

Amur Minerals

Grist to the mill

So far in Q216, Amur has announced two resource upgrades at Maly Kurumkon-Flangovy (MKFL) and Ikenskoe-Sobolevsky (IKEN). The overall effect of this is to increase the mineralised tonnage hosted at Kun-Manie by 32.1% and the measured and indicated component of the resource by 99.8%. In addition, Amur has also distinguished between high-grade and low-grade domains. Significantly, over 74% of the total contained metal (at a 0% cut-off grade) remains at a 0.4% Ni cut-off and more than 97% of that is contained within discrete high-grade lenses. At the time of our December update note, Amur's enterprise value equated to US\$58.67 per tonne of contained nickel (including by-products), on which basis the increase in the resource of 72,400t of contained nickel engendered in these two updates is worth US\$4.4m to the company.

Year end	Revenue (US\$m)	PBT* (US\$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
12/13	0.0	(3.7)	(1.0)	0.0	N/A	N/A
12/14	0.0	(2.5)	(0.6)	0.0	N/A	N/A
12/15e	0.0	1.0	0.1	0.0	81.9	N/A
12/16e	0.0	(1.7)	(0.3)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles and exceptional items.

Within 5% of 1.0Mt of contained nickel equivalent

Relative to the 5,821m of drilling completed during the 2015 field season, the increase in the resource equates to 6,665t of mineralised material and 13.0t of contained nickel per metre drilled. Already one of the top 20 global nickel sulphide resources, at prevailing metals' prices (US\$9,295/t Ni, US\$1,256/oz Au, US\$4,942/t Cu, US\$1,064/oz Pt and US\$628/oz Pd), the total Kun-Manie resource equates to 953.2kt of contained nickel equivalent (NiE) or 7.1Moz of gold equivalent. Amur's upcoming 2016 field season will again be focused on the MKFL deposit. Future drill programmes will be directed towards applying a similar differentiated high-grade/low-grade domain interpretation to the mineralisation at Kubuk and similarly upgrading these resources.

Valuation: 31c/share for low-grade matte plus upside

In our January [Update note](#), we estimated valuations of the concentrate, low-grade matte, high-grade matte and refined metal options for Kun-Manie of 29c, 38c, 29c and 35c, respectively, using a 10% discount rate and at our long-term nickel price of US\$22,355/t (assuming 80:20 debt:equity funding). Updating these valuations to reflect interim funding announcements and a share price of 4.28p (among other things) modifies these estimates to 24c, 31c, 24c and 28c, respectively. Stated alternatively, assuming equity dilution at the current share price, Amur's shares offer investors internal rates of return of 28.8-34.4% in US dollar terms over 18 years. However, this could increase if the resource and mine plan are materially reconfigured to bring high-grade underground production forward. In the meantime, we estimate that Amur's enterprise value equates to US\$31.66 per tonne of contained nickel in the Kun-Manie deposit (vs US\$58.67/t at end FY15).

Resource upgrade

Metals & mining

9 May 2016

Price 4.28p

Market cap £22m

US\$1.4392/£

Net cash (US\$m) at 30 June 2015 8.3

Shares in issue* 514.9m

*Post March equity issue

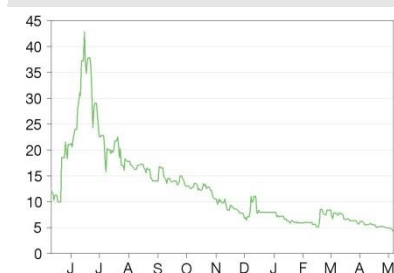
Free float 80%

Code AMC

Primary exchange AIM

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (21.5) (27.8) (67.7)

Rel (local) (20.9) (31.0) (64.0)

52-week high/low 42.8p 4.3p

Business description

Amur Minerals is an exploration and development company focused on base metal projects in Russia's Far East. The company's principal asset is the Kun-Manie nickel sulphide deposit in the Amur Oblast, comprising almost a million tonnes of contained nickel equivalent in at least five deposits.

Next event

Russian feasibility study 2017

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[Edison profile page](#)

Amur Minerals is a research client of Edison Investment Research Limited

Investment summary

Amur completed 5,821.4m of exploration drilling during the 2015 field season, split between a step-out and an in-fill programme. The principal aim of the campaign was to target 27Mt of mineralised material at Flangovy, which was suitable for upgrade from the inferred to the indicated category. It also sought greater understanding of high-grade structures that were included in the existing mine plan at relatively high strip ratios, but that were posited to be also mineable by underground methods. The programme was therefore expected to deliver an increase in in-situ nickel grade in the existing resource as well as an increase in the overall resource size. The cores were analysed at the (independent) Alex Stewart Laboratories and the results then reviewed by Amur and SRK (which conducted the original resource estimates and pre-feasibility study). The company set itself the target of producing an updated resource estimate for MKFL in particular and Kun-Manie in general in Q116 and duly delivered one, reporting the results (which are summarised for MKFL below plus the change compared to the previous resource statement) to the market on 5 April.

