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POLYMET MINING (PLM \$4.02, rated Overweight) COVERAGE INITIATED AT OVERWEIGHT OWING TO 2009 STARTUP OF ROUGHLY 800 MILLION METRIC TONNE NICKEL-COPPER-COBALT-PRECIOUS METALS DEPOSIT IN MN

Earnings per share	2007E \$(0.03)	2008E \$(0.04)	2009E \$0.16	2010E \$(0.07)	\$2011 \$0.03
Earnings per share	2012E \$0.10	2013E \$0.21	2014E \$0.44	2015E \$0.47	2016E \$0.51
Earnings per share	2017E \$0.54	2018E \$0.58	2019E \$0.62		

We have initiated research coverage of Polymet Mining(PLM \$4.02) with an Overweight investment rating and \$6 price target based on the promising nickel-copper-cobalt-platinum-palladium-gold “Northmet” open pit deposit it controls in northeastern Minnesota. Polymet should enjoy initial 2009 revenues from commercial production helped with a 100,000 ton per day mill given to it by 7% shareholder Cleveland-Cliffs.

We have estimated Polymet operates 16,000 tons per day in 2009, ramps closer to 32,000 tons per day operating initial autoclaves in 2010 and doubles to 64,000 tons per day in 2013. We have estimated Polymet sells recovered synthetic gypsum from its scrubbers. We have not estimated full operation of its mill nor production of iron ore, though nearby resources exist, from the unspoken for 36,000 ton per day remainder of its mill.

Polymet possesses a “first mover” advantage on the mammoth 3.1 billion tonne plus “Duluth Complex” owing to its possession of a surface deposit and nearby 100,000 ton per day mill able to bring it into production perhaps three years faster than any neighbor. Acquisition of any of the three publicly traded neighbors or ten already defined deposits outside of publicly traded ownership could enhance PLM’s asset base.

Polymet appears to control about 15% of the nickel-copper and 30% of the precious metals in the 3.1 billion tonne-plus “Duluth Complex” series of deposits. PLM owns about 0.7 billion pounds of payable nickel, 3.3 billion pounds of copper and over five million payable ounces of combined platinum, palladium and gold. About one-half to two-thirds of the “in situ” minerals are recoverable and payable.

The invention of autoclave pressure leaching, economic recoverability of platinum group metals and higher relative platinum group metals contribute to economic viability in this century after historic exploration in the 1960s and 1970s failed. The control of the 100,000 ton per day mill jump started PLM about 3 years ahead of neighboring companies. Of course, higher prices help.

We estimate commercial production begins around 2009, and that a 100% “second phase” expansion occurs in the 2013. We have estimated inefficient 2010-12 output as autoclave pressure leach vessels begin, and a “permanent situation” in which outside custom refineries take 25% of the nickel, cobalt and precious metals in consideration of refining the nickel concentrate. Polymet will refine its own copper cathode. Upside opportunities exists should PLM immediately operate its autoclaves smoothly or if PLM or partners or neighbors build a nickel refinery in northeastern MN.

Cash operating breakeven points may be near \$7 nickel, \$1.50 copper and \$1,000 platinum, \$300 palladium and \$600 gold after doubling in 2013. We estimate revenues are 38% nickel, 39% copper, 2% cobalt, 9% synthetic gypsum and 13% combined precious metals.

#### DULUTH COMPLEX APPEARS WORTH \$4 TO \$9 BILLION BASED ON PUBLIC DISCLOSURES OF THESE FOUR COMPANIES

Our simple evaluation of the four publicly traded companies suggests a district valuation of \$4 billion valuing nickel at \$1.00 and copper at \$0.10 per recoverable pound and deducting needed development investment. The value increases to \$9 billion if the recoverable resource values increase to \$1.75 and \$0.175 per pound, respectively..

We set a price target of \$10 per share or almost a quadruple for Duluth Metals based on such parameters without paying any premium for continuing exploration. We estimated its “East Zone” contains 150 mmt of resources similar to the “West Zone.”

We set a price target of \$6 for Polymet, which is three years ahead of the other companies. It possesses a 100,000 ton per day mill, an almost completed environmental impact statement and a much lower capital requirement. It is at least three years ahead of the others.

Insufficient data is available to evaluate Franconia Minerals.

TeckCominco’s largest Mesaba deposit enjoyed little work in the past several years. TeckCominco appeared demoralized when Polymet outbid it to win the former Erie Mining mill and infrastructure from Cleveland-Cliffs, which now owns 7% of Polymet.

EARLIER STUDY IN 2002 BY MINNESOTA GEOLOGICAL SURVEY AND UNIV. OF MINNESOTA ESTIMATED A LARGER REGIONAL RESOURCE THAN OUR ESTIMATE

In 2002 the Minnesota Geological Survey and University of Minnesota (Miller, et al. republished by Duluth Metals) estimated a 4.4 billion metric tonne resource among the 13 known deposits averaging 0.66% copper and 0.20% nickel using a cut-off grade of 0.50% copper-equivalent.

This study five years ago did not have the benefit of much recent drilling on the properties of Duluth Metals, Franconia Mineral, or Polymet. Its definition of “resources” did not conform either to US SEC or Canadian NI43-101 standards.

