

*Phoenix Platinum (Pty) Ltd*  
*Fact Sheet on the Proposed Phoenix Platinum*  
*Chrome Tailings Retreatment Plant*  
*10 November 2010*



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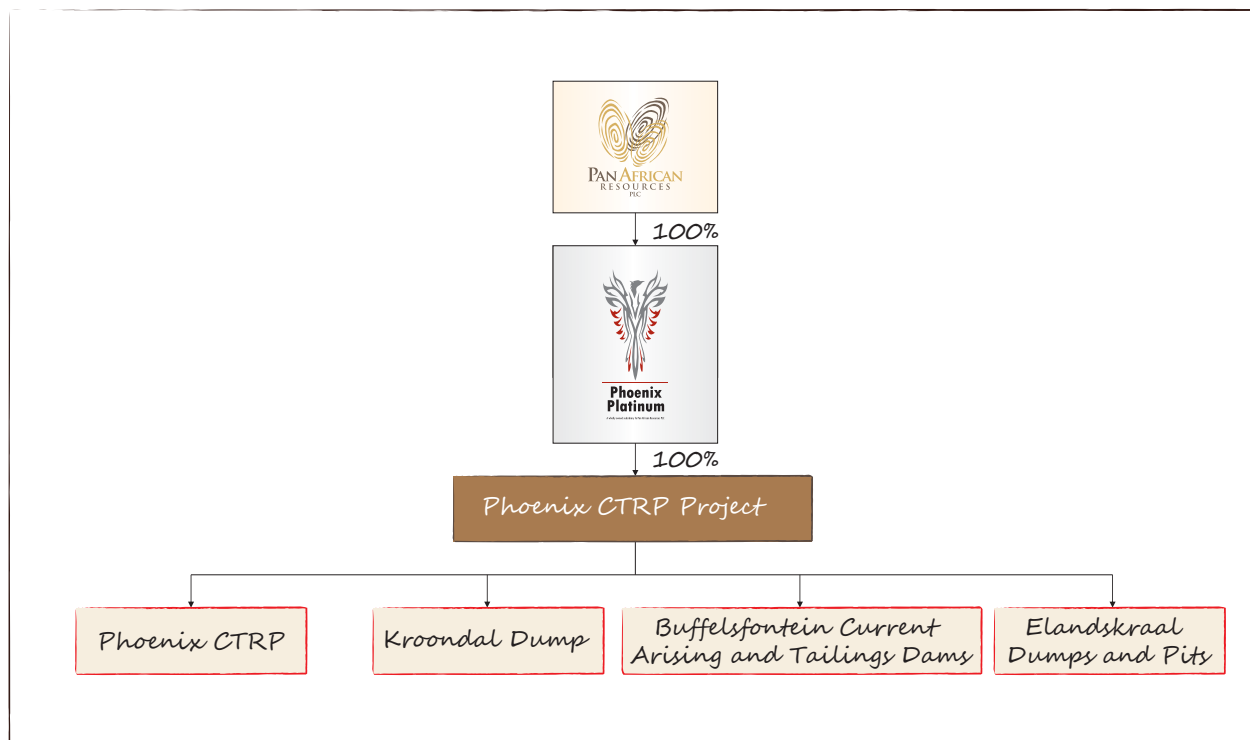
**Phoenix  
Platinum**

A wholly owned subsidiary of Pan African Resources PLC



The acquisition of Phoenix Platinum Mining (Pty) Limited ("Phoenix Platinum") by Pan African Resources plc ("PAR") in 2009 and the planned construction and operation of a PGN 4Es chrome tailings retreatment plant ("CTRP") gives PAR a low cost high margin entry into the PGM 4Es market. The corporate structure of PAR and Phoenix Platinum is presented in Figure 1.

**Figure 1: Corporate structure of Phoenix Platinum**



On 5 November 2010, Phoenix Platinum concluded a formal CTRP agreement with International Ferro Metals (SA) (Pty) Limited ("IFM") for the establishment of the CTRP on IFM's Lesedi Mine located some 40km east of the town Rustenburg in the North West Province of the Republic of South Africa ("IFM's Lesedi Mine"), as outlined in Figure 2.

The purpose of the Fact Sheet is to provide an update and brief information on the current status of the CTRP Project ("the Project"), which comprises:

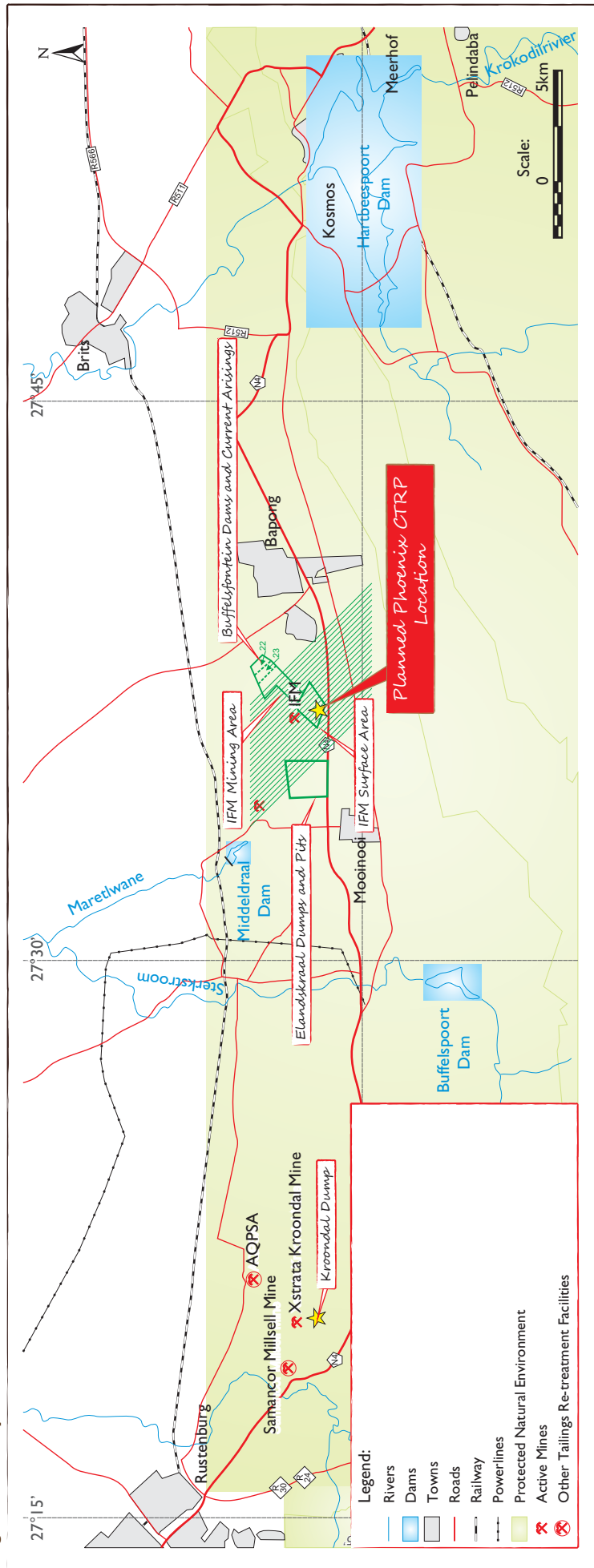
- the CTRP, to be constructed on IFM's Lesedi Mine;
- processing material from the IFM Tailings Dams and Current Arising, located on the farm Buffelsfontein;
- processing material from the Elandskraal Dumps and Pits, located on the farm Elandskraal 469JQ; and
- processing material from the Kroondal dump, located on the farm Kroondal 304JQ.

All the above properties are located in the North West Province of South Africa and are outlined in Figure 2.

Over a 17 year life of operation, the Project is expected to produce 212koz of PGM 4Es i.e. platinum ("Pt"), palladium ("Pd"), rhodium ("Rh") and gold ("Au"). The CTRP has a process capacity of 240ktpa. The total capital expenditure ("capex") requirement to construct and commission the CTRP on IFM's Lesedi Mine is estimated at ZAR104 million, at an average projected operating expenditure ("opex"), over the life of the operation, of ZAR2,742/oz (excluding smelter costs), and ZAR5,475/oz (including smelter costs).



