

**KEY FEATURES**

Independent Qualified Person  
Non-Independent QP  
Effective Date  
Prepared for  
Purpose  
Company Year End:  
Personal Inspection

General Location

Licence Status

Royalties

BEE Compliance

Climate  
Infrastructure/Accessibility

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30 November 2010  
Rockwell Diamonds Inc  
Annual Information Form and Mineral Resource Statement Update

Ends February 28  
Site visits by independent QP during 30 Aug – 2 Sept, 2010. All open pits and infrastructure inspected.

Located in the Hay district of the Northern Cape Province of South Africa approximately 124km southwest of Kimberley. The operations are located on Niewejaarskraal 40 and Viegulands Put 39 (total of 3,085.695ha).

- The Niewejaarskraal mining right was ceded to Saxendrift Mine (Pty) Ltd on 3 March 2009 under Protocol 06/2009
- The Viegulands Put prospecting right (converted into a new order right) was ceded to Saxendrift Mine (Pty) Ltd on 11 April 2008 under Protocol 15/2008
- The Niewejaarskraal prospecting right (converted by Mvela into a new order right) was ceded to Saxendrift Mine (Pty) Ltd on 11 April 2008 under Protocol 12/2008

The Niewejaarskraal operation is subject to a State royalty. The rate is based on a sliding scale, dependent on the EBIT profitability of the operation, subject to minimum and maximum rates (for diamonds, as unrefined minerals) of 0.5% and 7.0%.

African Vanguard Resources owns 26% of the Saxendrift project. An accepted Social & Labour Plan is in place, covering all of the Rockwell operations.

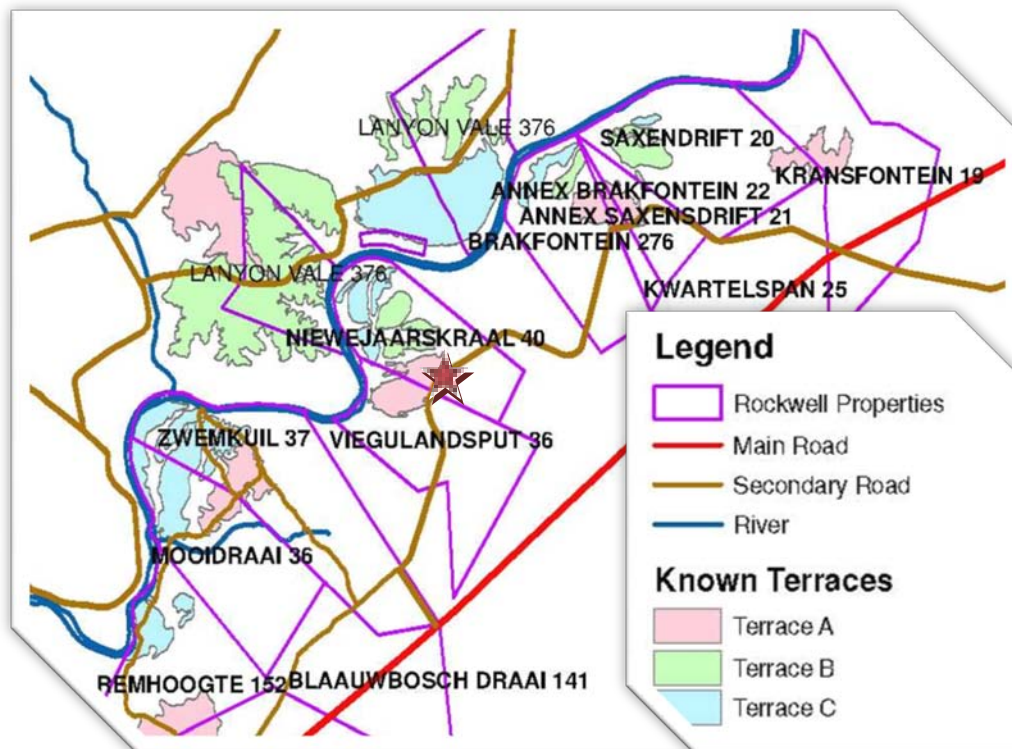
Saxendrift project is located in an arid to semi-arid, Karoo environment.

Electrical power and water resources have been accounted for. Mining personal readily available and regularly rotated. Tailings and waste disposal sites have been identified and are currently in use. Operations accessed by good network of all-weather gravel roads.