Compared to the expectation of upgrading up to 27Mt of inferred resource at Flangovy to the Indicated category, the actual increase was 47Mt, which could be interpreted as all 27Mt of inferred material at Flangovy being upgraded, with the step-out programme then generating an additional 20Mt of resource in the Indicated category plus 18Mt in the inferred category, such that the overall increase in the resource was 38Mt (to the nearest million tonnes – see below, 37.7Mt).

Exhibit 1: Maly Kurumkon-Flangovy resource upgrade (April 2016 vs April 2015)

	Tonnage (Mt)	Grade Ni (%)	Contained Ni (t)	Grade Cu (%)	Contained Cu (t)	Grade Pt (g/t)	Contained Pt (t)	Grade Pd (g/t)	Contained Pd (t)
MKFL (April 2016)									
Measured	0.0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Indicated	68.4	0.42	285,200	0.12	84,200	0.1	6.6	0.1	6.9
Measured & indicated	68.4	0.42	285,200	0.12	84,200	0.1	6.6	0.1	6.9
Inferred	22.2	0.37	81,400	0.12	25,600	0.1	1.9	0.1	2.0
Total	90.6	0.40	366,600	0.16	109,800	0.1	8.5	0.1	8.9
MKFL (April 2015)									
Measured	0.0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Indicated	21.8	0.58	126,100	0.16	34,900	0.1	2.4	0.1	3.0
Measured & indicated	21.8	0.58	126,100	0.16	34,900	0.1	2.4	0.1	3.0
Inferred	31.1	0.54	168,100	0.16	50,200	0.1	3.0	0.1	3.1
Total	52.9	0.56	294,200	0.16	85,100	0.1	5.4	0.1	6.1
Change (units)									
Measured	0.0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Indicated	46.6	-0.16	159,100	-0.04	49,300	0.0	4.2	0.0	3.9
Measured & indicated	46.6	-0.16	159,100	-0.04	49,300	0.0	4.2	0.0	3.9
Inferred	-8.9	-0.17	-86,700	-0.04	-24,600	0.0	-1.1	0.0	-1.1
Total	37.7	-0.16	72,400	-0.04	24,700	0.0	3.1	0.0	2.8
Change (percent)									
Measured	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indicated	213.8	-27.6	126.2	-25.0	141.3	0.0	175.0	0.0	130.0
Measured & indicated	213.8	-28.1	126.2	-23.1	141.3	0.0	175.0	0.0	130.0
Inferred	-28.6	-31.5	-51.6	-25.0	-49.0	0.0	-36.7	0.0	-35.5
Total	71.3	-27.7	24.6	-24.3	29.0	0.0	57.4	0.0	45.9

Source: Amur Minerals, Edison Investment Research

Interpretation

Amur's previous resource statement, dating from April 2015 to include Kubuk, was compiled before the deeper ores and continuous high grade lenses at Kun-Manie in general had been identified. As such, it was calculated within a context of presumed open cast mining and included internal waste and presumed external dilution and was therefore naturally predisposed to overstate tonnages and understate grades.

In the aftermath of the identification and delineation of the continuous high grade lenses however, Amur's interpretation of the resource has now been refined into two distinct mineral domains, denoted the high-grade and the low-grade domain, to reflect two different likely mining methods – underground and open cast. In particular, this interpretation was applied to high grade areas of mineralisation in areas where a high strip ratio was previously required to exploit them. The advantage of such an approach is twofold, it will:

- enhance the subsequent definition of reserves, and
- allow for the development of an optimised production schedule, combining both underground and open cast mining methods simultaneously, such that high grade can be scheduled earlier in the production cycle, thereby enhancing the project's net present value (NPV).

In general, the high-grade domain was defined as comprising a continuous nickel grade of at least 0.5%, while the low-grade domain was defined as comprising a continuous nickel grade of at least 0.1% and was also calculated to include intercalated waste. The result of this enhanced definition is as follows:

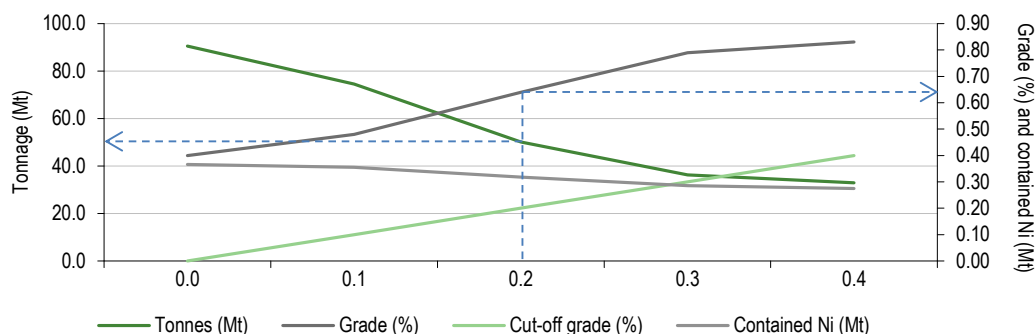
Exhibit 2: Maly Kurumkon-Flangovy resource upgrade, by domain

