

Summary Data on Quiulacocha- Excélsior

1. As a result of the mining development of the operating unit at Cerro de Pasco, originally by the American company of the same name, and by the state-owned Centromín Perú since 1974, large amounts of mining environmental liabilities (MEL) were generated, such as Quiulacocha Tailings (from concentrator treatment) and Excélsior Wastes (Wasted and non treated resources).
2. The decision on what to treat and what to dispose (ore-waste), and to what stage continue processing (concentrate - tailings) is economic; then, these MEL result from the historic Price – Cost ratio.
3. At present, the scenario is very different:
 - First of all, the current technological developments and know-how translate into higher possibilities of commercial recovery at economic costs.
 - Secondly, international prices, with exceptional levels until recently, largely influenced by financial speculation, are coming to their basis that, according to different specialized entities will correspond to a long term price trend, exceeding the historical one.

PROJECTIONS INCLUDED IN THE ANNEX¹.
4. Tonnage at Quiulacocha (A former lake where mining tailings were deposited from the fifties to 1991), and from Excélsior (made up by stripping material from the Open Pit development) are very important as shown below. This allows that in spite of grades lower than “standard” operations, they may be economic, because the price-cost ratio is benefited from the treatment of already developed materials² and that even most of it does not require grinding or crushing, like the tailings of Quiulacocha³.

¹ As shown in the Annex, the range for Zn is US\$/TM 1200-2000; US\$/TM 900-1600 for Pb and US\$/Oz 8-11 for Ag.

² The lower production cost of a metallic zinc pound, both based from the concentrates of the tailings at Quiulacocha and from wastes of Excélsior, is a highly important advantage to keep an appropriate competitive level, specially when the prices of this metal are not at the highest values. “Feasibility of recovery of metallic values from residual minerals of the tailings pad at Quiulacocha and the waste dump Excélsior”, Eng. Julio Bonelli, November 2008.

³ “Considering that the design proponed in Figure 1 does not consider grinding, but a simple re-crushing, an estimate for this tailings facility would be 40% of the reference amount. Furthermore, operations such as repulping of tailings, washing and neutralization of process waters may account for 10% of the reference amount. In consequence, the net amount of the operating cost to be considered for this tailings facility would be US\$ 5 per tone of treated ore”. Eng. Julio Bonelli, supra.

5. Tonnage and grades of Tailings at Quiulacocha
 - **Tonnage:** 78.8 Mt
 - **Grades:** 0.04% Cu; 1.0% Pb; 1.5%Zn, 60.0 g/t Ag and 28.8% S.
6. Tonnage and grades of wastes at Excélsior: It is made up by stripping material from the Open Pit development, which metal contents were not economic in the past.
 - **Tonnage:** 56.0 Mt
 - **Grades:** 0.15% Cu; 0.65% Pb; 2.42% Zn and 25 – 67 g/t Ag.
7. The preliminary metallurgic and economic evaluation of Eng. Bonelli is very important and summarizes what was stated for the price – cost economic ratio: “Based on a preliminary economic evaluation, individual projects, both of the tailings of Quiulacocha to 10 years and the wastes of Excélsior, also to 10 years, are significantly attractive at a zinc price of US\$ 1,500 per ton of fines and, less attractive, when the price is reduced to US\$ 1,200. However, a joint project of tailings to 15 years and of wastes to 10 years may be a much more interesting alternative than any of the two (2) individual projects. Besides, this planning may provide an appropriate area in the tailings pad of Quiulacocha in the first 5 years, in order to separate better wastes from tailings, and start an environmental remediation that may continue during this period. If these schedules are managed, the two (2) projects, together, will be completed at the same time. Likewise, the concentrator for wastes may become a part of the initial plan for the tailings one, there being certain common elements for both facilities”.⁴
8. **Finally**, the large tonnage of ore in Quiulacocha and Excélsior with possibilities of commercial metal recovery, mainly Zn, together with a favorable economic ratio sustainable in the long run is a potential competitive investment with new medium size mining projects, 10,000-15,000 TPD. Reprocessing these ores is more attractive for those companies with technological competitive strengths and/or infrastructure in the area and/or with a current or immediate processing installed capacity for its sale in the international market, with possibilities of mixing with higher grade concentrates. It may also include those with an important economic capacity, and located near the potential project area.

