



Parauna Project



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Description of the Area

The project is located in the region of Curvelo, Santana do Pirapama, Gouveia and Monjolos in the center of the state of Minas Gerais.

The access to the areas can be made from Belo Horizonte through BR-040 and BR-135 until Curvelo, it is approximately 180 km long.

The region is well developed and has an excellent road infrastructure, power generation and distribution, urban and people resources.

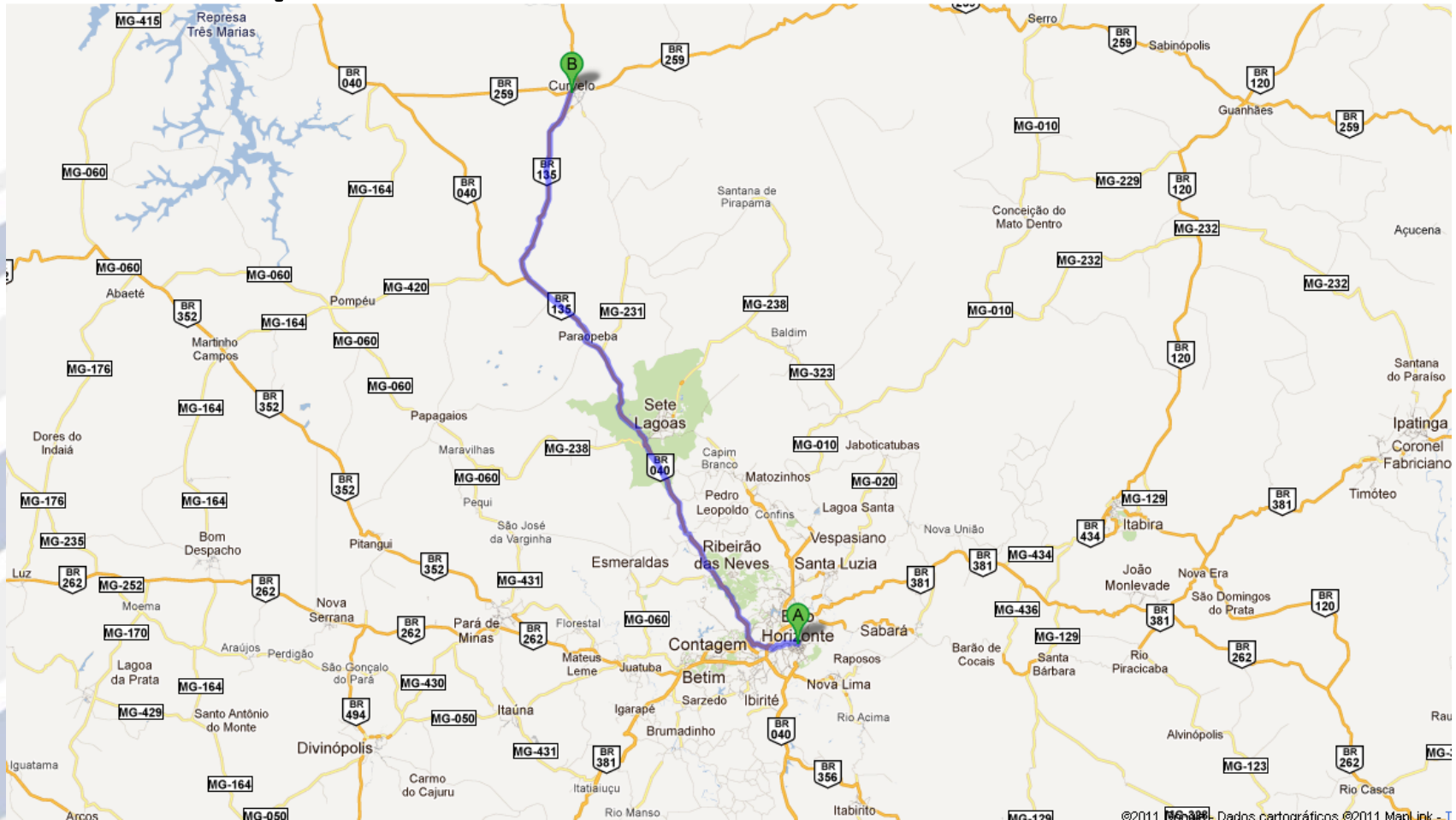
The approximately sum of the areas is about 21.775 ha.

