5	0.02	<0.05	179	
	40	45	0.06	9.8	6	0.32	27.9	178.2	0.23	69.3	3.5	<0.5	0.02	0.45	115	
	45	50	0.07	4.8	6	0.91	21.2	115.7	1	47.6	2.3	<0.5	0.02	1.37	52	
	50	55	0.03	2	1	0.17	19.3	51.4	0.97	41.9	2	<0.5	0.02	0.74	50	
	55	60	0.12	5.2	4	0.67	17.2	94.2	0.94	37	12.8	<0.5	0.02	5.43	74	
19WAC68	0	5	0.08	10.5	4	0.57	5.1	89.4	0.7	12.6	6.9	0.6	<0.01	0.05	11	
	5	10	0.05	24.8	1	0.6	10.9	99.8	0.41	15.6	4.6	0.7	0.02	0.28	21	
	10	15	0.05	31.2	<1	4.19	4.9	157.9	0.24	21.6	5.7	1	0.06	0.06	18	
	15	20	0.29	15.1	2	0.54	3.9	231.4	0.39	25.8	8.8	0.6	0.02	0.05	28	
	20	25	0.64	41.9	6	47.2	172	822.1	1.13	125.7	6.4	0.9	0.21	20.21	184	
	25	30	0.15	22.2	2	17.21	103	278.9	0.49	160.2	5.7	0.6	0.04	0.13	151	
	30	35	0.02	12.1	43	1.76	64.7	222.3	0.27	183.1	2.6	<0.5	0.02	0.18	179	
	35	40	0.04	14.5	20	4.74	24.2	192.4	0.27	75.8	2.9	<0.5	0.03	0.36	95	
	40	45	0.08	39.7	8	1.65	19.3	142	0.55	53.7	1.8	<0.5	0.03	0.75	54	
	45	50	0.11	11.5	5	1.32	22.5	123.3	0.6	53.4	1.4	<0.5	0.03	0.8	51	
	50	54	0.03	2.3	3	0.26	18.8	27.3	0.72	42.2	1.1	<0.5	0.01	0.96	43	

			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
Repeat	50	54	0.03	2.3	3	0.29	18.1	26.4	0.73	39.8	1.3	<0.5	0.02	0.99	41	
19WAC69	0	5	0.03	0.8	4	0.43	2.7	23.8	0.79	10.9	9.5	<0.5	<0.01	<0.05	<2	
	5	10	0.13	2.8	4	0.26	2.3	47	0.51	5.6	5.6	<0.5	<0.01	<0.05	6	
	10	15	<0.01	1.6	<1	0.12	1.9	45	0.3	6.9	1.6	<0.5	0.03	<0.05	13	
	15	20	<0.01	2	<1	0.19	1	71.3	0.18	5.8	2.3	<0.5	0.07	<0.05	11	
	20	25	<0.01	1.5	<1	0.16	1.4	53.4	0.11	7.6	3.2	<0.5	0.06	0.09	13	
	25	30	<0.01	1.9	<1	0.15	2.6	105.2	0.16	7.8	4.6	<0.5	0.03	0.3	13	
	30	35	0.07	2	<1	0.12	5.9	232.8	0.39	20.1	9.7	<0.5	0.03	<0.05	17	
	35	40	0.05	1.8	2	0.17	27.2	204.4	0.44	71.2	3.5	<0.5	0.03	0.11	72	
	40	45	0.1	0.7	2	0.15	98.8	150.5	0.31	102.7	3.5	<0.5	0.03	0.39	109	
	45	50	<0.01	0.6	3	0.14	51.1	111.4	0.19	95.8	2.1	<0.5	0.01	0.24	66	
	50	55	<0.01	0.5	2	0.1	26.6	60.6	0.11	53.5	0.9	<0.5	0.01	0.16	41	
