



**Western Cape
Government**

Environmental Affairs and
Development Planning

**DIRECTORATE: DEVELOPMENT MANAGEMENT
REGION 1**

EIA REFERENCE NUMBER: 16/3/1/2/F4/17/3004/13
ENQUIRIES: Mr. M. Lamour
DATE OF ISSUE: 2015 -07- 2 0

The Director
Frontier Separation (Pty) Ltd.
P.O. Box 8399
Foreshore
CAPE TOWN
8012

For attention: Mr. C. Thomas

Tel: (021) 446 6040
Fax: (021) 446 6050

Dear Sir

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2010: THE PROPOSED CONSTRUCTION OF A RARE EARTH ELEMENT MINERAL SEPARATION PLANT AND ASSOCIATED INFRASTRUCTURE ON PORTION 6 OF FARM LANGEBERG NO. 188, SALDANHA BAY.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

ENVIRONMENTAL AUTHORISATION

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998), the Environmental Impact Assessment Regulations, 2010 and the National Environmental Management Act and Environmental Impact Assessment Regulations, 2014 ("NEMA EIA Regulations") the competent authority herewith **grants environmental authorisation** to the applicant to undertake the list of activities specified in section B below with respect to site alternative 1 and the boiler fuel alternative 1 described in the Final Environmental Impact Assessment Report ("FEIAR") dated 11 December 2014.

The granting of this environmental authorisation is subject to compliance with the conditions set out in section E below.

A. DETAILS OF THE APPLICANT FOR THIS ENVIRONMENTAL AUTHORISATION

Frontier Separation (Pty) Ltd.
c/o Mr. C. Thomas
P.O. Box 8399
Foreshore
CAPE TOWN
8012

Tel: (021) 446 6040
Fax: (021) 446 6050

The abovementioned company is the holder of this environmental authorisation and is hereinafter referred to as "the applicant".

B. LIST OF ACTIVITIES AUTHORISED

Government Notice No. R545 of 18 June 2010 –

Activity Number: 3
Activity Description:

The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.

Activity Number: 5
Activity Description:

The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.

Activity Number: 15
Activity Description:

Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;

except where such physical alteration takes place for:

- (i) linear development activities; or*
- (ii) agriculture or afforestation where activity 16 in this Schedule will apply.*

Activity Number
Activity Description: 26

Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), except where such commencement requires basic assessment in terms of Notice of No. R544 of 2010.

Government Notice No. R546 of 18 June 2010 –

Activity Number: 2
Activity Description:

The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres.

d) In Western Cape:

- i. *In an estuary;*
- ii. *A protected area identified in terms of NEMPAA, excluding conservancies;*
- iii. *All areas outside urban areas;*
- iv. *In urban areas:*
 - (aa) *Areas zoned for use as public open space; and*
 - (bb) *Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose;*

Activity Number: 4
Activity Description:

The construction of a road wider than 4 metres with a reserve less than 13,5 metres.

(d) In Western Cape:

- i. *In an estuary;*
- ii. *All areas outside urban areas;*
- iii. *In urban areas:*
 - (aa) *Areas zoned for use as public open space within urban areas; and*
 - (bb) *Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.*

Activity Number: 14

Activity Description:

The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:

- (1) *purposes of agriculture or afforestation inside areas identified in separation spatial instruments adopted by the competent authority for agriculture or afforestation purposes;*
 - (2) *the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list;*
 - (3) *the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.*
- (a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:**
- i. *All areas outside urban areas.*

On 04 December 2014, the Minister of Environmental Affairs promulgated regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), viz, the Environmental Impact Assessment ("EIA") Regulations 2014 (Government Notice No. R. 982, R. 983, R. 984 and R. 985 in Government Gazette No. 38282 of 04 December 2014). Please note that these regulations came into effect on 08 December 2014. The activities listed below are the similarly listed activities in terms of the NEMA EIA Regulations, 2014.

G.N R. 985 of 04 December 2014

Activity Number: 4
Activity Description:

The development of facilities or infrastructure, for the storage, or storage and handling of dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.