⁴ Ut Supra.

ANNEX

International Price Projections

1. CONTEXTO DE PRECIOS

➤ Precios históricos y proyecciones (consenso de Bloomberg) al 2012:



➤ Este contexto de precios, con proyecciones por encima de los precios anteriores a 2005, introduce la posibilidad de permitir la viabilidad económica del reprocesamiento de depósitos de relaves y material de desbroce.

LME Official Prices, US\$ per tonne for 22 October 2008

	ALUMINIUM ALLOY	ALUMINIUM	COPPER	LEAD	NICKEL	TIN	ZINC	NASAAC
Cash buyer	1500.00	1981.50	4284.00	1235.00	10405.00	11900.00	1124.00	1540.00
Cash seller & settlement	1505.00	1982.00	4286.00	1240.00	10410.00	12000.00	1125.00	1550.00
3-months buyer	1555.00	2038.00	4280.00	1261.00	10560.00	11725.00	1151.00	1610.00
3-months seller	1565.00	2039.00	4285.00	1262.00	10565.00	11825.00	1151.50	1620.00
15-months buyer	1700.00	2225.00	4420.00	1300.00	11110.00	11795.00	1243.00	1765.00
15-months seller	1710.00	2230.00	4430.00	1305.00	11210.00	11845.00	1248.00	1775.00
27-months buyer	1835.00	2370.00	4525.00	1305.00	11585.00		1318.00	1845.00
27-months seller	1845.00	2375.00	4535.00	1310.00	11685.00		1323.00	1855.00



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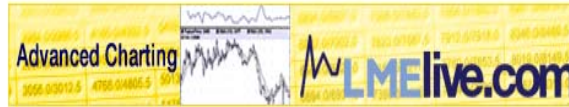
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Monthly Average Prices: Metals

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Average Official & Settlement Prices, US\$ per tonne, for October 2008

	ALUMINIUM ALLOY	ALUMINIUM	COPPER	LEAD	NICKEL	TIN	ZINC	NASAAC
Cash buyer	1675.61	2120.24	4924.11	1477.76	12126.74	14373.26	1300.87	1715.43
Cash seller & settlement	1683.54	2121.41	4925.70	1480.11	12139.78	14401.74	1302.11	1723.80
Cash mean	1679.58	2120.83	4924.90	1478.93	12133.26	14387.50	1301.49	1719.62
3-months buyer	1729.46	2177.07	4879.11	1489.65	12340.00	14245.87	1334.48	1773.17
3-months seller	1737.87	2178.43	4884.00	1492.85	12359.13	14285.43	1335.67	1781.48
3-months mean	1733.66	2177.75	4881.55	1491.25	12349.57	14265.65	1335.08	1777.33
15-months buyer	1876.30	2356.57	4949.57	1517.57	12875.65	14186.52	1419.65	1935.87
15-months seller	1886.30	2361.57	4959.57	1522.57	12975.65	14236.52	1424.65	1945.87
15-months mean	1881.30	2359.07	4954.57	1520.07	12925.65	14211.52	1422.15	1940.87
27-months buyer	2008.04	2490.22	4981.74		13335.22		1483.04	2029.78
27-months seller	2018.04	2495.22	4991.74		13435.22		1488.04	2039.78
27-months mean	2013.04	2492.72	4986.74		13385.22		1485.54	2034.78

