

Photographs

Location: Lepelsfontein Community Hall



Photo 1: Presentation to stakeholders at Lepelsfontein Community Hall on 27 September 2013



Photo 2: Discussion with stakeholders at Lepelsfontein Community Hall on 27 September 2013

Posters

Volwaterbaai Desalination Plant and Associated Infrastructure, Northern Cape

ENVIRONMENTAL IMPACT ASSESSMENT (EIA): Draft Scoping Report



PUBLIC OPEN DAY



WELCOME TO THE EIA PUBLIC OPEN DAY

PURPOSE OF THE OPEN DAY:

- To **provide a forum** for stakeholders to discuss the findings of the Scoping Phase.
- The independent environmental consultants (SRK), proponent (Sedex Desalination) and project engineers (RHDHV and Veolia) are at the Open Day to **discuss the project and answer your questions**.



YOU ARE INVITED TO:

- Fill in the attendance register;
- Read about the findings of the Scoping Report;
- Discuss issues and concerns with the team; and
- Record your views on a comment sheet.



PROJECT DESCRIPTION

- ❖ Sedex Minerals proposes to develop a Rare Earth Elements mine at Zandkopsdrift.
- ❖ There is a shortage of adequate surface and groundwater supply in the area.
- ❖ Sedex Desalination proposes to construct a **desalination plant and associated infrastructure** for the reliable and secure provision of water to the Zandkopsdrift Mine.
- ❖ The project will include the following:

Desalination plant including facilities for pre- and post-treatment of water

Marine infrastructure comprising seawater intake and brine disposal outfall works

Roads to provide access to the desalination plant, transfer pipeline and power lines

Bulk water supply and storage infrastructure, pump stations and pipelines to transfer product water to the mine

Bulk power supply infrastructure to supply the desalination plant and product water booster pumps with electricity



PROJECT DESCRIPTION

❖ Desalination Plant:

- Situated close to the coast at Volwaterbaai, on Farm Strandfontein 559.
- The footprint of the desalination plant will be approximately 15 000 m², with all infrastructure housed in or adjacent to the desalination plant building.

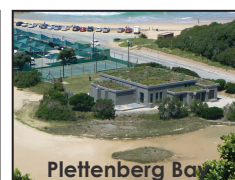
❖ Marine Infrastructure:

- The seawater intake system will be below the high water mark while the brine outlet will be below the low water mark of the sea.
- Pipelines between the desalination plant and seawater intake and brine disposal works will be underground, through the intertidal zone.

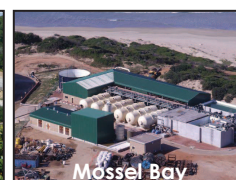
❖ Examples of desalination plants in South Africa:



Sedgefield



Plettenberg Bay



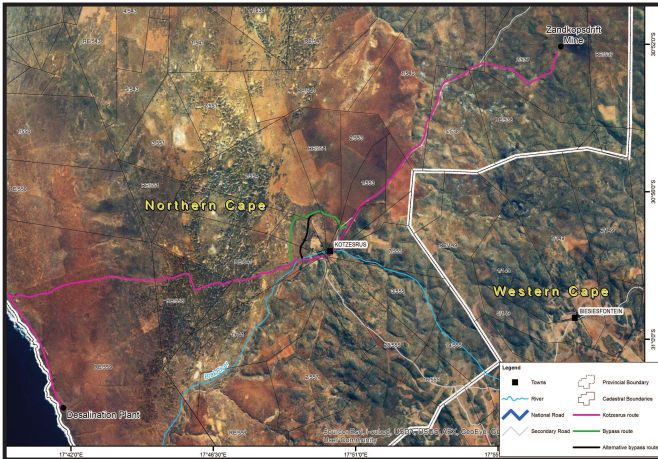
Mossel Bay



PROJECT DESCRIPTION

❖ Roads:

- Roads providing access to pipelines, power lines and reservoirs will be provided between the desalination plant and the mine (approx. 40 km).
- Roads will be 4m wide within a road reserve of 15m and will probably be unpaved (gravel).
- Additional short access roads may be required in places, e.g. to the reservoir at Kotzesrus.
- Final road alignment will be determined during the EIA process.



PROJECT DESCRIPTION

❖ Bulk water supply and storage infrastructure:

- Either a large single pipeline or multiple (2) smaller pipelines will supply water to the mine.
- Pipelines will be positioned within the road reserve or in an 8 m wide servitude adjacent to the road reserve (either above or below ground).
- Pump stations are required at the desalination plant and along the pipeline route.
- A 20MI water storage reservoir is required at the desalination plant.
- A 1MI reservoir is proposed at Kotzesrus.