	55	58	0.15	0.9	3	0.09	57.1	100.4	0.23	55.4	0.8	<0.5	0.01	1.09	36	
19WAC70	0	5	0.1	2.3	4	0.45	2.7	37.4	0.68	11.6	6.9	0.6	<0.01	<0.05	6	
	5	10	0.03	2.2	12	0.15	2.5	28.8	0.19	4.6	2.2	<0.5	0.01	<0.05	<2	
	10	15	<0.01	1.8	5	0.08	1.6	27.5	0.2	2.8	1	<0.5	0.02	<0.05	2	
	15	20	<0.01	1.7	2	0.08	1.6	30.5	0.14	6.4	2	<0.5	0.02	<0.05	3	
	20	25	<0.01	0.9	3	0.07	1.3	12	0.08	2.9	1.6	<0.5	<0.01	<0.05	<2	
	25	30	<0.01	2.4	1	0.03	1.6	24.5	0.22	9.6	2.4	<0.5	<0.01	<0.05	3	
	30	35	0.1	3.1	2	0.12	4.9	110.8	0.34	19.9	19.9	<0.5	0.03	0.06	15	
	35	40	0.03	2.5	4	0.15	14.5	128.6	0.35	67.9	7.2	<0.5	0.04	<0.05	44	
	40	45	0.03	2.3	12	0.11	51	58	0.28	67.5	2.5	<0.5	0.03	<0.05	42	
	45	50	0.1	1.8	11	0.13	205	120.4	0.4	177.1	2.6	<0.5	0.04	<0.05	116	
	50	55	0.02	<0.5	4	0.11	49.1	75.6	0.1	223.6	1.1	<0.5	0.02	<0.05	148	
	55	60	<0.01	<0.5	1	0.1	43.5	74.1	0.09	138.6	1	<0.5	0.03	<0.05	60	
	60	65	<0.01	0.6	<1	0.07	29.7	67.5	0.07	84.9	0.5	<0.5	0.03	<0.05	39	
	65	70	<0.01	1.1	<1	0.08	33.8	77.1	0.12	83.2	0.7	<0.5	0.03	0.16	41	
	70	71	<0.01	<0.5	<1	0.05	21.3	50.7	0.09	101	0.6	<0.5	0.02	0.14	31	
19WAC71	0	5	0.09	2.4	3	0.37	3.3	42.2	0.41	8.6	5.2	<0.5	<0.01	<0.05	4	
	5	10	0.1	1.9	3	0.31	3.6	78	0.09	4.1	2.1	0.6	<0.01	0.07	4	
	10	15	<0.01	3.8	3	0.32	2.4	108.7	0.25	6.2	3.4	0.7	0.04	<0.05	13	
	15	20	<0.01	4	2	0.08	3.3	49.1	0.09	6.8	2.2	<0.5	0.01	0.05	3	
	20	25	0.11	2.7	11	0.11	32	125.4	0.43	18.5	42.6	<0.5	0.01	0.25	18	
	25	30	0.1	10.3	4	0.26	28.5	169.1	0.39	34.2	29.4	0.6	0.03	0.2	24	
	30	35	0.09	5.2	1	0.22	130	224	0.59	57.3	12.2	<0.5	0.03	<0.05	50	
	35	40	0.02	2.8	9	0.16	74.4	147.5	0.16	89.7	2.2	<0.5	0.02	0.12	94	
	40	45	<0.01	2.3	4	0.13	29.2	127.3	0.1	47.2	1	<0.5	0.02	<0.05	58	
	45	50	<0.01	4.4	3	0.14	35.3	179.6	0.13	69.7	1.5	<0.5	0.02	0.1	64	
	50	55	<0.01	2.9	2	0.14	31.3	129.1	0.25	63.8	0.9	<0.5	0.01	0.37	45	
	55	60	0.04	2.2	2	0.1	32.2	129.7	0.15	51.7	1	<0.5	0.01	0.26	52	