Activity Number: 6
Activity Description:

The development of facilities or infrastructure for any process or activity which requires a permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding-

- (i) activities which are identified and included in Listing Notice 1 of 2014;*
- (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or*
- (iii) the development of facilities or infrastructure for the treatment of effluent, wastewater or sewage where such facilities have a daily throughput capacity of 2000 cubic metres or less.*

Activity Number: 15
Activity Description:

The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-

- (i) the undertaking of a linear activity; or*
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.*

Government Notice No. R 985 of 04 December 2014-

Activity Number: 2
Activity Description:

The development of reservoirs for bulk water supply with a capacity of more than 250 cubic metres.

(f) In Western Cape:

- i. A protected area identified in terms of NEMPAA, excluding conservancies;
- ii. In areas containing indigenous vegetation; or
- iii. In urban areas:
 - (aa) Areas zoned for use as public open space; or
 - (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.

Activity Number: 4

Activity Description:

The development of a road wider than 4 metres with a reserve less than 13,5 metres.

(f) In Western Cape:

i. Areas outside urban areas:

- (aa) Areas containing indigenous vegetation;
- (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined;

or

ii. In urban areas:

- (cc) Areas zoned for conservation use; or
- (dd) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.

The applicant is herein authorised to undertake the following related to the listed activities:

The proposed development entails the clearance of more than 20 ha of indigenous vegetation for the establishment of a rare earth element mineral separation processing plant and associated infrastructure on Portion 6 of Farm Langeberg No. 188, Saldanha.

The separation plant will be developed in two phases, each phase producing approximately 10,000 tons per annum. The major unit operations at the proposed plant will include the following processes:

- Rare concentrates receiving, hydrochloric acid leaching and clarification, solvent extraction, precipitation, filtration/dewatering, drying/calcining and product packaging.
- The saleable or profitable rare earth elements will be separated either as rare earth oxides or carbonates with purity equal to or greater than 99%.
- The potential non-saleable or non-profitable elements will be precipitated as carbonates and then temporarily stored in a settling pond for approximately 6 months prior to further disposal.

The combined capacity of the dangerous goods to be stored on site will exceed 500 m³ and will include various chemicals.

Access to the site will be gained via an existing road. Internal roads wider than 4m will be constructed on the site.

Brine will be disposed of at an appropriately licensed facility and electricity will be supplied by Eskom. The local authority will provide other bulk services required.

The separation plant will also include inter alia the following:

- A main electrical substation;
- A control room and electrical room;
- A waste disposal settling pond;
- Process water and fire water storage facilities;
- A water treatment plant and boiler building;
- A parking area;
- A reserved area for truck parking or empty container storage;
- An emergency back-up power generator;
- A fuel storage area for genset and calciners;
- A stormwater system;
- A Coal boiler and coal stockyard; and
- Associated infrastructure.

The total development footprint will be approximately 31 ha in extent.

C. PROPERTY DESCRIPTION AND LOCATION

The listed activities will take place on Portion 6 of Farm Langeberg No. 188, Saldanha.

The SG 21 digit code is: C04600000000018800006

Co-ordinates: 32° 57' 9.62" South
18° 4' 14.6" East

hereinafter referred to as "the site".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Africa Geo-Environmental Services Gauteng (Pty) Ltd.
c/o Mr. H. Gildenhuis
Postnet Suite 74
Private Bag X07
ARCADIA
0007

Tel: (012) 751 2160

Fax: (086) 607 2406

E. CONDITIONS OF AUTHORISATION

1. This environmental authorisation is valid for a period of **five years** from the date of issue. The holder must commence with all the listed activities within the said period or this environmental authorisation lapses and a new application for environmental authorisation must be submitted to the competent authority, unless the holder has lodged a valid application for the amendment of the validity period of this environmental authorisation, before the expiry of this environmental authorisation. In such instances, the validity period will be automatically extended ("the period of administrative extension") from the day before this environmental authorisation would otherwise have lapsed, until the amendment application for the extension of the validity period is decided. The listed activities, including site preparation, may not commence during the period of administrative extension.