❖ Bulk power supply

- Power will be supplied to the desalination plant by overhead power lines fed directly from the Zandkopsdrift Mine.
- Overhead power lines will be installed in an 8m wide servitude adjacent to the road reserve.

DESALINATION PROCESS

Desalination refers to a water treatment process whereby salts are removed from saline water to produce fresh water.

Reverse Osmosis (RO) technology will be used to remove salt from sea water, thereby producing fresh product water (and high salinity brine).

The main elements in the desalination process are:

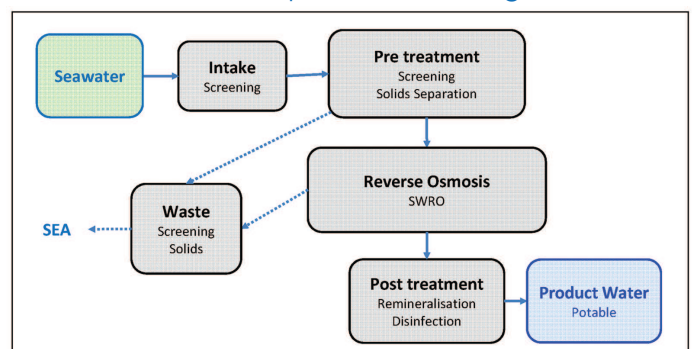
- ❖ **Seawater intake:** approximately 30 000 m³/day;
- ❖ **Pre-treatment** of feedwater, including screening and filtration to remove suspended solids;
- ❖ **Desalination** making use of RO technology, in which pressurised seawater passes through a series of membranes which allow only water (low saline permeate) to pass through and salts and organic matter to accumulate in brine;
- ❖ **Post-treatment** including disinfection and remineralisation of process water; and
- ❖ **Discharge of brine.**

DESALINATION PROCESS

The **desalination plant** will produce approximately 4 million m³/annum of (fresh) product water.

- ❖ Of the approximately 30 000 m³/day of the sea water passing through the desalination plant, on average 60% will be returned to the sea as **brine** from the plant.
- ❖ Brine has **higher salinity** and a slightly **increased temperature** compared to the incoming feedwater.
- ❖ Brine may also **contain small amounts of chemicals** used for the cleaning of the plant and preservation of the membranes.

Desalination process flow diagram:



PROJECT ALTERNATIVES

❖ Seawater Intake Alternatives:

- The use of beach wells was eliminated due to unsuitable bedrock conditions. Open water intake is considered to be the only feasible option.

❖ Alternative Locations for Seawater Intake:

- Volwaterbaai was selected from 4 alternative seawater intake sites as the most favourable location, based on marine conditions, land side characteristics, constructability, brine outfall options and operational and maintenance requirements.

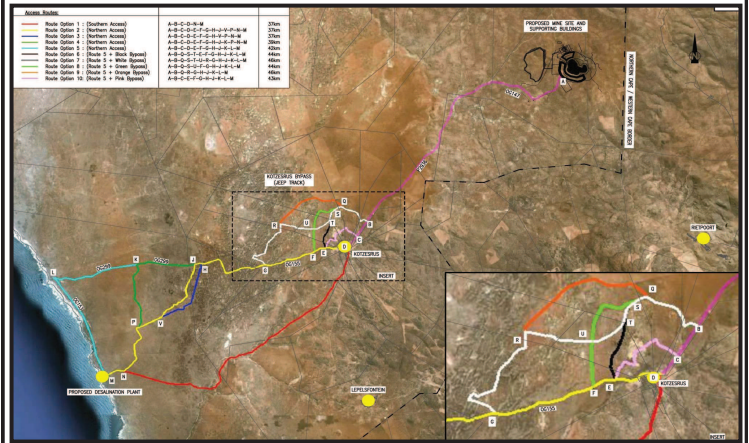
❖ Alternative Locations for Brine Discharge:

- 22 alternative sites were considered and the most suitable location for brine discharge from an ecological and technical perspective was identified.

❖ Alternative Positions for Desalination Plant:

- Five alternative positions for the desalination plant were identified at Volwaterbaai. The final position of the desalination plant has not yet been determined.

PROJECT ALTERNATIVES



❖ Route Alternatives:

- 10 alternative routes were identified and several were eliminated based on technical feasibility and ecological constraints.
- A preferred route was identified (**Kotzesrus Route**), along with two potential routes bypassing the town of Kotzesrus (**Bypass Route** and **Alternative Bypass Route**) for further assessment.

