Institute of Waste Management – Landfill Interest Group Seminar

Contents

1) Projects on the go in the Western Cape
2) NEMA Section 24G
3) Air Quality Act

Current and Pending Projects

- CoCT Vissershok height extension – proposed new lined cell on Cell O (historical disposal area) & discharge of treated permeate to the receiving environment/offsite.
- Drakenstein Waste to Energy Project
- CoCT CDM Projects – Landfill Gas
- CoCT Wastewise
- Closure of historical CoCT Waterkloof landfill site
- Closure of McGregor Landfill Site
- Wolseley Landfill site – Waste Licence Variation
- Vissershok Waste Management Facility – new HH cell
- Eden RLS
- Gansbaai LFS expansion – new cells
- PetroSA HH Sludge Pond Closure

Current and Pending Projects

- Helderberg RTS economic feasibility assessment
- Tygerberg (Bellville) RTS construction
- CoCT waste management facility audits
- Proposed upgrading of CoCT WWTW – 11 in total (sewage sludge)
- Ashton - Montagu LFS – waste licence application
- Bitou RTS & compost facility establishment
- George – compost facility
- Wasteman MRF relocation
- Vredenburg LFS – Technical Assessment
- CoCT Public Drop Offs – Retreat (expansion) and Morningstar (closure) + others

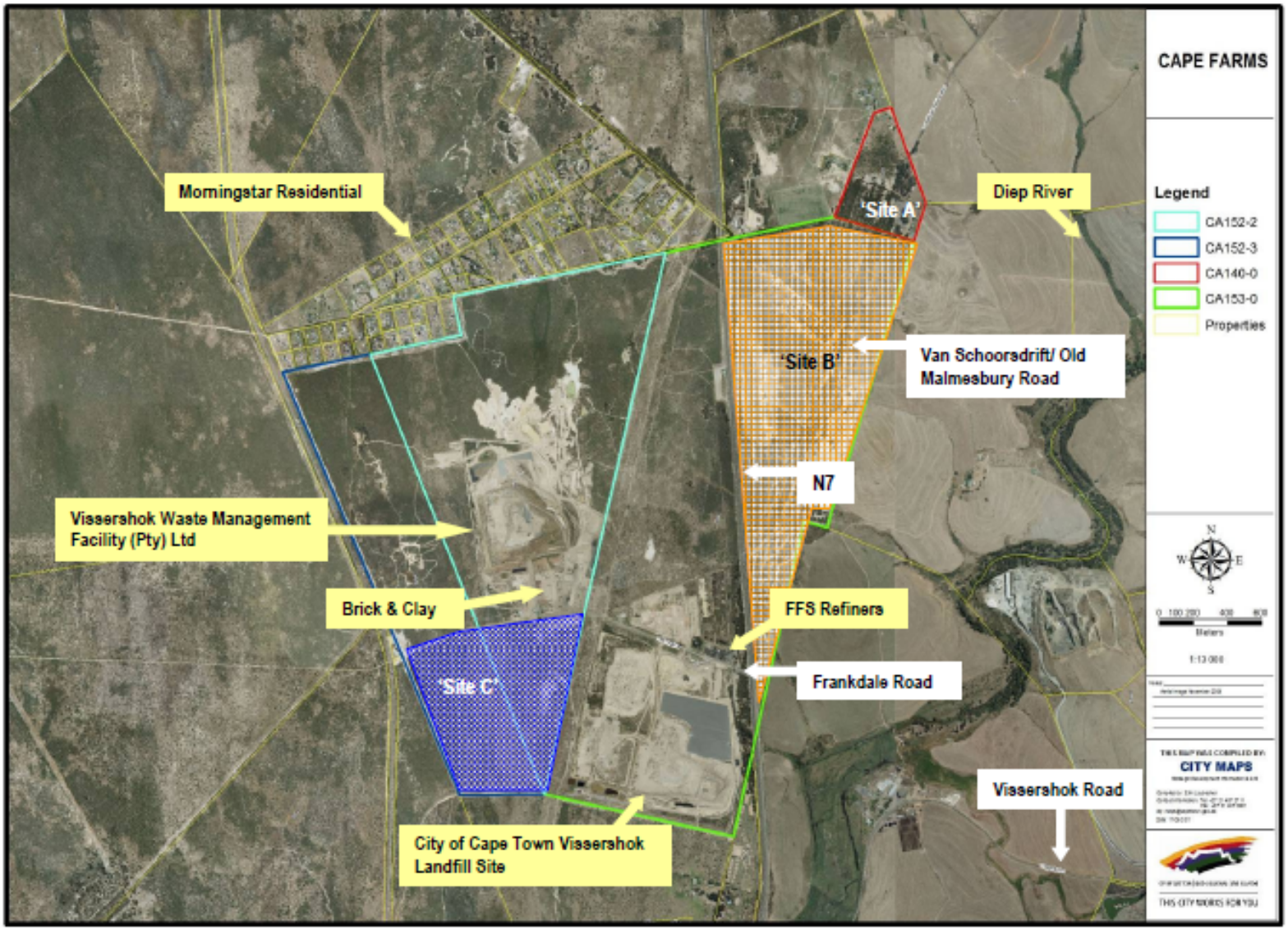
Waste Beneficiation- Energy Optimisation