	Tonnage (Mt)	Grade Ni (%)	Contained Ni (t)	Grade Cu (%)	Contained Cu (t)	Grade Pt (g/t)	Contained Pt (t)	Grade Pd (g/t)	Contained Pd (t)
High grade domain									
Measured	0.0	0	0	0	0	0.0	0.0	0.0	0.0
Indicated	24.9	0.86	214,300	0.23	57,200	0.1	3.7	0.1	3.9
Sub total	24.9	0.86	214,300	0.23	57,200	0.1	3.7	0.2	3.9
Inferred	7.1	0.76	54,400	0.20	14,100	0.1	1.0	0.1	1.0
Total	32.0	0.84	268,700	0.22	71,300	0.1	4.7	0.1	4.9
Low grade domain									
Measured	0.0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Indicated	43.5	0.16	70,800	0.06	27,000	0.1	2.9	0.1	3.0
Sub total	43.5	0.16	70,800	0.06	27,000	0.1	2.9	0.1	3.0
Inferred	15.0	0.18	27,000	0.08	11,500	0.1	0.9	0.1	1.0
Total	58.5	0.17	97,800	0.07	38,500	0.1	3.8	0.1	4.0
Total Measured	0.0	0.00	0	0.00	0	0.0	0.0	0.0	0.0
Total Indicated	68.4	0.42	285,100	0.12	84,200	0.1	6.6	0.1	6.9
Total Measured & Indicated	68.4	0.42	285,100	0.12	84,200	0.1	6.6	0.1	6.9
Total Inferred	22.1	0.37	81,400	0.12	25,600	0.1	1.9	0.1	2.0
Grand Total	90.6	0.40	366,600	0.12	109,800	0.1	8.5	0.1	8.9

Source: Amur Minerals, Edison Investment Research

Note that the outcome of the resource upgrade based on the refined resource model correlates closely to the 0.86% nickel and 0.23% copper that Amur reported had been confirmed by Alex Stewart Laboratories in January and which were themselves approximately 5% higher than the company reported Niton results of 0.81% nickel and 0.22% copper.

Data was also provided at increasing cut-off grades to allow the construction of a basic grade-tonnage diagram:

Exhibit 3: MKFL grade-tonnage diagram


Source: Amur Minerals, Edison Investment Research

Of note is the fact that the tonnage of 50.2Mt at 0.64% nickel at a 0.2% nickel cut-off (highlighted in Exhibit 3) is approximately equivalent to the total tonnage of the previous resource, of 52.9Mt at a 0.56% nickel grade, at a 0% cut-off.

Management notes that the low-grade domain typically lies adjacent to and often surrounds the high grade domain. Nevertheless, it is notable that 74.9% of the total contained metal at a 0% cut-off grade remains at a 0.4% Ni cut-off (274.7kt out of 366.6kt). This is significant, since 0.4% is the average grade of the resource (see Exhibits 1 and 2) – thus indicating the existence of distinct high grade zones within the mineralisation, rather than the high grade being merely a statistical outlier within the broader deposit. Note that this may also be inferred from the flattening of the tonnage curve in particular at a relatively high level in Exhibit 3. In fact, management estimates that 268.7kt of nickel (at a 0% cut-off) are contained within high grade lenses out of a total quantity of high grade nickel of 274.7kt (at a 0.4% cut-off). Stated alternatively, discrete high grade lenses account for 97.8% of the high grade mineralisation, with only 6kt of contained nickel occurring in the form of statistical high grade outliers within the more generalised mineralised continuum.

Ikenskoe-Sobolevsky

On 3 May, Amur announced the results of the process to similarly upgrade and refine the resource at Ikenskoe-Sobolevsky. The results are summarised below:

Exhibit 4: Ikenskoe-Sobolevsky (IKEN) resource upgrade (May 2016 vs July 2013)