POTENTIALLY SIGNIFICANT IMPACTS

Terrestrial and wetland ecology – potential disturbance of undisturbed vegetation within Critical Biodiversity Areas and possible negative impact on threatened species and habitats



Terrestrial fauna – potential impact on faunal habitats and the creation of barriers (infrastructure) across migration routes

Marine and coastal ecology – potential impacts on marine biota and coastal ecosystems, including physical disturbance, the entrainment and impingement of biota, increased salinity levels and the presence of co-discharge



Heritage – potential impacts on sites of heritage, archaeological or palaeontological significance

POTENTIALLY LESS SIGNIFICANT IMPACTS

Air Quality – limited emissions (dust) generated by construction vehicles and plant during construction.

Noise – increased noise levels due to construction activities (including blasting and drilling).

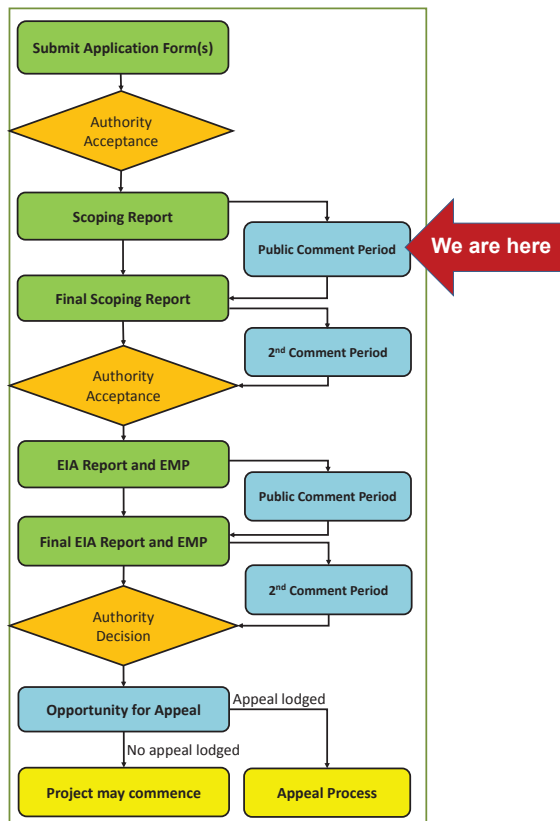
Socio-economic – employment opportunities, improved road access and promotion of economic development and tourism in the area.

Traffic – increased movement of heavy construction vehicles, impacts on road safety and road conditions, particularly during the rainy season.

Visual aspects – potential impacts on the visually sensitive areas (including the coastal environment, the town of Kotzesrus and the undulating Namaqualand landscape).



EIA PROCESS

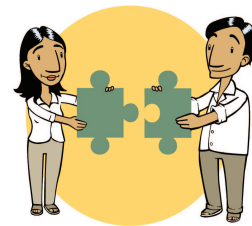


PLAN OF STUDY FOR THE EIA

❖ **Key potential issues and impacts** will be investigated and assessed using standard impact rating methodology.

❖ **Specialist input:**

- Terrestrial and Wetland Ecology
- Marine Hydrodynamics
- Marine and Coastal Ecology
- Heritage
- Palaeontology



❖ **Mitigation / Optimisation measures** will be identified to prevent / minimise negative impacts and enhance benefits.

❖ **Environmental Impact Report (EIR)** will be compiled, including the **Environmental Management Programme (EMP)**.

❖ **Public consultation** will be conducted.

❖ **Final EIR and EMP** will be compiled and submitted to authorities to inform their decision.

WAY FORWARD

❖ **The Scoping Report is available for viewing at:**

- Kotzesrus Cash Store;
- Municipal Service Points in:
 - Lepelsfontein;
 - Stofkraal;
 - Rietpoort; and
 - Molsvlei.
- Garies Public Library;
- Security office at Zandkopsdrift Mine;
- SRK's Cape Town office; and
- SRK's website: www.srk.co.za

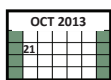


❖ **Final Scoping Report** (including all stakeholder comments received) will be re-released for comment and then submitted to NCDENC.

❖ **Issues and concerns** identified in the Scoping Report will assist in focusing the EIA.