www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Description of the Area

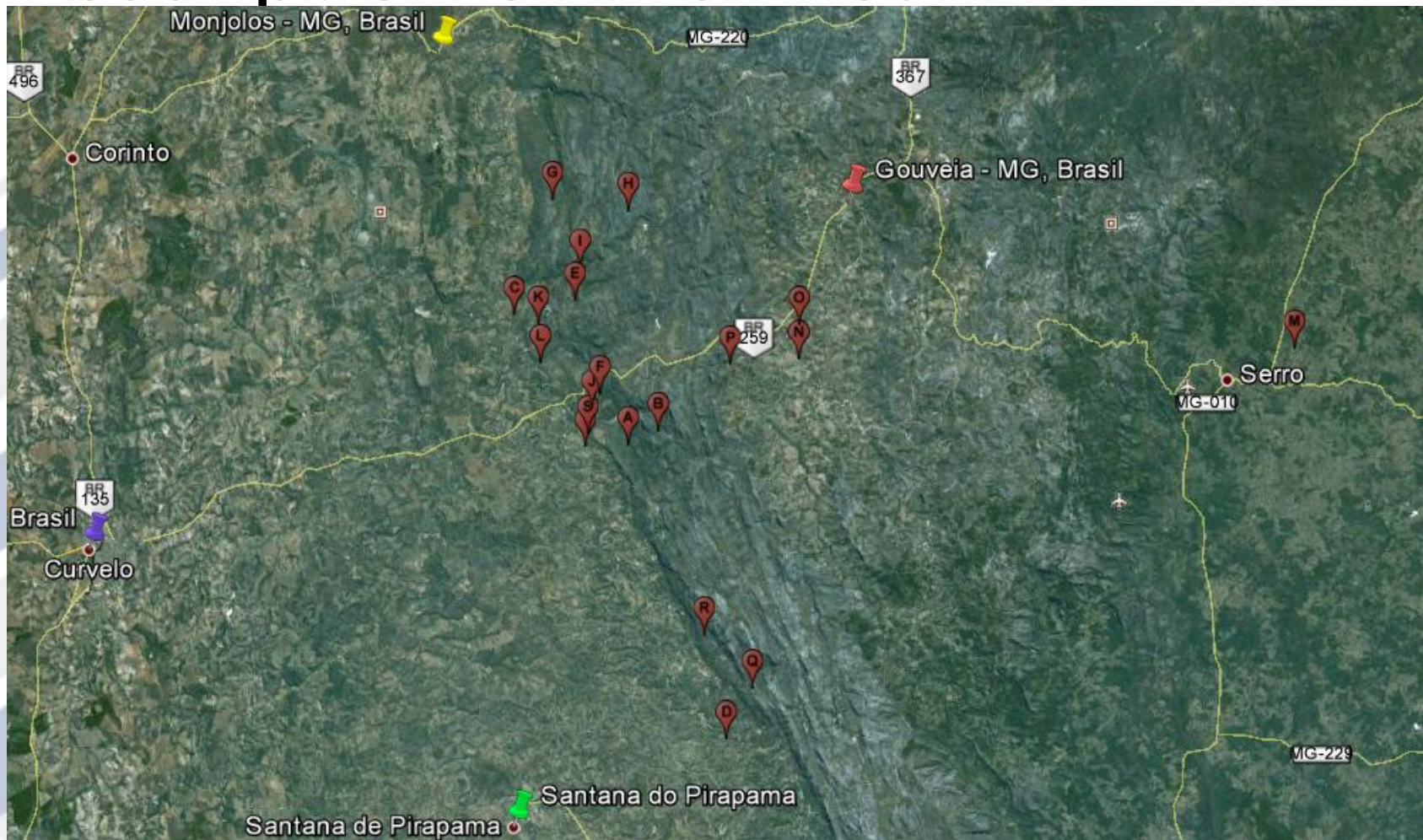


www.cme7.com.br

Parauna Project



Description of the Area



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Logistics

In Curvelo pass the FCA railroad tracks that connect the industrial center of Belo Horizonte to the Port of Aratu Salvador in Bahia.

