

**IQWEBA LOKUHLOLA IGESI E SOUTH WESTERN KAROO
BASIN ELICETYWAYO**

**IPHEPHA LUKUBHALISA NOKUNIKA IZIMVO
Uxwebhu Lwemvelaphi Yolwazi Oluhambisanayo
January 2011**

**Golder Associates
Public Participation Office**

Toni Pietersen/Nomthi Mnisi
PO Box 6001, Halfway House, 1685
Tel (011) 254-4805/313-1072 Fax (011)
315-0317
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*Nceda ubhale inkcukacha zakho ngokupheleleyo ubuyise ngaphambi koLwesihlanu, mhla we 18 Februwari 2011, kwi
Public Participation Office (njengaphezulu ekuqaleni)*

ISIHLINOPHO		IGAMA	
OONOBUMBA BOKUQALA BAMAGAMA AKHO		IFANI	
UMBUTHO		i-EMAIL	
i-ADRESI YEPOSI		INOMBOLO YEPOSI	
IFONI		IFEKSI	

Xa ungumnini-mhlaba
ochaphazelekayo
nceda uxele igama
lefama yakho
nenombolo ye erf

UKUBHALISA NJENGNOMDLA NOCHAPHAZELEKAYO (I&AP) (nceda ujikelezise impendulo efanelekileyo)

Nceda undibhalise ngokwesiko njengonondla nochaphazelekayo (I&AP) kweliqwebha lokufuna iphepha-mvume lokuhlola elaziwa njenge Central Precinct (inombolo yePASA 12/3/220) ze ndifumane ulwazi nezaziso kulenkqubo ye EMP	EWE		HAYI	
	Ndingathanda ukufumana ulwazi ngezicelo ezinye ezifakwe yiShell.	Icandelo LaseNtshonalanga	EWE	HAYI
Icandelo LaseMpumalanga		EWE	HAYI	
Ndingathanda ukwaziswa nge	Incwadi	EWE	HAYI	
	i-Email	EWE	HAYI	
	iFeksi	EWE	HAYI	
	ifoni	EWE	HAYI	
Ndingathanda ukufumana amaxwebhu okunika izimvo ngendlela elandelayo	Amaphepha esikhutshelo	EWE	HAYI	
	Nge email	EWE	HAYI	
	kwi CD	EWE	HAYI	
Ndingathanda ukufumana amaxwebhu anemishwankathelo	Isingesi	EWE	HAYI	
	Isibhulu	EWE	HAYI	
	IsiXhosa	EWE	HAYI	
Ngoko mgaqosiseko we GNR 543 (EIA process regulations) Ngaphansi ndixela naliphi ishishini, iimali, nendima zam kanye neminqweno endinganayo ngokwamkelwa okanye ukulandulwa kwesicelo esifakiwe :			
.....				

IZIMVO (nceda usebenzise iphepha elahlukileyo xa unqwena)

Ndicebisa ukuba kuphengululwe lemicimbi ekhathazayo ngaleEMP:

Ndicebisa okulandelayo ngenkqubo nodliwanondlebe yeEMP:

Ezinye Izimvo:

Nceda usazise: Ingabe imvelaphi yolwazi koluxwebhu ibeluncedo na? Cacisa ngaphantsi

EWE, IBELUNCEDO	
KUFANELE IPHUCULE KANGATHO	
HAYI, AYINCEDANGA NGANTO	

Nceda Uchaze:

Nceda umeme abalingane/abahlobo bam ukuzobhalisa I&APs kule EMP:



APPENDIX C

Copies of the media advertisements published in the print media, Central Precinct

DRAFT



2	Thornhill-McIntyre Spadina Hall, 15 Kirk Street, Beaufort West	Monday 27 January 2011	10:00 - 13:00
3	Wynberg Town Hall, 29 Beaufort Street, Murrayburg	Friday 28 Jan 2011	12:00 - 20:00
4	De la Motte Sappo Ram, Town Hall, 21 Hour Street, Camdeboo	Friday 28 Jan 2011	12:00 - 20:00



PASA Bekomske No. 12/S/221			
	VENUE	DATE	TIME
1	Hartmeyer's Bowling Club, Farm Kietemaen	Monday 24 January 2011	09:00 - 12:00
2	Groot-Huisies Sappo Ram, Town Hall, 21 Hour Street, Camdeboo Municipality, Groot-Huisies	Friday 28 January 2011	09:00 - 12:00
3	Sommerstad-Sedoo Spadina, Nqolinhosi 67, Bloubaanraai Municipality, Sommerstad	Monday 31 January 2011	09:00 - 12:00
4	Port Elizabeth Town Hall, Municipal Offices, Goven Mbeki Ave, Braker House, Port Elizabeth	Monday 31 January 2011	12:00 - 20:00