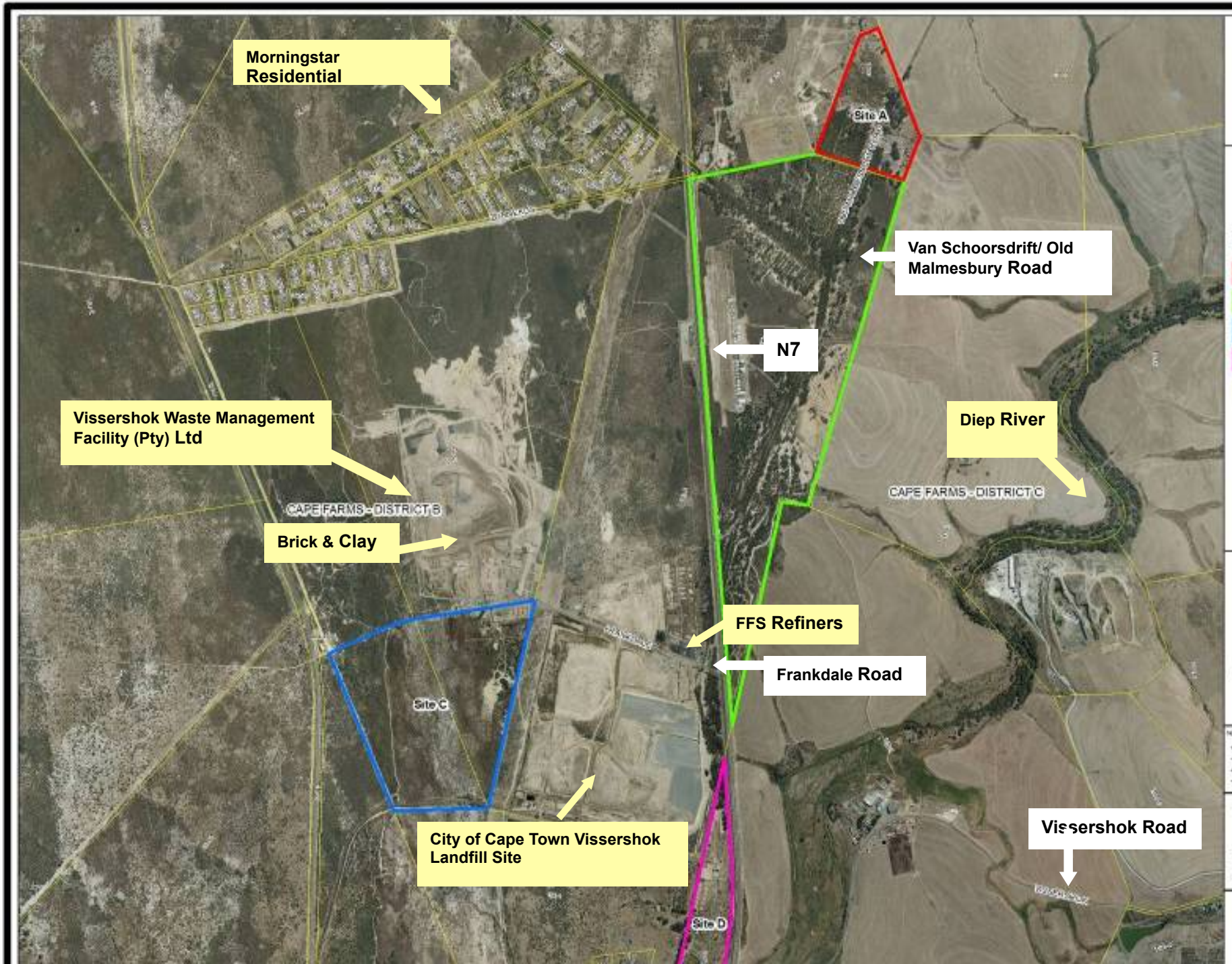
Landfill - Transfer

Waste Recovery - Reuse

Waste Management Planning

1. City of Cape Town proposed Biosolids Beneficiation Project:




Morningstar Residential
Site A
Van Schoorsdrift/ Old Malmesbury Road
N7
Vissershok Waste Management Facility (Pty) Ltd
Diep River
CAPE FARMS - DISTRICT C
CAPE FARMS - DISTRICT B
Brick & Clay
FFS Refiners
Frankdale Road
Site C
City of Cape Town Vissershok Landfill Site
Vissershok Road
Site D