With the new expansion project of transport and infrastructure, the port of Ilheus, in Bahia, can be a more viable option to transport the ore for exportation.

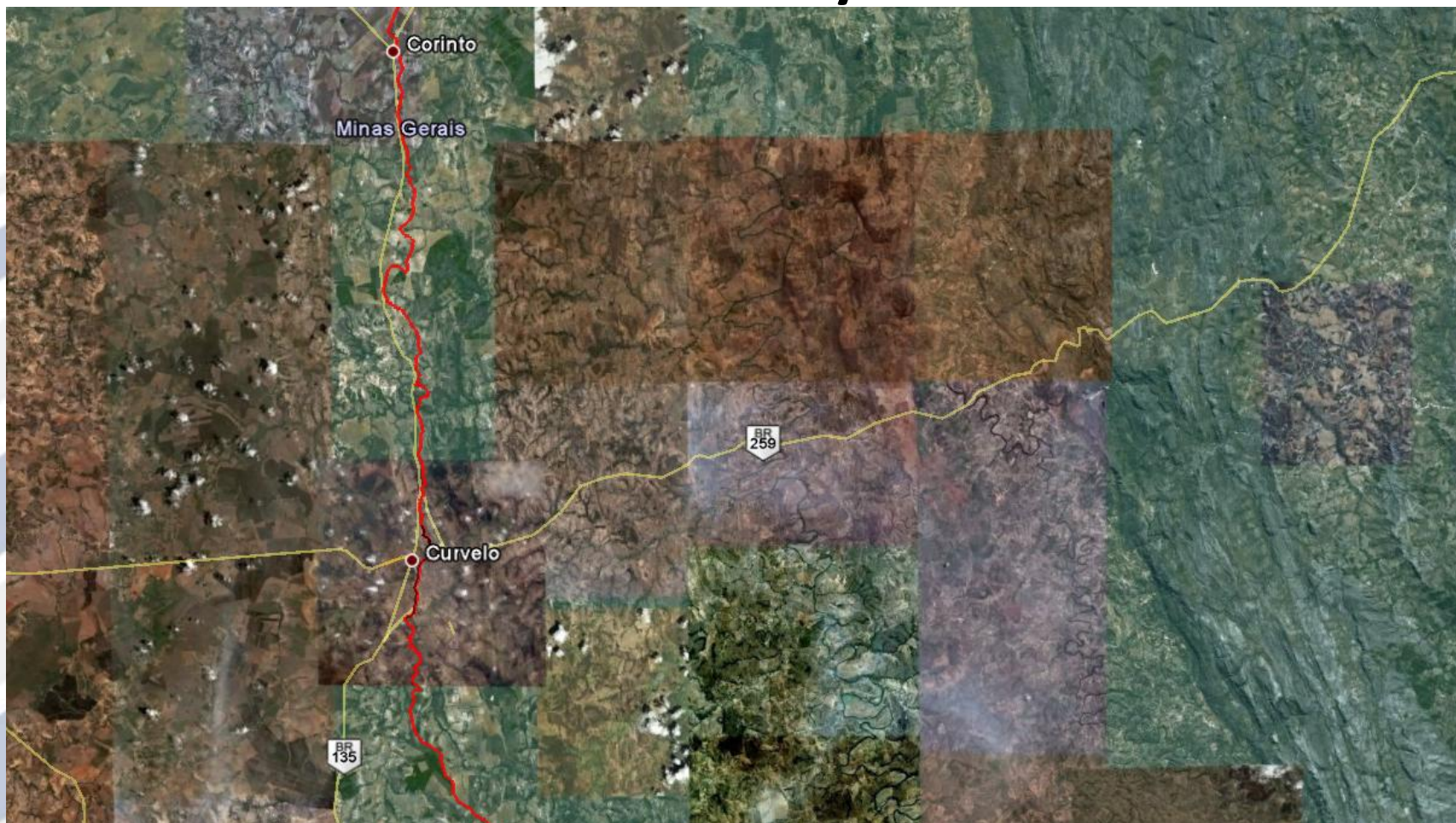
The cargo transportation on the railroad is done by concession and transferred by auction to industries and companies interested.