To register as an ISAF and obtain an Information Document please contact the Public Participation Officer:
 Tonl Frederzen / North: Main: Golder Associates P O Box 4001, HARWAY HOUSE 1688
 Tel: (011) 254 4805 / (011) 313 1022 or fax: (011) 315 0317 Email: kono@golder.co.za Website: www.golder.co.za
 Date of notice: January 2011. Due date to register as ISAF: Friday 18 February 2011



portret 'CV' 'geras' 'when he was told 'ason had done any other work, it served as a wake-up call. He has since served on the boards of four charities, including The Valley Trust and the children in distress Network. It's the rewarding part," he said. The 68-year-old widower was among 510 applicants in the inaugural Change the World campaign, hosted in association with Avusa Media.

The 10 finalists will each be placed with a selected charity, and a spend of R20 000 will be paid to each charity to cover the costs of the volunteer. But Wimble promised to plough his spend back into another charity if he was selected. The charity needs a pre-school education volunteer, but Wimble does not think that should be appropriate that my skill set does not include pre-school education. However, through The Valley Trust, I was involved in a project comprising approximately 60 pre-school charitable, social and businesswomen Edith Vorster and I and radio personality Kanyo JMus have chosen their weight holding the initiative. They were chosen for their charity with each organization such as Bosch for a Living, Gedebe Holy Spirit and Alexander Forbes Child Welfare and Johannesburg Child Welfare.

VOA.COM launched the 'Change the World Initiative' in association with Avusa Media last October. Scaled workers from around the country were invited to apply for a position at one of 10 charities — one in each province except for Gauteng, which has two. Each organization had to identify the skills most needed, from social workers to fund-raising and each will receive R250 000 towards a stipend for the volunteer and any other services volunteers need to make a plan work. The 515 applicants will be narrowed down over the next few weeks, and the 10 finalists will be announced in March. The volunteers start their six month stint in April.

Alexander Forbes

Interimship / Learnership opportunities for 2011

Do you want experience within the Risk and Insurance Services sector? Alexander Forbes, a leading provider of risk, benefits and investment services, has two opportunities. **Interimship Programme:** If you have just completed your B.Com degree or Accounting related Diploma, and require work experience with a highly driven organization, and you are interested in the risk and insurance sector, then send your CV through to AFRIS.learnership@alexforbes.co.za or fax it to 011 669 2009. **Learnership Programme:** If you have completed Grade 12 with Mathematics, English, Accounting/ Economics/Business Studies, you are between the ages of 18 and 23, and you have no prior work experience, then our learnership programme is for you. The Short Term Insurance (NTI) qualification is aimed at building knowledge, skills and confidence required by employees in handling and responding to short term insurance related needs of clients. To apply for this learnership opportunity, email your CV through to AFRIS.learnership@alexforbes.co.za or fax it to 011 669 2009. For both these opportunities, preference will be given to people with disabilities, and previously disadvantaged individuals. Apply before 4 February 2011. If you have not heard from us by 28 February 2011, consider your application unsuccessful. We have your future covered! Cape Town | Durban | Johannesburg



**INVITATION TO COMMENT
ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)
FOR PROPOSED SOUTH WESTERN KAROO BASIN GAS
EXPLORATION PROJECT**



PASA Reference Numbers: 12/3/219; 12/3/220 and 12/3/221

Notification is given that Shell Exploration Company B.V. (Shell) has applied to the Petroleum Agency of South Africa (PASA) for the exploration rights to undertake gas exploration activities in the South Western Karoo Basin, South Africa. Shell has submitted three exploration licence applications referred to as the:

- Western Precinct, intersecting the Western and Northern Cape, PASA Reference No. 12/3/219
- Central Precinct, intersecting the Western and Eastern Cape, PASA Reference No. 12/3/220; and
- Eastern Precinct, intersecting the Northern and Eastern Cape, PASA Reference No. 12/3/221.

The purpose of exploration activities will be to assess whether there is a viable unconventional gas (shale gas) resource within the proposed 90 000 square kilometre exploration area. Proposed exploration activities will include:

- Conducting geophysical data acquisition and studies; and
- Drilling exploration wells with possible gas stimulation (hydraulic fracturing) and flow testing.

The precise locations within the proposed area where exploration activities may take place have not yet been identified. For Shell to be awarded an exploration licence, the company is required to submit an exploration application in terms of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) to the PASA; and compile an Environmental Management Programme (EMP) and to consult with Interested and Affected Parties (I&APs).