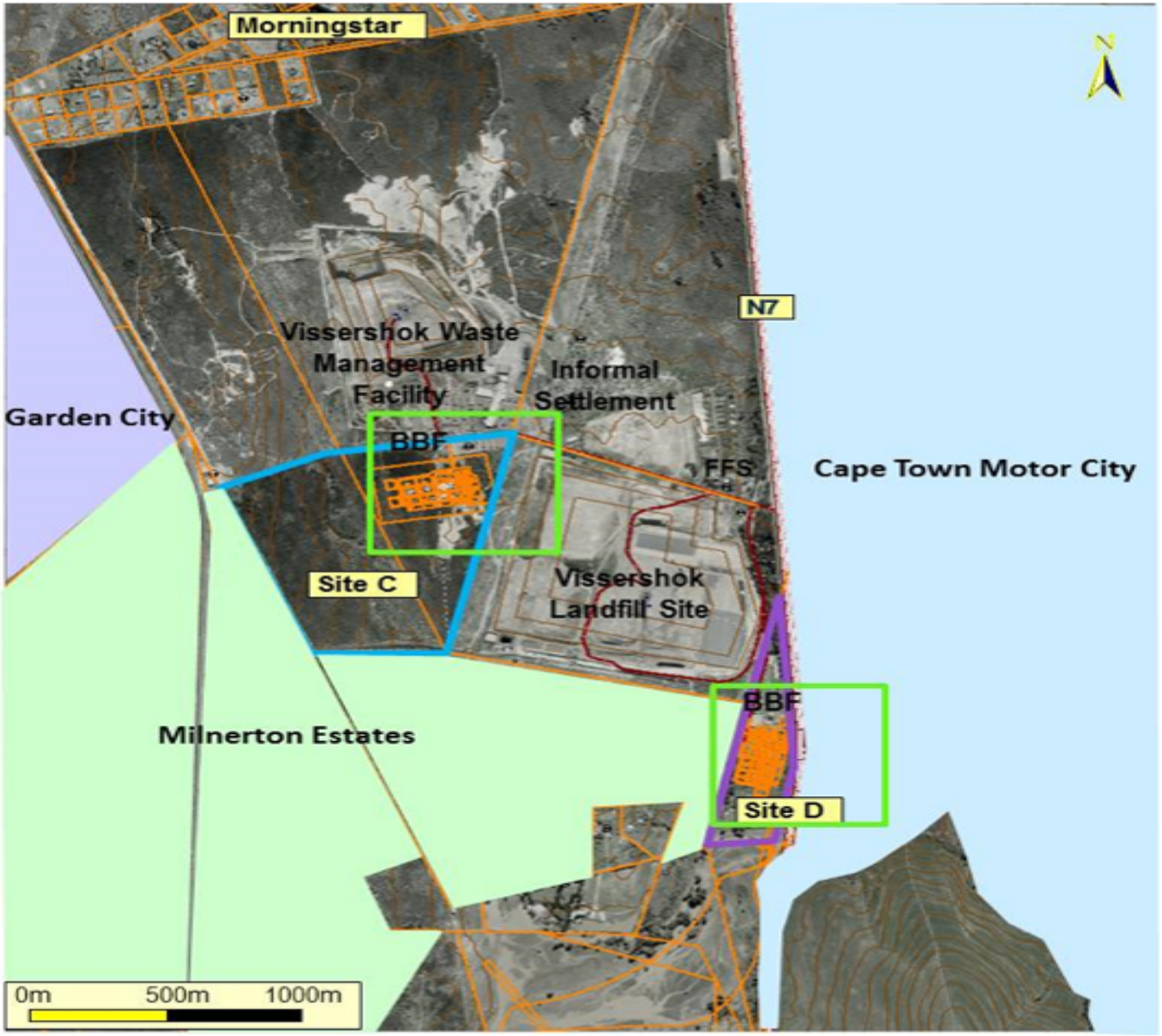
- CoCT Wastewater Department were exploring and investigating management options and suitable site and layout alternatives for the long term beneficiation of biosolids (sludge).

- At Outset of the Project it was proposed to have a **centralised** sludge handling and beneficiation facility in the northern part of the Metropolitan area. From a technical, current strategic planning and sludge treatment perspective the scoping process concluded that a centralised site in the north would be the preferred option.

- The proposed biosolids treatment facility will be developed in 3 phases (modular) to receive and treat all the wastewater sludge produced by the wastewater treatment works in the City – 30/40 years.

- The technology analysis determined that two treatment trains offered the greatest opportunity for improvement:
  - anaerobic digestion of sludge coupled with dewatering and land application of 'digested sludge', or
  - anaerobic digestion of sludge, dewatering, drying and then land application of the 'dried pellets'.

- The integrated qualitative analysis determined that the preferred treatment option is Anaerobic Digestion, with provision for supplementary compatible feedstocks (mono organic waste), and thermal drying to make use of excess heat and power generated.