19WAC72	0	5	0.08	1.3	2	0.76	4.1	55	0.84	11.3	5.2	0.8	<0.01	0.06	4	
	5	10	0.08	12.1	2	2.22	4.3	96	0.52	7.8	4.6	1.9	0.12	0.19	4	
	10	15	0.01	6.6	<1	0.39	2.6	45.5	0.19	6.5	2.6	0.8	0.02	0.21	4	
	15	20	<0.01	2.4	<1	0.22	1.5	49.9	0.11	6.9	3.5	0.9	0.02	0.16	18	
	20	25	0.03	2.7	<1	0.26	14.7	115.2	0.15	26.5	3.3	0.8	0.01	<0.05	20	
	25	30	0.03	7.4	2	0.23	27	135	0.35	26.4	44.6	0.7	0.02	0.13	25	
	30	35	0.02	5.7	3	0.19	258	69	0.31	91.7	4.3	<0.5	0.01	<0.05	107	
	35	40	<0.01	5.8	3	0.21	46.6	32.3	0.14	110.7	3.2	<0.5	0.01	<0.05	93	
	40	45	<0.01	3	5	0.18	46.3	57.2	0.13	83	1.5	<0.5	0.01	<0.05	77	
	45	49	0.01	2	1	0.12	52.7	103.2	0.15	75.5	1.4	<0.5	<0.01	0.06	73	
19WAC73	0	5	0.15	4.6	5	0.32	4.3	68.7	0.42	6	5.6	0.7	<0.01	0.07	4	
	5	10	0.07	5.4	10	0.15	5.8	60.7	0.13	11.5	3.1	<0.5	<0.01	0.11	8	
	10	15	0.02	6.1	4	0.31	5.9	100.3	0.11	12	5	1.1	<0.01	0.37	9	
	15	20	0.01	6.7	3	0.44	4.3	147.1	0.16	11	7.7	1.1	0.01	0.14	4	
	20	25	0.01	8.1	2	0.4	5.7	170.1	0.13	17.2	4.4	1	<0.01	<0.05	8	
	25	30	0.07	26.4	1	0.54	6.8	284.5	0.29	26.3	7.4	0.5	0.02	<0.05	10	
	30	35	0.01	18.8	1	0.45	29.7	300	0.21	82	2.1	<0.5	0.02	<0.05	50	
	35	40	<0.01	3.4	<1	0.28	78.7	143.6	0.15	93	2	<0.5	0.01	<0.05	111	
	40	45	0.27	2.3	5	0.16	82.7	143.7	0.37	109.9	2.4	<0.5	0.01	0.06	101	

			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
	45	50	0.01	1.3	1	0.13	49.4	127.4	0.15	106.8	1.9	<0.5	0.01	<0.05	87	
	50	51	<0.01	1.5	1	0.07	19.6	90.1	0.19	33	1	<0.5	0.02	0.16	38	
19WAC74	0	5	0.11	4.7	11	0.27	4.1	106.6	0.47	5.4	2.8	0.7	0.02	0.27	7	
	5	10	0.04	3.2	4	0.29	2.9	68.2	0.25	4.5	2.7	0.7	0.03	0.1	5	
	10	15	<0.01	1.9	<1	0.28	2.8	90.1	0.15	7.6	3.9	0.9	0.02	0.08	9	
	15	20	0.01	2.7	3	0.24	4.3	138.4	0.18	9.1	8.3	0.7	0.02	0.39	5	
	20	25	<0.01	6	<1	0.3	4.2	60.2	0.07	17.3	6.5	0.7	0.02	0.09	9	
	25	30	0.03	25.1	1	0.43	6.3	78.3	0.11	28.6	6.7	1.1	0.05	0.17	13	
	30	35	0.03	19.2	4	0.57	8.2	100.4	0.14	39.9	7.4	1.1	0.06	0.12	18	