Commodities Projections by the World Bank

	2007	2008	2009	2010	2015	2020
A. Energy (nominal)						
1. Coal, Australia, \$/mt	65.7	125.0	125.0	100.0	70.0	75.0
2. Crude oil, average, \$/bbl	71.1	108.1	105.5	98.5	75.3	77.2
3. Natural gas, Europe, \$/mmbtu	8.6	11.8	11.5	11.0	9.0	9.5
4. Natural gas, US, \$/mmbtu	7.0	9.0	8.8	9.0	9.5	10.0
B. Beverages (nominal)						
1. Cocoa, c/kg	195.2	235.0	222.4	210.6	160.0	150.0
2. Coffee, arabica, c/kg	272.4	310.0	298.6	287.7	230.0	210.0
3. Coffee, robusta, c/kg	190.9	230.0	219.3	209.2	165.0	135.0
4. Tea, auctions(3) average, c/kg	203.6	225.0	195.0	188.0	186.0	190.0
C. Fats and oil (nominal)						
1. Coconut oil, \$/mt	918.9	1300.0	1212.9	1131.6	800.0	650.0
2. Copra, \$/mt	607.1	850.0	787.9	730.4	500.0	420.0
3. Groundnut oil, \$/mt	1352.1	1900.0	1779.3	1666.2	1200.0	1000.0
4. Palm oil, \$/mt	780.3	1100.0	1051.1	1004.3	800.0	650.0
5. Soybean meal, \$/mt	306.9	420.0	400.0	390.0	360.0	280.0
6. Soybean oil, \$/mt	881.4	1300.0	1212.9	1131.6	800.0	730.0
7. Soybeans, \$/mt	384.0	540.0	510.0	490.0	415.0	343.0
D. Grains (nominal)						
1. Maize, \$/mt	163.7	220.0	210.0	200.0	195.0	160.0
2. Rice, Thailand, 5%, \$/mt	326.4	650.0	560.0	500.0	450.0	400.0
3. Sorghum, \$/mt	162.7	220.0	210.0	200.0	190.0	175.0
4. Wheat, US, HRW, \$/mt	255.2	380.0	340.0	300.0	260.0	240.0
E. Other food (nominal)						
1. Bananas, US, \$/mt	675.8	750.0	733.2	716.8	640.0	550.0
2. Beef, US, c/kg	260.3	285.0	280.0	275.0	265.0	260.0
3. Oranges, \$/mt	956.7	1040.0	975.0	875.0	850.0	830.0
4. Shrimp, Mexico, c/kg	1009.6	1100.0	1125.0	1100.0	1150.0	1200.0
5. Sugar, world, c/kg	22.2	28.0	30.0	32.0	34.0	36.0
F. Timber (nominal)						
1. Logs, Cameroon, \$/cum	806.3	880.0	880.0	840.0	915.0	980.0
2. Logs, Malaysia, \$/cum	268.0	285.0	290.0	285.0	307.0	325.0
3. Sawnwood, Malaysia, \$/cum	381.3	510.0	500.0	450.0	480.0	510.0
G. Other Raw Materials (nominal)						
1. Cotton, c/kg	139.5	165.0	160.0	156.9	145.0	135.0
2. Rubber, RSS1, Singapore, c/kg	229.0	260.0	255.6	246.2	200.0	165.0
3. Tobacco	3315.1	3350.0	3375.0	3400.0	3400.0	3400.0
H. Fertilizers (nominal)						
1. DAP, \$/mt	432.5	900.0	500.0	400.0	310.0	260.0
2. Phosphate rock, \$/mt	70.9	280.0	220.0	180.0	120.0	80.0
3. Potassium chloride, \$/mt	200.2	400.0	360.0	290.0	240.0	200.0
4. TSP, \$/mt	339.1	750.0	500.0	380.0	290.0	240.0
5. Urea, \$/mt	309.4	425.0	350.0	310.0	260.0	220.0
I. Metals and Minerals (nominal)						
1. Aluminum, \$/mt	2638.2	2800.0	2600.0	2500.0	2425.0	2550.0
2. Copper, \$/mt	7118.2	7600.0	7000.0	6000.0	3600.0	3825.0
3. Gold, \$/toz	696.7	875.0	800.0	700.0	570.0	620.0
4. Iron ore, c/dmtu	84.7	140.6	120.0	100.0	72.0	77.0
5. Lead, c/kg	258.0	250.0	200.0	140.0	82.0	87.0
6. Nickel, \$/mt	37229.8	27500.0	22000.0	17000.0	15250.0	16500.0
7. Silver, c/toz	1341.3	1650.0	1400.0	1200.0	900.0	1000.0
8. Tin, c/kg	1453.7	2200.0	1800.0	1400.0	975.0	1100.0
9. Zinc, c/kg	324.2	225.0	180.0	160.0	134.0	144.0

Page: Country: World Row: Series Column: Time

Current sentiment very positive

The precious metals have been setting further record prices within the current cycle – silver hit a high of \$15.82/oz on 7th November, while platinum broke through \$1,500/oz for the first time in December. Investors continue to play a key role, turning to safe haven assets in light of depreciation of the US dollar. Palladium is the exception; supply-demand fundamentals are preventing the metal from moving higher in line with the rest of the complex.