Figure 2: Locality of the Phoenix assets



## 1. Salient Features

- Compilation of a South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves ("the SAMREC Code") compliant Mineral Resource of 469,000oz at an average grade of 3.15g/t
- Simple, cost effective technology with relatively low risk, despite the current conditions in the global economy
- A Mineral Reserve base of 212koz (PGM 4Es), giving the CTRP a 20 year life of operation
- Concluded a final CTRP agreement to establish the CTRP on IFM's Lesedi Mine
- Appointed Matomo Projects (Pty) Limited ("Matomo") to execute the Project as a lump-sum turnkey agreement
- Venmyn Rand (Pty) Limited completed an independent review on the Phoenix CTRP feasibility study
- Low opex for the Project of ZAR2,742/PGM oz (excluding smelter costs)

## 2. Key Features

<b>Independent Audit</b>	Figures reported are as reviewed and approved by external Specialist Consultants as at 1 November 2010
<b>Prepared By</b>	Phoenix Platinum Mining (Pty) Limited
<b>Competent Person</b>	Mr Martin Bevlander, Group Consulting Geologist for PAR, who is accredited with the South African Council for Natural Scientific Professions ("SACNASP")
<b>Effective Date</b>	1 November 2010
<b>Sources of Information</b>	The Fact Sheet relied on technical and financial information supplied by PAR, Phoenix Platinum, Specialist Consultants, a Competent Persons Report ("CPR") by Metallicon Process Consulting (Pty) Limited ("Metallicon"), a Mineral Resource estimate by GeoLogix Mineral Resource Consultants (Pty) Limited ("GeoLogix"), historical and current records of the Project and public domain documents
<b>Laboratory Accreditation</b>	Mintek Analytical Services Division ("Mintek") and SGS South Africa (Pty) Limited ("SGS") performed metallurgical test work and mineralogical analysis on material from the Buffelsfontein Dams and Elandskraal Dumps and Pits  Mintek's facility Accreditation No. is T0042 and complies with the general requirements of ISO/IEC 17025:2005  SGS' facility Accreditation No. is T0169 and complies with the general requirements of ISO/IEC 17025:2005
<b>Personal Inspection</b>	Personal inspection was conducted by the Competent Person, who is a full time employee of PAR.
<b>Topography</b>	The Project, comprising the Buffelsfontein Dams and Current Arisings, the Elandskraal Dumps and Pits, and the Kroondal Dump which are all located on low-lying areas to the north of the northern slopes of the Magaliesberg, between the towns of Rustenburg and Brits  The hydrographic basin of the area is almost entirely formed by the northern slopes of the Magaliesberg. Four main streams and their tributaries drain the area northwards to the low-lying areas where the whole drainage system enters the Crocodile River
<b>Climate</b>	The area is situated within the Highveld climatic zone, with warm, moist summers and cool dry winters. The climate is typical of the South African Highveld, with maximum temperatures in summer of between 28°C to 32°C, whilst minimum temperatures during winters rarely reach below -4°C. The mean annual maximum and minimum temperatures for the area are 26.4°C and 10.9°C, respectively. There is a large variation between summer and winter temperatures  Most rainfall occurs from October to March. Precipitation is usually in the form of thunderstorms during summer. These sudden downpours pose some risk of flooding in low-lying areas. However, most South African mines are exposed to this weather and precautionary measures are routine on most operations. The mean annual precipitation is approximately 550mm  The moderate climate means that exploration and mining operations can be undertaken throughout the year, with no extraordinary measures required
<b>Vegetation</b>	The vegetation in the region has been altered by agriculture and historic mining, with little natural vegetation remaining
<b>Infrastructure and Accessibility</b>	The Project is located in areas with a long history of mining activities. The infrastructure in the area is well established and well suited to mining operations, with well-maintained roads as well as electricity distribution networks and telephone systems  All the Project areas are easily accessible via either provincial or national tarred roads. Access from the tarred roads is either by fairly well maintained mine or farm roads, or a combination thereof  The adjacent town of Mooinooi and the local village Bapong within the area will provide skilled and unskilled labour for operations



### 3. History

The concept of recovering the PGM 4Es from tailings was pioneered by Phoenix Platinum through an antecedent company GB Mining (Pty) Limited that, together with Aquarius Platinum Limited, built the RKI flotation plant in the Kroondal area.

PAR acquired 100% of Phoenix Platinum from Metorex Limited ("Metorex") on 21 May 2009. Phoenix Platinum plans to recover PGM 4Es from old tailings and current arisings through Mineral Rights Agreements as discussed in Section 5, pertaining to the IFM Lesedi Mine Dams and Current Arisings, the Elandskraal Dumps and Pits, and the Kroondal Dump, as outlined below. These tailings are covered through various agreements to be the feed source for the planned CTRP.

#### 3.1 Buffelsfontein (IFM's Lesedi Mine)

IFM operates a chromite ore beneficiation plant that feeds a number of chromite furnaces on its property to produce ferrochrome. The chromite ore beneficiation plant rejects gangue minerals in the form of tailings (current arisings) to the tailings dams. The bulk mass of the tailings is made up of pyroxinites, some unrecovered chromite and PGM 4Es minerals associated with pyroxinites. Historically, IFM mined mainly the MG1 seam, with lesser amounts of MG2 included.

The PGM 4Es mineral rights in the IFM tailings dams, and current arisings situated on the farm Buffelsfontein, were acquired in 2008. The IFM tailings dams were constructed in 2006 and have to-date been used for deposition of tailings material from the IFM chrome beneficiation plant as well as small amounts of ash and bag house dust from the furnace.

There are four tailings dams on IFM's Lesedi Mine which are currently used on a rotational deposition plan.

#### 3.2 Elandskraal

The Elandskraal Dumps and Pits originate from historic Samancor and Hemic operations. Samancor operated in this area for over 30 years. Later, Hemic continued with the operations until Minco Reduction Works (Pty) Limited ("Minco") took over, and started chromite reclamation of the dumps in 2003.

Most of the tailings are MG1 with a small amount of MG2. The mineralogy of the tailings are very similar to the IFM tailings. Some tailings, originating from the old Buffelsfontein Chrome Mine chromite tailings dump, were also deposited on this site by Hemic and are referred to as the Gould Unterhalter dumps.

#### 3.3 Kroondal Dump

The common law rights to the PGM 4Es contained in the Kroondal Dump were purchased by GB Mining SA (Pty) Limited ("GB Mining") from the land owners and subsequently ceded to Phoenix Platinum.

In 1988 Gemex drilled 30 auger holes through the dump at roughly 25m centres, with the average depth being about 1.3m. A total of 272 samples were collected at 1.5m intervals (Scott, 1988). Sub-samples were obtained by riffing down to a quarter for assay by Golden Dumps Research Laboratory ("GDR"). Composite samples were also prepared for 21 of the 30 holes, which were assayed by Rio Tinto Laboratories (now Setpoint Laboratories) for individual Pt, Pd, Rh, Au and ruthenium ("Ru") analysis.

The GDR boreholes grades have a range of 0.86g/t to 3.03g/t.