www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Location and Railway



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Geology

The area is composed by rocks representatives of the Espinhaço Super Group, with the groups:

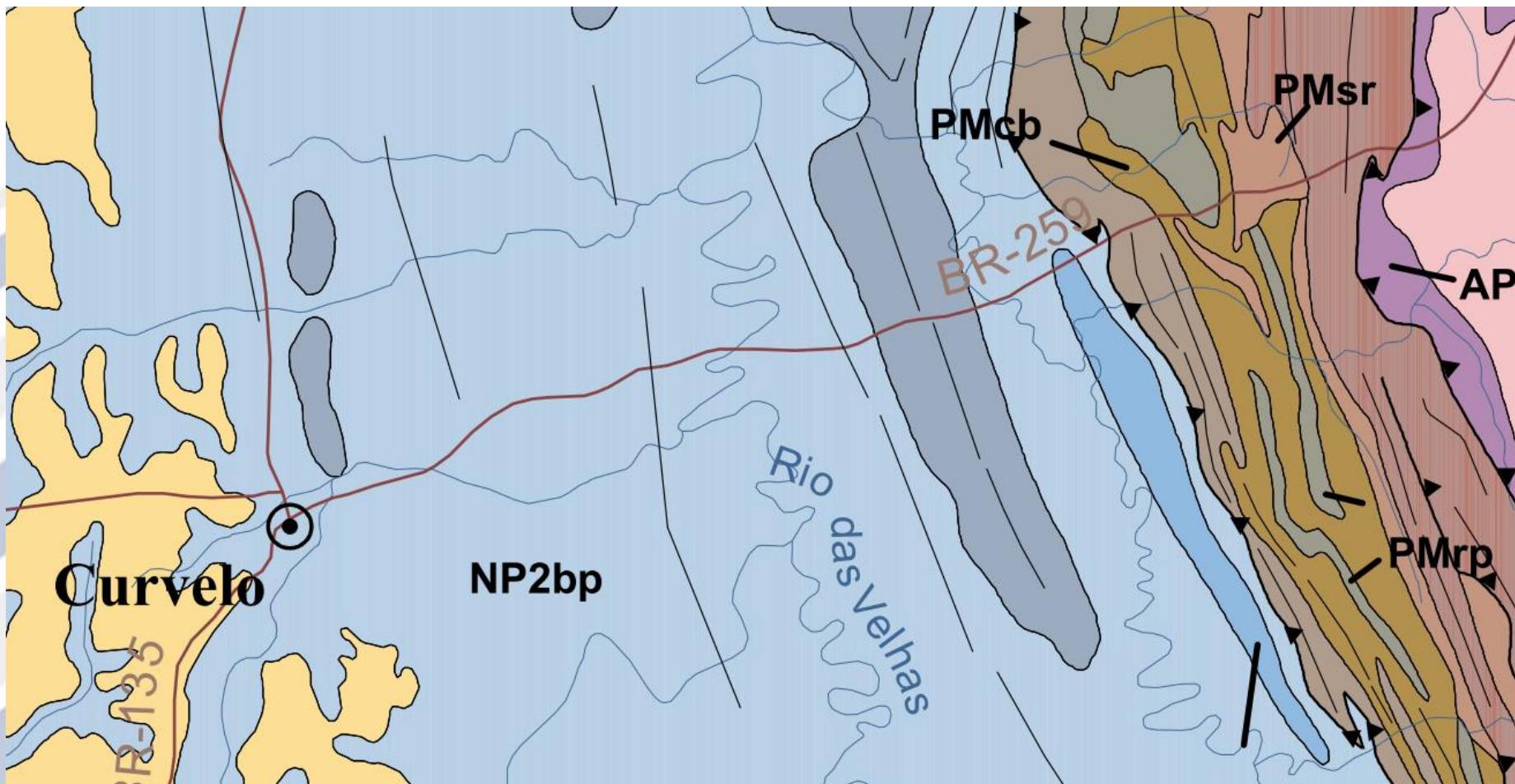
- **Conselheiro Mata;**
 - The Rio Pardo Grande, and metassiltites metargilitos replaced vertically thin and very micaceous quartzite
 - Training Stream of Borges, who may have metabrechas interbedded quartzite and polymictic.
- **Macaúbas;**
 - Training Plateau Acauã: quartz-mica schist with garnet;