	35	40	0.31	22.2	4	0.52	161	140.7	0.4	151.8	3.8	<0.5	0.06	0.08	85	
	40	45	0.09	8.7	4	0.22	143	35.2	0.21	258.5	3.2	<0.5	0.02	0.07	199	
	45	50	0.06	3.4	<1	0.17	57.5	15.8	0.13	207.5	1.3	<0.5	0.01	<0.05	68	
	50	55	0.04	2.4	<1	0.16	52	35.6	0.09	160	0.7	<0.5	0.01	0.09	54	
	55	60	0.03	4.7	<1	0.21	36.9	57.4	0.08	128.3	0.7	<0.5	0.03	0.09	55	
	60	61	0.07	10	<1	0.22	38.9	86.7	0.11	117.3	0.7	<0.5	0.02	0.26	49	
19WAC75	0	5	0.03	4.4	3	0.44	10.6	138.7	0.32	21.3	3.7	0.6	0.03	<0.05	13	
	5	10	0.02	2	<1	0.28	2.9	93.5	0.1	11.7	1.9	<0.5	0.04	<0.05	13	
	10	15	<0.01	1.2	<1	0.27	1.9	77.4	0.11	11.8	2.5	0.7	0.03	0.09	8	
	15	20	0.04	2	<1	0.28	3.1	72.9	0.11	22.4	4.6	<0.5	0.02	0.57	24	
	20	25	0.17	1.8	<1	0.29	2.5	134.9	0.19	25.7	6.6	0.8	0.04	<0.05	13	
	25	30	0.02	6.3	<1	0.83	5.9	109.6	0.08	31.4	4.5	0.9	0.1	<0.05	18	
	30	35	0.05	8.8	<1	0.57	8.6	220.1	0.13	35.6	4.5	<0.5	0.06	<0.05	17	
	35	40	0.17	35.7	9	0.7	27.8	303.8	0.71	97.3	4	1.1	0.09	<0.05	32	
	40	45	0.15	32	15	0.33	34.9	218.3	0.38	154.1	2.1	0.7	0.04	0.13	90	
	45	46	0.27	13.7	6	0.04	32.2	232.6	0.14	107.4	1	0.5	0.03	0.06	109	
19WAC76	0	5	0.01	4.2	2	0.56	4.7	67.2	0.27	28.9	3	0.8	0.06	0.08	21	
	5	10	<0.01	3.4	<1	0.57	1.8	50.6	0.12	23.3	1.8	0.9	0.07	<0.05	21	
	10	15	<0.01	2.8	<1	0.74	1.4	32.4	0.2	27.1	2.7	0.8	0.08	<0.05	23	
	15	20	0.04	1.7	<1	0.41	0.9	66.4	0.08	12.8	3.1	0.9	0.04	<0.05	15	
	20	25	0.06	9.6	<1	0.48	1.9	207.3	0.21	23.3	7.4	0.5	0.06	<0.05	27	
	25	30	0.11	20.1	2	0.57	1.7	201.6	0.22	20.4	12.1	1	0.04	0.45	14	
	30	35	0.1	19.6	10	0.42	11.7	200	0.17	48.4	9.6	0.5	0.04	<0.05	31	
	35	40	0.05	14.8	9	0.41	42.4	250.7	0.12	124.5	2.2	<0.5	0.04	<0.05	129	
	40	45	0.13	15	20	0.36	55.2	88.8	0.32	100.7	4.1	0.7	0.03	0.08	73	
	45	50	0.04	4.5	1	0.2	30.8	89.2	0.12	70	1.1	<0.5	0.03	<0.05	51	
	50	55	0.07	3.4	3	0.09	21.5	109.9	0.1	50.4	0.7	<0.5	0.03	0.33	37	
19WAC77	0	5	0.02	5	<1	0.2	4.9	77.1	0.22	14	6.1	0.8	0.04	<0.05	17	