### 4. Geology and Mineralisation

#### 4.1 Regional Geology

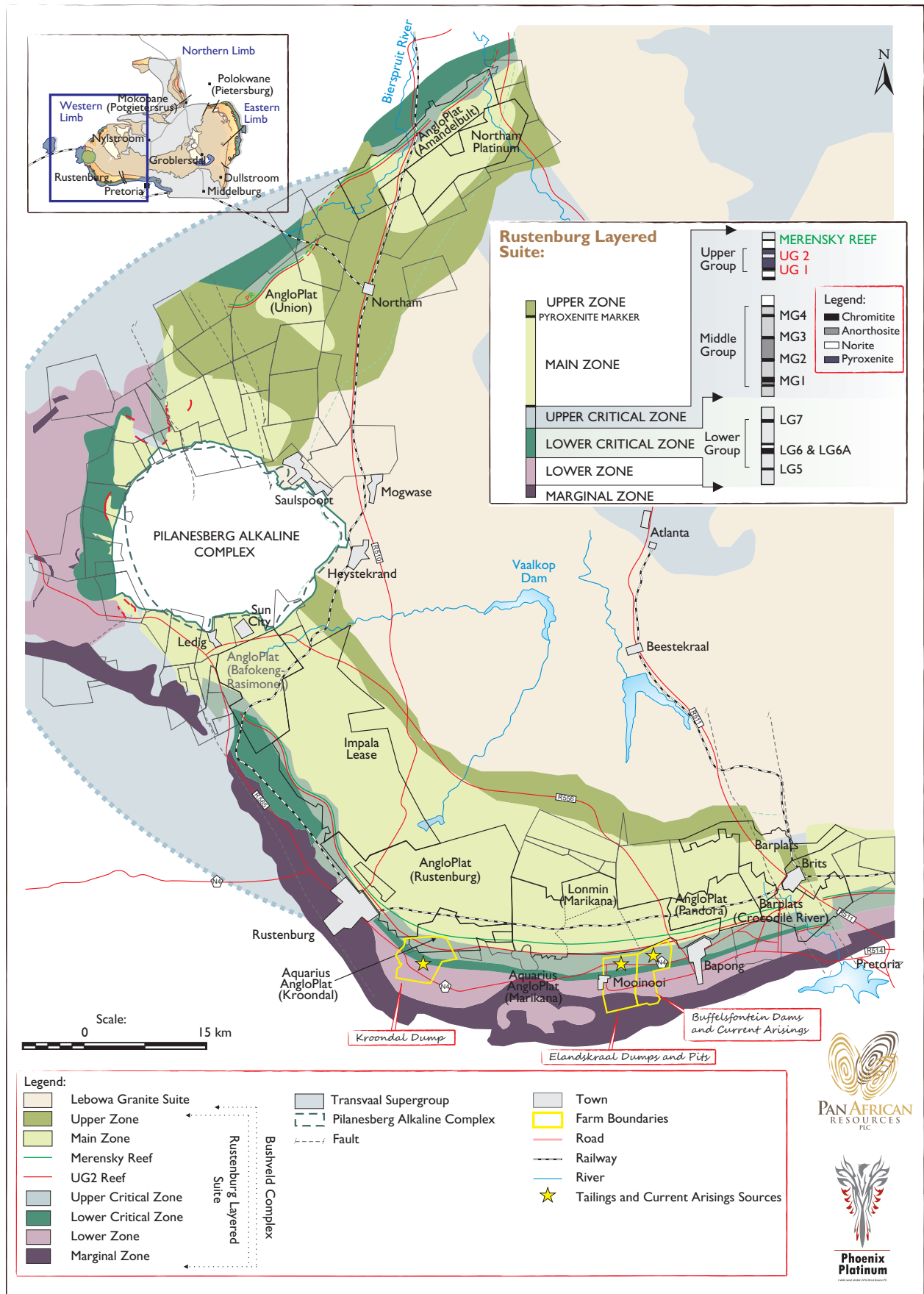
The Bushveld Complex ("BC") is the largest, layered igneous complex in the world (67,000km<sup>2</sup>) and is host to the world's largest deposits of PGM 4Es, chromium ("Cr") and vanadium ("V"). The Proterozoic (2.06Ga to 2.058Ga) BC is divided into the lower Rustenburg Layered Suite ("RLS") of ultramafic to mafic rocks, the Lebowa Granite Suite ("LGS") and the felsic extrusive rocks of the Raseebie Granophyre Suite ("RGS").

The mineralised reefs are magmatic segregation deposits within the RLS, containing economic quantities of the PGM 4Es, Cr and base metals. Throughout the BC the reefs are tabular bodies extending laterally over hundreds of square kilometres, resulting in extensive Mineral Resources which continuity has been established over many years of exploration and mining.

The RLS is further divided into three mineralised reef zones- the Lower ("LG"); Middle ("MG") and Upper Group ("UG"). The PGM 4Es mineralisation exploited by the platinum industry is the Merensky and UG2 seams laying in the UG.

Chromite seams occurring in the LG and MG are mined by the chrome producers for their chromium content. All these in-situ chromite seams have PGM 4Es mineralisation of varying degrees, which are sub-economical for PGM 4Es reserves/mining. The distribution of PGM 4Es in each seam is mainly associated with base metal sulphides, silicates and oxides within the interstitial material of the matrix and is found to be relatively homogeneous throughout each seam. In the process of recovering chromite through beneficiation plants,

**Figure 3: Regional geology of the Western Limb of the BC**



the silicates and oxides, together with PGM 4Es are released from the matrix and together with unrecovered chromite are discarded as tailings. These mechanical processes, by the chrome operators, have an upgrading effect on the PGM 4Es content in the tailings and, in many cases, to economically viable levels.

In the Project area, the PGM 4Es mineralisation in the chromite seams occur in two main reef horizons namely, the Middle Group ("MG") in the Mooinooi area and the the Lower Group ("LG") in the Kroondal area.

## 4.2 PGM 4Es Mineralogy in Chrome Tailings

Mintek performed a mineralogical analysis as part of a metallurgical test work campaign. The findings of the Mintek mineralogical analysis are summarised below:

Due to the high concentration of mass and PGM 4Es within the -15µm fraction of the composite sample, a sub-sample of this fraction was sent for mineralogy examination to determine the type and mode of occurrence of PGM 4Es (Table 1). The dominant PGM 4Es species identified was as sulphides, with a lower amount as arsenides and alloys. PtRhCuS was the dominant species contributing 43% of the PGM 4Es volume. PtAs and PtPdS contributed a lower amount of 20% and 15% by volume, respectively.

**Table 1: PGM 4Es species mode of occurrence in the test samples**

PGM	PGM 4Es volume (%)	PGM 4Es grains (no.)	Average size (µm)
PtFeFIS	0.1	1.0	1.0
PtPdS	14.9	13.0	3.4
PtRhCuS	42.8	23.0	4.2
PtS	7.7	14.0	2.4
PtPb	8.4	4.0	4.3
PtAs	20.4	18.0	3.4
PtFe	5.6	4.0	3.7
Total	100.0	77.0	–

Testwork on the PGM 4Es content in the samples analysed indicates the prill split\* as outlined in Table 2.

**Table 2: PGM prill split**

Metal (PGM 4E)	Prill split (%)
Platinum	60.9
Palladium	21.9
Rhodium	16.9
Gold	0.2

\*The percentages are not precise calculations and errors may occur due to rounding.