2. The listed activities, including site preparation, may not commence within 20 (twenty) calendar days of the date of issue of this environmental authorisation. In the event that an appeal notice and subsequent appeal is lodged with the competent authority, the effect of this environmental authorisation is suspended until such time as the appeal is decided.
3. The applicant must in writing, within 12 (twelve) calendar days of the date of this decision and in accordance with regulation 10(2)-
 - 3.1 notify all registered interested and affected parties of -
 - 3.1.1 the outcome of the application;
 - 3.1.2 the reasons for the decision as included in Annexure 1;
 - 3.1.3 the date of the decision; and
 - 3.1.4 the date of issue of the decision;
 - 3.2 draw the attention of all registered interested and affected parties to the fact that an appeal may be lodged against the decision in terms Chapter 7 of the NEMA EIA Regulations, 2010 detailed in section F below;
 - 3.3 draw the attention of all registered interested and affected parties to the manner in which they may access the decision;
 - 3.4 publish a notice in the newspaper contemplated in Regulation 54(2)(c) and (d), and which newspaper was used for the placing of advertisements as part of the Public Participation Process, that -
 - 3.4.1 informs all interested and affected parties of the decision;
 - 3.4.2 informs all interested and affected parties where the decision can be accessed; and
 - 3.4.3 Informs all interested and affected parties that an appeal may be lodged against the decision in terms of Chapter 7 of the NEMA EIA Regulations, 2010; and
 - 3.5 provide the registered Interested and Affected Parties with -
 - 3.5.1 the name of the holder (entity) of this environmental authorisation;
 - 3.5.2 the name of the person responsible for this environmental authorisation;
 - 3.5.3 the postal address of the holder; and
 - 3.5.4 the telephone and facsimile details of the holder and e-mail address if any.
4. A minimum of seven calendar days' notice, in writing, must be given to the competent authority before commencement of construction activities.
 - 4.1. The notice must make clear reference to the site details and EIA Reference number given above.
 - 4.2. The notice must also include proof of compliance with the following conditions described herein:
 Conditions: 2, 3, 8.4.1 and 12.

5. The holder is responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
6. Any changes to, or deviations from the scope of the description set out in section B above must be accepted or approved, in writing, by the competent authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the competent authority may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.
7. The applicant must notify the competent authority in writing, within 24 hours thereof if any condition herein stipulated is not being complied with.
8. The draft Environmental Management Programme ("EMP") submitted as part of the application for environmental authorisation is hereby approved on condition that the following amendments are made to the EMP, and must be implemented.
 - 8.1 Dust suppression methods must be used to mitigate dust during the construction phase. No potable water is to be used to mitigate dust in this regard (as far as practically possible). Alternative dust suppression methods (such as shade netting screens and/or straw stabilisation, etc.) may be implemented instead;
 - 8.2 The following conditions regarding the temporary storage of fuel on site during construction must be complied with:
 - 8.2.1 The fuel storage tanks must be bunded (110% of the tank capacity) to contain any possible spills and to prevent any infiltration of fuels into the ground; and
 - 8.2.2 Drip trays must be provided for all vehicles, construction equipment and generators that may require re-fuelling on site to avoid the possible spillage of fuel/oil.
 - 8.3 All noise and sounds generated during all phases of the proposed development must comply with the relevant SANS codes and standards.
 - 8.4 The following mitigation measure recommended in the Hydrogeological Study (dated 03 June 2014) compiled by Mr. J.H.B Kruidenier and Mr. S. Meyer of AGES must be implemented:
 - 8.4.1 Groundwater monitoring must commence at least one year prior to the commencement of construction activities.
 - 8.5 The following mitigation measures recommended in the Ecology Impact Assessment Report dated 08 May 2014 and compiled by Mr. N. Helme of Nick Helme Botanical Surveys must be implemented:
 - 8.5.1 All disturbed areas must be rehabilitated with suitable locally indigenous Strandveld plant species; and
 - 8.5.2 Rehabilitation must be undertaken in the first autumn after completion of construction, just prior to the winter rainy season.