Morningstar
N
N7
Vissershok Waste Management Facility
Informal Settlement
Garden City
BBF
FFS
Cape Town Motor City
Site C
Vissershok Landfill Site
BBF
Milnerton Estates
Site D
0m
500m
1000m

Project status:

Final Environmental Impact Assessment Report is out for 21 day comment and Review period – to be submitted to DEA, Friday 2 August 2013.

2. Distell Limited- Proposed Anaerobic Waste Water Treatment Facility at the Adam Tas Production Facility:

- Proposed AWWTF at the Adam Tas site for the further treatment of all the effluent Primarily industrial and some domestic) from the Adam Tas, Van Ryn and Bergkelder/ Papagaaiberg facilities.

- Wastewater from the Van Ryn facility would initially be transported to the Bergkelder/ Papagaaiberg facility for the removal of solids together with the marula wastewater and thereafter be conveyed along with the Bergkelder/ Papagaaiberg effluent via a dedicated new pipeline to the proposed Adam Tas AWWTF. Solids removed from the wastewater will be removed from site for composting .

- The AWWTF would then treat the combined wastewater streams and produce methane as a by-product. The post treated wastewater would then be discharged to the Municipal sewer.

- Various pipeline alternatives were considered and the preferred alternative were selected.

- Methane gas will not be stored on site as Methane (biogas) will be used continuously in the boiler or alternatively flared. The proposed usage of the biogas as an alternative renewable gas source will *replace the usage of coal - Reduce associated GHG emissions.*

Project status:

Final Environmental Impact Assessment Report Submitted to DEA (Waste Licence) & DEADP (NEMA authorisation), awaiting decision.

3. FarmSecure Energy (Pty) Ltd. – Proposed Organic Waste (General) Anaerobic Bio- digestion Facility :

- Proposed construction of a general waste sorting and pressing facility, anaerobic bio- digester and associated infrastructure to select and process organic waste.

- Biogas produced from the anaerobic digestion process will be sold or used to generate electricity.

- Two process alternatives were identified for the inclusion and pre-treatment of different organic waste steams:
  - ❑Preferred Technology and Process Alternative (Alternative 1): will include the treatment of 375 tonnes per day of Municipal General Solid Waste by means of general waste process system, namely press treatment.
  - ❑Technology and Process Alternative 2: no Municipal General Waste will be utilised i.e. No general waste pressing and sorting will be required. The alternative will utilize 100 tonnes per day of organic mono- waste materials in the anaerobic digestion process.

- Positive environmental impacts:
  - ❑Reduction of waste to landfills and the subsequent saving in landfill airspace
  - ❑Recycling of materials that would otherwise have been landfilled
  - ❑Generation of green fuel source or energy (production of electricity)
  - ❑Job creation

Project status:

Final Basic Assessment Report has been submitted to the Department of Environmental Affairs and Development Planning, awaiting decision.

4. Soil & More Reliance- Proposed Organic Recycling Facility

- Initially it was proposed for the establishment of an Organic Recycling Facility which included the installation of an Anaerobic Digester as well as open windrow (expansion of current activities) and indoor (closed) composting facility. However rezoning needed to be done to accommodate the proposed Anaerobic digester.

- Due to negative reception and financial implications associated with a protracted rezoning process that may not be successful – application was amended.

- **Amended proposed project:** extension of the current green composting facility (organically certified) and include composting of selected organic waste by means of open windrow process.

- The following organic waste will be used for open windrow composting:
  - Green Waste: 8000 ton/month
  - Manures: 3000 ton/month (Cattle 40%, Chicken 40%Pig 10%, Horse 10%)
  - Fruit and vegetables: 2000 ton/month
  - Grape Pommage: 40 000 ton/per year (Seasonal)

- Two location alternatives were considered:
  - **Location alternative 1:** adjacent to the current composting activities
  - **Location alternative 2 (preferred):** adjacent to the dam

Project status:

Amended Final Basic Assessment Report has been submitted to the Department of Environmental Affairs and Development Planning, awaiting decision.

5. Brakkefontein Clay Products (Pty) Ltd- Proposed use of paper pulp waste in the manufacturing of clay bricks, Apollo Bricks:

- Proposed to use a process waste product, paper pulp from Nampak Tissue (Pty) Ltd, as a feedstock in the manufacturing of clay bricks. Currently saw dust and ash are being used as feedstock.

- Paper pulp has shown to leach small amounts of Manganese (Mn) under acidic conditions – classified as hazardous (1998 Minimum Requirements Classification Guidelines). Paper pulp and waste paper exhibit the same chemical characteristics. New proposed guidelines not a hazardous waste.

- Preferred alternative: Use of paper pulp in brick manufacturing . Inclusion of paper pulp is preferred because:
  - Bricks will be lighter, more bricks can be transported on trucks
  - The water in the paper pulp can be used in the hydrating process and the fibre content is used as fuel thereby reducing the costs of brick production.
  - Helps recycle waste into a useful product that would otherwise require expensive disposal at Vissershok.
  - Aerating the bricks causing more efficient burning during the firing process and thus reduction in energy required.
  - The cost of utilising paper pulp waste is less than for the use of coal especially in areas far away from coal sources such as Western Cape .