**HISTORY**

Historical records indicate that only 140 carats have been recovered from Niewejaarskraal – probably derived from the Rooikoppie gravels situated close to the north-eastern boundary with Kalkkrans. In the early 1970's ASAM Minerals is known to have excavated a number of trenches, but little is known regarding the results of any processing done. During

1997 and 1999 Pioneer Minerals (Pty) Ltd completed reconnaissance percussion drilling surveys on a number of farms in the Northern Cape, Niewejaarskraal and Viegulandsput, among them. The Niewejaarskraal Project was held by TransHex (THO) from 2001 until the sale to Rockwell in 2007/2008.



## GEOLOGICAL SETTING

The present Orange River between Douglas and Prieska, generally referred to as the Middle Orange River (MOR) displays a meandering channel morphology, best developed in areas underlain by the Dwyka Group. Palaeochannel depositional packages of the MOR are preserved at different elevations above the present Orange River bed, namely:

Lower (+20m or C) Terrace:	0-30m
Intermediate (or B) Terrace:	30-60m
Upper (+70m or A) Terrace:	60-90m
High Terrace:	+ 110m

Diamondiferous Rooikoppie gravel scree slopes higher than the oldest preserved fluvial deposits suggest that even older and higher elevation palaeo-deposits were present and have been removed completely by erosion.

The ages of these terraces young with decreasing elevation and vary from Pleistocene-Pliocene for the lower terraces to Plio-Miocene for the upper terraces. Conversely, the probability of preservation decreases with increasing age and elevation.

The most consistent high level palaeo deposit, and the one on which the geological model for this area was developed, occurs between 60-90m above river level. These deposits represent palaeomeanders exhibiting a wavelength of approximately 13km and an amplitude of about 6km, very similar to that of the modern-river. These gravel deposits occur at about 1000 masl. and generally slope slightly to the south, away from the Orange River. Both the calcrete cap and the bedrock exhibit this same slope. The meanders are generally covered entirely by either calcrete or wind-blown sand, or both, but careful mapping have defined points of entry and emergence of palaeochannel deposits from underneath the upper calcrete cap, along the valley scarps.

Frequency of occurrence suggests that the known deposits represent the complete palaeochannel profile for this section of the river. The correspondence in palaeo- and modern river morphology, for this cycle, indicates that this sector of the Orange River system remained in relative equilibrium since, probably, the Miocene. All the preserved meanders at this elevation lie to the south of the present river channel suggesting that meander cut-off occurred mostly along the northern loops of the meanders. This may be an indication of regional slope to the south or slow, continuous uplift to the north.

The primary sources of diamonds trapped in the palaeogravels of the Orange River are kimberlites and intermediate secondary sources like eluvial, colluvial and fluvial deposits in the catchment regions of the Vaal and Orange rivers. These diamonds were deposited along the course of the river in favourable trap sites either in bedrock-traps or in point-bar complexes and within-channel bars, particularly in meanders, scour pools and areas of divergent flow.

In the range of deposits on Wouterspan and within the context of the model presented diamonds were first deposited in gravel units at an elevation of + 110m above the present river. As a result of consecutive cycles of continental uplift and erosion, the oldest diamondiferous gravels deposited by the Orange River have been recycled and re-deposited repeatedly through time down to the lowest level gravels as preserved today. Lower elevation terraces (less than about 30 m above present river bed) of the Orange River are typified by up to 30% sand matrix with a high proportion of zeolite-rich sand lenses and a high proportion of red Drakensberg basalt clasts. These gravels normally exhibit intermediate to low diamond grades. They are typically cobble-pebble gravels with occasional boulders. Clast

composition is dominated by BIF +60%, andesite, dolerite, shale, quartzite, riebeckite and others with a low percentage of agate and amygdales. Clast-rounding is moderate, packing is moderate to poor which impacts negatively on diamond entrapment potential. Average grades of 0.5-1.2ct/m<sup>3</sup> or 0.23-0.54cpht are known with the occurrence of occasional large stones.

The lowest terrace does not appear to be as calcreted as the upper two terraces and mining is, therefore, easier. Lower terrace deposits are generally covered by 1-4 m of sand whereas the upper terrace deposits are capped by a hard calcrete layer some 2 - 3 m thick which protected the gravel deposits from erosion and prevented exploitation in the past.

Three terraces (A, B, and C) are known to exist on the Niewejaarskraal mine property. These terraces all occur at progressively lower elevations down the northwest slope of the property. The bedrock is well exposed in the workings and shale and tillite of the Karoo age Dwyka Group, are common. The bedrock displays an irregular erosional surface with gully and pothole features creating high diamond trapping potential.

Thin (<2m), extensive Rooikoppie blanket the property. The fluvial-alluvial sequence is comprised of a basal gravel overlain by a generally upward-fining sequence with hanging gravel lenses known as "Middlings". The sequence is covered by a (non-silcreted) calcrete cap, generally less than 5m thick. Post-depositional weathering of this calcrete has formed solution hollows called "makondos" which are often filled with diamond-enriched Rooikoppie gravels.