- 8.6 The stormwater management plan as prepared by REDE Engineering and Management Solutions (Pty) Ltd. dated June 2014, must be implemented.
 - 8.7 The manner and frequency for updating the EMP must be done as follows:
 - 8.7.1 An application for amendment to the EMP must be submitted to the competent authority if any amendments are to be made to the EMP, and this may only be implemented once the amended EMP has been authorised by the competent authority.
 - 8.7.2 The EMP must be included in all contract documentation for all phases of implementation.
 - 8.8 A copy of the amended EMP must be submitted to this Directorate prior to commencement of construction activities.
 9. A copy of the environmental authorisation and the EMP must be kept at the site where the listed activities will be undertaken where-after it must be kept at the office of the holder of the EA. Access to the site referred to in section C above must be granted and, the environmental authorisation and EMP must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The environmental authorisation and EMP must also be made available for inspection by any employee or agent of the applicant who works or undertakes work at the site.
 10. The applicant must submit an application for amendment in terms of Chapter 5 of the NEMA EIA Regulations, 2014 of the environmental authorisation to the competent authority where any detail or scope with respect to the environmental authorisation must be amended, added, substituted, corrected, removed or updated.
 11. Non-compliance with a condition of this environmental authorisation or EMP may result in suspension of this environmental authorisation and may render the holder liable for criminal prosecution.
 12. The holder must appoint a suitably experienced environmental control officer ("ECO"), or site agent where appropriate, for the construction phase of implementation before commencement of any land clearing or construction activities to ensure compliance with the EMP and the conditions contained herein.
 13. Should any heritage remains be exposed during excavations or any actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials.
- A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

14. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a landfill licensed in terms of the applicable legislation.
15. The following visual mitigation measures as recommended by the Mr. B. Eitzen of New World Associates dated November, 2013 must be implemented:
 - 15.1 All infrastructure must be constructed in such a manner that it blends in with the existing infrastructure on the property during the operational phase with taller structures to the west of the site; and
 - 15.2 All lighting must be directional to light up specifically identified areas.

F. APPEALS

Appeals must comply with the provisions contained in Chapter 7 of the Environmental Impact Assessment Regulations, 2010.

1. An appellant must –
 - 1.1 submit a notice of intention to appeal to the Minister, within 20 (twenty) calendar days of the date of the decision;
 - 1.1.1 If the appellant is an applicant, the appellant must provide each person and organ of state which was a registered interested and affected party in relation to the applicant's application, within 10 days of having submitted the notice with the Minister, with—
 - (a) a copy of the notice lodged with the Minister; and
 - (b) a notice indicating that the appeal submission will be made available on the day of lodging it with the Minister and where and for what period the appeal submission will be available for inspection by such person or organ of state.
 - 1.1.2 If the appellant is a person other than an applicant, the appellant must provide the applicant, within 10 days of having lodged the notice with the Minister, with—
 - (a) a copy of the notice lodged with the Minister; and
 - (b) a notice indicating where and for what period the appeal submission will be available for inspection by the applicant.
 - 1.2 submit the appeal within 30 (thirty) calendar days after the lapsing of the 20 (twenty) calendar days contemplated in Regulation 60(1), for the submission of the notice of intention to appeal;
 - 1.3 that a responding statement may be made on the appeal within 30 (thirty) calendar days from the date the appeal submission was lodged with the Minister; and
 - 1.4 if a respondent introduces any new information not dealt with in the appeal submission of the appellant, the appellant is entitled to submit an answering

statement to such new information to the Minister within 30 days of receipt of the responding statement.

2. A person, organ of state or applicant who submits a responding or answering statement in terms of Regulation 63 must within 10 (ten) calendar days of having submitted the responding or answering statement, serve a copy of the statement on the other party.
3. All notice of intention to appeal and appeal forms must be submitted by means of one of the following methods:

By post: Western Cape Ministry of Local Government, Environmental Affairs and
Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or

By hand: Attention: Mr Jaap de Villiers (Tel: 021-483 3721)
Room 809
8th Floor Utilitas Building, 1 Dorp Street, **CAPE TOWN**, 8001

PLEASE NOTE: No appeal, responding and answering statement may be lodged by e-mail.