Golder Associates, an independent consultancy, is undertaking the EMP process including the public consultation process. I&APs are invited to attend any one of the Open House meetings that will be convened:

PASA Reference No.: 12/3/219

VENUE	DATE	TIME
1. Laxton: Community Hall, Sport Grounds, Vygie Street, Laxton	Wednesday 26 January 2011	10:00 - 13:00
2. Cape Town: Edgemoed Bowling Club, Edgemoed Drive, Edgemoed, Cape Town	Tuesday 01 February 2011	17:00 - 20:00
3. Sutherland: Church Hall, Dutch Reformed Church, Plat Relief Road, Sutherland	Wednesday 2 February 2011	14:00 - 17:00



PASA Reference No.: 12/3/220

VENUE	DATE	TIME
1. Laxton: Community Hall, Sport Grounds, Vygie Street, Laxton	Wednesday 26 January 2011	10:00 - 13:00
2. Cape Town: Edgemoed Bowling Club, Edgemoed Drive, Edgemoed, Cape Town	Tuesday 01 February 2011	17:00 - 20:00
3. Sutherland: Church Hall, Dutch Reformed Church, Plat Relief Road, Sutherland	Wednesday 2 February 2011	14:00 - 17:00

The doctor with a heart for the needy

Retired do-gooder among applicants in Change the World charity campaign

KAREN VAN ROOYEN

HE'S been a doctor with a passion for paediatrics and a businessman with a heart to his name, but Dr Keith Wimble's real calling is just to be a do-gooder.

The Pietermaritzburg pensioner has spent nearly 30 years volunteering, so when the Vodacom Change the World Initiative came along last year, he added it to his list of charities.

Wimble, a doctor with two years' experience under his belt and an interest in paediatrics, was forced into the family stone-quarry business after a death in the family.

Years later, he became involved in various charities and, after retiring, went back to his roots in medicine, assisting with ARV programmes at local hospitals and sharing his business savvy.

Now Wimble has offered to spend six months assisting 1 000 Hills Community Helpers in KwaZulu-Natal, about 70km from his Pietermaritzburg home.

"Some time in my life, a person drew my attention to the fact that life is not just about your personal interests and your personal gain, one has to do something for the community," he said.

In South Africa, there are many skills available but not being used, partly because people retire and won't involve themselves in an activity that may be time-consuming.

"The challenge in South Africa is to encourage everybody else to get back into the same time bank in helping the community."

Wimble first became involved in the Change the World campaign

VODACOM CHANGE THE WORLD





**UITNODIGING OM KOMMENTAR TE LEWER
OMGEWINGSBESTUURSPROGRAM (OBP)
IN DIE SUIDWESTELIKE KAROOKOM**

PASA Verwysingsno. 12/3/219, 12/3/220 en 12/3/221

Kennis gestek hiermee dat Shell Exploration Company B.V (Shell) 'n aansoek gemaak het om die Farnoumogenenskap van Suid-Afrika (PASA) om eksplorasie-aktiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het drie aansoeke om eksplorasie-aktiwiteite ingedien. Daar word seers volg na hierdie aansoek verwy.

- Die Westelike Wyk, wat gebiede in die West-kaap en die Noord-kaap insluit, PAsA verwysingsno. 12/3/219;
- Die Sentrale Wyk, wat gebiede in die West-kaap en die Oos-kaap insluit, PAsA verwysingsno. 12/3/220; en
- Die Oostelike Wyk, wat gebiede in die Noord-kaap en die Oos-kaap insluit, PAsA verwysingsno. 12/3/221.

Die doel van die eksplorasie-aktiwiteite sal wees om vas te stel of daar lewensvatbare hulpbronne van onkonvensionele gas (skaliegas) binne die voorgestelde 90 000 vierkante kilometer van die eksplorasiegebied bestaan.

Die voorgestelde eksplorasie-aktiwiteite sal die volgende behels:

- Geotiese dataverkynging en studies.
- Die boor van eksplorasieboorgate met moonlike stimulasie van gas (hidrouliese breking) en die toets van vloeiempo.

Die prestasie ligging van moonlike eksplorasie-aktiwiteite binne die voorgestelde gebied is nog nie geïdentifiseer nie.

Voor 'n eksplorasie-aktiwiteit aan Shell toegestaan kan word, word daar vermits dat die maatskappy (WOMFH) (Wet 28 van 2002), 'n omgewingsbestuursprogram ingevolge die Wet op die Ontwikkeling van Mineraal- en Fossielbrandstofbronne (WOMFH) (Wet 28 van 2002), 'n omgewingsbestuursprogram (OBP) soosarsel en die belanghebbende en Geofaktieerde Partye (B&GPs) raadpleeg.