❖ **Comment period** ends **21 October 2013**. All written comments can be addressed to **Larissa Heyns** or **Sharon Jones** at SRK Consulting:

SRK Consulting
 Postnet Suite #206,
 Private Bag X18,
 Rondebosch 7701
 Fax: 021 685 7105
 Tel: 021 659 3060
 email: lheyns@srk.co.za/
sjones@srk.co.za



ASSOCIATED PROJECTS

ZANDKOPSDRIFT MINE

- ❖ **Sedex Minerals** proposes to develop a Rare Earth Elements mine at Zandkopsdrift.
- ❖ The mine will be subject to a **separate EIA process**, which has not yet commenced.
- ❖ The EIA process for the Zandkopsdrift Mine will be managed by AGES.
- ❖ For more information or to register as a stakeholder please contact:

Lelani Stolp
 AGES (Gauteng)
 Tel: 012 751 2160
 Fax: 086 607 2406
 E-mail: lstolp@ages-group.com

ZANDKOPSDRIFT MINE ACCESS ROAD

- ❖ **Sedex Minerals** proposes to develop an access road between the N7 and the proposed Zandkopsdrift Mine.
- ❖ The access road is subject to a **Basic Assessment process**, which is being managed by AGES.
- ❖ The Basic Assessment Report will be released for Public Comment in October 2013.
- ❖ For more information or to register as a stakeholder please contact:

Chantal Smith
 AGES (Gauteng)
 Tel: 012 751 2160
 Fax: 086 607 2406
 E-mail: csmith@ages-group.com



Annexure F: Stakeholder Database

The stakeholders listed below were registered at the end of the Scoping Phase. All other stakeholders are encouraged to register to remain on / be added to the database.

	NAME	SURNAME	TYPE	ORGANISATION
Organs of State / Authorities				
1.	Razeena	Omar	National	Department of Environmental Affairs: Oceans and Coasts
2.	Nitasha	Bajjnath-Pillay	National	Department of Environmental Affairs: Oceans and Coasts
3.	Thilivhali	Meregi	National	Department of Environmental Affairs: Oceans and Coasts
4.	Potlako	Khathi	National	Department of Environmental Affairs: Oceans and Coasts
5.	John	Peter	National	Department of Environmental Affairs: Oceans and Coasts
6.	Anga	Yaphi	National	Northern Cape Department of Environment and Nature Conservation
7.	Bronwyn	Cornelissen	National	Northern Cape Department of Environment and Nature Conservation
8.	Elsabe	Swart	National	Northern Cape Department of Environment and Nature Conservation
9.	Natalie	Uys	National	Northern Cape Department of Environment and Nature Conservation
10.	Mashudu	Ranwedzi	National	Department of Water Affairs
11.	Kathryn	Smuts	National	South African Heritage Resources Agency
12.	Bernard	van Lente	National	South African National Parks
13.	Tony	Robelo	National	South African National Biodiversity Institute
14.	Viljoen	Mothibi	Provincial	Department of Agriculture and Land Affairs
15.	Susanne	Erasmus	Provincial	Wildlife and Environmental Society of South Africa
16.	Jeff	Manuel	Provincial	South African National Biodiversity Institute
17.	Yolan	Friedmann	Provincial	Endangered Wildlife Trust
18.	Ntsundeni	Ravhugoni	Provincial	Department of Minerals and Energy
19.	Jasper	Nieuwoudt	Provincial	Department of Minerals and Energy
20.	Alana	Duffell-Canham	Provincial	CapeNature
21.	Madelein	Brandt	District Municipality	Namaqua District Municipality: Municipal Manager
22.	Joseph	Cloete	Local Municipality	Kamiesberg Local Municipality
Land Owners / Occupants				
23.	Braam	Nieuwoudt	Private	Owner of Portion 1 Brakfontein 555 (Nieuwefontein)
24.	Carel	Louw	Private	Owner of Portion of Hendriksvlei, Portion of Brakfontein, Portion of Varsfontein, Portion of Klipheuwel
25.	An	Cornelissen	Private	Buchberg Exploration and Farming - Owner of Portion 6 (a portion of Porion 5) of Hendriksvlei
26.	Tilma & Fanie	Nel	Private	Owner of Remainder Farm Nuwebegin 641
27.	Adriaan (Ad)	Cornelissen	Private	Owner of Portion of Welgemeend Portion 2 of Varsfontein Consolidated
28.	Cyril	Thomas	Company	Sedex Minerals (Pty) Ltd. Owner of Portion 2 of Zandkopsdrift 573, Farm Strandfontein no 559
29.	Rob	Blake	Company	De Beers Consolidated Mines Ltd – Namaqualand Mines.
30.	William	Macdonald	Company	De Beers Consolidated Mines Ltd – Namaqualand Mines.