It did evaluate some of the ten deposits outside of the control of the four public companies currently active in the Duluth Complex and discussed in this report. Its analysis suggests that up to 2 billion tonnes of material may exist outside of the control of the four companies with 3.1 billion tonnes of resources discussed in our report.

**TABLE 1: SURFACE EXPLORATION "INITIAL STAGE" DEFINES DULUTH COMPLEX AS #3 NICKEL WORLDWIDE**

	Resource mmt	ni % mm lbs	cu % mm lbs	co % mm lbs	pt g/t 000 oz	pd g/t 000 oz	au g/t 000 oz
<b>Duluth Metals</b>							
West Zone (Nakomis) Measured and Ind.	346.8	0.204	0.617	0.011	0.138	0.31	0.076
West Zone (Nakomis) Inferred	108.0	0.18	0.645	0.009	0.187	0.413	0.098
East Zone (< 10 holes) our estimate	<u>150.0</u>	<u>0.19</u>	<u>0.62</u>	<u>0.01</u>	<u>0.1</u>	<u>0.2</u>	<u>0.1</u>
In Situ Metal	604.8	2,616.6	8,303.4	138.6	2,670.6	5,855.7	1,670.1
Mineability %		75%	75%	75%	75%	75%	75%
Recovery Rate %		72%	95%	40%	84%	85%	61%
<b>PAYABLE METAL</b>		<b>1,409.04</b>	<b>5,909.93</b>	<b>41.58</b>	<b>1,680.45</b>	<b>3,750.57</b>	<b>767.84</b>
<b>Franconia Minerals</b>							
Birch Lake Inferred Resource	100.4	0.19	0.59	0.01	0.32	0.65	0.14
Maturi Inferred Resource	83.1	0.26	0.7	0.02	0.1	0.26	0.05
Spruce Road almost inferred	<u>236.0</u>	<u>0.15</u>	<u>0.5</u>	<u>0.01</u>	<u>0</u>	<u>0</u>	<u>0</u>
In Situ Metal	419.5	1,677.3	5,189.8	110.8	1,300.3	2,793.1	585.6
Mineability %		75%	75%	75%	75%	75%	75%
Recovery Rate %		70%	90%	40%	70%	70%	40%
<b>PAYABLE METAL</b>		<b>880.59</b>	<b>3,503.12</b>	<b>33.24</b>	<b>682.64</b>	<b>1,466.39</b>	<b>175.67</b>
<b>TeckCominco Mesaba(aka Babbitt)</b>							
Open Pit	861	0.11	0.43	<u>0.01</u>	<u>0</u>	<u>0</u>	<u>0</u>
Underground inferred	400	0.19	0.82	<u>0.02</u>	<u>0</u>	<u>0</u>	<u>0</u>
In Situ Metal		3,763.5	15,393.3	366.2	-	-	-
Mineability %		75%	75%	75%	75%	75%	75%
Recovery Rate %		70%	90%	40%	70%	70%	40%
<b>PAYABLE METAL</b>		<b>1,975.84</b>	<b>10,390.49</b>	<b>109.86</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Polymet</b>							
Proven and probable	249.2	0.08	0.28	0.008	0.07	0.237	0.03
Measured and Indicated	329.5	0.077	0.26	0.007	0.07	0.232	0.03
Inferred	228.3	0.079	0.275	0.006	0.08	0.265	0.04
In Situ Metal		1,396.4	4,810.8	125.0	1,889.7	6,301.9	851.8
Mineability %		75%	75%	75%	75%	75%	75%
Recovery Rate %		70%	92%	41%	73%	75%	67%
<b>PAYABLE METAL</b>		<b>733.10</b>	<b>3,330.25</b>	<b>38.15</b>	<b>1,030.34</b>	<b>3,554.27</b>	<b>428.03</b>
		ni mm lbs	cu mm lbs	co mm lbs	pt 000 oz	pd 000 oz	au 000 oz
<b>Four majors In Situ Total (ex-10 smaller)</b>	<b>3,092</b>	<b>9,454</b>	<b>33,697</b>	<b>741</b>	<b>5,860</b>	<b>14,951</b>	<b>3,107</b>
<b>Four Majors Payable Metal Total</b>		<b>4,999</b>	<b>23,134</b>	<b>223</b>	<b>3,393</b>	<b>8,771</b>	<b>1,372</b>

Source: Company Reports; John Tumazos Very Independent Research, LLC Estimates. Underlined italics denote that our estimate has been made prior to a company's measurement of its own mineral. TeckCominco and Franconia Minerals' Spruce Road have minor precious metals that neither have calculated nor measured. This is not a "true global resource" as about 10 known deposits exist outside of the control of these four major public companies.