4. A prescribed notice of intention to appeal form and appeal form as well as assistance regarding the appeal processes is obtainable from the office of the Minister at: Tel. (021) 483 3721, E-mail Jaap.DeVilliers@westerncape.gov.za or URL <http://www.westerncape.gov.za>

G. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully



MR. ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)

DATE OF DECISION: 20/07/2015

Copied to: (1) Mr. H. Gildenhuys (AGES Gauteng (Pty) Ltd)
(2) Mr. L. Gaffley (Saldanha Bay Municipality)
(3) Mr. G. Stigling (Landowner)

Fax: (086) 607 2406
Fax: (022) 715 1518
Fax: (021) 930 2735

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EIA REFERENCE NUMBER:

16/3/1/2/F4/17/3004/13

NEAS EIA REFERENCE NUMBER:

WCP/EIA/0001235/2013

ANNEXURE 1: REASONS FOR THE DECISION

In reaching its decision, the competent authority, *inter alia*, considered the following:

- a) This application was submitted in terms of the NEMA EIA Regulations, 2010, and was pending at the time of the comment into effect of the Environmental Impact Assessment Regulations, 2014. Some of the listed activities herein authorised may not have been listed under the previous NEMA EIA Regulations, but are now listed in terms of the Environmental Impact Assessment Regulations, 2014. In accordance with Regulation 53(3) of GN No. R. 982, these activities may be authorised as if applied for;
- b) The information contained in the application form dated 21 February 2013 and received by the competent authority on 26 February 2013, the Scoping Report and the Plan of Study for EIA received by the competent authority on 29 January 2014, the Environmental Impact Assessment Report ("EIAR") received by the competent authority on 12 December 2014, the EMP submitted together with the EIAR, and the additional information received by the competent authority on 16 March 2015;
- c) Relevant information contained in the Departmental information base, including, the Guidelines on Public Participation, Alternatives and Exemptions (dated March 2013);
- d) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- e) The comments received from interested and affected parties and the responses provided;
- f) The sense of balance of the negative and positive impacts and proposed mitigation measures; and
- g) The site visit conducted on 13 August 2014.

Attended by: Mr. M. Lamour and Ms. T. Dreyer of Western Cape Government; Environmental Affairs and Development Planning, Ms. C. Smith of and Mr. H. Gildenhuys of AGES (Pty) Ltd.

All information presented to the competent authority was taken into account in the consideration of the application for environmental authorisation. A summary of the issues which, according to the competent authority, were the most significant reasons for the decision is set out below.

1. Public Participation

The public participation process included:

- identification of and engagement with interested and affected parties;
- fixing a notice board at the site where the listed activities are to be undertaken on 04 July 2013;
- giving written notice to the owners and occupiers of land adjacent to the site where the listed activities are to be undertaken, the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities on 08 July 2013; and
- the placing of a newspaper advertisement in the *Weslander* on 04 July 2013 and the 'Cape Times' on 05 July 2013.

The Department is satisfied that the PPP that was followed met the minimum legal requirements and all the comments raised and responses thereto were included in the comments and response report.

Specific management and mitigation measures have been considered in the environmental authorisation and in the EMP to adequately address significant concerns raised.

2. Alternatives

Alternatives identified and assessed as part of the impact assessment process included:

- Technology alternatives;
- Site alternatives; and
- The no-go alternative.

2.1 Technology Alternatives

2.1.1 Brine will be appropriately disposed of. Alternatives for the disposal of brine are the subject of a separate EIA process.

2.1.2 Boiler Fuel Alternatives

A boiler system will be required at the separation plant with a steam generating capacity of 5t/h of steam at a pressure of 10 Bar. Two alternatives were investigated and assessed in this to be used for the boiler system. These are Alternative 1, which entails the use of Coal and alternative 2, which entails the use Liquid Petroleum Gas (LPG). In evaluating these alternatives, emissions, operational costs and capital costs were considered.

LPG was not considered to be the preferred alternative since the annual fuel cost for a LPG boiler is much more expensive to operate than a coal fired boiler. Further, although coal is expected to have higher sulphur content than LPG, with effective implementation of the mitigation measures as proposed by the Air Quality Assessment conducted, the impacts are of negligible magnitude. The use of a Coal boiler is therefore deemed to be the preferred alternative.

2.2 Site alternatives

Two site alternatives were investigated as part of the proposed development. These were site alternative 1, Portion 6 of the Farm Langeberg No. 188, Saldanha (preferred alternative herewith authorised) and site alternative 2, Portion 0 of the Farm Uyekraal No. 189, Saldanha Bay.

Site alternative 1 was considered to be the preferred alternative as there were no archaeological resources identified on this site. Further, no Critical Biodiversity Areas were found on or adjacent to the site.