## MINERALISATION

The palaeochannel gravels are mineralised by diamonds derived from the weathering and erosion of kimberlites present in the headwaters of the palaeo-Vaal River system. Colluvial and eluvial post-depositional modification of these fluvial-alluvial deposits resulted in the formation of the Rooikoppie gravels.



**Rooikoppie gravels on Niewejaarskraal mine**

Numerous studies have shown that the majority of the alluvial diamonds in gravel deposits along the Vaal River are derived from two distinct gravel horizons. These comprise an upper deflation deposit (Rooikoppie) and an underlying (Primary fluvial-alluvial) gravel unit. The Rooikoppie is not an alluvial deposit, but rather a lag-derived or deflation deposit. Subsequent to its deposition, the terrace gravel has been

calcreted through the evaporation and subsequent re-deposition of carbonate-rich meteoric water during relatively dry periods. This has led to the replacement of both the matrix material and all but the most siliceous clasts in the upper parts of the gravel by calcrete. Spaces between the clasts of this gravel were later filled with wind-blown iron-stained sand.

The primary palaeo-fluvial succession comprises various proportions of gravel, sand and silt (typically with a basal gravel unit of up to 2m in thickness and an overlying "middlings" unit of up to 6m). Cross-bedded, fine-grained to granular sand layers and lenses reflect lateral stream migration and point bar build-out. Stacked, upward fining sand to pebbly sand to gravel cycles generally represent channel fill deposition. Very fine-grained silty sands reflect upper meander deposits that formed prior to meander cut-off (ox-bow lake phase). Massive, clast-supported gravel beds are generally chaotic without any visible gradation or layering. Most of the primary sedimentary features have been destroyed by the subsequent calcretisation. The poorly sorted gravels vary from pebble to cobble gravels, generally with a fair percentage of boulders (rarely + 1m diameter). Interbedded sandy or granule beds and lenses occur frequently in more sandy, matrix supported gravel successions.



**Fluvial-alluvial gravel sequence on Niewejaarskraal**

Under arid conditions low stream flow typically results in wide, shallow channels. The valleys displays moderate sinuosity and braiding may be frequent. Braided streams are highly transient environments. The braided channels are unstable through time and gravel bars are formed and destroyed continuously. Shifting bars and channels cause wide variations in local flow conditions resulting in varied depositional assemblages. Common features in braided stream deposits include irregular bed thicknesses, restricted lateral and vertical variations within the sediments, and abundant evidence of erosion and re-deposition.

In alluvial deposits diamonds occur in clusters formed by natural traps such as gullies, potholes and gravel bars. Diamonds constitute discrete units of varying size (weight) and usual parameters of grade measurements are not entirely applicable. Individual diamonds are not evenly or uniformly distributed throughout an alluvial deposit; neither are they randomly distributed. Rather, their distribution has been described as a random distribution of clusters of points. Consequently, in order to be effective and reliable, individual sample sizes may need to be relatively large. Due to the nature of the distribution of diamonds throughout a deposit the grade estimated from any individual sample can vary widely. A

single sample provides only a limited amount of information and the conclusions drawn are, correspondingly, uncertain.

#### EXPLORATION

Due to the nature of mineralization of alluvial diamond deposits with low grades and large stone sizes, it is not possible to assay for diamond. To date no other minerals or elements that can be assayed are known to show positive (or negative) relationships with diamonds in alluvial deposits. Consequently, neither borehole nor pit samples are collected for assay. Rather, large bulk-samples are typically processed to determine in-situ grades and diamond qualities.

#### DRILLING

The existing THO drill database was used to estimate the gravel volumes present on Niewejaarskraal. After the data had been verified volume estimation was completed using two software programmes. Based on Rockwell's standard criteria, the Inferred resource volumes present were estimated and figures represent volumes available in the ground, fully depleted of material removed by THO.

#### SAMPLING

In 2000, THO developed the Niewejaarskraal Mine and started full-scale production in April 2002. By 2005, Niewejaarskraal Mine was mining Rookoppie gravels at a rate of 30,000m<sup>3</sup>pm and processing them through the DMS plant. A total of 8,456cts had been recovered from the mine to December 2005. In January 2007 Saxendrift Mine was placed on care and maintenance and shortly thereafter Niewejaarskraal Mine followed suit. No sampling or production has taken place on the property since then. Reconciliation between sampling and production results will be presented in a forthcoming report, once Rockwell has processed sufficient gravels to make such comparisons meaningful.