**Table 2: Duluth District Valuation Comparisons Base Case**

	Duluth Metals	Franconia Minerals	Polymet	TeckCominco
Ni Value @ \$1.00 per payable lb	1,409	881	733	1,976
Cu Value @ \$0.10 per payable lb	591	350	333	1,039
Add Net Cash	22	20	35	-
Deduct Capital Spending	(616)	(616)	(400)	(1,000)
Deduct Environmental Risk Spruce Road Open Pit		(739)		
Subtotal Deposit Value	1,406	(104)	701	2,015
Stock Price	2.75	2	4	
Shares Outstanding F.D.	95.6	66.4	158.8	
Market Capitalization	262.9	132.8	635.2	NM
<b>Mkt Cap Divided by Duluth Complex assets</b>	<b>19%</b>	<b>-128%</b>	<b>91%</b>	<b>NM</b>

**Table 3: Duluth District Valuation Comparisons PRICE AND RESOURCE SIZE UPSIDE Case**

Ni Value @ \$1.75 per payable lb	2,466	1,541	1,283	3,458
Cu Value @ \$0.175 per payable lb	1,034	613	583	1,818
Add Net Cash	22	20	35	-
Deduct Capital Spending	(616)	(616)	(400)	(1,000)
Deduct Environmental Risk Spruce Road Open Pit		(1,292)		
Subtotal Deposit Value	2,906	266	1,501	4,276
Stock Price	2.75	2	4	
Shares Outstanding F.D.	95.6	66.4	158.8	
Market Capitalization	262.9	132.8	635.2	NM
<b>Mkt Cap Divided by Duluth Complex assets</b>	<b>9%</b>	<b>50%</b>	<b>42%</b>	<b>NM</b>

Source: John Tumazos Very Independent Research, LLC Estimates

## GREAT SIMILARITY TO SUDBURY, ONTARIO SULPHIDE MINERALS AND GEOCHEMISTRY, THOUGH NO “METEORITIC THEORY” OF GENESIS HERE

We are attracted to the similar mineralogy of ores in northeastern Minnesota to Sudbury, Ontario, which we visited on June 22<sup>nd</sup> and Sept. 6<sup>th</sup> this year. The Duluth deposits enjoy identical copper, nickel, cobalt, platinum, palladium and gold combinations to Sudbury.

Yes the grades have been lower in Minnesota, but little exploration has been done to depth where Sudbury often offers bonanza grades. The Minnesota ores contain no silver, and some of the deposits such as Spruce Road or TeckCominco’s Mesaba have no precious metals at all. Few massive sulphides with total values over 1%-2% nonferrous have been found in Minnesota.

The geochemistry of the Minnesota ores are similar magmatic sulphides as Sudbury. We are optimistic that the recent resumption of exploration and infusion of modern techniques after a long hiatus could prove successful.

## THEORIES OF GENESIS

The Duluth Complex deposits stem from the massive MidContinent Rift fault. Roughly 1.1 billion years ago the earth tried to split or rupture, and magmas traveled upwards via the fault. The MidContinent Rift lies under water near the north shore of Lake Superior.

The actions were so violent that the magmatic flow moved northwestward over 100 miles. The magma reacted with adjoining sediment hosted rocks. Something caused the particular economic minerals to concentrate on the contact to the west with certain taconite iron ores.

There is no evidence of meteoritic activity in the Duluth Complex as often Sudbury geologists theorize created the Sudbury massive sulphide flows.

The Duluth Complex gives rise to the possibility that some similar rupture in the earth's crust created both the Duluth Complex and Sudbury systems.

#### COMPARISON OF PUBLIC DATA OF FOUR PUBLIC COMPANIES TO SEVERAL MAJOR NICKEL EXPANSIONS AROUND THE WORLD

A quick comparison of large projects suggests that Sudbury, Ontario, Norilsk in northwest Russia's Kola peninsula east of Finland and Xstrata's 49%-owned Koniambo deposit shared with the New Caledonia government appear larger than the Duluth Complex based on current known data.

It is important to stress that we define the "Duluth Complex" as the public disclosures of TeckCominco, Duluth Metals, Polymet and Franconia Minerals. Their data is based on 1960s and 1970s drilling and surface holes drilled in the past several years. The Minnesota Geological Survey and Univ. of Minnesota joint 2002 study suggests another 1.5 to 2.0 billion tonnes exist outside of the disclosure of these four public companies probably in the ten other deposits outside of the control of the four public companies.

In other words, future exploration may demonstrate the Duluth Complex is 2 to 4 times larger than we have quantified in Table 1, and it may turn out to be larger in size. We could be selling it short as the fourth largest nickel district in the world of any sort or third largest sulphide, but we do not want to get carried away.

**Table 4: CONTAINED NI BEFORE RECOVERY LOSS**

	ni bil pounds reserve and resource	
Duluth Complex, MN	9.454	TCK, PLM, DM, FRV
Kabanga 100%, Tanzania	2.738	ABX-Xstrata
Goro, New Caledonia	3.915	CVRD
Koniambo, New Caledonia	14.191	Xstrata
Ravensthorpe, W. Australia	2.105	BHP
Vermelho, Brazil	4.375	CVRD
Onca Puma, Brazil	1.857	CVRD

Source:: Company reports

## TWO SHAFTS SUNK TWO GENERATIONS AGO AND “CAPPED” OVER 25 YEARS AGO

Inco, Amax Inc., U.S. Steel and Cleveland-Cliffs conducted much exploration in the region between one-quarter and one-half century ago. Amax Inc. defined the largest TeckCominco Mesaba property. U.S. Steel defined the Polymet Northmet deposit. Inco defined the Maturi deposit of Franconia Minerals that follows onto Duluth Metals property. The entire district has seen just over 2,000 holes drilled/

Amax Inc. sunk a 1,700 foot shaft on the TeckCominco Mesaba deposit, which flooded and was capped around 1980. Inco sunk a 1,000 foot shaft on the Maturi deposit now owned by Franconia Minerals, and filled the shaft in and capped it also around 1980.

