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Innovation in Sustainability

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Minutes for the Department of Mineral Resources (DMR) Pre-Application Meeting held for the:

**Proposed Doornhoek Fluorspar Mine** 

DMR Reference No: NW 30/5/1/1/2/763

NW 30/5/1/1/2/1696 NW 30/5/1/1/2/1728

**Pre-Application Meeting: DMR** 

Date: 17 May 2016

Time: 11:00 Place: DMR Offices, North West

Attandage:

Attenuees.	
Michael Grobler (MG)	EXIGO
Chantal Uys (CU)	EXIGO
Allan D Saad (ADS)	Project Manager/Applicant
Morgan Disipi (MD)	DMR: Mineral and Petroleum Titles Registration Office
Mr Phumudzo Nethwadzi (PN)	DMR: Head of Environmental Department
Mr Percy Makamu (PM)	DMR: Environmental Department
Ms Ellen Kwele (EK)	DMR: Social and Labour Plan Department

These	Notes	Action
1-2	Welcoming & Introductions  The meeting was opened by Mr Michael Grobler (MG). ADS clarified that Mr Phumudzo Nethwadzi (PN) was from the DMR's environmental unit. Mr Percy Makamu confirmed that Mr Nethwadzi was the head of the environmental department. MG thanked the officials for their time. He introduced the project team. He explained that this was an introductory meeting to determine the way forward prior to submission of the application, and therefore a pre-application meeting. He apologized for the absence of Mr Allan Saad Senior (the applicant) who could not attend the meeting. He explained that Mr Saad had previously met with Mr Morgan Disipi from the Mineral and Petroleum Titles Registration Office. It was clarified that Mr Saad was the applicant and Exigo were appointed as the independent Environmental Assessment Practitioners for the project. MG asked if they could proceed with the agenda. PN answered in the affirmative.	
3	Purpose of the meeting  MG provided the purpose for the meeting as follows:  To discuss the work conducted till present for the proposed Doornhoek Fluorspar Mine  To clarify the process to be followed  To consult with the DMR with regards to the application, Scoping Report, EIA&EMPR and IWULA  To clarify the way forward	

Directors: Dr Koos Vivier, Dr Christine Vivier, Michael Grobler, Elrize van Zyl Associates: Dr Buks Henning, Dr Robert Hansen, Neels Kruger

Registration nr: 2006/011434/07







#### 4-17 Project History / Background & Description

Exigo started working on the project in 2013 when conducting baseline studies. Prospecting was done by the applicant prior to this. A pre-feasibility study (PFS) was conducted in 2015. It was proposed that the mining right and environmental authorisation application will be lodged in 2016.

MG indicated the locality of the proposed project on an aerial photograph. The proposed mine is south of Zeerust. Drilling took place as part of the prospecting activities. Fluorite had been historically mined by other companies in the area since the 1950's. Some of these historically mined areas were included in the current mining right. MG stated that the proposed Doornhoek Fluorspar Mine was located east of the old Witkop Mine. Mr Allan Saad (ADS) stated that the Witkop Mine was adjacent to the proposed mining right area.

MG asked ADS to give an overview of the history of the project. ADS stated that the mining right area was 23 000 Ha. He gave a short overview of the project history to date. In 2005 the mineral rights were consolidated when the legal framework changed and mineral rights reverted back to the state, and the project became viable. ADS indicated the historical rights on a map. MG stated that the prospecting right was a large area but the mining right area will focus on a much smaller area. All the affected properties belonged to farmers and not to any local communities.

ADS stated that it was the largest fluorspar deposit in the world. The project site was located 15 km's from Zeerust. Rail and road infrastructure was available. The project is located in a historic mining area. There was communications on site and no relocation would be required. The project area has a low population density.

The geology consists predominantly of dolomite which contains the mineral resource. He indicated the ore body which was planned to be mined and the holes which had been drilled for the project. He indicated the general resource area on a map with the higher grade fluorspar deposits which they intend to mine. The project had a 30 year life of mine (LOM) at 1.5 Million tons per year. The entire ore body could be mined with a 100 year LOM. He stated that it was the largest and cleanest fluorspar deposit in the world. The second biggest fluorspar deposit was Vergenoeg in South Africa, who have not yet started mining. The biggest one after Vergenoeg was located in Mexico. The project is a significant project which could significantly benefit the town of Zeerust and the surrounding communities for generations. ADS indicated the world estimated reserves for fluorspar on slide 14.