## 5. Legal Aspects and Tenure

### 5.1 Buffelsfontein Dams and Current Arisings – IFM

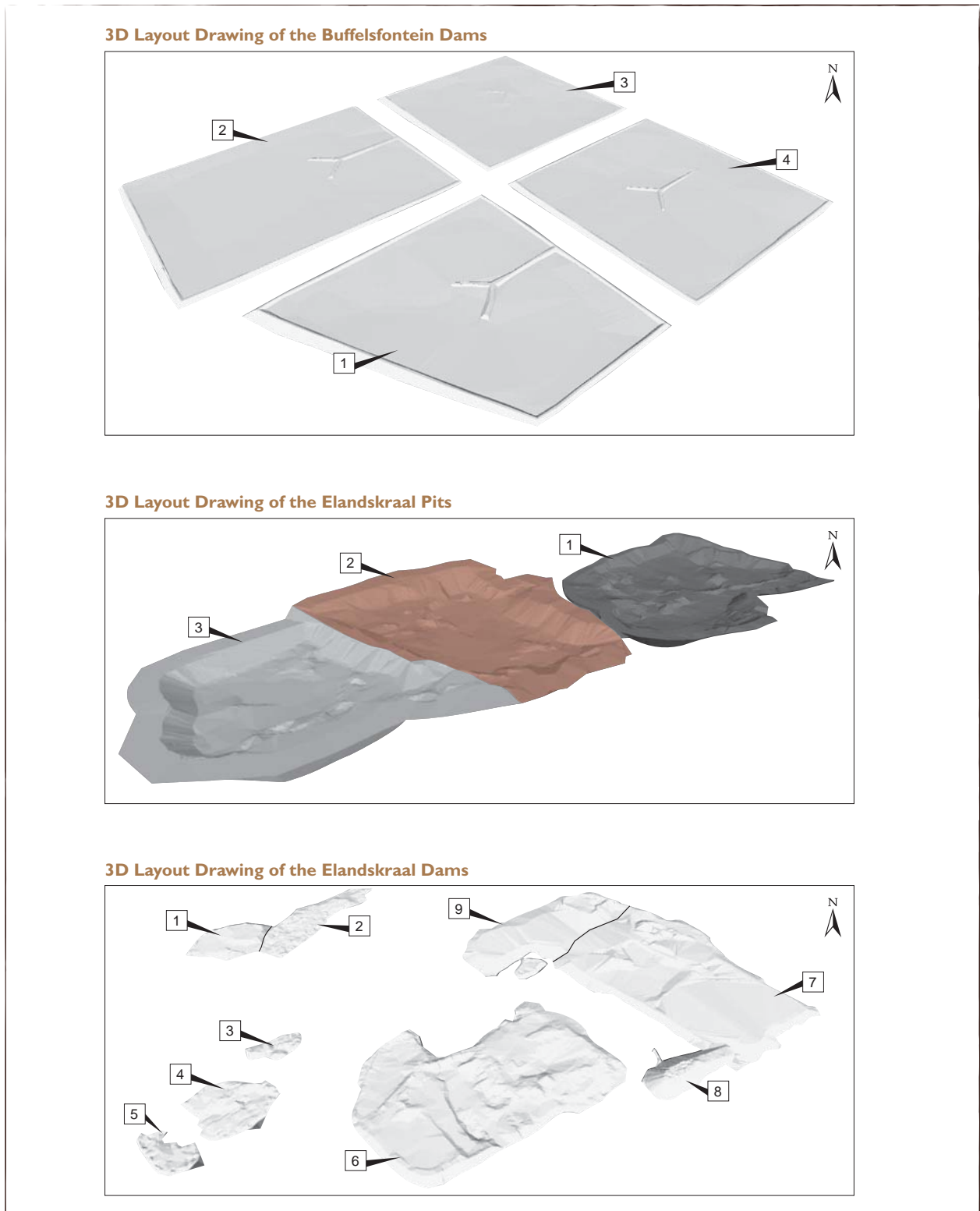
In 2003, National Manganese Mines (Pty) Limited ("NMM") sold its rights to chrome in the MG1, MG2 and other seams ("Chrome Seams") occurring on certain portions of the Farm Buffelsfontein to IFM Limited, the parent company of IFM. This purchase/sale agreement excluded the rights to all minerals in the UG1 seam and retained all the PGM 4Es rights in the tailings originating from the Chrome Seams ("the Retained PGM 4Es Rights"). On 3 October 2007, NMM ceded the Retained PGM 4Es Rights to Phoenix Platinum (Figure 3).

On 5 November 2010 PAR concluded the formal CTRP agreement with IFM, that will enable Phoenix Platinum, PAR's 100% owned subsidiary, to construct and commission a CTRP on IFM's Lesedi Mine.

The consideration of ZAR80 million (£7.2 million), payable to IFM, will be funded from existing PAR cash resources and payment will be made as follows:

- ZAR25 million (£2.26 million) payable upon signature;
- ZAR25 million (£2.26 million) on commencement of the first bulk earthworks on the site to prepare for construction of the CTRP, which is expected to be in January 2011;
- ZAR500,000 (£0.05 million) to purchase the CTRP property, on the date of the property transfer; and
- ZAR29.5 million (£2.67 million) on the commissioning of the CTRP, which is expected to be in late 2011.

**Figure 4: 3D layout drawings of the Buffelsfontein Dams, Elandskraal Pits and Dams**



The payment of ZAR80 million (£7.2 million) in phased tranches to IFM by Pan African enables Phoenix to:

- site and build the CTRP on IFM's Lesedi Mine;
- leverage off IFM's existing mining permits and licences;
- gain access to, and use of, existing infrastructure and services, substantially accelerating the commissioning of the project from three years to one year;
- enable Phoenix to expand the 20,000 tons per month CTRP capacity to a potential 40,000 tons per month;
- terminate the 25% net profit interest held by IFM in respect of the PGM 4Es contained in the Lesedi Mine;
- purchase and own the property on which the CTRP has been built; and
- secure additional tailings resources as a result of the geographical location.

## 5.2 Elandskraal Dumps and Pits – Minco

Phoenix Platinum's agreement with Minco entitles Phoenix Platinum to remove and treat 946,330t of chrome tailings from the Minco's mining area, on the farm Elandskraal, for PGM recovery. The chrome tailings are scattered around the Elandskraal farm in a number of pits, old tailings dams and tailings dumps, as presented in Figure 4.

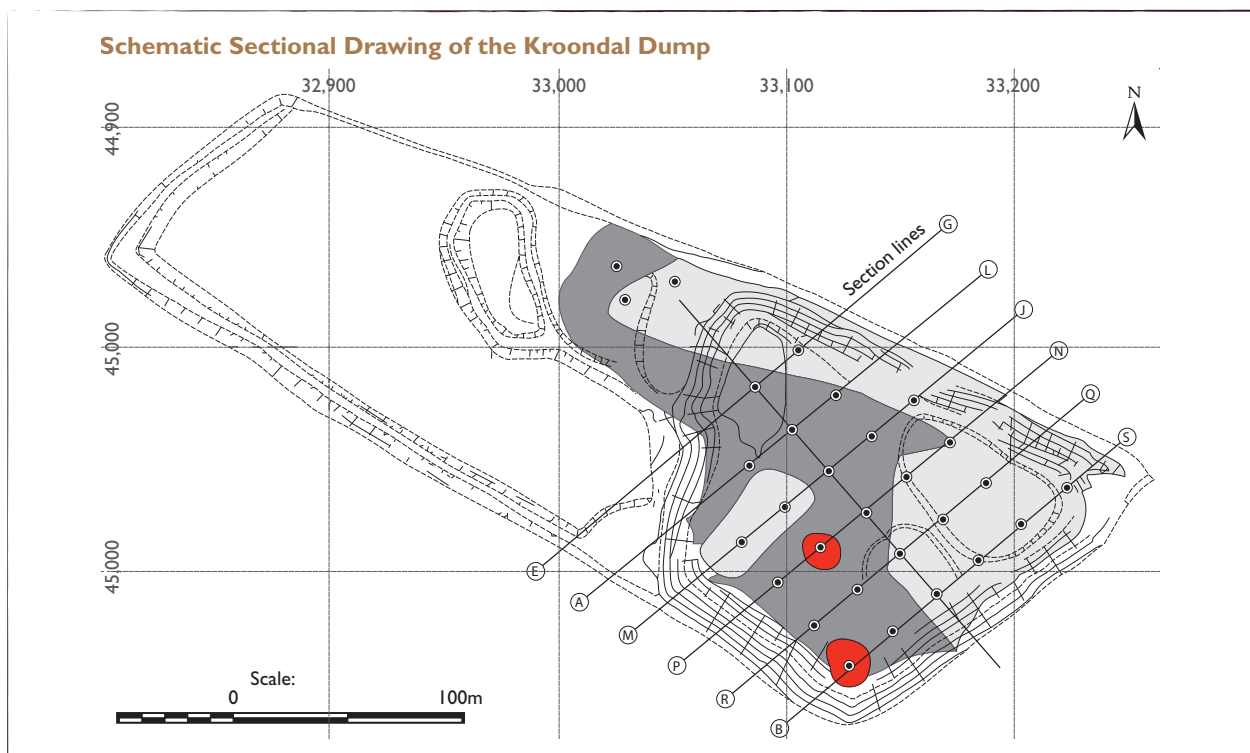
The mineral title to the Minco dumps was transferred from the original mining operator, via the current surface rights owner, to Minco under the provisions of the old order Minerals Act. Phoenix Platinum has an agreement with Minco to treat and recover PGM 4Es on the basis of a compensation payment of ZAR16.50/t of tailings removed for PGM 4Es re-treatment.