The state of Minnesota requires that one-fourth of all drill cores be deposited in the state core shed (maybe world's largest) in Hibbing, MN. This provides a data repository.

Today, platinum and palladium have become valuable and technology to identify, measure and recover them improved. Second, hydroleach autoclave technology can recover these deposits very cheaply. Third, major advances in open pit mining enable the low grade ores to be extracted more cheaply. Finally, high metals prices encourage development although Polymet expects fine returns at \$1.25 copper and \$5.60 nickel.

## LACK OF UNDERGROUND EXPLORATION SO PRODUCTIVE IN RECENT YEARS IN SUDBURY, ONTARIO

No underground exploration has been done in over 25 years in this district. In Sudbury, Ontario much of the greatest success has been underground exploration. Much occurs “by accident” as shafts and tunnels and infrastructure needed for production of already known zones inadvertently encounters new zones never anticipated.

Once underground, geologists may “see” geology. High grade “stringers” may be encountered. Drill platforms several thousand feet underground are more cost effective in locating deposits unable to be tested from surface.

We do not believe that 1960s and 1970s work updated with recent surface exploration has found even one-half of the ultimate size of the Duluth Complex nickel-copper ores.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nickel Revenues	38%		65.7	98.5	100.5	112.3	216.2	228.2	228.2	228.2	228.2	228.2	228.2
Copper	39%		90.6	90.6	102.6	114.7	220.7	233.0	233.0	233.0	233.0	233.0	233.0
Cobalt	2%		5.7	6.8	6.5	5.1	9.7	10.3	10.3	10.3	10.3	10.3	10.3
Platinum	6%		11.3	15.6	16.2	16.5	31.7	33.5	33.5	33.5	33.5	33.5	33.5
Palladium	6%		9.1	13.7	15.5	17.3	33.3	35.2	35.2	35.2	35.2	35.2	35.2
Gold	1%		2.6	3.3	3.8	4.2	8.1	8.6	8.6	8.6	8.6	8.6	8.6
Synthetic gypsum @ \$100/t	9%				14.0	28.0	28.0	55.0	55.0	55.0	55.0	55.0	55.0
Total Sales	100%	0	184.9	228.5	259.1	298.1	547.8	603.6	603.6	603.6	603.6	603.6	603.6
Surface mining @2.5 strip			21.2	31.8	36.0	40.3	77.5	81.8	81.8	81.8	81.8	81.8	81.8
Milling and autoclave			63.6	119.2	126.1	140.9	271.2	265.8	265.8	265.8	265.8	265.8	265.8
Refinery 27.5%/25% take (or no revenue nor cost)			50.8	57.1	35.6	38.8	74.8	78.9	78.9	78.9	78.9	78.9	78.9
Administration	5.0	6.0	7.0	8.0	8.0	10.0	12.0	13.0	13.0	13.0	13.0	13.0	13.0
Exploration, research, feasibility	0.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0
Depreciaton	0.0	0.0	8.0	18.0	19.0	19.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Other expense, net	0.8	-1.6	-0.4	-1.0	-0.4	-0.4	-0.3	-0.4	-0.9	-0.7	-0.7	-1.0	-3.6
Interest Expense	-1.2	0.0	3.1	10.3	25.5	25.5	34.3	32.7	26.7	18.7	10.7	2.7	-4.0
Pretax Income	-3.6	-5.4	30.6	-15.9	7.3	22.0	48.3	100.8	107.4	115.1	123.2	131.4	140.7
Income Taxes	0.0	0.0	4.6	-4.8	2.2	6.6	14.5	30.2	32.2	34.5	36.9	39.4	42.2
Net Income	-3.6	-5.4	26.0	-11.1	5.1	15.4	33.8	70.6	75.1	80.6	86.2	92.0	98.5
Primary Shares	138.0	140.0	150.0	158.8									
Fully Diluted Shares	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8	158.8
<b>EPS</b>	<b>-\$0.03</b>	<b>-\$0.04</b>	<b>\$0.16</b>	<b>-\$0.07</b>	<b>\$0.03</b>	<b>\$0.10</b>	<b>\$0.21</b>	<b>\$0.44</b>	<b>\$0.47</b>	<b>\$0.51</b>	<b>\$0.54</b>	<b>\$0.58</b>	<b>\$0.62</b>
Tonnes Ore at Reserve Grades (000)			5,298	7,947	9,007	10,066	19,371	20,447	20,447	20,447	20,447	20,447	20,447
Ni recovery	70.3%		0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Cu recovery	92.3%		0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Co recovery	40.7%		0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Pt recovery	72.7%		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Pd recovery	75.2%		0.237	0.237	0.237	0.237	0.237	0.237	0.237	0.237	0.237	0.237	0.237
Au recovery	67.0%		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Ni mm lbs			6.57	9.85	11.17	12.48	24.02	25.35	25.35	25.35	25.35	25.35	25.35
Cu mm lbs			30.19	45.28	51.32	57.35	110.37	116.50	116.50	116.50	116.50	116.50	116.50
Co mm lbs			0.38	0.57	0.65	0.72	1.39	1.47	1.47	1.47	1.47	1.47	1.47
Pt oz			8,669	13,004	14,738	16,472	31,697	33,458	33,458	33,458	33,458	33,458	33,458
Pd oz			30,361	45,542	51,614	57,686	111,008	117,175	117,175	117,175	117,175	117,175	117,175
Au oz			3,424	5,136	5,821	6,506	12,519	13,215	13,215	13,215	13,215	13,215	13,215
Mining cost per tonne per t of ore @ 2.5 strip			4	4	4	4	4	4	4	4	4	4	4
Milling and autoclave cost per t			12	15	14	14	14	13	13	13	13	13	13
Ni price			10	10	9	9	9	9	9	9	9	9	9
Cu price			3	2	2	2	2	2	2	2	2	2	2
Co price			15	12	10	7	7	7	7	7	7	7	7
Pt price			1300	1200	1100	1000	1000	1000	1000	1000	1000	1000	1000
Pd price			300	300	300	300	300	300	300	300	300	300	300
Au price			750	650	650	650	650	650	650	650	650	650	650