ADS explained that additional boreholes had been drilled apart from those drilled during the historical prospecting, as part of the current exploration activities, a LIDAR survey of the area had been undertaken, the mineralogy had been assessed at Mintek and surface rights had been acquired. He stated that Exigo had also conducted an environmental baseline study.

MG asked ADS to explain the uses of fluorspar. Fluorspar is widely used in gasses for aircons, fridges, freezers, etc. It assists with reducing the energy usage in smelting processes. Downstream beneficiation and processing industries could possibly be developed for the processing of the fluorspar.

MG summarised that the project was the largest fluorspar deposit in the world. It was an opencast mine up to 90m deep with a 30 years LOM. Existing infrastructure was available. The project area was characterised by historic mining, Downstream beneficiation is also a possibility.

#### **Previous Baseline Specialist Studies**

MG listed the specialist studies conducted as part of the baseline study in 2013. This





	baseline provided a good understanding of area and sensitive areas to be avoided.	
19-22	PFS Specialist Studies  MG continued to list the additional specialist studies undertaken during the PFS Phase in 2015. He listed some sensitivities associated with the project area in terms of preliminary identified ecological, heritage sensitivities, wetlands, springs and streams. The geochemistry and groundwater baseline for the area had also been determined; the modelling now had to take place as part of the EIA.	
23-24	Water supply requirements & options Water requirement is approximately 5000m3 per day (worst case). A focus group meeting was held with the Ramotshere Moiloa Local Municipality (LM) to discuss water supply development.	
	MG listed the water supply options which are being considered. He stated that there is an existing water supply pipeline to the Witkop Mine. Witkop is in care and maintenance. There is an option to take over this water allocation; however the availability still needs to be ascertained. A Pre-application meeting was held with the Department of Water and Sanitation (DWS) who were also in favour of the use of exiting allocations. The Ramotshere Moiloa LM also had almost only water supply projects listed in the IDP earmarked for development.	
	It is planned to submit the mining right application (MRA) by mid-July. This meeting serves to clarify any issues prior to the planned submission.	
25	<ul> <li>Discussion <ol> <li>30 year LOM</li> </ol> </li> <li>MG asked whether the DMR were comfortable that LOM for the proposed mine is for 30 years even though the mineral resources had 100 year LOM. PN answered in the affirmative.</li> <li>Alternatives</li> </ul>	
	MG asked what level of detail with regards to the alternatives had to be supplied in Scoping Report. PN answered that the requirements in terms of the Regulations have to be met.	Noted.
	3. PP and stakeholder consultation strategy MG stated that the applicant is currently busy with consultation. The mining right area had lots of farms and a notification could not just be sent to the landowners. Consultation will be done prior to the submission of the application followed by a 30 day registration period. Thereafter the application will be submitted, the draft SR will be placed on review, followed by the submission of the final SR after 44 days. Another option is to place the draft SR out for review prior to lodging the application, along with the advertisements, site notices and notifications. PN asked whether the consultation was being undertaken outside the Regulations. MG stated that consultation was taking place prior to submission of the application as well as a 30 day registration period. Therefore the regulations are complied with and requirements exceed.	
	Three focus group meetings had also taken place in this period. PN stated that this is acceptable. He said the most important aspect was that timeframe provided by the Department as to the submission of the Final SR after submission of the application. PN stated that acknowledgement of receipt of the application will be received 10 days from submission. MG stated that a mining works programme (MWP), social and labour plan (SLP) and BBEEE requirements will be submitted along with application. PN stated that following submission of the application, I&AP's should be afforded the opportunity to register on the project. This would require an advert and notifications.	
	A registration period prior to the submission of the application, would be inviting	





comments on the intention to lodge an application and not the regulated process. MG suggested making the Draft SR available at this time (following submission of the application). MG suggested that the notification states that an application is going to be submitted in mid-June and that all I&AP's will be afforded an opportunity to comment on the Draft SR as well. There was also an option to dismiss the 30 day registration process, however MG was of the opinion that this registration period wold allow the I&AP's sufficient time to be introduced to and comment on the project. The initial comments could then also be included in the Draft SR. PN stated that consultation is necessary. MG continued to explain the consultation strategy for the project. ADS stated that the directly affected and directly adjacent landowners had been consulted directly. PN agreed with the proposed consultation strategy.