CRU still expects silver and PGM prices to slip back over the next five years. The outlier is gold, for which we see further rises over the next couple of years, before a subsequent retracement to below \$800/oz towards the end of our forecast period.

Table 1: Precious metals prices (US\$/oz)

	Gold	Platinum	Palladium	Silver
1992	344	380	85	3.95
1993	380	374	115	4.31
1994	384	405	136	5.29
1995	384	424	156	5.20
1996	388	397	128	5.20
1997	331	395	178	4.91
1998	294	372	285	5.54
1999	279	377	359	5.22
2000	279	545	683	4.95
2001	271	529	603	4.37
2002	310	540	337	4.60
2003	363	691	200	4.88
2004	410	848	230	6.66
2005	445	897	202	7.31
2006	604	1,142	320	11.55
2007	696	1,300	355	13.40
2008	830	1,275	300	12.75
2009	843	1,136	250	11.50
2010	890	950	230	10.00
2011	780	930	220	8.75
2012	720	880	220	8.00
% change:				
2006-2005	36%	27%	59%	58%
2007-2006	15%	14%	11%	16%
Averages:				
1992-2006	383	553	288	5.60
2007-2012	793	1,079	262	10.73

Data: CRU

Real and Nominal Zinc Prices, 1990-2012 (US\$ per tonne)

	Real LME Prices			Nominal LME Prices		
	Cash	3-Mths	Contango	Cash	3-Mths	Contango
1990	2,248	2,176	(72)	1,520	1,471	(49)
1991	1,592	1,592	-	1,116	1,115	(1)
1992	1,727	1,701	(26)	1,240	1,221	(19)
1993	1,307	1,331	24	961	978	17
1994	1,331	1,361	30	998	1,021	23
1995	1,344	1,376	32	1,031	1,055	24
1996	1,312	1,342	30	1,025	1,049	24
1997	1,655	1,636	(19)	1,318	1,303	(15)
1998	1,269	1,297	28	1,023	1,046	23
1999	1,317	1,336	19	1,077	1,093	16
2000	1,350	1,362	12	1,128	1,137	9
2001	1,036	1,057	21	886	904	18
2002	897	918	21	779	797	18
2003	936	953	17	828	844	16
2004						
Q1	1,188	1,205	17	1,071	1,087	16
Q2	1,128	1,147	19	1,027	1,044	17
Q3	1,073	1,092	19	980	997	17
Q4	<u>1,211</u>	<u>1,227</u>	<u>16</u>	<u>1,113</u>	<u>1,129</u>	<u>16</u>
	1,150	1,168	18	1,048	1,064	16
2005						
Q1	1,415	1,425	10	1,318	1,328	10
Q2	1,361	1,375	14	1,274	1,288	14
Q3	1,373	1,390	17	1,298	1,315	17
Q4	<u>1,715</u>	<u>1,720</u>	<u>5</u>	<u>1,637</u>	<u>1,642</u>	<u>5</u>
	1,465	1,477	12	1,382	1,393	11
2006						
Q1	2,333	2,345	12	2,248	2,260	12
Q2	3,393	3,340	(53)	3,301	3,248	(53)
Q3	3,440	3,445	5	3,363	3,368	5
Q4	<u>4,269</u>	<u>4,215</u>	<u>(54)</u>	<u>4,194</u>	<u>4,140</u>	<u>(54)</u>
	3,361	3,338	(23)	3,273	3,251	(22)
2007						
Q1	3,490	3,475	(15)	3,460	3,446	(14)
Q2	3,671	3,670	(1)	3,667	3,666	(1)
Q3	3,226	3,210	(16)	3,238	3,222	(16)
Q4	<u>2,818</u>	<u>2,810</u>	<u>(8)</u>	<u>2,835</u>	<u>2,827</u>	<u>(8)</u>
	3,300	3,290	(10)	3,300	3,290	(10)
2008						
Q1	2,465	2,465	-	2,500	2,500	-
Q2	2,095	2,105	10	2,140	2,150	10
Q3	1,665	1,680	15	1,710	1,725	15
Q4	<u>1,370</u>	<u>1,385</u>	<u>15</u>	<u>1,410</u>	<u>1,425</u>	<u>15</u>
	1,900	1,910	10	1,940	1,950	10
2009						
Q1	1,230	1,250	20	1,280	1,300	20
Q2	1,175	1,195	20	1,230	1,250	20
Q3	1,095	1,115	20	1,155	1,175	20
Q4	<u>1,090</u>	<u>1,110</u>	<u>20</u>	<u>1,155</u>	<u>1,175</u>	<u>20</u>
	1,150	1,170	20	1,205	1,225	20
2010	1,140	1,165	25	1,225	1,250	25
2011	1,070	1,090	20	1,175	1,200	25
2012	1,070	1,090	20	1,205	1,230	25