	Tonnage (Mt)	Grade Ni (%)	Contained Ni (t)	Grade Cu (%)	Contained Cu (t)	Grade Pt (g/t)	Contained Pt (t)	Grade Pd (g/t)	Contained Pd (t)
IKEN (April 2016)									
Measured	17.5	0.5	88,600	0.1	24,200	0.2	3.2	0.2	3.4
Indicated	11.8	0.4	46,000	0.1	11,400	0.1	1.6	0.2	1.9
Measured & indicated	29.4	0.5	134,700	0.1	35,600	0.2	4.9	0.2	5.5
Inferred	5.9	0.8	46,100	0.2	11,400	0.2	1.1	0.2	1.2
Total	35.3	0.5	180,800	0.1	47,100	0.2	5.9	0.2	6.7
IKEN (July 2013)									
Measured	14.9	0.52	77,100	0.13	19,700	0.2	2.7	0.2	3.0
Indicated	7.7	0.39	29,800	0.10	7,800	0.1	1.1	0.2	1.3
Measured & indicated	22.6	0.47	106,900	0.12	27,500	0.2	3.8	0.2	4.3
Inferred	11.5	0.62	70,800	0.14	16,300	0.2	2.3	0.2	2.5
Total	34.1	0.52	177,700	0.13	43,800	0.2	6.1	0.2	6.8
Change (units)									
Measured	2.6	-0.01	11,500	0.01	4,500	0.0	0.5	0.0	0.4
Indicated	4.1	0.00	16,200	0.00	3,600	0.0	0.5	0.0	0.6
Measured & indicated	6.8	-0.01	27,900	0.00	8,100	0.0	1.1	0.0	1.2
Inferred	-5.6	0.16	-24,700	0.05	-4,900	0.0	-1.2	0.0	-1.3
Total	1.2	-0.01	3,100	0.00	3,300	0.0	-0.2	0.0	-0.1
Change (percent)									
Measured	17.4	-2.6	14.9	6.4	22.8	-9.5	17.4	-2.6	13.6
Indicated	53.2	0.0	54.4	-3.4	46.2	38.8	48.9	-17.8	49.3
Measured & indicated	30.1	-2.5	26.0	0.9	29.5	-16.5	29.1	-2.6	26.7
Inferred	-48.7	26.0	-34.9	38.0	-30.1	-5.4	-51.5	-2.5	-54.0
Total	3.5	-1.5	1.7	2.6	7.5	-16.1	-2.9	-4.8	-1.5

Source: Amur Minerals, Edison Investment Research

As with MKFL, the high-grade domain was defined as comprising a continuous nickel grade of at least 0.5%, while the low grade domain was defined as comprising a continuous nickel grade of at least 0.2% (vs 0.1% at MKFL) and was also calculated to include intercalated waste. The result of this enhanced definition is as follows:

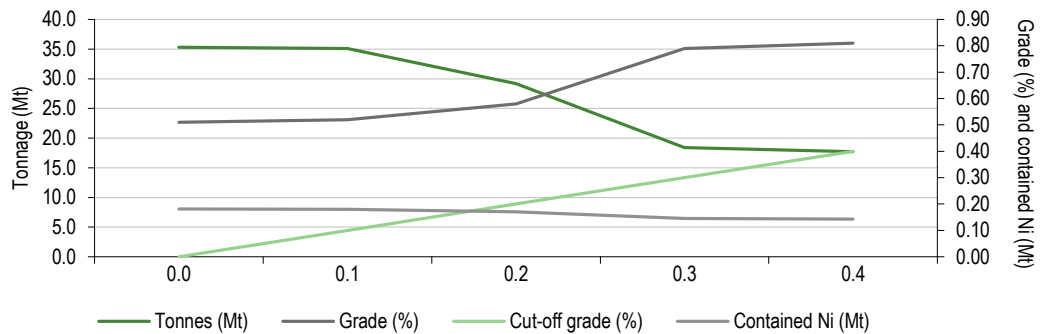
Exhibit 5: Ikenskoe-Sobolevsky resource upgrade, by domain

	Tonnage (Mt)	Grade Ni (%)	Contained Ni (t)	Grade Cu (%)	Contained Cu (t)	Grade Pt (g/t)	Contained Pt (t)	Grade Pd (g/t)	Contained Pd (t)
High grade domain									
Measured	8.8	0.79	69,600	0.2	17,500	0.2	2.2	0.3	2.5
Indicated	3.7	0.77	28,900	0.15	5,600	0.2	0.7	0.2	0.9
Sub total	12.5	0.79	98,500	0.18	23,100	0.2	2.9	0.3	3.3
Inferred	4.4	0.92	40,600	0.22	9,800	0.2	0.9	0.2	1.0
Total	17.0	0.82	139,100	0.19	32,900	0.2	3.8		4.3
Low grade domain									
Measured	8.7	0.22	19,000	0.08	6,700	0.1	1.0	0.1	1.0
Indicated	8.1	0.21	17,100	0.07	5,800	0.1	1.0	0.1	1.1
Sub total	16.8	0.21	36,100	0.07	12,500	0.1	1.9	0.1	2.0
Inferred	1.5	0.36	5,500	0.1	1,600	0.1	0.2	0.1	0.2
Total	18.3	0.23	41,600	0.08	14,100	0.1	2.1	0.1	2.2
Total Measured	17.5	0.51	88,600	0.14	24,200	0.2	3.2	0.2	3.4
Total Indicated	11.8	0.39	46,000	0.10	11,400	0.1	1.6	0.2	1.9
Total Measured & indicated	29.4	0.46	134,700	0.12	35,600	0.2	4.9	0.2	5.5
Total Inferred	5.9	0.78	46,100	0.19	11,400	0.2	1.1	0.2	1.2
Grand Total	35.3	0.51	180,800	0.13	47,100	0.2	5.9	0.2	6.7

Source: Amur Minerals, Edison Investment Research

Again, data was provided at increasing cut-off grades to allow the construction of a basic grade-tonnage diagram:

Exhibit 6: Ikenskoe-Sobolevsky grade-tonnage diagram



Source: Amur Minerals, Edison Investment Research

Of note is that 78.9% (vs 74.9% at MKFL) of the total contained metal at a 0% cut-off grade remains at a 0.4% Ni cut-off (142.6kt out of 180.8kt) – again suggesting the existence of distinct high-grade zones. Similarly, management estimates that 139.1kt of nickel (at a 0% cut-off) are contained within high-grade lenses out of a total quantity of high grade nickel of 142.6kt (at a 0.4% cut-off) – ie discrete high grade lenses account for 97.5% of the high-grade mineralisation (vs 97.8% for MKFL), with only 3.5kt of contained nickel occurring in the form of statistical high grade outliers to the broader mineralisation.