CU asked whether an advertisement would be required for the Draft SR. PN stated that an advert, site notice and notification will have to be placed along with the Draft SR. MG clarified that for the registration period only a notification could be sent or else an advertisement, site notice and notifications will be sent. An advertisement and site notice will however have to be placed again during the review of the Draft SR.

Noted.

#### 4. TSF Commitments

MG asked whether the Tailings Storage Facility (TSF) could be designed and management measures provided on a conceptual level, as there was no detailed design for the TSF at this stage. PN asked at what stage it will be necessary to construct the TSF as this will inform the detailed designs. ADS stated that the construction period of the project will be approximately 5 years, after which the TSF will need to be constructed. PN stated that the site for the TSF would need to be identified (preferred site) as well as the alternatives. The layout would also be required. MG stated that a layout will be provided. He also stated that a drainage barrier system may need to be designed for the TSF and as this is generally very expensive the applicant would prefer to do this at a later stage but prior to construction and subject to authorization.

Detailed civil design to be provided as part of the IWULA process when required.

#### 5. Submission of IWULA

MG stated that it was planned to submit the Integrated Water Use Licence Application (IWULA) along with the Draft EIA&EMPR. PN agreed with this approach.

#### 6. SLP

MG asked whether the SLP could only focus could on Zeerust as the host community. He explained that the project area falls within two municipalities, however the proposed mine is located closer to Zeerust. He continued to explain that Zeerust has a higher unemployment rate and also requires more development. PN stated that he will consult with his colleagues from the SLP department in this regard. Ms Ellen Kwele (EK) from the SLP department joined the meeting. MG explained the request to her and stated that dividing projects between 2 municipalities will be difficult and will diffuse the benefits. EK stated that the SLP needed to focus on both municipalities as even though Zeerust is closer, the Ditsobotla LM is also affected. She stated that the focus in the SLP could be on Zeerust for now, but advised that after approximately 5 years (during operations) the SLP be updated and the focus moves to the Ditsobotla LM and the town of Lichtenburg. She explained that both municipalities had need of development. She stated that the DMR will consider the above request for the application phase and that the focus of the SLP is on Zeerust for now and would be expanded to include the other municipality at later a later stage.

Noted.

MG asked whether one large water project could be included in the SLP as opposed to 2-3 smaller projects, as it was identified in the IDP that water supply was a key issue in the municipality. EK agreed that this approach could work. MG explained that the applicant wished to join hands with the municipality on water supply and sanitation projects. EK asked whether a meeting had been held with the Ramotshere Moiloa LM. MG answered





	in the affirmative. ADS asked whether a meeting had to be held with the Ditsobotla LM. EK confirmed that the municipality had to be consulted with. She asked which projects had been identified. MG answered that water supply, treatment of dirty water from the sewage treatment plant, and the maintenance of wellfield and pumps were being investigated. She stated that water supply should be investigated first. EK asked that proof of consultation with both LM's be included in SLP.  7. DEA as competent authority (CA)  MG asked for confirmation that DMR are the CA in terms of the NEMA and not the Department of Environmental Affairs (DEA). PN confirmed that the DMR was the CA in this regard.	Consultation meeting to be scheduled with Ditsabotla LM. Proof of consultation to be included in SLP.
26	Questions  PN asked when the application will be submitted. MG stated that the prospecting right lapses mid-August and it is planned that the application be submitted mid-July. PN agreed with this approach.	
27	Closing All present was thanked for their time and the meeting was closed.	