Site alternative 2 was not preferred as it is located too close to existing industrial facilities where air emissions may affect the product quality of the separation plant. Various archaeological artefacts were also found on the site. Further, two plant "Species of Conservation Concern" were recorded in the study area, (and there is a possibility that additional species may be present in the area). A portion of the site is located within a Critical Biodiversity Area.

"No-Go" Alternative

Since the proposed development would not result in unacceptable impacts, the no-go alternative was not warranted. The positive impacts such as an economic boost for the

local area, employment opportunities and provision of refined rare earth elements would not be realized. As such, the no-go alternative is not warranted.

3. Impacts, assessment and mitigation measures

3.1 Activity Need and Desirability

The area where the proposed development will take place has been proposed for development of the industrial corridor (Saldanha Bay Industrial Development Zone). This means that the separation plant would not go against these plans.

3.2 Air quality/dust impacts

An Air Quality Impact Assessment was conducted by Mr. L. Burger and Mr. N. Gresse of Airshed Planning Professionals (Pty) Ltd, dated October 2014. Sources of pollutants have been identified and emission rates quantified. Dispersion simulations were undertaken to reflect the impacts from these sources. Predicted pollutant concentrations and dustfall rates were assessed in accordance with National Ambient Air Quality Standards (NAAQS), health risk thresholds and dustfall limits. The study found that no significant negative air quality impacts are associated with the proposed development.

The impacts of coal ash will be minimised as coal ash will be fed onto a wet conveyor belt in a concealed area and would be loaded directly onto trucks. Dust may be a nuisance, however this will mainly occur during the construction phase of the proposed development and mitigation measures has been included in this regard.

In addition, the Prospective Human Health Risk and Impact Assessment conducted by Mr. N. Potgieter of EnvironSim, dated May 2014, concluded that the significance of the impact associated with exposure to criteria pollutants is low, while the potential impacts from exposure to airborne particles associated with the proposed development and associated process chemical vapours is negligible.

3.3 Biophysical Impacts

A Botanical and Faunal Impact Assessment was conducted by Mr. N. Helme of Nick Helme Botanical Surveys. According to the Botanical and Faunal Impact Report dated 08 May 2014, the entire study area has been previously cultivated, and consequently this area supports a plant community with low species diversity. The original indigenous vegetation in this area is likely to have been Saldanha Flats Strandveld, which is restricted to the region, and which is classified as a Vulnerable vegetation type in terms of the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) National List of Threatened Ecosystems and in Need of Protection, dated December, 2011. Currently, there is no remaining example of this habitat in the study area. However, the proposed development will result in the loss of low conservation value vegetation.

In terms of faunal impacts, there are no confirmed records of threatened mammals or reptiles within the site and it is unlikely that any persists, due to the history of cultivation. The region supports large populations of Angulate Tortoise. The study concluded that faunal sensitivity is expected to largely mirror the botanical sensitivity, as it is usually dependant on available habitat. Further, virtually all of the faunal species likely to be impacted on by the proposed development are fairly mobile, and thus have the ability to move to nearby undeveloped areas.

In light of the above, the study confirmed that the preferred development site does not present any significant constraints from a botanical or faunal perspective. It was therefore

concluded that the faunal impacts associated with the proposed development is of low significance.

3.4 Groundwater impacts

A Hydrogeological Study was conducted by Mr. J.H.B Kruidenier and Mr. S. Meyer of AGES (Pty) Ltd. dated June 2014, to determine the potential groundwater impacts associated with the proposed development. According to the Geohydrological report dated June 2014, the characteristics of the groundwater are that the water is unsafe for domestic and agricultural use due to its high salt content. It further stated that the aquifer system in the study area can be classified as a "non-aquifer system" according to the "Aquifer Classification of South Africa Map, DWA", dated August 2012.

The afore-mentioned study concluded that the impacts on groundwater during the construction phase of the development will be negligible to moderate and the impacts during the operational phase will be low to moderate. Mitigation measures have therefore been included in the EMP in this regard.

3.5 Risk of disposal of Radioactive Elements

The rare earth elements that will be used at the proposed development may contain radioactive elements. However, mitigation measures will form part of the overall processing of the materials to lower the risk of the release of radioactive elements into the environment should the rare earth elements contain any radioactive elements. These measures have been included in the EMP.