Effect on Kun-Manie

The effect of the MKFL and Ikenskoe-Sobolevsky resource upgrades on the Kun-Manie project as a whole is to increase the mineralised tonnage by 32.1% and contained nickel by 11.6% (see Exhibit 7, overleaf) and the measured and indicated component of the resource by 99.8%, albeit mostly as a result of the more significant MKFL upgrade (in both absolute and percentage terms).

Exhibit 7: Kun-Manie resource upgrade (May 2016 vs April 2015)

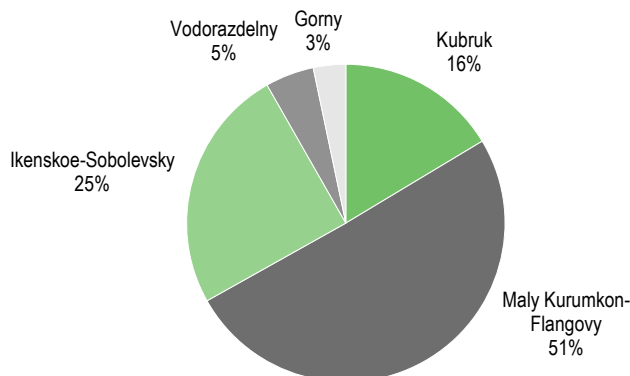
	Tonnage (Mt)	Grade Ni (%)	Contained Ni (t)	Grade Cu (%)	Contained Cu (t)	Grade Pt (g/t)	Contained Pt (t)	Grade Pd (g/t)	Contained Pd (t)
Kun-Manie (May 2016)									
Measured	18.3	0.51	93,300	0.14	25,600	0.2	3.4	0.2	3.6
Indicated	88.5	0.44	385,800	0.12	109,900	0.1	9.3	0.1	9.8
Measured & indicated	106.9	0.45	479,200	0.13	135,500	0.1	12.8	0.1	13.6
Inferred	52.8	0.47	246,900	0.13	70,800	0.1	7.2	0.1	7.1
Total	159.6	0.45	726,000	0.13	206,400	0.1	19.8	0.1	20.5
Kun-Manie (April 2015)									
Measured	15.7	0.52	81,800	0.13	21,100	0.2	2.9	0.2	3.2
Indicated	37.8	0.56	210,500	0.15	57,000	0.1	4.6	0.1	5.3
Measured & indicated	53.5	0.55	292,300	0.15	78,100	0.1	7.5	0.2	8.5
Inferred	67.3	0.53	358,300	0.15	100,300	0.1	9.4	0.1	9.5
Total	120.8	0.54	650,600	0.15	178,400	0.1	16.9	0.1	18.0
Change (units)									
Measured	2.6	-0.01	11,500	0.01	4,500	0.0	0.5	0.0	0.4
Indicated	50.7	-0.12	175,300	-0.03	52,900	0.0	4.7	0.0	4.5
Measured & indicated	53.4	-0.10	186,900	-0.02	57,400	0.0	5.3	0.0	5.1
Inferred	-14.5	-0.06	-111,400	-0.01	-29,500	0.0	-2.3	0.0	-2.4
Total	38.8	-0.08	75,400	-0.02	28,000	0.0	2.9	0.0	2.5
Change (percent)									
Measured	16.6	-2.1	14.1	4.1	21.3	-0.3	16.2	-3.2	12.8
Indicated	134.1	-21.7	83.3	-17.6	92.8	-12.9	103.9	-20.7	85.7
Measured & indicated	99.8	-18.0	63.9	-13.2	73.5	-14.4	71.1	-20.2	59.4
Inferred	-21.5	-12.2	-31.1	-10.0	-29.4	-3.4	-24.2	-5.4	-25.8
Total	32.1	-15.5	11.6	-12.4	15.7	-11.2	17.3	-13.8	13.9

Source: Amur Minerals, Edison Investment Research

For the amount of drilling done, the increase in the resource equates to 6,665t of mineralised material and 13.0t of contained nickel per metre drilled, on average.

At the prevailing prices of the contained metals in question (namely US\$9,295/t Ni, US\$1,256/oz Au, US\$4,942/t Cu, US\$1,064/oz Pt and US\$628/oz Pd), the total Kun-Manie resource equates to 953.2kt of contained nickel equivalent (NiE) or 7.1Moz of gold equivalent (AuE). Note that the figure of 7.1m gold equivalent ounces would have been 7.8Moz AuE if we used the same metals' prices as in our December 2015 note (in which we calculated a gold equivalent resource of 6.9Moz at the time).