31.	Bertus	Cilliers	Company	Trans Hex Group Limited
32.	John	Langhus	Company	Forest Oil
33.	Richard	Jones	Company	Eskom
34.	Tielman	Nieuwoudt	Private	Owner of Portion 1 of farm Nuwe Begin no 641
35.	D. J.	du Toit	Private	Occupant of farm Langkloof
36.	J.G.S.	Roux	Private	Owner of farm: Klipheuwel
37.	I.A	du Toit	Private	Langkloof Family Trust
38.	D.J	du Toit	Private	Langkloof Family Trust
39.	Theo	Schutte	Private	Kotzesrus Resident
40.	Hendrik	van der Walt	Private	Kotzesrus Resident
41.	Jood & Venice	van Zyl.	Private	Kotzesrus Residents
42.	Dirk & Veronica	Jansen.	Private	Kotzesrus Residents
43.	Deon & Wilma	van Zyl.	Private	Kotzesrus Residents
44.	A.C.	Odendaal	Private	Kotzesrus Resident
45.	Dries	du Toit	Private	Kotzesrus Resident
46.	Albie	Poole	Private	Kotzesrus Resident
47.	Bessie	van Zyl	Private	Kotzesrus Resident
Ward Councillors/ Relevant Community Leaders				
48.	Mervin	Cloete	Local Municipality	Mayor of the town of Garies
49.	Petro	Willems	Garies and Lepelsfontein	Councillor
50.	van der Westruis	Chris	Stofkraal, Molsvlei and Rietpoort	Councillor
51.	Leon	Oewies	Stofkraal, Molsvlei and Rietpoort	Councillor
52.	Jan	Cloete	Lepelsfontein	Ward Committee Member
53.	Abraham	Gal	Lepelsfontein	Ward Committee Member
54.	Samantha	Oewies	Lepelsfontein	Ward Committee Member
Farmers Association				
55.	Tielman	Nieuwoudt	Garies Farmers Union	Chairman
Other IAPs				
56.	Wilna	Oppel	National	Department of Tourism, Environment and Conservation
57.	Adeleen	Cloete	National	Department of Tourism, Environment and Conservation
58.	Patrick	Obies	National	SANParks
59.	Ben-Jon	Dreyer	National	SANParks
60.	Majorie	Matroos	National	SANParks
61.	Marilyn	Willems	National	SANParks
62.	Johstone	Khoza	National	SANParks
63.	Ricardo	Basson	National	SANParks
64.	Ronnie	Newman	National	Conservation South Africa
65.	Chris	Fortuin	District Municipality	Namakwa District Tourism Office
66.	F.	van Heerden	Private	Kotzesrus Cash Store
67.	Pinkie	Niewoudt	Private	Soutklip Self Catering
68.	Etienne	de Jager	Private	Kotzesrus Self Catering
69.	Marika	van Noordwyk	Private	Veolia Water
70.	Ralton	Pieters	Private	Attended Public Open Day

71.	Jonathan	Witbooi	Private	Attended Public Open Day
72.	Charlton	Owies	Private	Attended Public Open Day
73.	Johannes	Cloete	Private	Attended Public Open Day
74.	Susanna	Pieters	Private	Attended Public Open Day
75.	Andre	van der Westhuizen	Private	Attended Public Open Day
76.	Rachel	Cloete	Private	Attended Public Open Day
77.	Monica	Owies	Private	Attended Public Open Day
78.	Josef Marco	Owies	Private	Attended Public Open Day
79.	Willem	Stevens	Private	Attended Public Open Day
80.	Abraham	Jass	Private	Attended Public Open Day
81.	BW	Cornelissen	Private	Attended Public Open Day
82.	Anita	Lewies	Private	Attended Public Open Day
83.	Maritha	Kotze	Private	Attended Public Open Day
84.	Janco	Kotze	Private	Attended Public Open Day
85.	Kobus	Kotze	Private	Attended Public Open Day
86.	Denver	Coetzee	Private	Attended Public Open Day
87.	Tobias	Koordom	Private	Attended Public Open Day
88.	Frederik	Links	Private	Attended Public Open Day
89.	Richard	Pauls	Private	Attended Public Open Day
90.	Clive	Links	Private	Attended Public Open Day
91.	Miems	van Zyl	Private	Resident of Garies
Project Team				
92.	Derick	De Wit	Project team	Frontier
93.	Peter	Schroeder	Project team	Frontier
94.	Jesse	Strauss	Project team	Frontier
95.	Peter	Reavy	Project Manager (for Zandkopsdrift Mine)	Frontier
96.	Christine	Vivier	Director (Environmental Assessment Practitioner)	AGES