Minutes taken by C. Uys



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**Annexure A: Meeting Presentation** 

EQH





**Annexure B: Meeting Agenda** 



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**Annexure C: Attendance Register** 



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### **Doornhoek Fluorspar Mine:**

Pre-Application Meeting – Department of Mineral Resources (DMR),
North West

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### **Agenda**



- 1. Welcoming & Introductions
- 2. Purpose of the meeting
- 3. Additional agenda points
- 4. Project Description and History
- 5. Previous Baseline Specialist Studies
- 6. PFS Specialist Studies Feedback
- 7. Water Supply Requirements and Options
- 8. Discussion
- 9. Questions and answers
- 10. Way Forward
- 11. Closing



### Purpose of the meeting



- Focus group meeting to discuss the work conducted till present for the proposed
   Doornhoek Fluorspar Mine
- 2. To clarify the process to be followed
- 3. To consult with the DMR wrt the Application, Scoping, EIR&EMPR and IWULA
- 4. To clarify the way forward



### **Project History / Background**



- 1. Baseline Study 2013
- 2. Pre-feasibility study 2015
- 3. Mining Right Application/EIA and IWUL 2016



# Typical landscape







## Reverse circulation drilling







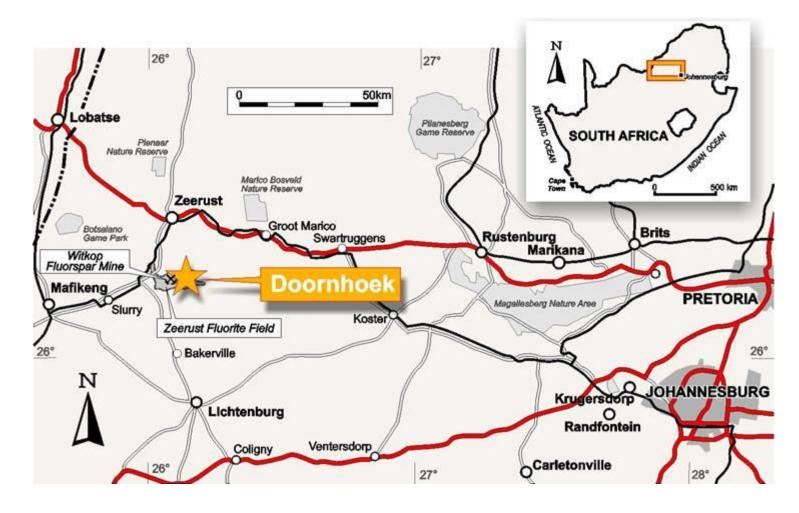
# Aerial view of historical mining by Rand Mines 1980 Innovation in Sustainability





## **Project location**







## Project history

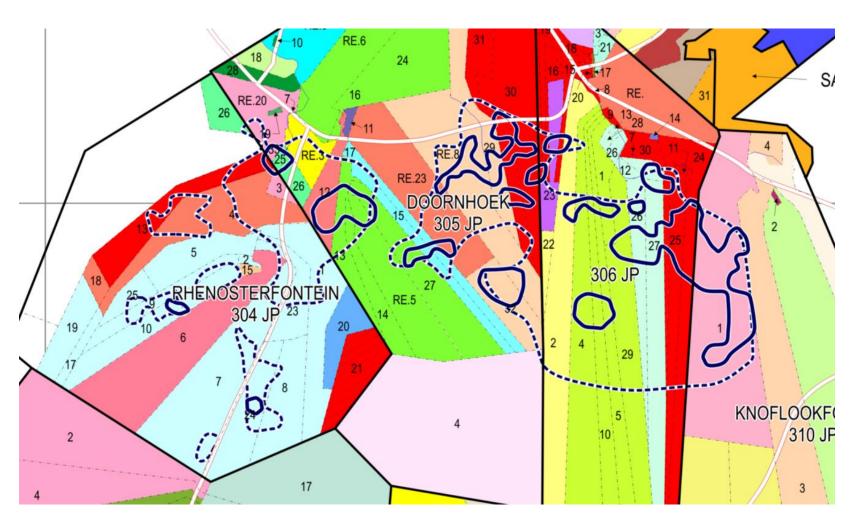


- Private and complex mineral rights holding until 2004
- Historically rights were subdivided together with surface
- Some mineral rights were sold to mining companies and sterilized
- Result was complex ownership with many subdivisions
- 2004 mineral rights revert to State
- 2005 SA Fluorite consolidate and secure mineral rights
  - >23,000 hectares
- 2006 CAMEC secure majority interest
- 2010 ENRC acquire CAMEC
- 2013 RPA complete Preliminary Economic Assessment
  - 43-101 compliant