Project status:

Application for a downgrading from a full Scoping Report to a Basic Assessment Report submitted – downgrading rejected although BA process followed in terms of NEMA in 2011!!

6. Saldanha Steel (Pty) Ltd- ArcelorMittal Saldanha Works: Briquetting of Fine Metallurgical Materials generated at the steel works:

- Construction of a briquetting plant to manufacture briquettes using by-products generated by steel works.

- The by-products DRI fines, coke fines and coal fines were suggested as possible materials to be utilised in the manufacturing of the briquettes.

- The proposed briquetting process will result in reduced stockpiling of materials as well as aid in the easier handling and transport of materials. Proposed operation will optimise the economic efficiency of the plant through the re-use of materials which would have otherwise been disposed of or sold to alternative commercial operations.

- Two location alternatives:
  - Location 1 (preferred) - Stock yard
  - Location 2 - Bag House Area

Project status:

Final Basic Assessment Report is out for 21 day comment and Review period

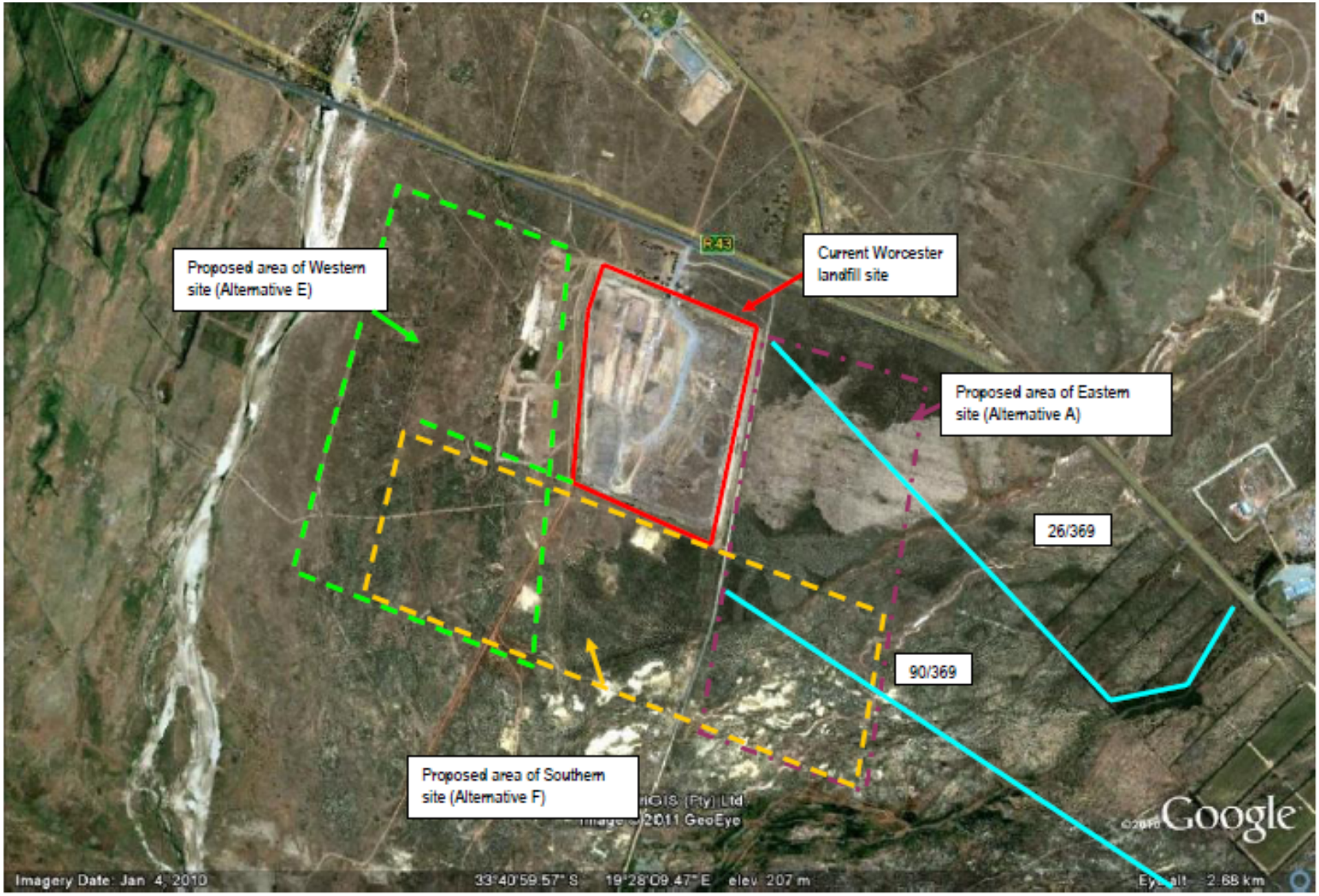
Waste Beneficiation- Energy Optimisation

Landfill - Transfer

Waste Recovery - Reuse

Waste Management Planning

1. Cape Winelands District Municipality (CWDM)- Proposed CWDM Regional Landfill site (East):



- Identification of regional landfill site for the Eastern portion (which includes the Witzenberg, Langeberg and Breede Valley Local Municipalities) of the District Municipal area.