#### MINERAL PROCESSING

Since the upper 2-3m of the fluvial-alluvial sequence is calcreted to varying degrees – usually to laminar or hardpan levels. the sample block needs to be blasted before excavation. This has the effect of breaking up the hard calcrete carapace without damaging diamonds. The broken calcrete material is then stripped off using hydraulic excavators. In various areas of the property varying depths of calcretisation has meant that some of the upper gravel layers are also highly cemented. If this material is simply excavated and then loaded, large amounts of calcreted gravel chunks are sent to the plant. Due to the nature of these chunks, unknown numbers of diamonds would be locked up and lost to the recovery system. However, in order to mitigate against this problem, prior to excavation, the gravels are ripped by a bulldozer. This effectively liberates the gravels (and the diamonds) from the calcrete matrix. The disaggregated material is then loaded by excavator, onto ADT's and transported to the plant site for further processing.

The material will be processed through a refurbished and upgraded plant comprising rotary pan plants and in-line pressure jigs, followed by a DMS. The concentrate will be transported to the Saxendrift final recovery through a bank of FLOWSORT machines and final hand-sorting.

**MINERAL RESOURCE ESTIMATES**

During 2008 Rockwell re-evaluated the resource data for Niewejaarskraal, based on group standard operating procedures. THO began trial-mining in 2001 and full-scale operations at Niewejaarskraal in August 2002. Between then and December 2005, when the operation was put on Care & Maintenance, a total of 0.76Mm<sup>3</sup> gravel was mined, and 0.8 Mt processed through the Niewejaarskraal Dense Media Separation plant. Work by Rockwell on the neighbouring Saxendrift mine resulted in increased diamond recoveries - the expected average grade increased from 0.8ct/100m<sup>3</sup> to an average of 1.3ct/100m<sup>3</sup> as a result of better liberation and recovery techniques. It is, similarly, expected that the same improvements in diamond recovery will be applied to the Niewejaarskraal operation and result in increased grades.

However, until a sufficiently large volume of gravel has been processed by Rockwell the existing (THO) grades of 0.84ct/100m<sup>3</sup> will be applied to all the resources identified on Niewejaarskraal.

**PRELIMINARY ECONOMIC ASSESSMENT**

During 2009/2010 Rockwell has proceeded with plans to complete trial-mining and a pre-feasibility study once the mine is re-commissioned. The proposed new processing plant will be a high-volume, low-cost plant, specifically designed to deal with the peculiarities of the gravels being processed. The plant will comprise 8 (or 12) 18' rotary pan plants and trial-mining will investigate the efficiency of sending selected size fractions to selected pans, namely +2-6mm, -6-12mm and +12-32mm. This is expected to greatly improve the recovery efficiencies of the pans. The plant is planned to be automated to the extent that optimal production, along with minimal downtime and maintenance can be attained. The trial mining plan has been developed to run at some 340,000m<sup>3</sup>/month. Anticipated costs for the re-commissioning of the mine in 2013 is ZAR130M.

MINING AREA	GRAVEL TYPE	Volume (m <sup>3</sup> )	Grade* (ct/100m <sup>3</sup> )	Value# (USD/ct)
Terrace A	Fluvial-alluvial Rooikoppie	11,831,500 1,840,000	0.84	2,029
Terrace B	Fluvial-alluvial Rooikoppie	5,990,000 969,000	0.84	2,029
<b>Total</b>		<b>20,630,500</b>	<b>0.84</b>	<b>2,029</b>

**INFERRED RESOURCES ESTIMATED FOR THE NIEWEJAARSKRAAL PROJECT**

\* At 2mm cut-off

# Value received through the sale of +5,500cts from the adjacent Saxendrift mine in 2010

The key parameters and results of the PEA are tabulated below:

Key Parameters	Key Results
Volume of gravel	Cubic Metres
Inferred Resources*	20,630,000
Average Grade	0.84ct/100m <sup>3</sup>
Average sales value	USD2,029/ct
Proposed monthly throughput	340,000m <sup>3</sup>
Proposed mine life (inferred resources)	6 years
Operating Costs	ZAR45/m <sup>3</sup>
Mining Royalties	0.5-7%
Capex required to bring mine into production	ZAR130,000,000
Earthmoving fleet budget	N/A
Tax	28%
IRR	123%
NPV at discount values of:	
15%	ZAR 450,436,454
20%	ZAR 368,824,670
25%	ZAR 304,043,501



\* Under these circumstances, however, it is fundamental to appreciate that the assessment is preliminary in nature, that it includes inferred mineral that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary assessment will be realized.