In the aftermath of the resource upgrade, MKFL now accounts for 51% of the total resource at Kun-Manie, compared with 45% beforehand, while Ikenskoe-Sobolevsky has declined from 27% to 25% of the total, on account of the proportionately larger MKFL increase.

Exhibit 8: Kun-Manie resource by deposit (% based on contained nickel)


Source: Amur Minerals, Edison Investment Research

At the time of our December update note, Amur's enterprise value equated to US\$58.67 per tonne of contained nickel (including by-products), on which basis the increase in the resource of 72,400t of contained nickel should be worth US\$4.4m to the company (compared with a US\$3.3m cost of the exploration associated with defining the additional resource).

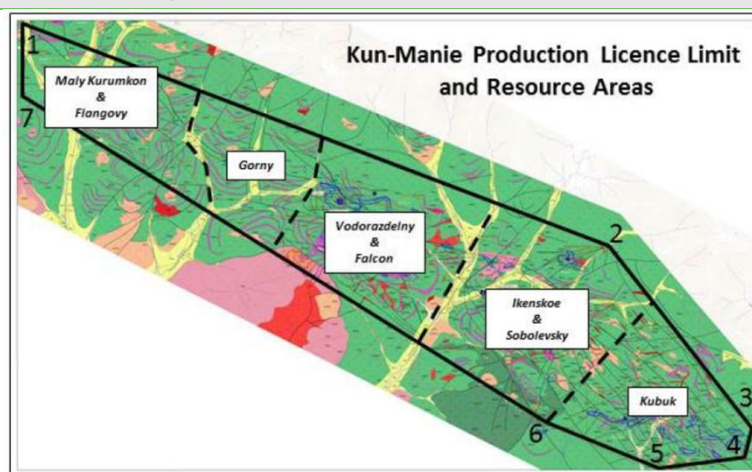
Next steps

In the context of the broader mineralisation at Kun-Manie, the 2015 exploration drilling at Flangovy in particular could be interpreted as being indicative of a single, continuous corridor of mineralisation, approximately 2.5km long, 20-30m thick and at an in-situ grade from 0.7-0.9% nickel, running from Maly Kurumkon through Flangovy to Gorny. It is also possible that there is another similar such corridor from Ikenskoe-Sobolevsky to Kubuk. Amur's upcoming 2016 field season will again be focused on the MKFL deposit, at which two categories of work will be pursued, including resource-related drilling and metallurgical sample collection.

Thereafter, now that the inferred resource at MKFL has been upgraded to indicated status, the largest remaining resource in the inferred category is at Kubuk, where up to 17.1Mt of material is targeted for upgrade to indicated status. Future drill programmes will be directed towards applying a similar differentiated high-grade/low-grade domain interpretation to the mineralisation at Kubuk and will focus on similarly upgrading these resources via an estimated 7-8km in-fill drill programme. To this end, drill sites have been identified and variously prepared at Sobolevsky with a view to determining the continuity of a 20m thick, >1% nickel outcrop in the direction Kubuk (see below). Note that Vodorazdelny is not a candidate to be remodelled since it is intended to be mined by open cast methods alone and Gorny is similarly not a candidate owing to the fact that its grade is too low.

In addition to the in-fill programme at Kubuk, there is potential for a step-out programme to the east and down-dip below 400m. Together with its existing LF-70, Amur's recent purchase of a Boart Longyear LF-90 drill rig will double the number of metres that it can drill in a season to c 15,000m. This represents a 40% increase in the total metres drilled since the acquisition of Amur's original exploration licence in 2004. Pro-rata to its most recent upgrade, a drill programme of 15,000m in the 2016 field programme could be expected to yield a 100.0Mt increase in mineralised tonnage, containing 194,283t of contained nickel. Simultaneously, two new D9R Caterpillar bulldozers (effectively representing a seed capital fleet) have been mobilised to set up ready access along the full length of the Kurumkon trend in preparation for pre-production development.

Exhibit 9: The five currently defined exploration areas at Kun-Manie



Source: Amur Minerals

SRK is using Leapfrog technology to build a high-grade model at Kubuk, which will allow the definition of simulated mining units (SMUs) to an accuracy of 5mx5m and ultimately allow Amur to generate a mining schedule and model for the deposit.

In the meantime, metallurgical recovery results from samples of ore from MKFL are reported to be nearing completion and will be used to define reserves in due course, while samples from Kubuk have been assayed for metallurgical recoveries (note, having previously been assayed for grindability and crushing energy requirements). Since the samples are deemed to be high-grade (>1%) nickel, they are required by the Russian authorities to be assayed twice.