## Historical rights







## Infrastructure



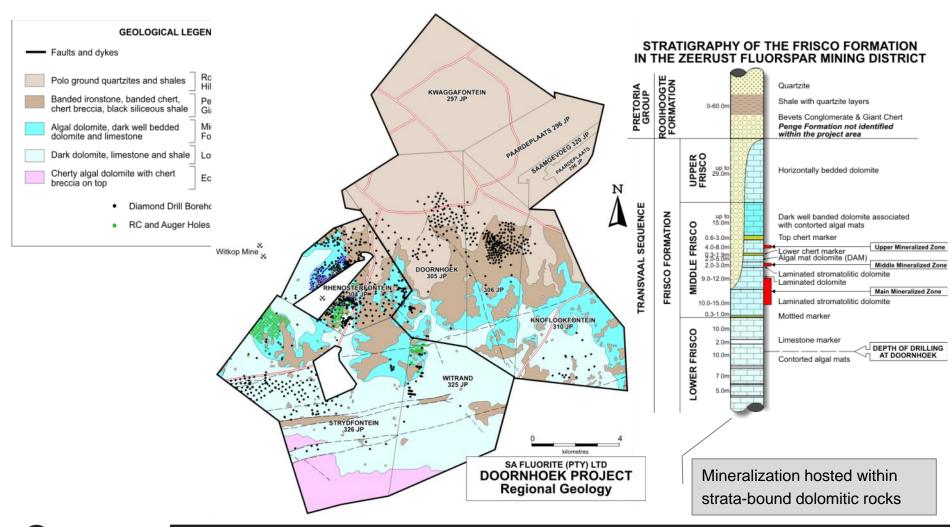
- 15km from nearest town and rail siding
  - Tarred road
- Water studies underway
  - Dolomitic terrain and catchment reservoirs
  - Biggest challenge to date
  - Entire operation dependent on water source and cost
- Power available on site
  - Sub-station on adjoining property
- Mobile communication on site
- Low population density and
- No relocations required