www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Local Geology



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Energy

The region also has a plant for generating electricity, even though small, it is able to supply the local demand.



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

The Mine

The total project area is 248.11 ha, with measured reserves of more than 7 million tons of manganese ore.

It has all the necessary documentation, such as granting of environmental permits and water use.

The works and improvements made in infrastructure are recent, just like the machinery of processing plant, due to the mine started operation recently.

www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Processing Plant



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Tailing Dam and Stack

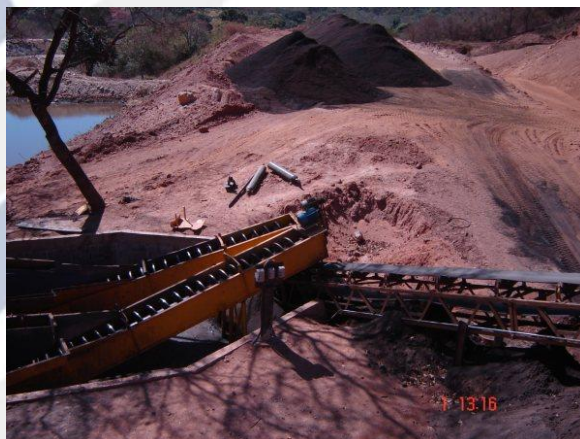


www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Photos of the Area

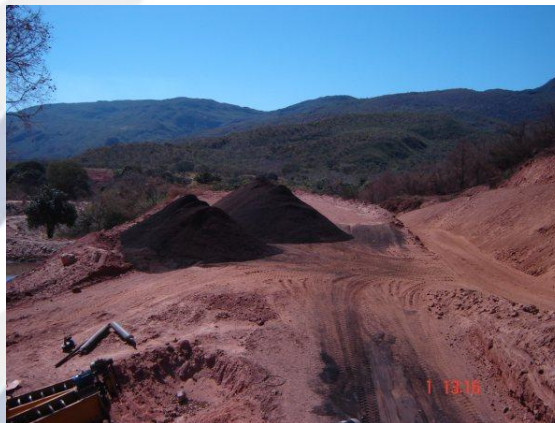


www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Photos of the Area



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Photos of the Area



www.cme7.com.br

Parauna Project



Photos of the Area



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Piles of Ore



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Specification of the product in each phase of concentration