Die OBP-proses, insluitend die proses van openbare raadpleging, word deur Golden Associates, 'n goetronklike konsultasiefirma, hanter. B&GPs word vriendelik uitgenooi om enige van die volgende Opeelversigingsaferings by te woon:

PLEK	DATUM	Tyd
1. Loxton Gemeenskap, Sportvelde, Vygiesstraat, Loxton	Woensdag 26 Januarie 2011	10:00 – 13:00
2. Kaapstad	Dinsdag 1 Februarie 2011	17:00 – 20:00
3. Sutherland: Kerksaal, Norderduns, Geformeerde Kerk, Plet Kruisstraat, Sutherland	Woensdag 2 Februarie 2011	14:00 – 17:00



PLEK	DATUM	Tyd
PASA Verwysingsno. 12/3/219		



'n Kapsoen van Mamma, Ferd Petersen (7) groot ma Riaanne op sy eerste skooldag. Dok-ters het by sy geboorte gesê hy het 'n 59%-kans op oorlewing. | FOTO: CHARL DEVENISH

Woelige klein 'wonderwerk' van Welkom gaan gr. 1 toe

GENUÏE GROENWALD
IN WELKOM
Cecilia.groenewald@apollo.co.za

skare 'n uur na sy geboorte per ambulans van Welkom na somer heel voor in die Naudesville Primêre Skool se gr. 1-klass. Kort na sy geboorte op 22 Februarie is vasgestel dat sy ingewand op sy linkerlongle en dat sy hart aan die regterkant van sy

Wanneer die penne in sy rug mag by aan geen kontakspont dae lank om te draai. Die dokter het by sy geboorte gesê: "Die dokter het by my geboorte gesê: 'n 59%-kans op oorlewing gehad."

"Maar kyk nou net na hom. Hy is 'n regte klein wonderwerk wat om die ambulans te oortref." "Die dokter het by my geboorte gesê: 'n 59%-kans op oorlewing gehad."

"Rikus moes dink wêreld op die kandyd en en wag – maar hy is nog altyd beraad om sy kleinboorters te besoek." "Die dokter het by my geboorte gesê: 'n 59%-kans op oorlewing gehad."

Ondanks die vele terugslae oor haar oudste. "Danksy die vele terugslae was dit slegs Ferd se motorose bewegings wat effens later as in ander kinders ontwikkel het. Min, Petersen vertel Ferd is klein geras boom, ry fiets en sponk 'klein' op die wêreld.

"In 'n sinhuur het hy moes 'n medikasie wat by moes neem. "In 'n sinhuur het hy moes 'n medikasie wat by moes neem. "In 'n sinhuur het hy moes 'n medikasie wat by moes neem."

"wonderwerke en 'n vegterjie kromming) by Ferdi gedignog-mannetje."

TEGNIËSE VAKKE DALK TERUG

'Hopelose' tekort aan vakmante

MARLENE MALAN IN KAAPSTAD
mmalan@rapport.co.za

Suid-Afrika se "hopelose tekort" aan vakmante is te wyte aan 'n "fatale oordeelsfout" deur die Suid-Afrikaanse Onderwysdepartement (SAOD).

Dié vaardigheidstekort veroorsaak dat duisende tegnisi van oorsee ingevoer moet word vir gespesialiseerde tegniese werk.

Onderwyskenners sê dis dié departement wat jare gelede die vakpakket van hoër tegniese skole so ingrypend verander het dat tegniese wiskunde en tegniese wetenskap uitgeskakel is.

Potensiële tegnisi word dus nie meer op skoolvlak al vir vakleerlingskappe voorberei nie.

Mnr. Johan Wagenaar, oudskoolhoof, raadgevende kurrikulumkonsultant en lid van 'n ministeriële taakspan van die SAOD, sê "met die instel van uitkomsgerigte onderwys het die SAOD 'n fatale oordeelsfout begaan deur funksionele wiskunde en wetenskap uit die kurrikulum te laat omdat hulle dit as 'n verwatering in die kurrikulumstandaard beskou het.

"Dit het meegebring dat leerlinge gewone wiskunde en/of wiskundige geleiterheid of gewone wetenskap moet neem.

"Die wiskundige fisiese wetenskap wat oorspronklik aangebied word, is noodsaaklik vir leerlinge

“ ... met die instel van uitkomsgerigte onderwys het die SAOD 'n fatale oordeelsfout begaan ...

ge wat streng akademiese rigtings soos ingenieurstudies wil volg.