## 5.3 Elandskraal Dumps and Pits – Gould Unterhalter Dumps

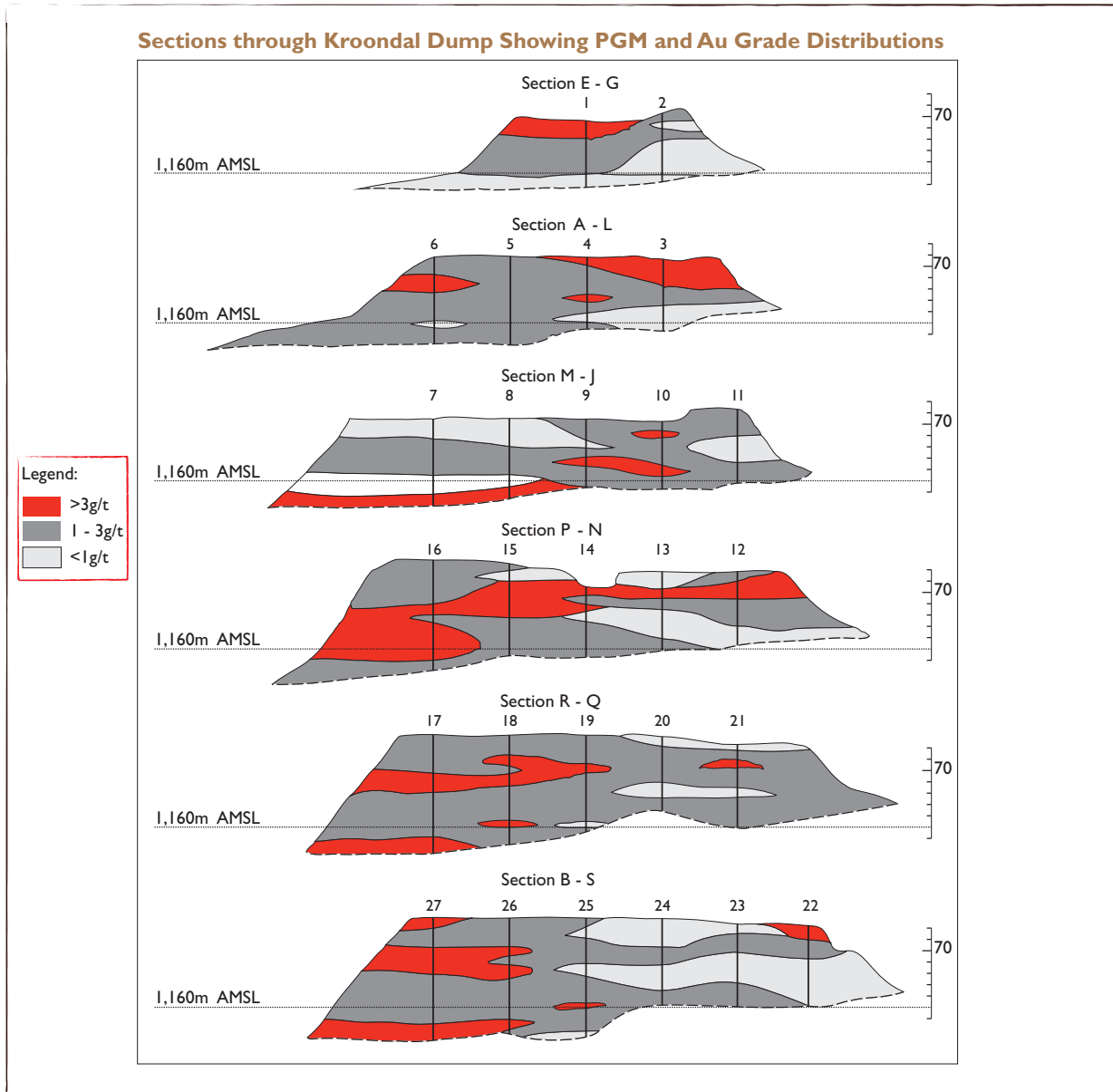
The Gould Unterhalter chrome tailings dumps and pits ("the Gould Unterhalter dumps") are situated on, and to the west of, the Minco mining area and comprise 500,000t of chrome tailings. The source of the Gould Unterhalter dumps originated from the mining operations on the old Buffelsfontein Farm (portion 139), pre the Minerals Act of 1991. Thus, the Minerals and Petroleum Resources Development Act, Act 28 of 2002 ("MPRDA") and the Minerals Act of 1991, do not apply to the Gould Unterhalter dumps. However, the ownership of these dumps and the minerals they contain is governed by common law rights, which are transferable.

No compensation is payable as the rights were purchased outright. Minco has the right to retreat the tailings and to recover chrome in the Gould Unterhalter dumps.

**Figure 5: Schematic Sectional Drawing and Sections through the Kroondal Dump**



**Figure 5: Schematic Sectional Drawing and Sections through the Kroondal Dump**



## 5.4 Kroondal Dump

The common law rights to the PGM 4Es contained in the Kroondal dump were purchased by GB Mining from the land owners and subsequently ceded to Phoenix Platinum. Xstrata Chrome owns the chrome content. No compensation is payable as the rights were purchased outright.

## 5.5 Surface Land Purchased by Phoenix Platinum.

Phoenix Platinum purchased the surface land in respect of Portions 22 and 23 of the farm Buffelsfontein 465 ("the Phoenix Property"), measuring some 75ha, from National Copper Company (Pty) Limited as a possible site for erecting the CTRP and for establishing the tailings disposal facility ("TDF") should the IFM negotiations not be successful.

The respective legal and mineral rights for the Project are outlined in Table 3:

**Table 3: Phoenix Platinum legal aspects and tenure**

Project	Farm	Ptns/RE	Right		Date		Size (ha)	Holding company	Minerals
			Type	Number	Start	Expiry			
Kroondal Dump <sup>1</sup>	Kroondal 304JQ	Ptns of Ptns 92, 93 and 102	Original Mining Permit	MP 82/2002	15/10/02	29/9/04	9.4400	Phoenix Platinum through cession from GB Mining	PGM 4Es
			Movable Asset	Protocol 74/2001 Purchased PGM rights from the Land owners	7/09/01	Phoenix Platinum owns the PGM 4Es in the dumps			
Buffelsfontein Dams and Current Arisings <sup>2</sup>	Buffelsfontein 465JQ	Ptn 11 constituted by Ptns 20,21,22, 23,24,104. Re Ptn 1	Mining Licence (Conversion lodged 10/05/2006)	ML88/2003	22/12/03	21/12/2022	328.9083	IFM	Chrome and PGM 4Es
		Ptn 12					82.2270		
Elandskraal Dumps and Pits <sup>3</sup>	Elandskraal 469JQ	A Ptn of Ptn 155	Notarial Lease Agreement	N/a as dumps are pre new order Mining Right	30/5/07	Initial period of 8 years	88.8491 (Mining Area)	Minco	Chrome and PGM 4Es
Akte van Transport T31466/1965	Renewable for 3 periods of 5 years after initial 8 year period								

<sup>1</sup> Xstrata Chrome owns the Chrome content in the dump.

<sup>2</sup> Phoenix Platinum has an Agreement (Protocol 22/2007 dated 15 November 2007) with IFM for the supply of the retained PGM 4Es Rights to process residue produced from the IFM Mining Area.

<sup>3</sup> Phoenix Platinum has an Agreement (dated 27 August 2008) with Minco to process tailings from tailings dumps on the Mining Area.

All the above properties are located in the North West Province of South Africa.

Phoenix Platinum is unaware of any legal proceedings that might influence its right to recover PGM 4Es from the tailings resources.