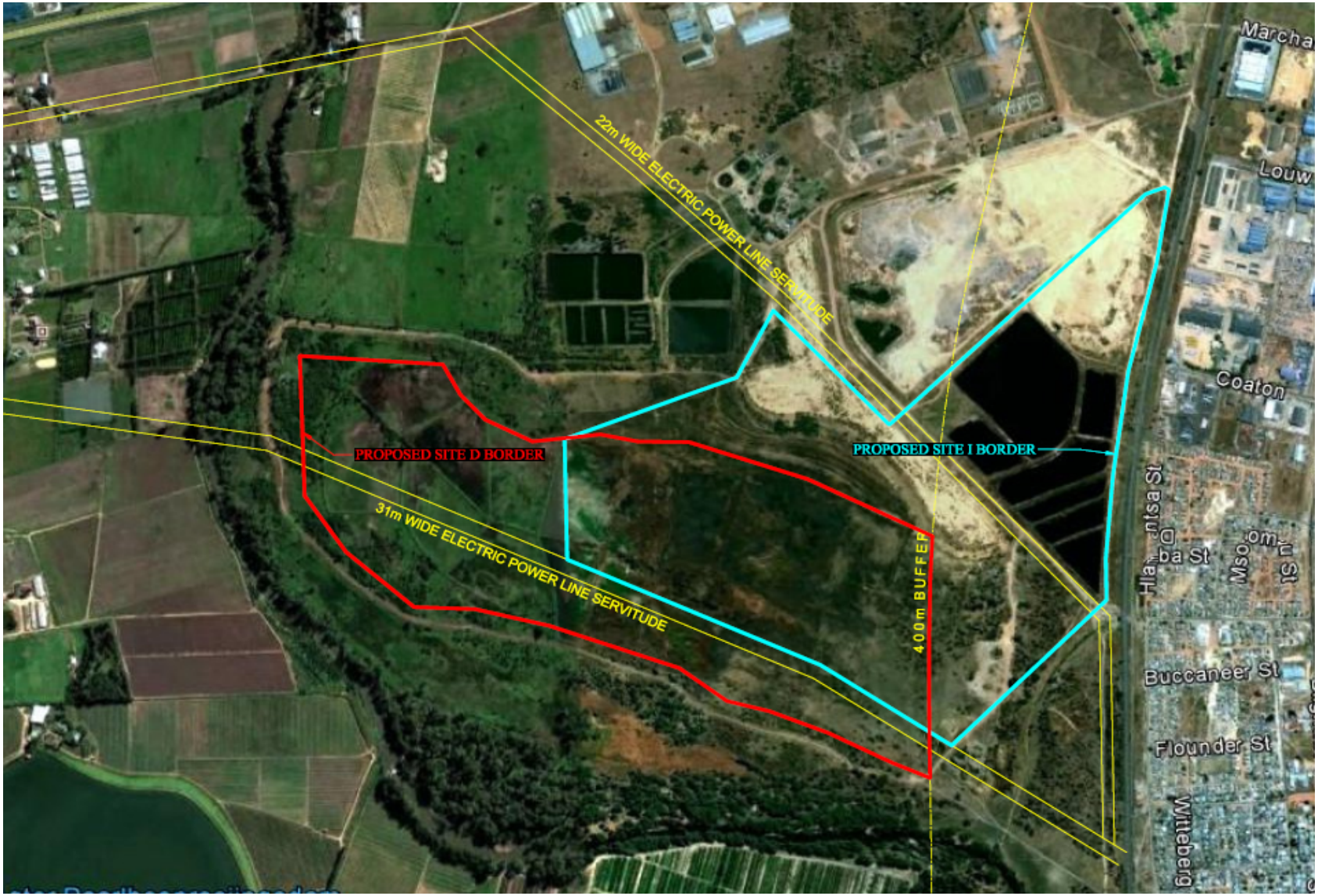
- The proposed regional site will only receive general waste by road transport from the three (3) local municipalities mentioned.

