Open Pit Kimberlite Mining
Excavation of the pit into the kimberlite pipe using hydraulic shovels, ore trucks and explosives.

Tailings Deposit
Tailings are residual material from the plant. Reprocessing the tailings material will recover further diamonds.

Open Pit Mining
Step open pit mining, used at the Williamson mine in Tanzania and the Ebenhaezer satellite pipe at Koffiefontein.

Underground Block Caving
This mining method is used at Petra’s South African mines.

Formation
Diamond formation occurred deep within the Earth’s mantle billions of years ago. High temperature and pressure conditions resulted in the crystallisation of carbon into diamond. The diamonds were then carried to Earth’s surface during rare volcanic eruptions of molten rock, which then cooled to form carrot-shaped ‘pipes’ known as kimberlites.

Plant on Surface
Kimberlite is crushed into progressively smaller sizes in order to eventually liberate the diamonds from the ore. The material is processed through the plant using screens, jigs, scrubbers, gravity pans and dense media separation. Diamonds are finally extracted using X-ray technology and grease tables.

Ore Handling
Ore is transported to the plant via the main shaft. Ore extracted to the haulage level either by conveyor belt or locomotive.

Broken ore is removed from drawpoints by LHD vehicles.
The mines within Petra’s portfolio produce the full spectrum and often the most valuable. Cullinan is renowned as the world’s only reliable source of blue diamonds, Williamson is known for its ‘bubblegum pink’ diamonds and Finsch and Kimberley Underground are known for fancy yellow diamonds. Petra’s mines have the capacity to produce world-class gems Type II diamonds. Petra has mined and sold several exceptional diamonds including the following:

**The Cullinan Heritage**

This 507 carat diamond was recovered on South Africa’s ‘Heritage Day’ in 2009 at Cullinan and was quickly ascertained to be the nineteenth largest high quality gem diamond ever discovered. Petra sold this historic stone in February 2010 for US$35.3 million, being the highest price on record for a rough diamond.

**Blue Moon**

This exceptional 29.6 carat blue diamond was discovered at Cullinan in January 2014 and was noted as an outstanding blue with extraordinary saturation, tone and clarity. It subsequently sold in February 2014 for US$25.6 million (US$862,780 per carat – possibly a world record per carat for a rough diamond) to Cora International NY through the South African company Golden Yellow Diamonds.

After cutting and polishing, the stone was unveiled as the ‘Blue Moon’, a 12 carat cushion-cut diamond of the highest quality – being ‘fancy vivid’ blue in colour and ‘internally flawless’ in clarity.

**Jewellery manufacturing and retail**

For hundreds of years, diamonds have been given to celebrate important moments in people’s lives such as engagements, weddings, anniversaries and births. Demand for diamonds continues to rise in both established and new markets. The fastest growing new consumer markets are China and India, both of which are recording double digit growth year on year. There is a positive long term outlook for the rough diamond market due to inherent production constraints which suggest that supply will struggle to keep pace with demand.