## 6. Exploration

### 6.1 Drilling

Metallicon was commissioned to do a full metallurgical test work campaign and to produce a Metallurgical CPR on the PGM 4Es Mineral Resource estimate of the Project, including overseeing the drilling in early 2009 of the Buffelsfontein Dams and Elandskraal Dumps and Pits. No drilling of the Kroondal Dump was undertaken, since a drilling campaign was undertaken in 2002.

The drilling pattern of the four Buffelsfontein Tailings Dams was divided into an 8 hole by 8 hole grid pattern, i.e. a 64-hole model. It was then decided that all the 64 holes modelled on Dam 3 would be drilled, and that, as this would be representative, the remaining three dams would only be drilled to obtain 24 holes (samples) on each dam, spread evenly over a similar 8-hole by 8-hole pattern.

The grids at the Elandskraal Dumps and Pits were less regular than those at Buffelsfontein due to the irregularity of the Dumps and Pits as well as the undulated nature of the terrain.



Samples were obtained from the grid patterns of each location and completely removed and composited over the entire depth of the drilled hole. This was done as major variations in resource composition over the depth of each respective dump were not foreseen and also because the future mining method would not be on a selective mining basis.

The samples were transported, under supervision of Metallicon, to the selected analytical laboratory. The information from the sampling process was analysed and three dimensionally modelled by a Mineral Resource specialist (GeoLogix) to obtain accurate determinations that would form part of a SAMREC compliant Mineral Resource statement for the Project Mineral Resource.

A total of 336 holes were drilled at Buffelsfontein and Elandskraal, as summarised in Table 4:

**Table 4: Summary of drilling programme**

Property	Number of holes	Metres
Buffelsfontein	136	164.9
Elandskraal	200	1,361.5
<b>Total</b>	<b>336</b>	<b>1,526.4</b>

## 6.2 Sample QA/QC

A sampling procedure was generated by Metallicon for PAR's Metallurgical CPR and Mineral Resource Estimation with allowance for standard industry checks and balances. From this the quality assurance ("QA") and quality control ("QC") procedures, policies and standards were developed and signed-off by all relevant parties.

QA and QC were carried out by a qualified metallurgical engineer throughout the exercise as follows:

- permanent supervision of the drillers was performed;
- all drilling and sampling tasks were counter signed for completion by the drillers and Metallicon after each step; and
- photographs were taken during the entire operation as part of QA/QC, including all the various dumps, sampling equipment and the bagged core.



As part of sampling QA/QC protocol, the sample transportation control was done by Metallicon with the receiving laboratories signed-off on receiving the correctly marked and properly packaged samples. The laboratories selected were Mintek (Randburg) and SGS (Johannesburg).

### *6.3 Sample Preparation, Analysis and Security*

Metallicon applied an industry-standard QA/QC programme throughout the project. After sun-drying the samples, wet rotary table splitting and lump dissolution, the following analysis procedures were followed:

- For the drill core samples and most of the process development test work, Mintek's analysis was based on a standard fire assay with high temperature cupellation, followed by gravimetric finish (total PGM 4Es + Au);
- SARM 76 and SARM 81 reference materials were used to ensure the accuracy of analysis (one standard per 20 samples). These standards are internationally accepted and standard industry practice within the platinum industry. Of every 10 samples requested for single assays, one is analysed in duplicate (10% check). The method can achieve a detection limit of 0.28g/t;
- For PGE 6 element analysis (Pt, Pd, Rh, Au, Ru and Ir) Mintek employed the standard fire assay method using nickel sulphide as a collector followed by the crushing, leaching and dissolution of the nickel sulphide button in aqua-regia and analysis for Pt, Pd, Rh, Au, Ru and Ir (6E) using ICP-OES. SARM 76 was used as reference material to ensure the accuracy of analysis (one standard per 20 samples). Of every 10 samples, one is analysed in duplicate (10%). Silica blank is analysed with every batch of samples. The method can achieve a detection limit of 0.1ppm; and
- SGS used standard fire assay with lead collection and ICP-OES finish for Pt, Pd, Rh, Au determination.

A bulk density value of 2.1 was used in accordance with standard chromite tailings practice and confirmed as documented in a CPR compiled in 2003 by Craton Resources cc.

## *7. Mineral Resource and Reserve Statement*

### *7.1 Introduction*

Metallicon was also tasked with developing the metallurgical process and a Mineral Resource Statement in the form of a CPR entitled: "Competent Person's Report: The Phoenix Project Resource", by MValenta and N Pretorius, dated 5 August 2010. Metallicon used the results of the drilling campaign and the historic information available on the Kroondal Dump.

### *7.2 Mineral Resource Estimate*

The Mineral Resource Statement has been compiled in accordance with the SAMREC Code. The verification and validation of the data was managed by Mr. Martin Bevelander, Group Consulting Geologist for PAR, who is accredited with SACNASP.

The services of the following independent contractors, consultants and experts were secured to assist and support the Mineral Resource estimation:

- Sampling and drilling was performed by independent contractors Plat-Tau Mining Services, Gold Mine Sand and Slime Dams Drillers cc and Dump and Dune Drillers (Pty) Limited;
- Assaying, mineralogy and metallurgical test work was performed by independent certified laboratories Mintek and SGS;
- Geological modelling and data conversion for the Mineral Resources was performed by GeoLogix, a South African Resources and Geological Consultancy. Deon van den Heever is accredited with SACNASP;
- Managing of metallurgical test work and compilation of a CPR was performed by Metallicon. Michael Valenta is a Professional Engineer registered with the Engineering Council of South Africa and on the International Register of Professional Engineers as specified under the Washington Accord; and
- Eugene Nel from ENC Minerals (Pty) Limited ("ENC Minerals") compiled the process design criteria, opex estimate and assisted with interpretation of the metallurgical test work.

Table 5, Table 6 and Table 7 summarise the SAMREC Code compliant Mineral Resource estimate for Phoenix Platinum.

**Table 5: Surface Tailings Resource (Dumps and Pits) \***

Category	Volume	Tonnes	Grade (4E) g/t	Kilos	Ounces
Measured	775,000	1,627,000	2.54	4,130	133,000
Indicated	83,000	175,000	2.03	355	11,000
Inferred	77,000	162,000	2.00	324	10,000
Total	935,000	1,964,000	2.45	4,809	155,000

**Table 6: Current Arisings Resource**

Category	Volume	Tonnes	Grade (4E) g/t	Kilos	Ounces
Measured	761,000	1,597,000	3.66	5,845	188,000
Indicated	211,000	443,000	3.66	1,622	52,000
Inferred	305,000	642,000	3.66	2,348	75,000
Total	1,277,000	2,682,000	3.66	9,815	316,000