ORIGIN \ SAMPLE	MnT	MnO ₂	H ₂ O	Fe	Cu	Ni	Co	Pb	Ca	Cr	Mg	SiO ₂	Na	K	Cd
	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
CIDEF FINE SA-1	43,50	52,69	0,54	9,96	160,00	300,00	318,00	306,00	0,04	17,81	423,00	12,61	1400,00	8500,00	31,14
CIDEF FINE SA-2	41,78	54,62	0,55	10,05	181,00	288,00	320,00	396,00	0,06	18,10	488,00	12,14	1100,00	7400,00	34,00
CIDEF FINE SA-3	32,87	38,81	0,57	10,99	109,00	175,00	196,00	169,00	0,06	14,12	217,00	33,65	700,00	4300,00	29,36
THICK TAILING OF FINES	21,91	29,20	2,57	7,08	102,00	178,00	184,00	204,00	0,04	28,59	385,00	39,63	500,00	2700,00	17,90
FINE PLANT FEED	25,90	32,76	1,71	8,60	117,00	380,00	387,00	201,00	0,05	34,01	414,00	39,87	700,00	3600,00	13,76
SPIGOT JIGUI 1	43,78	63,46	0,33	8,20	131,00	398,00	728,00	252,00	0,06	11,05	471,00	12,23	1100,00	5200,00	19,08
CONC. JIGUI 1 - FINE	39,21	55,83	0,26	10,30	170,00	516,00	509,00	267,00	0,06	20,81	590,00	22,32	1300,00	6900,00	25,76
JIGUI 1 FEED	19,74	25,64	0,60	16,53	99,55	167,00	175,00	160,00	0,04	43,50	402,00	30,31	700,00	2900,00	12,72
SPIRAL TAILING	26,65	38,68	0,96	13,30	116,00	172,00	187,00	259,00	0,05	34,57	445,00	30,06	900,00	3300,00	14,37
CONC. SINTER FEED	32,63	47,71	0,21	11,22	122,00	384,00	408,00	245,00	0,06	17,97	414,00	11,48	1000,00	4700,00	16,07
CONC. MAGNETIC	0,91	1,38	0,17	58,83	22,06	84,52	23,65	116,00	0,01	80,93	196,00	8,75	900,00	900,00	ND
JIGUI 1 TAILING	10,08	13,53	0,27	0,85	74,28	141,00	125,00	231,00	0,03	61,97	409,00	65,43	400,00	1700,00	5,65

www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION

Quality of Ore, Tailings and other Products

SAMPLE ELEMENTS	Manganese Fines 1	Manganes e Tailing	Manganese CIDGF Granulated	Manganese CCID-F2
MnO ₂	76,36	44,07	70,00	64,14
Fe ₂ O ₃	7,82	20,60	8,18	19,44
SiO ₂	7,19	25,60	7,87	8,13
Al ₂ O ₃	3,67	5,09	8,59	3,76
BaO	2,48	2,01	1,60	1,76
K ₂ O	1,31	1,32	2,06	1,61
SO ₃	0,40	0,60	0,50	0,25
Tb ₂ O ₇	0,37	<0,10	<0,10	<0,10
P ₂ O ₅	0,34	0,47	0,19	0,59
Cr ₂ O ₃	0,11	0,048	<0,01	0,094
SrO	0,09	0,070	0,071	0,096
ZnO	0,07	0,063	0,050	0,061
PbO	0,033	0,024	0,016	0,026
NiO	0,027	<0,01	0,041	0,033
As ₂ O ₃	0,020	0,042	0,19	0,011