Source:: John Tumazos Very Independent Research, LLC Estimates

**Table 6: Estimated Sources of Funds**

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Net Income		-3.6	-5.4	26.0	-11.1	5.1	15.4	33.8	70.6	75.1	80.6	86.2	92.0	98.5
Depreciation		0.0	0.0	8.0	18.0	19.0	19.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Deferred Taxes		0	0	1.6	-1.7	0.8	2.3	5.1	10.6	11.3	12.1	12.9	13.8	14.8
Other Noncash Charges		0.4												
Debt			25	90	190	0	110	0				0		
Equity		39.6	0											
Asset Sales														
Other Items, Net														
<b>Total Sources of Funds</b>		<b>36.4</b>	<b>19.6</b>	<b>125.6</b>	<b>195.2</b>	<b>24.9</b>	<b>146.7</b>	<b>66.9</b>	<b>109.1</b>	<b>114.4</b>	<b>120.7</b>	<b>127.1</b>	<b>133.8</b>	<b>141.3</b>
<b>Uses of Funds</b>														
Capital Spending		5	50	100	200	25	150	40	20	20	20	20	20	20
Dividends													15.9	15.9
Debt Repayment								20	75	100	100	100	33.9	0
Noncsh Working Capital				10	10			5						
Change in Cash		31.4	-30.4	15.6	-14.8	-0.1	-3.3	1.9	14.1	-5.6	0.7	7.1	64.0	105.4
<b>Total Uses of Funds</b>		<b>36.4</b>	<b>19.6</b>	<b>125.6</b>	<b>195.2</b>	<b>24.9</b>	<b>146.7</b>	<b>66.9</b>	<b>109.1</b>	<b>114.4</b>	<b>120.7</b>	<b>127.1</b>	<b>133.8</b>	<b>141.3</b>

## FIVE VALUATION ALTERNATIVE APPROACHES

Enterprise value per pound of reserves, P/E on pro forma earnings, net present value, qualitative geologic inference and probability of permitting/environmental risk discount are five alternative approaches to valuing a “deposit” company. It has a deposit, but may prove two years away from revenues and earnings. It also could have permitting or metallurgical startup glitch delays.

It has established several classes of resources, including proven and probable reserves increased 51% on September 26<sup>th</sup>, a measured and indicated resource, and inferred resources. A draft EIS,

capital cost estimates, operating cost estimates, output rates and recovery rates have been public for many months. It has been refining data and preparing documentation for a draft EIS due next month. It has completed most of the vital building blocks of a feasibility study. Final economic analysis, sequencing, draft EIS, public comments and final environmental approval remain. Litigation among objectors or non-governmental organizations always are possible. Once in hand, final construction contracts, equipment orders, and project construction may begin. Much work remains.

The presence of readily accessible surface ores and the potential operation of 32,000 of the 100,000 ton per day mill, or 11 or 34 ball mills, presents a quick startup option. Mixed concentrates could be sold to foreign smelter/refineries to generate quick revenue while the autoclaves are being finished.

The stock appears worth more than its recent stock price based on enterprise value per pound analysis, using either \$1.00 ni/\$0.10 cu as a “base case” and \$1.75 ni / \$0.175 per pound cu resource valuation metrics. A buyer might take interest in PLM owing to its possession of the large mill and “first mover” advantage. A buyer with a very long time horizon like Aluminum Company of China, Anglo-American, Rio Tinto or others might use this approach, NPV, geologic inference and environmental risk discounts in moving ahead.

NPV is virtuous, but choice of a commodity price scenario, cost growth metric or discount rate may complicate it. NPV analyses pay little value for resources to be mined over 20 years into the future. One company we visited recently “inflated” its commodity price revenue each year, high graded by 60% in its first decade and chose a very low cost metric for a “downhill truck haul” in its first decade. Such schemes can distort a P/E approach as well.

Qualitative factors should be considered. Infill drilling may increase the resource. The newer “Magenta Zone” appears significant, and expansions to depth may occur. Purchases of some nearby deposits on state land or private landholders is possible, but PLM will do nothing until it obtains its permits.