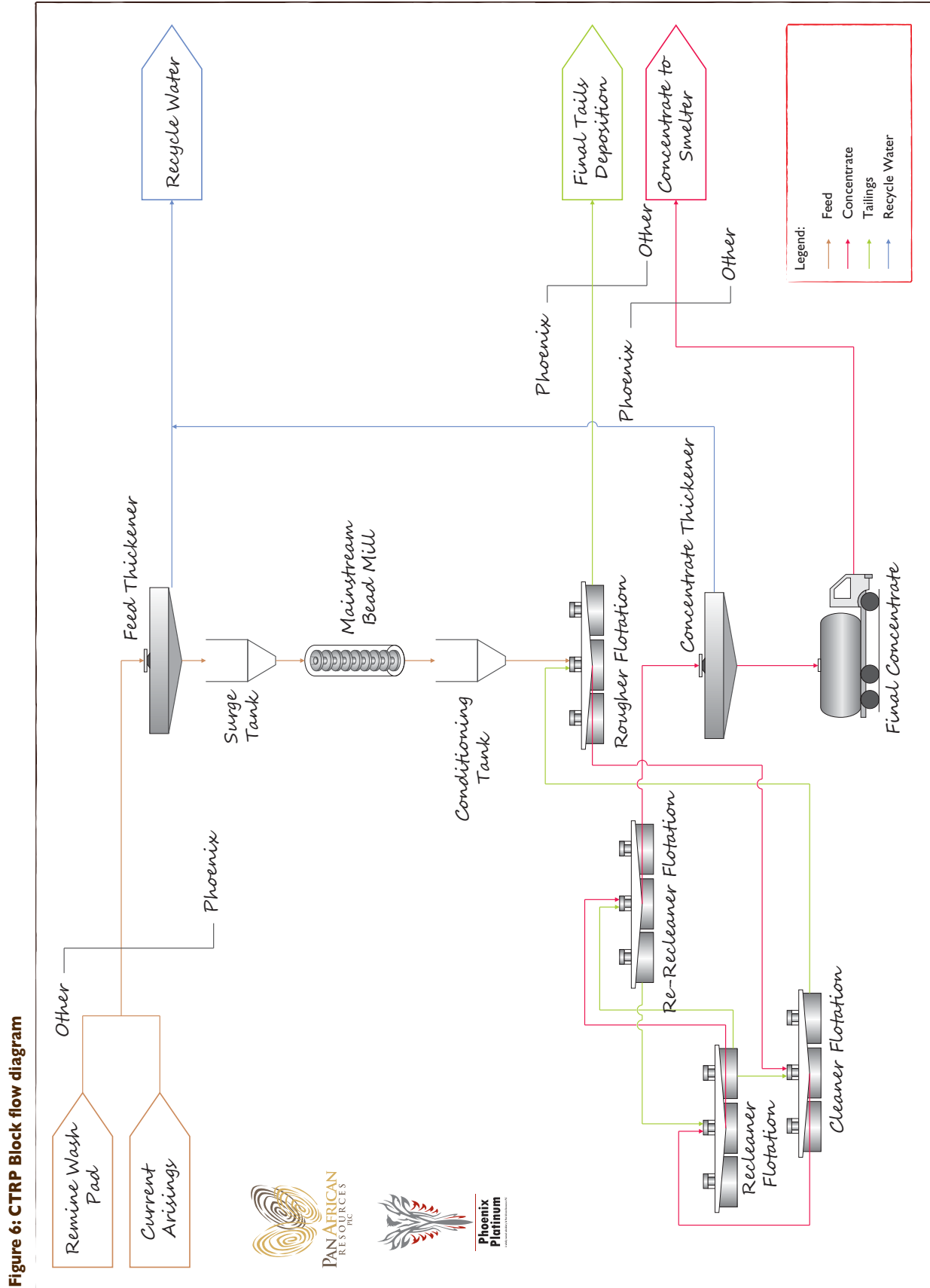
**Table 7: Total Mineral Resource (Dumps, Pits and Current Arisings)**

Category	Volume	Tonnes	Grade (4E) g/t	Kilos	Ounces
Measured	1,536,000	3,224,000	3.09	9,975	321,000
Indicated	294,000	618,000	3.20	1,977	63,000
Inferred	382,000	804,000	3.33	2,672	85,000
Total	2,212,000	4,646,000	3.15	14,624	469,000

\*Mineral Reserve estimates are not precise calculations and errors may occur due to rounding.

## 8. Metallurgical Consideration and Process Flow

The metallurgical process required to produce PGM 4Es concentrates from chromite tailings feedstock is similar to that employed by the platinum producers. As outlined in Figure 6, the treatment process will entail upfront milling followed by a rougher flotation stage and three stages of cleaning to produce a concentrate for forward selling to a platinum smelter.



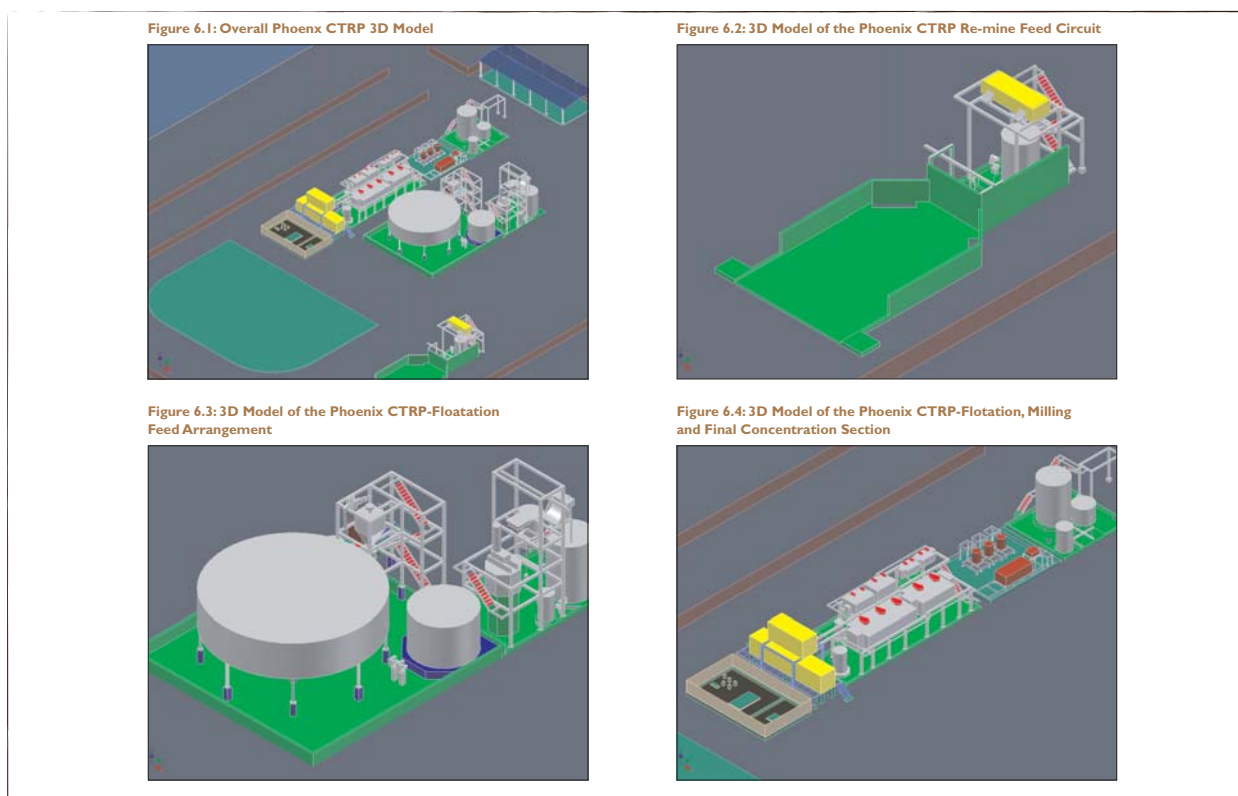
Metallurgical test work specific to the current arisings from both Minco and IFM was conducted and that was used to develop the conventional flotation circuit consisting of rougher flotation and three stages of cleaning. Main stream bead milling was also recommended. Venmyn performed an independent review of the process design of the Phoenix CTRP and concludes that the metallurgical test work supports the selected process flow of the Phoenix CTRP.

Other successful tailings retreatment plants have been constructed by Aquarius, GB Mining (RK1) and Sylvania Resources Limited over the past five years. These have been an effective learning experience for the industry and have been used as a realistic knowledge support base for the Phoenix CTRP. The Phoenix CTRP layout and design is simple, cost effective, easy to operate and an improvement of previous designs. Figure 7 presents a 3D layout of the overall Phoenix CTRP.

Recovery rates being achieved at some of the early plants vary between 30% and 40%. However, following the introduction of ultra fine grinding, increased retention time and enhanced chemical additives, recovery rates are expected to be between 40% and 50%.

The metallurgical test work has been redefined into a CPR that was compiled by Metallicon and used as the basis for the process flow and design criteria. This subsequently formed part of a review of the Project and feasibility study by Venmyn.

**Figure 7: 3D Layout drawings of the CTRP**



## 9. Capital and Operating Expenditure

Matomo was contracted to conduct an order of magnitude ("OOM") estimate of the Phoenix CTRP at a production rate of 20,000 tons per month, following which Matomo refined the OOM into a control budget estimate ("CBE") to an overall accuracy of 15%.