"Wiskundige geleiterheid bied weer 'n vals uitkoms aan leerlinge wat nie akademiese wiskunde kan basaar nie. Dis 'n soort handelswiskunde met 'n rekene-grondslag. Dit beteken min vir kandidate wat tegnologiese vakke volg.

"Daarom moet tegniese wiskunde en tegniese fisiese wetenskap teruggebring word om dié leemte te vul. Dis juis dié twee vakke wat sou kon help om die tekort aan tegniese vaardighede in Suid-Afrika te verbeter omdat dit leerlinge op vakleerlingskappe voorberei," sê hy.

Volgens Wagenaar onderhandel belangegroeppe al tien jaar lank om dié "oordeelsfout" reg te stel. "Regeringsamptenare op die hoogste vlak in die departement van basiese onderwys is

reeds met dié versoeke genader in vergaderings en deur gesprekke met die nasionale vereniging vir tegnologieskole (NAST) en vakbonde."

Wagenaar sê die SAOD het 'n taakspan aangestel om hoër tegniese skole te verbeter.

"Daar is begrip, maar die departement huiwer steeds om dit onmiddellik te begin doen. Dit kan ons laaste kans wees om dit reg te stel."

Sou die SAOD wel besluit om dié vakke dadelik terug te bring sal leerlinge dit weer van begin 2012 kan volg, sê Wagenaar.

Me. Cahira van Ellinekhuizen, senior bestuurder vakleerlingskappe van die Northlink-kollege-groep, sê Suid-Afrika het 'n "hopelose" tekort aan vakleerlinge wat aan internasionale standaarde voldoen.

"Mense soos sweïers, elektrisiëns, draaimonteurs, bouers – ook vir alle ingenieursverwante rigtings, soos die motor- en vervaardigingsbedryf. Ons word verplig om werkers van oorsee te kry vir gespesialiseerde werk. Ons het nie toesighouers wat standaarde bepaal vir tegniese werk of vakleerlingskappe nie. Daar is nie meer kundiges om ander op te lei nie.

Dr. Edward Musuwe, direkteur, tegnologie van die SAOD, het bevestig die moontlikheid word ondersoek om die vakke terug te bring.

2. Beaufort-Wes: Grasdenesaal, Kerkstraat 15, Beaufort-Wes	Donderdag 27 Januarie 2011	09:00 - 12:00
3. Murraysburg: Stadsaal, Beaufortstraat 23, Murraysburg	Vrydag 28 Januarie 2011	10:00 - 13:00
4. Graaff-Reinet: Sappa-kamer, Stadsaal, Houtstraat 71, Camdeboo Munisipaliteit, Graaff-Reinet	Vrydag 28 Januarie 2011	17:00 - 20:00



PASA Verwysingsno.: 12/3/211

PLEK	DATUM	TYD
1. Hofmeyr: Rabobank, Plaas Rietfontein	Maandag 24 Januarie 2011	09:00 - 12:00
2. Graaff-Reinet: Sappa-kamer, Stadsaal, Houtstraat 71, Camdeboo Munisipaliteit, Graaff-Reinet	Vrydag 28 Januarie 2011	09:00 - 12:00
3. Somerset-Oos: Stadsaal, Njolatstraat 67, Bloukraanroete Munisipaliteit, Somerset-Oos	Maandag 31 Januarie 2011	09:00 - 12:00
4. Port Elizabeth: Stadsaal, Munisipale Kantore, Govan Mbeki laan, Brister-huis, Port Elizabeth	Maandag 31 Januarie 2011	17:00 - 20:00



Kontak asseblief die Kantoer van Openbare Deelnome om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:
Toni Pieterse / Nomthi Mnisi, Golder Associates, Posbus 6001, HALFWAY HOUSE, 1685.
Tel: (011) 254 4805 / (011) 313 1072 of Faks: (011) 315 0317 E-pos: karoo@golder.co.za Webwerf: www.golder.co.za

Datum van kennisgewing: Januarie 2011. Sluitingsdatum vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011



UITNODIGING OM KOMMENTAAR TE LEWER OMGEWINGSBESTUURSPROGRAM (OBP) VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK IN DIE SUIDWESTELIKE KAROOKOM



PASA Verwysingsno.:12/3/219

Kennis geskied hiermee dat Shell Exploration Company B.V. (Shell) 'n aansoek gerig het aan die Petroleumagentskap van Suid-Afrika (PASA) om eksplorasierigte vir gas eksplorasie-aktiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het 'n eksplorasielisensie-aansoek ingedien waarna verwys word as die Westelike Wyk, wat gebiede in die Wes-Kaap en die Noord-Kaap insluit, PASA verwysingsno. 12/3/219.