www.cme7.com.br

Parauna Project

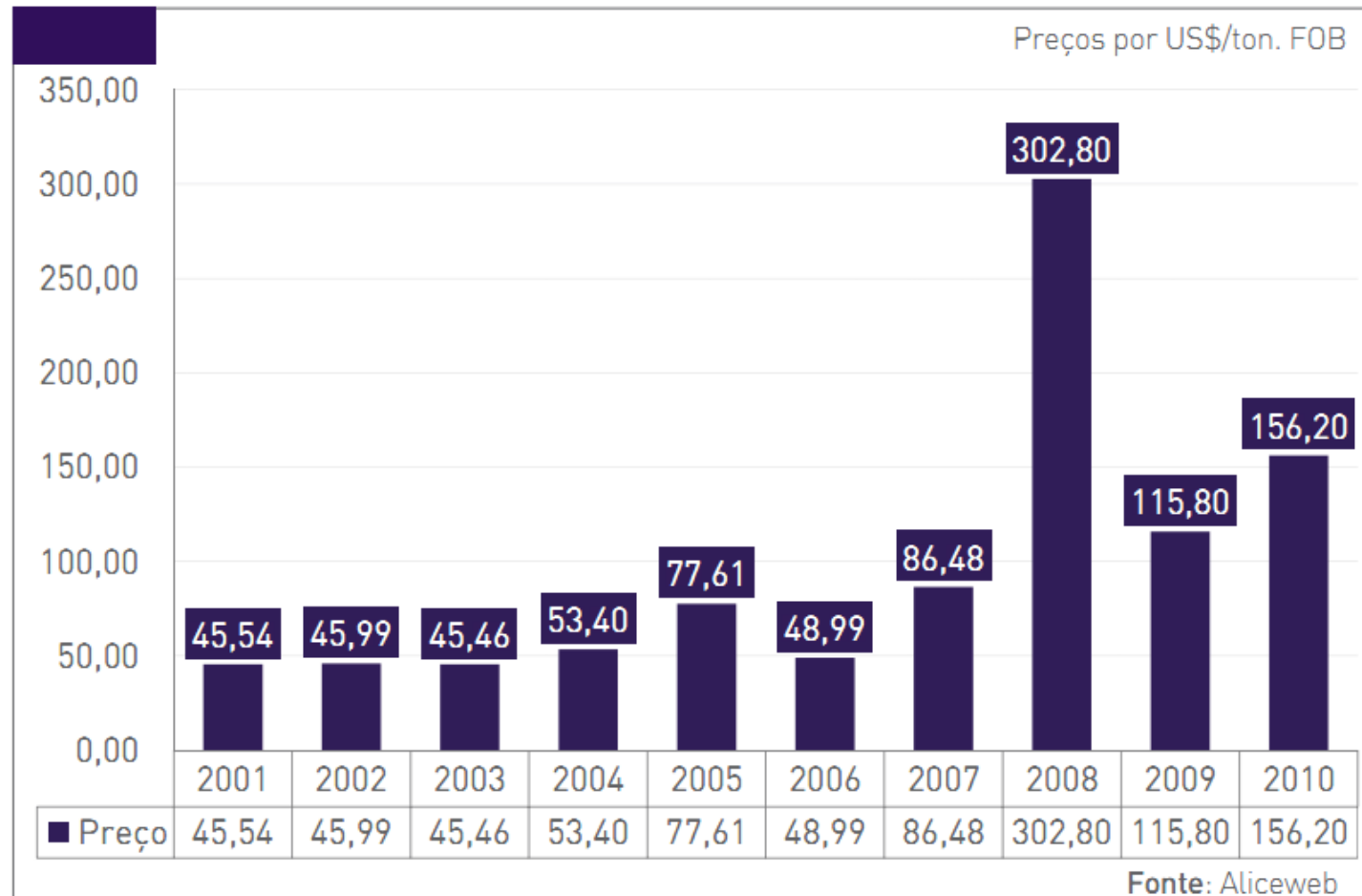
CONE
MINE EXPLORATION

Drying and Calcination

The drying and calcination consist of heating the ore concentrate, usually in rotary kilns, in order to eliminate substances that may affect the efficiency and uniformity of the reduction process. Drying is applied in cases of ores containing large amounts of moisture. Chalking is intended to remove CO₂ and sulfur through the formation of SO₂. The process of removing sulfur, quoted above, is also known for roasting.

SAMPLE	ELEMENTS	MnT	MnO ₂	Fe	SiO ₂
	%	%	%	%	
Iraci Parreiras		51,40	70,56	1,50	3,00
After Calcination		59,80	2,54	1,80	4,50

Price of Manganese Ore



www.cme7.com.br

Parauna Project

CONE
MINE EXPLORATION