- Location Alternatives:
  - Location A- proposed area of Eastern Site
  - Location E- proposed area of Western Site - preferred
  - Location F- proposed area of Southern Site

Project status:

The Draft Environmental Impact Assessment Report is currently being compiled

2. Cape Winelands District Municipality (CWDM)- Proposed CWDM Regional Landfill site (West):



Project status:

- The specialist studies commenced on 18 July 2013.
- Specialist studies : Impact Assessment – ***historical sludge pond & buffer zone critical environmental assessment and debate***
- DEIR – 40 Day Public and Authority Review Period - October 2013
- FEIR – DEADP end 2013

Waste Beneficiation- Energy Optimisation

Landfill - Transfer

Waste Recovery - Reuse

Waste Management Planning

1. Organic Synthesis (Pty) Ltd.- Proposed Processing and Beneficiation of Liquid Hydrocarbon by- Product:

- Organic Synthesis currently processes hydrocarbon- based raw materials which includes material oils, vegetable oils, bitumen, tars and solvents. Finished products include protective coatings for metals and wood as well as bio-gel fuel and industrial lubricants, adhesives and sealants.

- Propose to expand their processing capacity through the sourcing of by-products and waste streams to supplement and reduce costs of raw materials used in production – project in line with new proposed waste diversion regulations.

- Two alternative energy technologies considered:
  - **Alternative 1** (preferred): Continued use of current diesel boiler
  - **Alternative 2:** Electrical boiler

- By using the current distillation process on site which is run with the use of steam energy for the proposed processing of by-products, Organic Synthesis will be optimising energy consumption via the use of an existing technology on site.

- Organic Synthesis proposes to expand and increase the storage capacity of hazardous and dangerous goods to allow for greater processing capacity. The additional volume to be stored will include both raw materials and waste materials.

Project status:

The Draft Scoping Report is out for a 40 day commenting period until 5 August 2013

Waste Beneficiation- Energy Optimisation

Landfill - Transfer

Waste Recovery - Reuse

Waste Management Planning

2. Knysna Municipality (Sedgefield)- Proposed establishment of waste management facilities for the management of building rubble - green waste - household hazardous and closure of a historical compost facility (24G):

- The Knysna Municipality aims to improve and optimize the management of waste by establishing new and expanding existing facilities within the area.
- Proposed Facilities include:
    - An existing recycling service
    - Public drop off area
- These facilities will receive garden / green waste and building rubble.
- Garden/green waste collected at the public drop off area will be chipped on site
- Chipped garden/ green waste and building rubble will then be transported to a separate, and still to be established, composting and building rubble treatment and disposal facility.
- Chipped waste will be composted and building rubble will be crushed and/or disposed of on the established site.

Project status:

The Draft Basic Assessment Report is currently being compiled and will be going out for 40 day commenting period before end July 13.

Section 24G

Legal and Process requirements

- Rectification of unlawful commencement of activity
- 24G process must include report –

1) Assessment of impacts
2) Discuss and describe mitigation of impacts
3) PPP (Public Participation Process)
4) EMP (Environmental Management Programme)

DEADP BAR template – "Assessment Report"

- Outcome of process –

1) Pay a fine - Fine maximum of R 1 million
2) Fine Base: R 50 000.00 (not a legislated figure)
3) Directive to cease operations – wholly or partly and rehabilitate as necessary and instructed
4) Issue an environmental authorisation

1. Company 1- Application for rectification in terms of 24G of NEMA for the unlawful commencement of a Composting Facility on farms Middelpos & Klein Hamburg- Hopefield:

- The company established a composting facility without a NEMA authorisation in 2008 using raw chicken manure as the primary raw material.
- 24G application and impact assessment process was concluded over a 2 year period – this included an appeal phase.
- Process included a groundwater statement – desktop screening assessment
- Social Impacts – Low Positive
- Environmental Impacts – Very Low Negative – Positive (waste diversion)
- No public issues
- Fine – R 71 250.00
- Appeal unsuccessful
- Waste Licence issued


© 2010 AfriGIS (Pty) Ltd.
Image © 2010 GeoEye
©2010 Google
Imagery Date: Feb 9, 2010
33°06'26.91" S 18°29'38.41" E elev 220 ft
Eye alt 2992 ft

Project status:

Applicant lost contract with poultry company due to the protracted nature of the 24G process but decided to pay fine, obtain waste licence and make site available for alternative contractor to use facility for composting purposes.

2. Company 2- Application for rectification in terms of 24G of NEMA for the unlawful commencement of a Composting Facility on portion 61 of the Farm Reiersrust no. 369- Worcester:

- Company purchased an existing composting facility that uses chicken manure as the raw material. The Company was unaware that the existing composting facility was unlicensed and operating illegally.

- The following activities and associated infrastructure have commenced:
  - The storage and open windrow composting of chicken manure – processing capacity subject to pelletizing operation being fully functional

- To mitigate any possible impacts of leachate / surface water run off originating from open windrows, company has committed to compost chicken manure using an in-vessel / enclosed method which is used widely in Europe.

- 24G reporting process included a groundwater screening report

This alternative composting method has numerous advantages;

- produces compost of consistent quality;
- no odour;
- no run-off;
- no pests; and
- unaffected by weather
- Implementing this method would reduce the footprint of the activity, saving up to 65 % of space.