**Table 7:**

Balance Sheet	12-2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash	8.9	40.3	9.9	25.5	10.7	10.6	7.3	9.2	23.3	17.7	18.4	25.5	89.6	195.0
Accounts Receivable	0.1	0.5	1.0	16.6	20.6	23.3	26.8	49.3	54.3	54.3	54.3	54.3	54.3	54.3
Inventory			1.0	12.9	16.0	18.1	20.9	38.3	42.3	42.3	42.3	42.3	42.3	42.3
Prepaid asses	0.2	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Current Assets	9.2	41.3	12.4	55.6	47.8	52.5	55.5	97.8	120.9	115.3	116.0	123.1	187.2	292.6
Deferred Financing	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
PPE Fixed Assets	38.2	43.1	93.1	185.1	367.1	373.1	504.1	516.1	508.1	500.1	492.1	484.1	476.1	468.1
Total Assets	48.7	85.8	106.9	242.1	416.3	427.0	561.0	615.3	630.4	616.8	609.5	607.2	663.3	760.7
Current Liabilities	1.5	2.6	3.6	20.7	17.2	21.6	27.3	62.3	70.7	70.2	69.7	67.8	67.3	66.8
Debt	13.9	13.9	38.9	128.9	318.9	318.9	428.9	408.9	333.9	233.9	133.9	33.9	0.0	0.0
Reclamation	3.4	3.4	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.9	8.4	8.9	9.4
Deferred Taxes			0.0	1.6	-0.1	0.7	3.0	8.1	18.7	29.9	42.0	55.0	68.8	83.5
Shareholders Equity	29.9	65.9	60.5	86.5	75.4	80.5	95.9	129.7	200.2	275.4	356.0	442.2	518.3	600.9
Total Liabilities	48.7	85.8	106.9	242.1	416.3	427.0	561.0	615.3	630.4	616.8	609.5	607.2	663.3	760.7

Source: Polymet; John Tumazos Very Independent Research, LLC estimates

**Table 8: Net Present Value of Polymet**

	12-2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash in	48.9	0.0	9.6	16.3	19.8	21.3	66.9	109.1	114.4	120.7	127.1	133.8	141.3	141.3
Cash out	8.6	55.4	84.0	221.1	19.9	134.6	45.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Discount factor at 9%		1	1.09	1.1881	1.295	1.41158	1.53862	1.6771	1.828039	1.992563	2.171893	2.367364	2.580426	2.812665
Net cash flow in current \$	40.3	-50.8	-62.6	-158.1	-0.1	-73.6	13.1	48.8	47.4	46.4	45.3	44.1	43.1	43.1
Cumulative NPV of cash by year	40.3	-10.5	-73.1	-231.3	-231.4	-305.0	-292.0	-243.2	-195.8	-149.5	-104.2	-60.1	-17.0	-17.0
Alternate 7% discount factor		1	1.07	1.1449	1.225	1.3108	1.40255	1.50073	1.605781	1.718186	1.838459	1.967151	2.104852	2.252192
Net cash flow in current \$	40.3	-51.8	-65.0	-167.2	-0.1	-80.8	14.6	55.5	55.0	54.8	54.5	54.1	53.8	53.8
Cumulative NPV of cash by year	40.3	-11.5	-76.5	-243.6	-243.7	-324.5	-309.9	-254.4	-199.5	-144.7	-90.2	-36.2	17.7	17.7

**INTERPRETIVE COMMENT: THE PROJECT ENJOYS A "CASH PAYBACK BREAKEVEN YEAR" IN MID-2022 AT A 7% AND THE END OF 2023 AT A 9% DISCOUNT FACTOR.** This stems from the borrowing of \$435 mm prior to 2013 a presumed expansion to 64,000 tons per day.

Polymet will enjoy about 0.5 billion pounds of "payable nickel," 2.5 billion pounds of payable copper and over 3.75 mm oz of combined pt, pd and gold "in the ground" at the beginning of 2020 to which we assign a value near \$1 billion, whose terminal value drives mine construction.

The 64,000 ton per day "cash breakeven" is near \$7 nickel, \$1.50 copper and the generous \$1,000 pt, \$300 pd and \$650 gold scenario.  
Source: John Tumazos Very Independent Research, LLC estimates

## ENTERPRISE VALUE PER POUND, NPV AND P/E APPROACHES CONVERGE INTO ON ANOTHER IN OUR OPINION

In our tables 2 and 3 we compare the publicly traded Duluth Complex companies in an enterprise value per pound framework. We assign a "base case" conservative \$1.00 per pound of nickel, \$0.10 per pound of copper and assign no explicit value to the four coproducts offering 14% of future revenue in our estimates.

In table 8 we calculate a formal NPV for Polymet, which hinges on the "subjective" estimate of terminal value in 2020. The "terminal value" will be estimated either from "cents per pound" of mineral in the ground or else a "P/E" to the going concern on the 30,000 metric tonne per day scenario with one incremental 50% expansion in 2017-18 after startup in 2013 at 20,000 metric tonnes per day.

We believe a 12 to 15 P/E in 2019 will be appropriate owing to the 20+ year resource life at a 64,000 ton per day production rate, its low costs and the relative scarcity of most of the minerals Polymet will produce.

## ENVIRONMENTAL RISK FACTORS

We believe there is a large chance of environmental delay, and a small chance of complete rejection. Minnesotan regulators are meticulous, and will ask for various alternative studies and hear public comments.