Metallicon and ENC Minerals were appointed as metallurgical consultants to the Project.

Matomo, Metallicon and ENC Minerals have each independently extensive experience in the design and construction of CTRPs. Various process design alternatives were considered, trade-offs and detailed reviews performed.

The process and engineering design for the Phoenix CTRP was reviewed by Metallicon, ENC Minerals, Dr Evan Kirby, Gordon Ramsay and Matomo Projects and has been converted into a detailed engineering design and capex and opex estimates.

The total capex requirement to construct and commission the Project on IFM's Lesedi Mine is estimated at ZAR104 million, which is based on a fixed LSTK proposal by Matomo including contingencies and reserves.

The opex of the Project is estimated over the life of the operation to be ZAR2,742/oz (excluding smelter costs) and ZAR5,475/oz (including smelter costs).



## 10. Overall Project Schedule

The overall project schedule, commencing in August 2010 with the procurement of the long lead items and process engineering and completion of cold (water) commissioning, at the end of August 2011, is estimated to have an overall duration of 12 months, including a three week Christmas break.

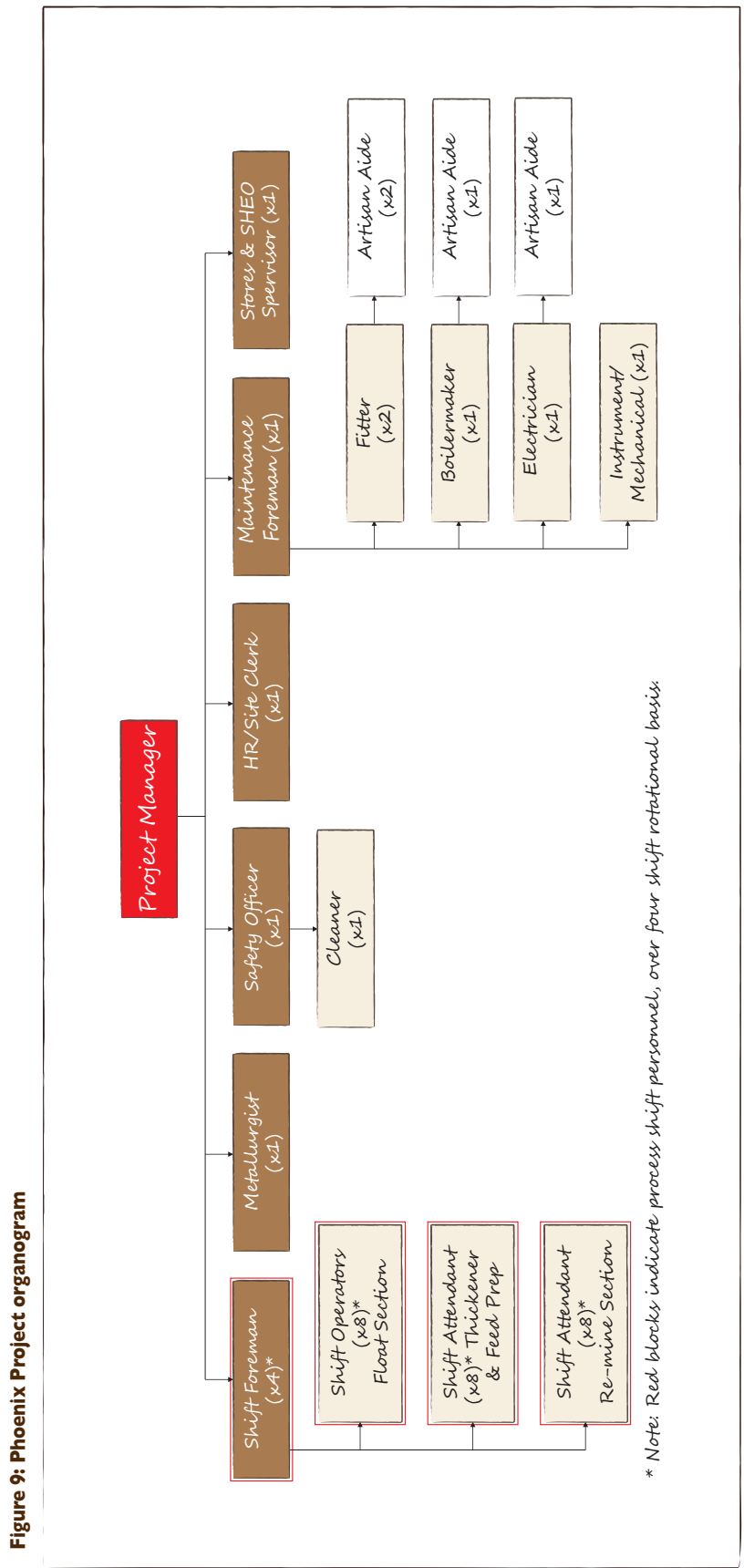
The overall schedule can be broken down into the following high level activities:

- Completion of the process design during August 2010;
- Procurement of equipment and contractor services to commence between October 2010 and November 2010;
- Construction, erection and installation commencing in November 2010; and
- Commissioning during October 2011.



# 11. Phoenix CTRP Staff Organogram

The overall labour complement for the Phoenix CTRP is 44 and is presented in Figure 9.



## 12. Potential Project Risks

The following items pose as potential risks to the overall project schedule and costs:

- Uncertainty remains regarding the Platinum market, the basket price forecast for PGM 4Es, and the ZAR/USD exchange rate. Any change to these will influence Project revenue;
- The stability of the chrome market and the sustainability of the IFM operation can influence a decrease in tailings generated by IFM, consequently influencing a feed source to the Project; and
- Opex.

The following potential risks to opex increases have been identified during a review:

- Labour costs:  
Labour constitutes the highest contributor to opex, at nearly 40%. Labour costs are not expected to increase by more than 8% in the next 12 months. However, any substantial increase due to new labour legislation or remuneration packages will affect this component.
- Steel pricing/market:  
Steel costs do not directly affect opex but could affect the cost of maintenance consumables such as pump spares, agitators, blowers, etc. These contribute less than 10% of total opex and the steel component in these costs is fairly low; consequently, the risk to excessive increases is minimal.
- Reagents and grinding media:  
These items are strongly linked to the value of the rand, which is prone to fluctuations. There is a strong possibility that the cost of these items will change prior to final plant start-up. However, the effect will be mitigated by these items constituting only 15% of overall opex.
- Improved reagent selection:  
Refining and upgrading of the reagent suite has potential to improve plant efficiencies that would positively influence the opex, which may increase the ZAR/t input cost and reduce ZAR/oz revenue due to improved recoveries.
- Electricity and water:  
A large increase (25% planned for 2011 and 2012) in electricity costs is known and will affect the opex estimate, which will be slightly mitigated by the favourable off-take agreement between IFM and Eskom.

## 13. Glossary of Terms

Definition of Platinum, PGEs ("4Es, 6Es") and PGM 4Es:

- The name platinum ("Pt") refers to a mineral, an element and a group of elements;
- The platinum group of elements ("PGEs") consists of metals with similar physical properties. They are among the rarest elements in the earth's crust. They have high melting points, are dense or heavy (mineralogists say they have a high specific gravity), and are very non-reactive to other elements and ions;
- The platinum group elements (periodic table number in brackets) include: ruthenium ("Ru") (44), rhodium ("Rh") (45), palladium ("Pd") (46), osmium ("Os") (76), iridium ("Ir") (77) and platinum ("Pt") (78);
- Of these elements, only Pt and Pd are found in a pure form in nature;
- The others occur in nature as natural alloys (compounds) with Pt, gold ("Au") and each other with varying amounts of other metals and minerals;
- Industry refers to this group of elements as the platinum group metals ("PGMs");
- Industry refers to PGM 4Es as Pt, Pd, Rh, Au; and
- Industry refers to PGM 6Es as Pt, Pd, Rh, Au, Ru and Ir.

Tailings are any ore, debris, discard, slimes, slurry, waste or other product derived from or instrumental to mining operations or any related washing or processing activity.







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