Once the required exploration has been completed, Amur will announce an upgraded JORC-compliant resource to the market. It will then set about optimising its projected production schedule (including a JORC reserve), which is now likely to involve advancing the mining of high grade, underground ore in its mine plan and could thereby materially affect the economics of the project and the most efficient approach to its exploitation.

Timetable and milestones

From the perspective of Russia's legal framework, Amur is operating under the auspices of a temporary TEO (note, a Russian TEO equates to a western feasibility study) – the 'temporary' nature of the TEO allows Amur to conclude its exploration activities. The key piece of work to upgrade the status of its TEO from 'temporary' to 'permanent' is a bulk sample, which Amur is prioritising for 2016 and to which end it has stated that it is prepared to fly it out from site by helicopter if necessary (note, a 20t bulk sample would require approximately eight helicopter flights to transport). As a result, it believes it will be possible to produce a full feasibility study to Russian standards in 15-21 months (ie in H217).

The Far East and Baikal Region Development Fund

In March, Amur announced the signing of a non-binding Heads of Terms Agreement with the Russian government's Far East and Baikal Region Development Fund. In broad terms, the agreement expresses the intention of the fund and the company to expand their collaboration on funding Kun-Manie and provides a starting point for detailed negotiations establishing technical feasibility requirements, funding needs, terms and conditions and timelines.

In particular, in conjunction with the existing mandate for fundraising from potential strategic partners in Russia, China, and India (which continues to be the cornerstone of Amur's strategy), the agreement expands the funding scope to include the prospect of federal financing of overall mine, plant and smelter development, as well as potential state funding of infrastructure.

The fund typically participates in infrastructure, such as the required 320km road from the Baikal Amur railhead at Verkhnezeisk to the Kun-Manie site and the extension of an existing power line to the location of the planned smelting facilities (located close to the rail spur from the BAM line to the Elga coal project in Yakutia). If implemented, the concurrent development of road and smelter facilities could result in the development of a new industrial hub in Amur Oblast, in which Amur Minerals would play in central role.

Development

Once the full feasibility study is completed and the project is financed, Amur envisages a two-year construction period in CY18 and CY19 before first production of nickel in CY20. According to a Russian TEO, development could, in turn, lend the project naturally to Russian project finance, in which case management has suggested that an 80:20 debt:equity financing structure could be achievable. However, it is understood that Amur is also investigating the potential to access funding via a streaming arrangement relating to its by-products, in particular. Note that streaming is associated with less risk than debt (and is not considered as debt by lending banks), as it has neither a fixed repayment schedule nor associated debt-service covenants.

In the meantime, management continues to work on improving the operational blueprint published in June 2015 (and which built on the earlier, conceptual open-pit study). Currently, it envisages that Ikenskoe-Sobolevsky would support an open-pit mining operation, that Kubuk would support an open-pit and underground mining operation and that Maly-Kurumkon would support an open-pit mining operation, but that this would transition into underground mining at Flangovy. In addition, it believes that it has identified a potential c US\$150m in capex savings, which could then be used to invest in a flash smelter (vs the electric furnace smelter and converter smelter configuration currently envisaged).

Valuation

In our [Update note](#) of January 2016, we estimated valuations of the concentrate, low-grade matte, high-grade matte and refined metal options for Kun-Manie of 29c, 38c, 29c and 35c, respectively, using a 10% discount rate and at our long-term nickel price of US\$22,355/t (assuming 80:20 debt:equity funding). Updating these valuations to reflect interim funding announcements, a share price of 4.28p and the passage of another year, modifies these estimates to 24c, 31c, 24c and 28c, respectively, as shown below:

Exhibit 10: AMC equity valuations by development scenario and discount rate								
US cents per share (post-dilution)	0%	5%	10% (base case)	15%	20%	25%	30%	IRR (%)
Toll smelting – US\$122m in equity fund-raising required								
	67	39	24	15	10	7	5	31.1
Low-grade matte – US\$157m in equity fund-raising required								
	90	51	31	20	13	9	6	34.4
High-grade matte – US\$202m in equity fund-raising required								
	72	40	24	15	10	6	4	28.8
Refinery – US\$283m in equity fund-raising required								
	83	47	28	18	12	8	5	32.1

Source: Edison Investment Research. Note: Assuming 80% maximum financial leverage. Excludes warrant funding.

Once again, the low-grade matte option prevails as the most efficient deployment of capital, although investors should note that this could change if the resource and mine plan are materially reconfigured as a result of the advancement of high grade production from underground, in particular.

Financials

Amur had a net cash position of US\$8.3m at 30 June 2015 and reported that it had US\$6.0m at 1 December, implying a cash burn rate of US\$0.46m per month or US\$2.76m (pro-rata) for H215 (cf cash burn rates of US\$3.9m in FY13, US\$1.7m in H114, US\$2.7m in FY14 and US\$2.7m in H115).