Polymet involves risk owing to surface disturbance inherent in open pit mining, the sulphide content of its minerals that must be carefully treated to prevent acid draining and past

disturbances from historic iron ore mining in the vicinity (the so-called “cumulative disturbance” concept). We believe all of these factors are manageable, but that the regulatory process may be slow-moving if public comments include criticism or if environmental groups file lawsuits.

Most important, the RECOVERABLE, PAYABLE metal resources of the four public companies are near \$170 billion at current prices, and to date the environmental movement has never stopped an entire mineral district or class of deposits nor any economic value of such massive size.

Instead, past environmental objections have focused on specific projects with specific real or imagined defects or risk factors. The Macdonald gold deposit near Lincoln, Montana, for example, had no fatal defect in our opinion. The economic “opportunity cost” involved in its rejection might be characterized as 75% recovery of 10-13 mm oz “in situ” or \$6-\$7 billion in today’s dollars. The Duluth Complex, based on current knowledge that might not be even 50% of the ultimate resource base, appears to be 25 to 50 times larger than any project previously rejected in the U.S.

#### QUALITATIVE GEOLOGIC INFERENCE OF POTENTIAL RESERVE EXPANSION

No shaft or very deep holes or underground exploration has been attempted at Polymet’s specific location.

Access to surrounding new lands containing surface nickel-copper sulphide mineralization is possible.

Access to neighboring westward iron ore deposits is another strategy. Many opportunities exist after permitting and after successful operation generates cash.

#### FINANCING

We have estimated Polymet issues no equity, and borrows \$305 mm in 2008-10 and \$110 mm more in 2012 to double. We estimate it uses internal cash flow and repays all debt by 2018. We estimate year-end 2019 balance sheet will contain \$195 mm in debt and \$600 mm in equity.

#### TARGET PRICE AND INVESTMENT VIEWPOINT

We initiated coverage with an Overweight investment recommendation and a US \$6 per share price target based on (1) the potential for more mineral to be defined and better economics than we have modeled to be established, (2) a likely high P/E owing to potential acquisitions, takeover appeal and early 2009 initial revenue, (3) decent \$7 nickel and \$1.50 copper direct cash cost breakeven points, (4) takeover appeal and (5) over \$0.50 per share of earnings estimated at a 64,000 ton per day operating scale after a second phase expansion.

Clearly the 2009-10 time frame for revenue and startup issues and the ever present environmental challenges exist. The depressed iron ore range employment picture and a \$25 billion future revenue profile at \$9 nickel, \$2 copper and one-half to two-thirds payability suggest the Minnesotans will need and support this project.

We estimate this stock will be worth over \$6 per share after it demonstrates a 24 month production history around 2012 and has good momentum towards permits to double towards 64,000 tons per day without ever contemplating full use of its mill. Further upsides exist should

ore resources, permits and market economics permit full operations. Further, P/E may expand as Polymet confirms or exceeds in verifying all operating parameters.

## RISKS

Timing of environmental approval, lengthy litigation, final environmental approval, capital cost overruns, operating cost overruns, metals prices, exchange rates and the global economic cycle each represent major risks.

The presence of six separate minerals or three “groups” of products, nickel, copper and precious metals, provides a sort of diversification. However, historically a large covariance exists among the various metals.

Polymet and the other neighboring projects each should be able to produce a salable refined copper finished product. However, the other five minerals will be collected within a “nickel concentrate” that might be resold to CVRD, Xstrata, Japanese refineries, Norilsk, Outokumpu or some others. Until the Duluth Complex regional companies join force to build such a refinery, the outside processing will involve transport costs, fees and about a 25% “take away” or ownership of the metals by the custom nickel refinery.

## CHANGE IN THIS RESEARCH OPERATION

This report reflects research coverage by JTVIR, LLC. In no way shape or form should it be misconstrued as involving Prudential Equities Group (PEG), which shut down on June 6, 2007 as noted. The continuation of that same quarterly or full year earnings estimate for 2007 as JTVIR, LLC should not be construed or mistaken to involve PEG, which shut down on June 6, 2007. Certain data, such as the logic of the earnings model, are similar owing to the same primary author, but this coverage initiation herein involves a different entity and no employment or affiliation with the former Prudential Equity Group, LLC.

## DISCLOSURES

“John Tumazos Very Independent Research, LLC” (JTVIR) is a Delaware Corporation with registration effective on August 27, 2007 as an investment advisor in the state of New Jersey owing to our place of business in New Jersey.

JTVIR is not a broker-dealer, and conducts no trades. Its primary business is to provide “unbundled” metals and paper industry securities and market research to institutions or corporations in a zero commission, electronic execution, electronic dissemination, unbundled format for a specified annual fee structure.

Our investment rating system for securities recommendations is Overweight, Neutral Weight or Underweight. Overweight or Underweight recommendations are estimated to vary from the relative performance of the S&P 500 by more than 10% annually, and the intended time horizon is up to 24 months. Our securities research is intended for institutional investors that might buy up to 10% of a given company, and as such focuses more towards longer-term dynamics impacting the net present value of future cash flows rather than “day trading” sorts of near-term issues.

Except for 32,400 shares of Polymet Mining that John Tumazos bought between April 18 and 23, 2007 (outside counsel advised ownership more than 30 days prior to publishing or contemplating was the definition of a long-term holding and not “front-running”), neither JTVIR, its members or its employees own or have a financial interest in any securities discussed in this report. Our policy is full disclosure.