## Geology and site

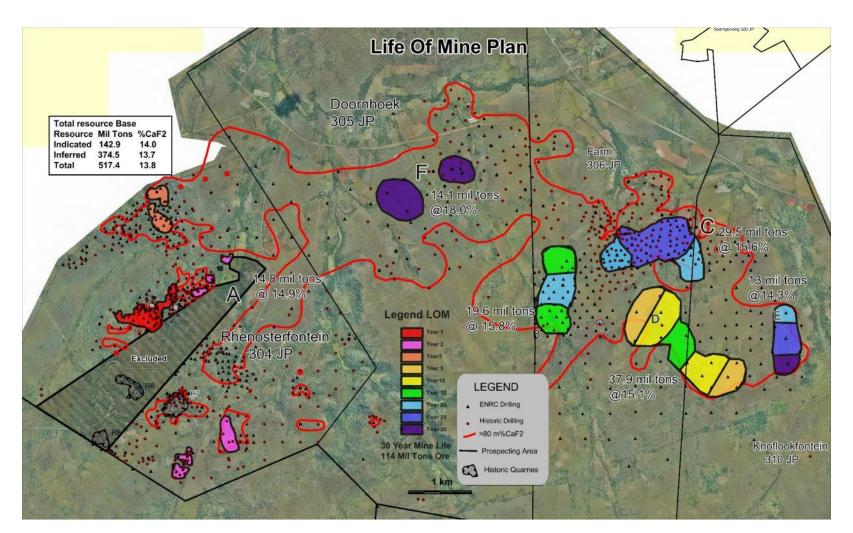
Size: 22,255.32 hectares







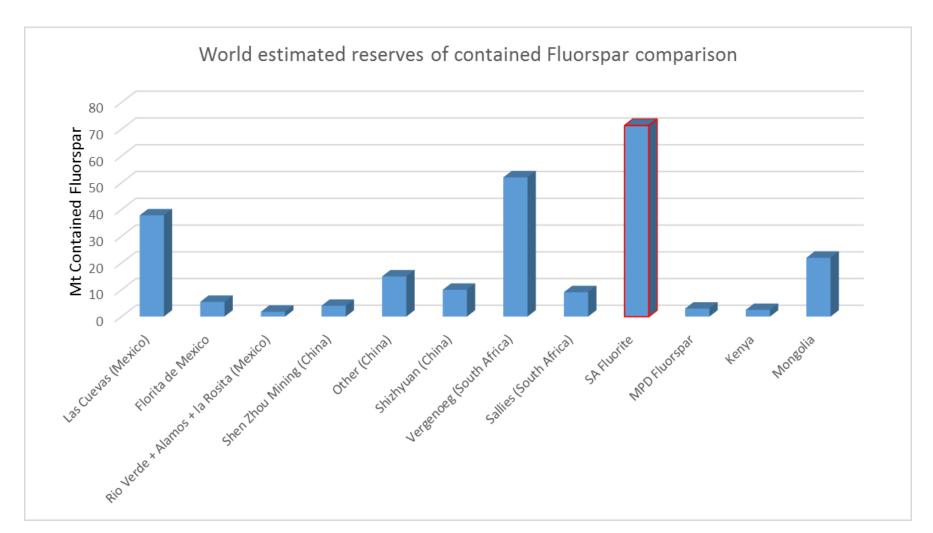
## Starter pits and orebody outline – 30 yr LOM





### **Contained fluorspar comparison**







## Work completed to date



- Drilling
  - 2000 boreholes drilled
    - totalling approx 140,000m
  - 239 auger boreholes drilled
    - totalling approx 1,487m
- Geological mapping detailed groundwork
- Aeromagnetic survey high resolution close spaced
- Lidar survey covers entire area
- Permitting maintained in good standing
- Surface rights acquisitions strategic landholding
- Metallurgical test work underway
- Environmental studies ongoing
- Preliminary Economic Assessment Roscoe Postle Associates Inc Toronto completed Nov'13 – NI 43-101 compliant



## **Economic analysis**



- Resource sufficient for +100 life-of-mine (LOM)
- Economic analysis calculated on 30 year mine life
- Large opencast operation staged
- Sensitive to grade, exchange rate and CaF<sub>2</sub> price
- Transport to harbour is single largest cost
- Water is largest challenge and entire mine development dependent on source of water
- Amenable to downstream processing and development of secondary industries



## Summary



- Largest contained fluorspar deposit in the world
- Single large flat-lying shallow orebody
- Amenable to opencast mining to max depth of 90m
- Good infrastructure
- Favourable metallurgy
- LOM far in excess of 30 years
- Favourable for the development of downstream processing facilities
- Development dependent on source of water single largest determining factor

A world class fluorite deposit



### **Previous Baseline Specialist Studies**



Specialist Field	Company	Author(s)
Lead EIA Consultant	AGES / Exigo	Michael Grobler; Catherine Da
		Camara
Archaeological Scoping	AGES / Exigo	Neels Kruger
Report		
Groundwater Baseline	AGES / Exigo	Dr. Koos Vivier & Megan Hill
Report and Fatal Flaw		
Analyses		
Ecological Baseline	AGES / Exigo	Dr Buks Henning
Assessment and Fatal		
Flaw Analyses		



## **PFS Specialist Studies**



Specialist Field	Company	Author(s)		
Lead EIA Consultant	AGES / Exigo	Michael Grobler; Herman		
		Gildenhuys		
Hydrogeological Assessment Phase	Exigo	Dr. Koos Vivier & Megan Hill		
A & B				
Geochemical Assessment Phase A	Exigo	Dr. Robert Hansen		
Wetland Delineation	Exigo	Dr Buks Henning		
Aquatic Assessment	SAS	Stephen van Staden / Emile		
		van der Westhuizen		
Environmental Legal Risk Register	EOH Legal	Morné Viljoen / Selvan		
		Subroyen		
Water and Dust Monitoring	Exigo	Eise Venter		