Data: LME, CRU International

Note: Real prices based on US GDP deflator, 2007 average as base.

	US\$/tonne	US\$/tonne
	Lead	Lead
	<u>Cash</u>	<u>3-Month</u>
1990	813	776
1991	557	569
1992	542	554
1993	406	419
1994	549	564
1995	631	639
1996	774	772
1997	624	633
1998	529	534
1999	502	509
2000	454	468
2001	476	484
2002	453	462
2003	516	517
2004	888	851
2005	975	941
2006	1286	1281
2007	2617	2587
2008	2445	2438
2009	1190	1200
2010	980	1000
2011	1310	1300
2012	1610	1600

Source: LME, CRU International



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11/25/2008 Session Expanded Table

	Last	Open High	Open Low	High	Low	Most Recent Settle	Change	Open Interest	Estimated Volume	Last Updated
Nov 2008	n/a	n/a	n/a	n/a	n/a	10.355	0	40	n/a	n/a
Dec 2008	10.400	10.575	10.575	10.575	10.400	10.355	+0.045	24812	475	11/24/2008 7:53:36 PM
Jan 2009	n/a	n/a	n/a	n/a	n/a	10.365	0	1413	n/a	n/a
Feb 2009	n/a	n/a	n/a	n/a	n/a	n/a	0	n/a	n/a	n/a
Mar 2009	10.470	10.600	10.600	10.600	10.470	10.378	+0.092	37115	429	11/24/2008 7:51:20 PM
May 2009	n/a	n/a	n/a	n/a	n/a	10.392	0	6167	n/a	n/a
July 2009	n/a	n/a	n/a	n/a	n/a	10.400	0	7931	1	n/a
Sep 2009	n/a	n/a	n/a	n/a	n/a	10.410	0	3184	n/a	n/a
Dec 2009	n/a	n/a	n/a	n/a	n/a	10.422	0	3570	n/a	n/a
Jan 2010	n/a	n/a	n/a	n/a	n/a	10.429	0	13	n/a	n/a
Mar 2010	n/a	n/a	n/a	n/a	n/a	10.443	0	754	n/a	n/a
May 2010	n/a	n/a	n/a	n/a	n/a	10.459	0	1	n/a	n/a
July 2010	n/a	n/a	n/a	n/a	n/a	10.474	0	2890	n/a	n/a
Sep 2010	n/a	n/a	n/a	n/a	n/a	10.487	0	0	n/a	n/a
Dec 2010	n/a	n/a	n/a	n/a	n/a	10.507	0	1557	n/a	n/a
July 2011	n/a	n/a	n/a	n/a	n/a	10.603	0	771	n/a	n/a
Dec 2011	n/a	n/a	n/a	n/a	n/a	10.680	0	284	n/a	n/a
July 2012	n/a	n/a	n/a	n/a	n/a	10.805	0	10	n/a	n/a
Dec 2012	n/a	n/a	n/a	n/a	n/a	10.905	0	107	n/a	n/a
July 2013	n/a	n/a	n/a	n/a	n/a	10.956	0	3	n/a	n/a