	5	10	0.02	2.4	<1	0.3	2	67.1	0.11	9.7	4.8	0.8	0.04	0.08	12	
	10	15	0.02	2.7	<1	0.35	1.6	130.8	0.16	8.1	3.8	0.7	0.03	0.1	13	
	15	20	0.02	5.9	<1	0.92	1.5	137.5	0.21	11.2	10.9	1	0.06	0.85	10	
	20	25	0.05	8.6	<1	0.6	1.3	135.1	0.18	10.8	9.2	0.9	0.02	<0.05	9	
	25	30	0.08	34.7	<1	1.07	2.1	172.3	0.54	26.2	16.5	1.5	0.04	0.08	22	
	30	35	0.27	52.2	17	1.56	13.6	348	0.38	72.2	9.9	1.9	0.04	0.23	60	
	35	40	0.11	12	8	0.78	59.8	246.9	0.15	121.3	2.9	0.8	0.02	<0.05	119	
	40	45	0.1	6.9	2	0.38	62.2	126	0.13	135	3.1	0.5	0.02	0.07	117	
	45	50	0.16	5.1	3	0.33	30.3	73.4	0.17	50.9	3.6	0.5	0.02	0.28	49	
	50	51	0.02	2.2	2	0.08	12.4	56.8	0.13	19.9	0.7	<0.5	0.02	0.18	26	
19WAC78	0	5	0.03	5.9	9	0.6	11.2	148.8	0.29	23.6	6.2	0.6	0.03	0.14	17	
	5	7	0.01	1.5	<1	0.26	6.3	76.2	0.13	8.2	3.4	<0.5	0.02	0.07	11	
19WAC79	0	5	0.02	8.1	3	0.64	22.1	134.4	0.36	32	5.8	0.5	0.03	0.15	34	
	5	10	0.01	2.4	<1	0.52	24.1	181.9	0.1	29	1.3	<0.5	0.04	<0.05	56	
	10	15	<0.01	1.2	2	2.92	19.8	146.8	0.14	20.9	1.3	<0.5	0.06	0.09	45	
	15	18	<0.01	1.2	12	0.23	27.9	171.3	0.46	31.7	1.2	<0.5	0.03	0.22	54	
19WAC80	0	5	0.03	7.4	3	0.35	23.6	117.8	0.33	75.4	5	0.5	0.03	<0.05	43	
	5	6	0.02	1.3	<1	0.27	19.6	109.3	0.12	70.6	2.7	0.6	0.03	<0.05	38	
19WAC82	0	5	0.02	11	8	0.5	13.7	127.6	0.49	37.3	6.3	0.7	0.04	0.07	26	
	5	20	<0.01	10.4	<1	0.41	31.8	384	0.18	153.6	1.8	0.8	0.04	<0.05	69	
	10	15	0.02	4.2	<1	0.59	15.5	958.8	0.11	57.6	2.4	<0.5	0.11	<0.05	46	
	15	20	0.02	3.4	7	0.28	71	343.5	0.09	90.9	1.7	<0.5	0.1	<0.05	62	

			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
	20	25	0.05	2.5	4	0.28	35	139.7	0.05	89.7	1.9	<0.5	0.09	<0.05	47	
	25	30	0.08	3.8	4	0.16	31.8	82.1	0.13	104.6	1.6	<0.5	0.03	<0.05	55	
	30	35	0.25	7.5	5	0.53	32.4	278	0.14	125.5	2.7	<0.5	0.1	<0.05	76	
	35	37	0.42	4.8	5	0.12	16.3	41.6	0.11	68.5	0.9	<0.5	0.01	<0.05	37	
19WAC81	0	5	0.05	19	4	0.58	23.8	108	0.46	76.9	7.2	<0.5	0.04	<0.05	48	
	5	10	0.02	2.2	<1	0.28	28.6	50.1	0.18	125.7	2.4	0.7	0.05	<0.05	68	