The risk of the release of radioactive elements into the environment is therefore limited.

3.6 Potential risk to human health and the environment

According to the Major Hazard Installation Screening Assessment dated 2013 and compiled by Mr. D. Mitchell of Ishecon Chemical Process Safety Engineers, there are no reasonably foreseeable accident scenarios possibly arising on the separation plant site that could have significant effects beyond the site boundaries. As such, the facility does not need to be classified as a "Major Hazardous Risk Installation", neither on the basis of the inventory of hazardous chemicals nor on the basis of possible accidents impacting on persons outside the site.

3.7 Heritage/ Archaeological Impacts

According to the Heritage Impact Assessment, dated November 2013 and compiled by Mr. B. Eitzen of New World Associates, no areas of heritage potential were observed during the study on the proposed site and, similarly the significance of the impact on the heritage landscape is expected to be low.

3.8 Socio-economic impacts

A Social Impact Assessment was conducted by Ms. I. Aucamp of Equispectives Research and Consulting Services dated July 2014. The study stated that the proposed development will take place in an area earmarked for future development and as a result, there has been a steady influx of people over the past few years into the area. This resulted in the area already experiencing some social challenges. It was therefore concluded that the socio-economic impacts associated with the proposed development are cumulative in nature. Further, no new negative social impacts will be created by the proposed development.

3.9 Traffic impacts

A Transport Impact Study was conducted by Mr. C. Krogscheepers of ITS Engineers (Pty) Ltd. dated June 2014 to determine the potential impact of the proposed development on the traffic of the surrounding area. The study found that all road intersections surrounding the site are operating at acceptable levels. As such, no road upgrades were proposed from an intersection capacity point of view.

3.10 Visual Impacts

According to the Visual Impact Assessment Report dated May, 2014 and compiled by Mr. B. Eitzen of New World Associates although the visual character of the area is still strongly of rural and agricultural nature, the landscape includes large scale industries. The proposed development may impact on road users travelling along the R27 between Cape Town, Velddrift and surrounding areas. However, the proposed development will be situated within an area earmarked for industrial development.

The study therefore concluded that the potential visual impacts associated with the proposed development are expected to be low, provided that the recommended mitigation measures are implemented. Mitigation measures have therefore been included in the conditions of this environmental authorisation and the EMP in this regard.

3.11 Bulk Services

Electricity supply will be obtained from Eskom. Eskom, indicated in their letter dated 11 July 2012, that spare unallocated capacity is available to supply the proposed development with electricity. Other required bulk services will be supplied by the local authority.

Brine, which is a by-product that will be produced by the proposed development, will be appropriately disposed of.

3.12 Impact Assessment and significance

3.12.1 The air quality impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and negligible post mitigation;

3.12.2 The biophysical impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and low negative post mitigation;

3.12.3 The potential hydrogeological impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and negligible post mitigation;

3.12.4 Risk of disposal of radioactive elements as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and negligible post mitigation

3.12.5 The potential health impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and negligible post mitigation;

- 3.12.6 The potential heritage impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to mitigation and low negative post mitigation;
- 3.12.7 The socio-economic impacts as a result of the proposed development have been identified in the final EIAR as being of high positive significance;
- 3.12.8 The traffic related impacts as a result of the proposed development have been identified in the final EIAR as being of low negative significance prior to and post mitigation; and
- 3.12.9 The visual impacts as a result of the proposed development have been identified in the final EIAR as being of moderate negative significance prior to mitigation and low negative post mitigation.

National Environmental Management Act Principles

The National Environmental Management Act Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

The development will result in both negative and positive impacts.

Negative impacts include:

- Potential air quality impacts;
- Botanical impacts;
- Potential Heritage/archaeological impacts
- Potential groundwater impacts
- Traffic safety impacts; and
- Potential visual impacts.

Positive impacts include:

- An economic boost for the local community;
- Positive social impacts;
- Some employment opportunities during the construction and operational phases;
- Optimal use of available land; and
- Provision of refined rear earth elements.

In view of the above, the NEMA principles, compliance with the conditions stipulated in this environmental authorisation, and compliance with the EMP, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

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