Since 1 December, the company has raised £5.0 gross (an estimated US\$6.9m net) from two tranches of equity issuance relating to the Crede Capital agreement (see our note dated 25 January). On 17 March, Amur reported that it had US\$7.4m in cash on its balance sheet as at 1 March 2016, implying US\$5.5m of cash consumption in the three months from 1 December to 1 March – equivalent to US\$1.8m per month. However, this is also likely to include capital expenditure of US\$2.48m in respect of the Boart Longyear LF-90 diamond core drill rig, two new Caterpillar D9R bulldozers and 329D excavator that Amur announced that it had purchased on 27 November. Excluding these, the cash burn rate is calculated to have been in the order of US\$1.0m per month.

In the wake of the Crede announcement, we forecast that Amur will have had a net cash position of US\$9.1m at 31 December 2015 and will have one of US\$18.1m at 31 December 2016, after an additional £7.5m (estimated US\$10.1m net) in Crede funding for the remainder of FY16.

Exhibit 11: Financial summary

	US\$'000s	2010	2011	2012	2013	2014	2015e	2016e
Year end 31 December		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS								
Revenue		0	0	0	0	0	0	0
Cost of Sales		0	0	0	0	0	0	0
Gross Profit		0	0	0	0	0	0	0
EBITDA		(1,928)	(2,892)	(1,750)	(2,539)	(2,358)	(2,148)	(2,148)
Operating Profit (before GW and except.)		(1,928)	(2,892)	(1,750)	(2,539)	(2,358)	(1,869)	(1,869)
Intangible Amortisation		0	0	0	0	0	0	0
Exceptionals		(328)	(1,505)	(435)	(151)	1,158	1,672	0
Other		0	0	0	0	0	0	0
Operating Profit		(2,256)	(4,397)	(2,185)	(2,690)	(1,200)	(197)	(1,869)
Net Interest		0	(211)	(1,813)	(1,141)	(161)	2,838	136
Other		0	0	0	0	0	0	0
Profit Before Tax (norm)		(1,928)	(3,103)	(3,563)	(3,680)	(2,519)	969	(1,733)
Profit Before Tax (FRS 3)		(2,256)	(4,608)	(3,998)	(3,831)	(1,361)	2,641	(1,733)
Tax		0	0	0	0	0	(634)	0
Profit After Tax (norm)		(1,928)	(3,103)	(3,563)	(3,680)	(2,519)	335	(1,733)
Profit After Tax (FRS 3)		(2,256)	(4,608)	(3,998)	(3,831)	(1,361)	2,007	(1,733)
Average Number of Shares Outstanding (m)		193.9	271.8	345.1	387.2	431.2	445.7	569.7
EPS - normalised (c)		(1.0)	(1.1)	(1.0)	(1.0)	(0.6)	0.1	(0.3)
EPS - FRS 3 (c)		(1.2)	(1.7)	(1.2)	(1.0)	(0.3)	0.5	(0.3)
Dividend per share (c)		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
EBITDA Margin (%)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Operating Margin (before GW and except.) (%)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
BALANCE SHEET								
Fixed Assets		14,151	13,903	17,928	18,955	12,035	17,372	20,651
Intangible Assets		13,685	13,503	17,084	18,318	11,783	14,053	17,053
Tangible Assets		466	400	844	637	252	3,319	3,598
Other receivables		0	0	0	0	0	0	0
Current Assets		7,215	7,386	8,389	11,074	9,090	9,658	18,738
Stocks		167	165	224	269	237	512	512
Trade Debtors		0	0	0	0	0	0	0
Cash		3,066	4,436	2,048	2,392	1,389	9,063	18,143
Other receivables/other		3,982	2,785	6,117	8,413	7,464	83	83
Current Liabilities		(109)	(102)	(119)	(123)	(407)	(165)	(165)
Creditors		(109)	(102)	(119)	(123)	(407)	(165)	(165)
Short term borrowings		0	0	0	0	0	0	0
Long Term Liabilities		0	0	0	0	0	0	0
Long term borrowings		0	0	0	0	0	0	0
Other long term liabilities		0	0	0	0	0	0	0
Net Assets		21,257	21,187	26,198	29,906	20,718	26,865	39,224
CASH FLOW								
Operating Cash Flow		(1,201)	(2,761)	(1,071)	(1,556)	(1,960)	(2,665)	(2,148)
Net Interest		0	0	0	0	0	2,838	136
Tax		0	0	0	0	0	(634)	0
Capex		(492)	(20)	(3,482)	(2,315)	(748)	(5,058)	(3,000)
Acquisitions/disposals		363	0	0	0	0	0	0
Financing		3,527	4,344	2,165	4,242	1,841	13,046	14,092
Dividends		0	0	0	0	0	0	0
Net Cash Flow		2,197	1,563	(2,388)	371	(867)	7,528	9,080
Opening net debt/(cash)		(997)	(3,066)	(4,436)	(2,048)	(2,392)	(1,389)	(9,063)
HP finance leases initiated		0	0	0	0	0	0	0
Other		(128)	(193)	0	(27)	(136)	146	0
Closing net debt/(cash)		(3,066)	(4,436)	(2,048)	(2,392)	(1,389)	(9,063)	(18,143)

Source: Company sources, Edison Investment Research

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