	10	15	<0.01	13.5	<1	0.44	27.5	164.2	0.14	106.5	2.4	<0.5	0.06	<0.05	82	
	15	19	<0.01	24.2	5	0.53	28.4	297.5	0.16	101.2	2.8	<0.5	0.08	<0.05	95	
19WAC83	0	5	0.02	31.8	10	0.28	41.1	187.9	0.3	60.8	3.9	<0.5	0.03	<0.05	56	
	5	8	<0.01	18.4	2	0.15	16.3	87.6	0.13	57.8	1.1	<0.5	0.01	<0.05	40	
19WAC84	0	5	0.02	15.6	5	1.34	33.9	162.3	0.5	53.3	5	0.6	0.02	0.1	42	
19WAC85	0	3	0.01	5.3	4	0.21	20.7	72.9	0.45	29	3.5	<0.5	0.02	0.11	12	
19WAC86	0	3	<0.01	3.2	2	0.28	30.8	74.2	0.27	46.9	3.5	<0.5	0.02	0.23	17	
19WAC87	0	5	0.03	2.8	3	0.21	5.4	62.7	0.3	11.6	6.7	<0.5	0.01	<0.05	5	
	5	10	<0.01	3.6	1	0.15	1.7	43.3	0.17	4.4	1.8	0.7	0.01	0.15	2	
	10	15	<0.01	14.8	2	0.12	6.7	174.6	0.2	12.7	9.1	<0.5	0.02	0.23	6	
	15	16	<0.01	2.1	8	0.05	9.9	80.6	<0.05	18.4	1.7	<0.5	<0.01	<0.05	15	
19WAC88	0	5	0.16	4.3	4	0.22	4.8	65.5	0.31	5.7	4	0.5	<0.01	<0.05	4	
	5	10	0.09	3.3	3	0.18	3.3	63.9	0.19	5.5	2	<0.5	<0.01	<0.05	4	
	10	15	0.04	5	4	0.19	2.6	52	0.12	2.7	1.7	<0.5	<0.01	0.06	5	
	15	20	0.04	20	2	0.09	1.6	49.7	0.25	9.3	4.7	<0.5	0.02	<0.05	<2	
	20	25	0.14	13.3	<1	0.19	5.6	107.8	0.16	15.7	7.5	<0.5	0.01	<0.05	18	
	25	30	0.05	26	<1	0.18	173	112.3	0.59	54.8	4.3	<0.5	0.02	5.27	53	
	30	34	0.04	10.9	3	0.12	64.3	81.7	0.16	37.3	2.1	<0.5	0.01	0.27	61	
Repeats and 1m's			Ag	As	Au	Bi	Co	Cu	Mo	Ni	Pb	Sb	Te	W	Zn	Cu
19WAC66	80	81	0.52	17.7	16	7.25	25.9	644.1	2.32	39.6	6.9	0.8	0.05	10.36	84	
19WAC48	55	56	32.16	51.1	1497	937.2	211	>10000.0	45.19	258.5	40.6	<0.5	6.36	2.23	1669	33958
	56	57	0.16	2.7	14	6.48	21.1	170.1	0.55	39.1	1.4	<0.5	0.04	1.33	57	
	57	58	0.19	0.9	31	12.23	22.1	335.1	0.81	47	1.4	<0.5	0.07	1.65	67	
	58	59	0.21	3.1	14	6.21	15.2	49	0.75	13.4	3.5	<0.5	0.04	1.44	18	
	59	60	0.05	3.5	28	8.62	44.9	81.2	0.69	30.2	5.2	<0.5	0.04	1.79	23	

Notes : Assays by aqua regia 25g, with ICP - MS finish (AR25), except copper over limit by four acid digest with ICP - OES finish (MA41).