Project Overview and Status:

Project time period: 1 year

Fine: R 112 500.00

No Public Issues

Social Impact: Medium Positive
Environmental Impact: Very Low Negative
(Positive in terms of waste diversion)

The project has been completed and a waste licence was issued .
The Company will proceed with the installation of the new composting methodology and process.

3. Municipality 1 - Application for the rectification in terms of section 24G of NEMA for the unlawful commencement of a waste recovery facility on Portion 74 of Brakkloof No. 443 :

•Municipality 1 established a waste recovery facility in 2006.

•Following a site inspection by DEADP Law Enforcement, Municipality received a letter which stated that the facility was an illegal activity in terms of the NEMA 2006 EIA Regulations, and a Section 24G process to legalise the activity needed to be initiated.

•This site (location of the waste recovery facility) was identified along with 6 other sites as part of a project which is focussing on establishing public waste drop offs for green waste, builders rubble and household hazardous waste, which in future would form part of the broader Municipal waste management system.

• The requirement to proceed with the 24G process delayed a waste project initiated to identify new public waste drop off facilities - parallel processes were not acceptable

•The Municipality has subsequently made a decision to permanently close the waste recovery facility.

Project Overview and Status:

The project has been completed (1 – 15 years) and a waste licence was issued.

Historical public issues – linked to waste disposal site

Environmental Impact – Low negative (site) – waste diversion/recycling positive
Social Impact – Low Positive
Site Closure (Social) – Low/Medium Negative

Municipality have paid the fine of R 67 500.00 they were issued with.

Section 24G Summary

- Composting Company 1: R 71 250.00 (NEMA)
- Composting Company 2: 112 500.00 (NEMWA)
- Municipality 1 (Waste recycling facility) : R 67 500.00 (NEMA)
- Composting Company 3: R 15 000.00 (ECA)

- Basis of Minimum Fines (not legislated – DEA/DEADP agreement) – R 50 000.00
- No legislated time frames
- Application cannot be used to expand facility – rectify and then submit a new waste licence application
- Lengthy process irrespective of impact rating
- Fines issued are formula based and appear not to be really linked to actual outcome of impact assessment

NEM: Air Quality Act, 39 of 2004

- Two Amendments to the Act - 2008 and 2009
- Licencing authorities – factors to be considered
  - The pollution likely to be caused by carrying out the listed activity applied for – effect of pollution on environment (health, social, economic, cultural heritage and ambient air quality)
  - BPEO – prevent, control, abate or mitigate & to protect the environment
  - Section 24 of NEMA and Section 22 of ECA
  - Relevant tradable emissions scheme
  - Applicant is a fit and proper person
  - Applicants submission
  - Submissions from organs of state, I&AP' s
  - National or Provincial guidelines relevant to licensing authority functions

Provincial Approach

4. SPECIALIST STUDY (ATMOSPHERIC DISPERSION MODELLING)

4.1 It is imperative that the atmospheric dispersion modelling that is undertaken conforms to the following requirements:

4.1.1 Sufficient information must be provided to the Authorities to allow for a full understanding of the results and how they were derived. Thus:

4.1.1.1 A description of the input data, including source of data, validity of data and any assumptions must be provided.

4.1.1.2 An electronic copy of all input files required to run the model must be provided together with a hard or electronic copy of the output text file.

4.1.1.3 Various scenarios must be modelled i.e. background existing conditions, normal and abnormal operating conditions as well as high or low production scenarios where applicable.

4.1.1.4 All plotted contours must be overlaid onto a current aerial photograph or topographic map or a street map.

4.1.1.5 Time series plots must also be provided to further support how the conclusions of compliance have been reached.

4.1.1.6 The source site and closest sensitive receptors must be highlighted. Residential areas can also be shown as a single receptor.

4.1.1.7 The scale selected should show all relevant ground level impacts. It must be shown as part of the output, either as labelled axes or as a separate scale bar.

4.1.1.8 A discussion on the accuracy of the results and comparison with appropriate standards must be provided according to the various averaging periods that are applicable.

4.1.2 Details of the ambient background levels of pollutants that were used and their source must be provided.

4.1.3 The impact of the proposed operations on the ambient air quality must be demonstrated for the current plant as well as under normal and abnormal conditions for the proposed new plant.

4.1.4 The Department of Environmental Affairs (DEA) has identified SCREEN3 and CTSCREEN atmospheric dispersion models for use as screening models for regulatory purposes in South Africa. It is therefore; recommended that SCREEN3 and/ or CTSCREEN be used for this application. These models are available at no cost from http://www.epa.gov/scram001/dispersion_screening.htm.

Industrial Focus

- Air Pollution Prevention Act (APPA) – Atmospheric Emissions Licence (AEL) renewal process

- PetroSA, Mosselbay
- Arcelor Mittal, Saldanha
- Duferco, Saldanha
- PPC – Riebeeck Wes and Piketberg

THANK YOU

- Bronwyn Fisher (RMS) for assisting with the compilation of the presentation

QUESTIONS