### **Preliminary Issues Identified**



#### Sensitivities in the area include:

- High ecological sensitivity important fauna corridors and unique habitat
- Medium to high ecological sensitivity unique vegetation entity with high conservation importance
- Heritage sites
- Area of heritage sensitivity
- Possible heritage sensitive sites such as drainage lines and ridges
- Springs
- Streams and rivers



### **Geochemical Assessment Results**



### **Findings & Conclusions:**

- Formation of AMD conditions from waste rock and tailings is unlikely.
- Leaching of metal and metalloid contaminants from solution is unlikely
- **Sulphate** could potentially leach from the tailings material in concentrations exceeding the groundwater baseline, but **lower than the lowest SANS drinking water standard**
- Fluoride concentrations in the tailings material leachate exceeds the groundwater baseline value.
- Waste classifies as Type 3, i.e. low risk requiring a Type C barrier system design



### **Hydrogeological Investigation**



#### Work conducted to date include:

- Phase A (2013) comprised a baseline assessment, a fatal flaw analysis and development of a monitoring network for baseline characteristics prior to mine initiation.
- Based on the outcomes of the baseline assessment the scope of work for phase B (2014) was formulated and a high level site characterisation study was conducted.



### **Water Supply Requirements**



- 5000 tons per day ore mined
- 1 m3 water required per tonne ore mined
- 5000 m3 water per day
- Approximately 57 l/s



### **Identified water supply options**



### Witkop water supply pipeline:

- Owned by Ramotshere LM
- Availability/capacity
- Licensing

#### **Groundwater supply:**

- Existing boreholes
- Development of new resources
- Licensing

### Other options:

Dirty water from municipal sewage treatment works



### **Discussion**



- Resources post 30 years
- Alternatives
- Project Plan PP and consultation strategy
- TSF Commitments
- Focus on Zeerust (as host community) wrt SLP
- SLP requirements one large water project
- DMR CA



Q&A



### **Way Forward**



- MRA application
- Scoping
- EIA&EMPR
- IWULA





### THANK YOU

For any comments or queries please contact: Michael Grobler/ Chantal Uys

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#### <u>Proposed construction and operation of Doornhoek Fluorspar Mine and</u> associated infrastructure located near Zeerust, North-West Province

#### **Pre-Application Meeting – Department of Mineral Resources**

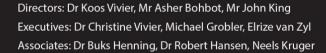
**VENUE:** DMR, Vaal University of Technology Building, C/O Voortrekker & Margaretha Prinsloo Streets,

Klerksdorp

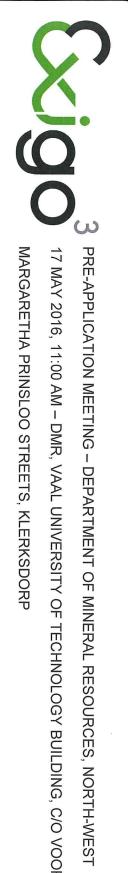
**DATE**: 17 May 2016

**TIME:** 11:00 AM

NO	DESCRIPTION								
1.	PURPOSE OF THE MEETING  The purpose of the meeting is to introduce the project to the DMR, discuss the process to be followed, and to obtain feedback and agree on the way forward								
2.	MEETING AGENDA								
No	Agenda Item	Speaker	Time						
1	Welcoming & Introductions	All	11:00						
2	Purpose of the meeting	Michael Grobler							
3	Additional agenda points	Michael Grobler							
4	Project Description and History	Allan Saad							
5	Previous Baseline Specialist Studies	Michael Grobler							
6	PFS Specialist Studies Feedback Michael Grobler								
7	Water Supply Requirements and Options	Michael Grobler/Allan Saad							
	Discussion	All							
8	Questions and answers	All							
9	Way Forward	All							
10	Closing	Michael Grobler	12:00						







17 MAY 2016, 11:00 AM - DMR, VAAL UNIVERSITY OF TECHNOLOGY BUILDING, C/O VOORTREKKER &

ATTENDANCE REGISTER: PROPOSED DOORNHOEK FLUORSPAR MINE, NORTH-WEST PROVINCE

			Ellen Kwele	P. Nethowacke	Per majuan	Charles Uys	Allan Sacol	NAME
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