Data description as required by the 2012 JORC Code - Section 1 and Section 2 of Table 1 Air core drilling programmes – E70/4882

Section 1 Sampling techniques and data		
Criteria	**JORC Code explanation**	**Comments**
Sampling technique	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was by air core (AC) drilling testing depth of transported cover, bedrock type and interpreted geological and/or geophysical targets for gold mineralisation and/or base metals. A total of 36 holes for 1350m was completed – E70/4882
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used	The collar positions were located using handheld GPS units with an approximate accuracy of +/- 5 m. Drill rig cyclone and sampling tools cleaned regularly during drilling.
	Aspects of the determination of mineralisation that are material to the Public report In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1m samples from which 3kg was pulverised to produce a 30g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	Mineralisation determined qualitatively from rock type, alteration, structure and veining observations. Air core drilling was used to obtain one metre samples delivered through a cyclone. The 1m sample was placed in plastic bags. From each drill bag, a ~500g sample was collected using a scoop, five of such 1m samples were combined into one 5m composite sample. Some sections of alteration and/or veining were sampled at 1m intervals. The composite samples (2-3kg) were sent to Perth laboratory **Minanalytical** for analysis.
Drilling technique	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method etc.).	Drilling was by air core using a 90mm diameter bit.
Drill Sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed	Sample recovery was assessed visually and adverse recovery recorded. The samples were generally dry, a very few were wet, and showed little (<10%) variation in volume.
	Measurements taken to maximise sample recovery and ensure representative nature of the samples.	The samples were visually checked for recovery, contamination and water content; the results were recorded on log sheets. Cyclone and buckets were cleaned regularly and thoroughly (between rod changes and/or after completion of each drill hole) to minimise cross contamination.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	The holes were kept dry and there was no significant loss/gain of material introducing a sample bias. At the end of a few holes, where water flow was high, the hole was terminated.

Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All samples were qualitatively logged by a geologist in order to provide a geological framework for the interpretation of the analytical data.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel etc.) photography.	Logging of rock chips was qualitative (lithology, type of mineralisation) and semi-quantitative (visual estimation of sulphide content, quartz veining, alteration etc.).
	The total length and percentage of the relevant intersections logged	All drill holes were logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Not applicable - no core taken.
	If non-core, whether riffles, tube sampled, rotary split, etc. and whether sampled wet or dry.	One-metre samples were collected in bags from a cyclone attached to the drill rig. Composite samples were taken using a sampling scoop.
	For all sample types, quality and appropriateness of the sample preparation technique.	All samples are pulverised to produce a homogenous representative sub-sample for analysis. A grind quality target of 85% passing 75µm is established and is relative to sample size, type and hardness. ***Gold (Au), Silver (Ag), Arsenic (As), Bismuth (Bi) Copper (Cu), Cobalt (Co), Molybdenum (Mo), Nickel (Ni), Lead (Pb), Antimony (Sb), Tellurium (Te), Tungsten (W) and Zinc (Zn)) was analysed by Aqua Regia digest with ICP-MS finish.*** ***Gold levels over 500ppb were repeated by AAS.*** ***Two ore samples were analysed by four acid digest, with ICP- OES finish.***
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Duplicates certified reference materials and blanks are inserted by the laboratory and reported in the final assay report. Check analyses were also undertaken by the laboratory.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	A few duplicate field samples were taken of visual mineralisation.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size is considered appropriate for the purpose of this drilling programme, which is reconnaissance only and primarily aimed at establishing the depth to and type of bedrock beneath cover (which ranged from 2-20m).
	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all 5m composite samples, a 25g aliquot is digested using Aqua Regia. Analysis for gold and a range of other pathfinder elements is by ICP-MS or AAS. The aqua regia digestion is considered partial depending on the host of the elements analyzed, but does provide an acceptable level of accuracy for an initial assessment of the contained target elements.

	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable, no geophysical parameters reported.
Quality of assay data and laboratory tests	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	International standards, blanks and duplicates are inserted by the laboratory.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Cullen staff (Managing Director) has visually inspected the samples and sampling procedures.