Our policy permits personal trading in the metals or paper industries, though no positions were taken in companies within regular research coverage after July 2001 after joining Prudential Financial and until after one month of completed New Jersey registration of JTVIR. Our policy is that any personal trading must be consistent with our recommendation, made two business days or more AFTER a recommendation or change in recommendation and held for a minimum of 30 days or one month. We believe it is virtuous for a securities analyst to “put his or her money where his mouth is” to invest consistent with the recommendation to clients after such recommendation has been made, and we disagree with some restrictions made upon broker-dealer employees after 2000 era scandals.

Our policy permits up to three directorships and up to five consulting projects, advisory assignments or financial advice to corporations that might supplement, backcheck or substitute for certain services of a large investment banking firm. For example, we would accept an engagement to evaluate investment banking advice on behalf of a manufacturing company concerned whether advice is sincere or intended to maximize fees. Currently no such relationships exist.

Our policy is full disclosure of any advisory relationship or conflict going back three years. None currently exist.

Numerous prior investment banking relationships existed prior to three years history to the pre-1997 time frame under the employment of Donaldson, Lufkin and Jenrette or Oppenheimer & Co., Inc. Some of these we can recollect included 14 different gold mine valuations or sales for Barrick Gold, LAC Minerals (later acquired by Barrick), Addington Resources (gold assets in Montana acquired by Canyon Resources), Westworld Industries (Bolivian assets acquired by Battle Mountain Gold later acquired by Newmont Mining), Coeur d’Alene Mines, Crown Resources (acquired by Kinross Gold), Freeport-McMoRan Gold (acquired by Minorco later AngloGold later Queenstake Resources), FMC Gold (later renamed Meridian Gold) and others. Sole managed initial public offerings included Reliance Steel & Aluminum and Huntco. Lead-managed initial public offerings included American Steel & Wire (later acquired by Birmingham Steel) and lead-managed underwritings included Quanex. Co-managed underwritings included the IPO of Century Aluminum and offerings for AK Steel, Kaiser Aluminum, Agnico-Eagle Mines, Cameco and others. Asset sales or purchase advisories, fairness opinion or trusteeships were done for Thyssen Steel (sold to Ryerson Tull), Cyclops Corp. (sold to Armco later sold to AK Steel), Allegheny Corp., Bethlehem Steel, the U.S. Dept. of Justice pursuant to the June 1984 merger of LTV and Republic Steel to sell the Gadsden, AL integrated flat-rolled mill, Cobre Copper, and others. Typically more than five

investment banking assignments were evaluated, partly executed or “due diligenced” for any completed transaction. Some examples we can recall for which a prospectus was either drafted or partly drafted indicating much work included stock underwritings not completed for Wheeling-Pittsburgh Steel, Steel Dynamics, Atlas Corp., Webco, Sharon Steel, IPSCO, Co-Steel Inc., and others.

#### **ANALYST UNIVERSE COVERAGE:**

John C. Tumazos, CFA: Rio Tinto, Louisiana-Pacific, Nucor Corp., Newmont Mining, U.S. Steel, International Paper, BHP Billiton, MeadWestvaco Corp., Antofagasta PLC, Allegheny Technologies, Alcoa Inc., Inco Limited, Bowater, Inc., Temple-Inland, Barrick Gold, Abitibi-Consolidated, Weyerhaeuser Co., Alcan Inc., Smurfit-Stone Container, Plum Creek Timber, Worthington Industries, Goldcorp Inc., AngloGold Ashanti, Freeport McMoRan Copper & Gold, Novelis Inc., FNX Mining.

Dynatec is a company not continued in the research coverage of JTVIR, LLC that was previously included in the prior June 6, 2007 Prudential Equities Group universe owing to a pending takeover by Sherritt International. Alcan, which Rio Tinto soon will acquire, also will be discontinued from coverage.

Subsequently, since September 2007 JTVIR, LLC has initiated coverage of new companies not previously covered in the former universe. These new companies include General Moly, Inc., Duluth Metals, Polymet Mining and Century Aluminum.

In accordance with applicable rules and regulations, we note above parenthetically that our stock ratings of “Overweight,” “Neutral Weight,” and “Underweight” most closely correspond with the more traditional ratings of “Buy,” “Hold,” and “Sell,” respectively; however, please note that their meanings are not the same. (See the definitions above.) We believe that an investor’s decision to buy or sell a security should always take into account, among other things, that the investor’s particular investment objectives and experience, risk tolerance, and financial circumstances. Rather than being based on an expected deviation from a given benchmark (as buy, hold and sell recommendations often are), our stock ratings are determined on a relative basis (see the foregoing definitions).

There is no intention to “balance” the number of Overweight or Underweight ratings, as instances of broad over- or under-performance among basic industrials may occur. JTVIR makes each investment judgment in a “bottoms up” manner based on the assets of each individual company.

#### **Price Target – Methods/Risks**

The methods used to determine the price target generally are based on future earning estimates, product performance expectations, cash flow methodology, historical and/or relative valuation multiples. The risks associated with achieving the price target generally include customer spending, industry competition and overall market conditions.

Additional risk factors as they pertain to the analyst's specific investment thesis can be found within the report.

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