	The use of twinned holes	No twinned holes drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physically and electronic) protocols.	All primary geological data are recorded manually on log sheets and transferred into digital format.
	Discuss any adjustment to assay data.	No adjustments are made to assay data as presented.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resources estimation.	All drill collar surveys are by handheld GPS. Several measurements (2-3) at different times are averaged; the estimated error is +/-5 m. RL was measured by GPS during the E4882 programme.
	Specification of the grid system used.	The grid is: UTM grid GDA94, Zone50
	Quality and adequacy of topographic control.	There is currently no topographic control and the RL is by GPS for E4882 (+/-5m).
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The drilling tested geological and geophysical targets, up to a few kilometers apart. Some of the targets were drilled along a traverse with holes spaced 40-100m apart, and up to 800m along strike.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Reserve and Ore Re4serve estimation procedure(s) and classifications applied.	The drilling was reconnaissance and not designed to satisfy requirements for mineral reserve estimations.
	Whether sample compositing has been applied.	The drill spoil generated by the air core drilling was composited into 5m intervals or selected 1m samples were taken.

Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The drilling is reconnaissance only and designed to test geophysical, geochemical and geological targets, to assist in mapping, and to test for mineralisation below transported cover. The drill orientation was generally westerly or easterly (090 - 300 degrees) utilizing existing tracks grids lines where available, and at a dip angle of -60 degrees. At this early stage it is unclear if for the mineralisation encountered whether the sampling is unbiased or not.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The exact dip of the structures targeted has not been established yet but it is likely that the drilled intersections overestimate the true thickness of any intersected mineralisation.
Sample security	The measures taken to ensure sample security.	All samples are handled, transported and delivered to the laboratory by Cullen staff or Cullen contractors. All samples were accounted for.
Audits or reviews	The results of and audits or reviews of sampling techniques and data.	No audits or reviews of sampling techniques and data have been conducted to date.
Section 2 Reporting of exploration results		
Mineral tenements and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interest, historical sites, wilderness or national park and environmental settings.	The drill targets are located on and E70/4882 (90%) owned by Cullen Exploration Pty Ltd (a wholly-owned subsidiary of Cullen Resources Limited). Cullen has completed work to date on existing tracks and along paddock boundaries guided by environmental considerations.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenure is secure and in good standing at the time of writing.
Exploration done by other parties	Acknowledgement and appraisal of exploration by other parties.	There has been previous drilling by Cullen in the general area of tested sites in this programme – appraised by Cullen for drill targeting.
Geology	Deposit type, geological settings and style of mineralisation.	The targeted mineralisation is orogenic, shear-hosted gold mineralisation and volcanic-hosted base metal mineralisation, and/or Boddington type Cu-Au mineralisation.
Drill hole information	A summary of all information material for the understanding of the exploration results including a tabulation of the following information for all Material drill holes:	
	· E*asting and northing of the drill hole collar*	See included tables
	· Elevation or RL (Reduced level-elevation above sea level in metres)and the drill hole collar	

	· *Dip and azimuth of the hole*	
	· *Down hole length and interception depth*	
	· *Hole length*	
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	See included tables
Data aggregation methods	In reporting Exploration results, weighing averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually material and should be stated.	See included tables
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	See included tables
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents used.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Drilling was at -60 degree angles to test geophysical targets and prospective geological settings beneath transported cover. The stratigraphy encountered in drilling is variably dipping to the east or west at a high angle or is near vertical, and any mineralisation intercepts are likely to overstate the true width of mineralisation.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The exact geometry of the mineralisation is not yet known.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known')	See Tables in report
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts would be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See included figures

Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	See included Tables
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations, geophysical survey results, geochemical survey results, bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or containing substances.	See included figures where current reported data shown together with interpretation of previous drill hole information. There are currently no other exploration data that appear meaningful in the context of the reported results.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further work, including air core and RC/diamond drilling, is planned.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, providing this information is not commercially sensitive.	See included figures.

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