Die doel van die eksplorasie-aktiwiteite sal wees om vas te stel of daar lewensvatbare hulpbronne van onkonvensionele gas (skalie-gas) binne die voorgestelde 30 000 vierkante kilometer van die eksplorasiegebied bestaan. Die voorgestelde eksplorasie-aktiwiteite sal die volgende behels:

Geofisiese data-oorvraging en studies

Die boor van eksplorasieboorgate met maontlike stimulasie van gas (hidrauliese breking) en die toets van vloei tempo

Die presiese liggings van maontlike eksplorasie-aktiwiteite binne die voorgestelde gebied is nog nie ge-identifiseer nie.

Voor 'n eksplorasielisensie aan Shell toegestaan kan word, word daar vereis dat die maatskappy 'n aansoek om eksplorasie by PASA indien ingevolge die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne (WOMPH) (Wet 28 van 2002), 'n omgewingsbestuursprogram (OBP) saamstel en die Belanghebbende en Geïntereerde Partye (B&GPs) raadpleeg.

Die OBP-proses, insluitend die proses van openbare raadpleging, word deur Golder Associates, 'n onafhanklike konsultasiefirma, hanteer. B&GPs word vriendelik uitgenooi om enige van die volgende Ophuisversadings by te woon:

	PLEK	DATUM	TYD
1.	Loxton: Gemeenskapsaal, Sportvelde, Vygiesstraat, Loxton	Woensdag 26 Januarie 2011	10:00 - 13:00
2.	Kaapstad: Edgemeed Rolbaiklub, Edgemeedweg, Edgemeed, Kaapstad	Dinsdag 1 Februarie 2011	17:00 - 20:00
3.	Sutherland: Kerksaal, Norderduits Garaformeerde Kerk, Piet Retiefstraat, Sutherland	Woensdag 2 Februarie 2011	14:00 - 17:00

Kontak asseblief die Kantoor van Openbare Deelname om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:

Toni Pietersen / Nomthi Mntsi

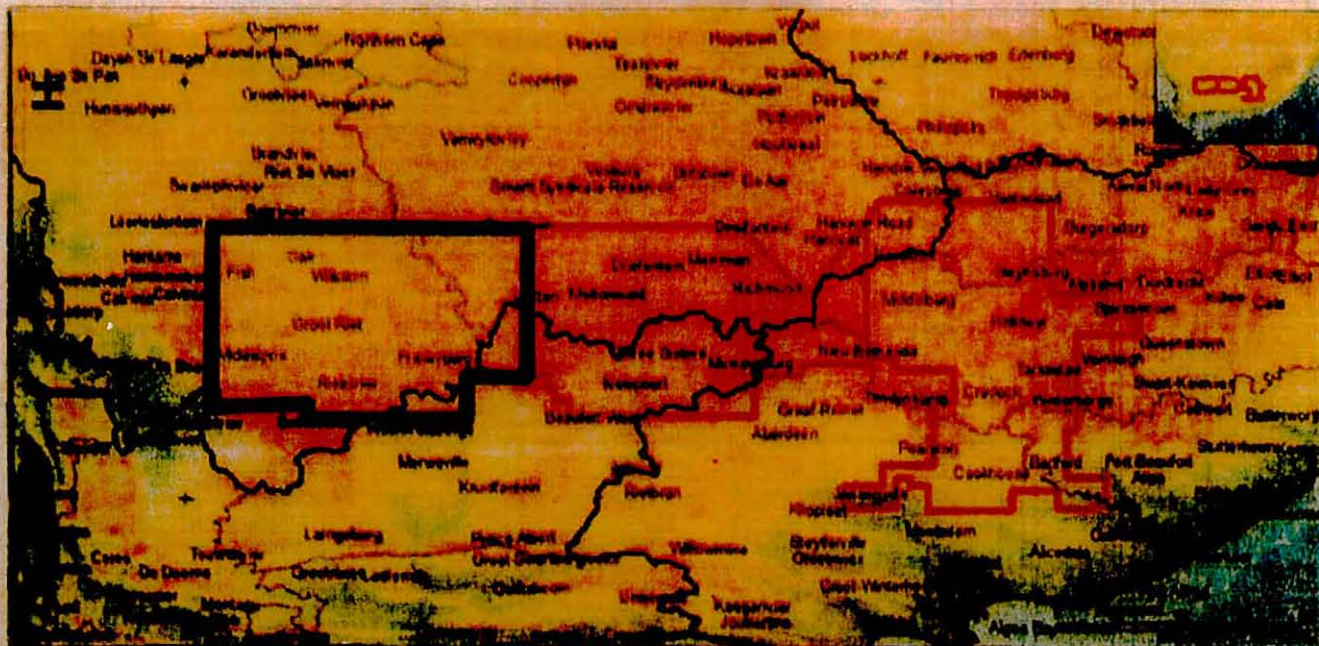
Golder Associates

Pasbus 6001, HALFWAY HOUSE, 1685

Tel: (011) 254 4805 / (011) 313 1072 of Faks: (011) 315 0317

E-pos: westernkaroo@golder.co.za

Webwerf: www.golder.co.za



Datum van kennisgewing: Januarie 2011

Stelingsdatum vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011



UITNODIGING OM KOMMENTAAR TE LEWER OMGEWINGSBESTUURSPROGRAM (OBP) VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK IN DIE SUIDWESTELIKE KAROOKOM



PASA Verwysingsno.:12/3/219

Kennis gaskied hiermee dat Shell Exploration Company B.V. (Shell) 'n aansoek gerig het aan die Petroleumagentskap van Suid-Afrika (PASA) om eksplorasieragte vir gaseksplorasië-aktiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het 'n eksplorasielisensie-aansoek ingedien waarna verwys word as die Westelike Wyk, wat gebiede in die Wes-Kaap en die Noord-Kaap insluit, PASA verwysingsno. 12/3/219.

Die doel van die eksplorasië-aktiwiteite sal wees om vas te stel of daar lewensvatbare hulpbronne van ankonvensionele gas (skalie-gas) binne die voorgestelde 30 000 vierkante kilometer van die eksplorasiegebied bestaan. Die voorgestelde eksplorasie-aktiwiteite sal die volgende behels:

Geofisiese dataverkryging en studies

Die boor van eksplorasieboorgate met moontlike stimulasie van gas (hidroliese breking) en die toets van vloeitempo

Die presiese liggings van moontlike eksplorasie-aktiwiteite binne die voorgestelde gebied is nog nie geïdentifiseer nie.

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	PLEK	DATUM	TYD
1.	Loxton: Gemeenskapaal, Sportvalde, Vygiestraat, Loxton	Woensdag 26 Januarie 2011	10:00 - 13:00
2.	Kaapstad: Edgemeed-Rolbaiklub, Edgemeedweg, Edgemeed-Kaapstad	Dinsdag 1 Februarie 2011	17:00 - 20:00
3.	Sutherland: Kerksaal, Nederduits Gereformeerde Kerk, Piet Retiefstraat, Sutherland	Woensdag 2 Februarie 2011	14:00 - 17:00

Kontak asseblief die Kantoor van Openbare Deelname om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:

Toni Pieterse / Nomthi Masi

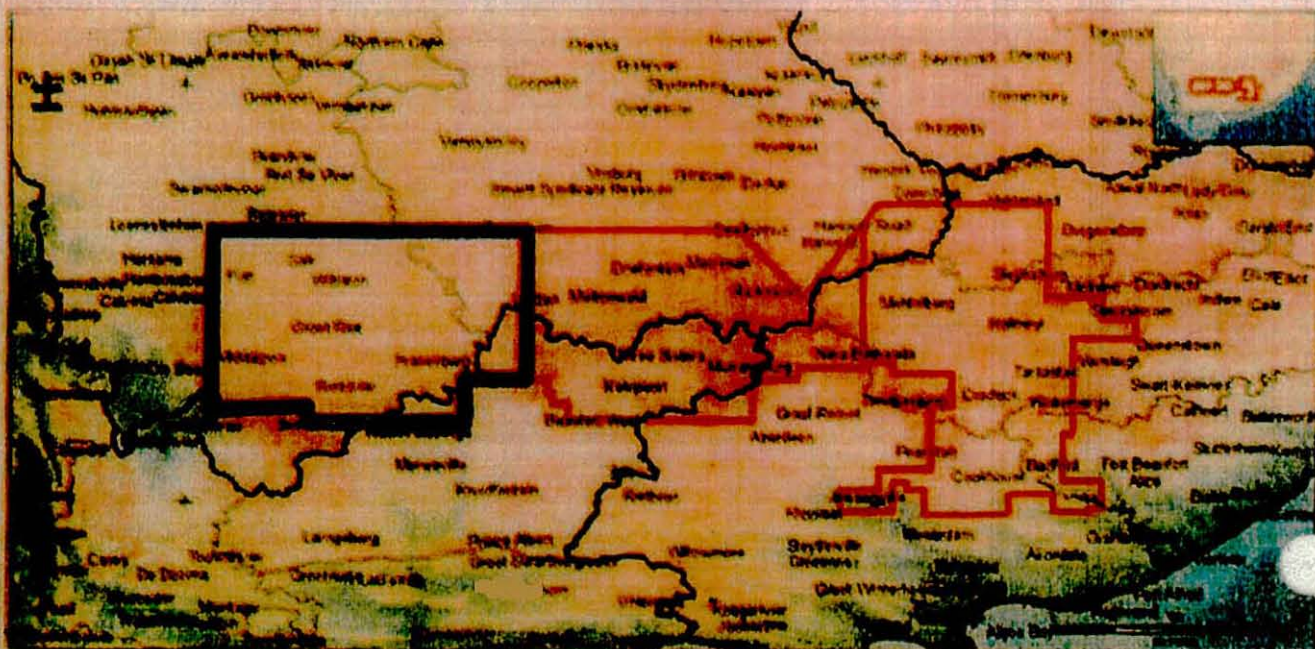
Golder Associates

Posbus 6001, HALFWAY HOUSE, 1685

Tel: (011) 254 4805 / (011) 313 1072 of Faks: (011) 315 0317

E-pos: westernkaroo@golder.co.za

Webwerf: www.golder.co.za



Datum van kennisgewing: Januarie 2011

Skietingsdatums vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011

Werkloosheid realiteit vir baie matriek

SLEGS 40% van matrikulante wat die arbeidsmark net ná matriek gaan betree, sal werk kry.

Die res sal waarskynlik deel van die donker werkloosheidsstatistiek van die land word, het die vakbond Solidariteit verlede week gewaarsku.

Solidariteit het in 'n verklaring gesê die probleem kan toegeskryf word aan die onindiensneembaarheid van die meeste matrikulante wat op skool nie werklik vir die arbeidsmark toegerus word nie.

'n Jaarlikse studie oor vooruitstige vir matrikulante het soos die vorige twee jaar beklemtoon dat dit weer 'n moeilike jaar vir

Suid-Afrikaanse werknemers en werksoekers sal wees.

Dr. Dirk Hermann, uitvoerende adunthoof van Solidariteit, het gesê werkgeleenthede sal steeds beperk wees.

Diegene wat die arbeidsmark wel sal betree, sal met die werklikheid gekonfronteer word en bereid moet wees om heel onder aan die beroepsleer te begin.

Skoolopleiding bied volgens hom nie werklik aan skoolverlaters die toerusting om die arbeidsmark suksesvol te betree nie.

'Daarbenewens is die slaagsyfer in vakke soos wiskunde, rekeningkunde en fisiese wetenskappe, wat juis tot indiensneembaarheid bydra, baie swak.'

Luidens die verslag bou die meeste matrikulante nie tydens hul skoolloopbaan bedreewenheid in kritieke vakke soos wiskunde op nie.

Uit die meer as 552 000 matrikulante wat in 2009 matriek geskryf het, het 60,6% geslaag. Slees 24,2% van die matrikulante, oftewel 133 789, kon wiskunde met 30% of hoër slaag. Slees 9,6% (52 866) kon dit met 50% of meer deurmaak.

'n Skamele 1,6% van matrikulante kon 'n onderskeiding in wiskunde behaal.

Hermann het voorts gesê die laagste eenvoudige gemiddelde

slaagpunt van 30% wat 'n kandidaat in 'n vak kan behaal, laat talle vrae oor die uiteindelijke waarde van die matrieksertifikaat ontstaan.

'n Agtienjarige word 'n onreg aangedoen wanneer hy vertel word dat hy gekwalifiseerd is vir enige studie of geskoolde werk op grond van 'n 30%-afsnypunt.

'Die matrikulant word op die skouer geklop omdat hy die onderwysdepartement se statistieke laat goed lyk met sy deelname aan 'n stelsel van middelmatigheid.'

'Eintlik laat dit hom met 12 vermorste jare en 'n agterstand wat bitter moeilik is om in te haal.'

Hermann het daarop gesê verders opleiding die beste moontlike kans op vermyding van werkloosheid bied.

'Studies toon dat werknemers met 'n tersiere kwalifikasie beste teen die effek van die afgelede arbeidsresessie betrek was.'

Volgens hom het arbeidsdata van 2007 ook getoon 'n universiteitsgraad beteken die algemeen meer as 'n di of ander tersiere kwalifikasie.

Beroepe in die mediese, ingenieurs-, inligtingstechniese en tegniese rigtinge veral gesog weens die tekort wat daar bestaan, het hy gesê.

- Beeld



UITNODIGING OM KOMMENTAAR TE LEWER OMGEWINGSBESTUURSPROGRAM (OBP) VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK IN DIE SUIDWESTELIKE KAROOKOM



PASA Verwysingsno.: 12/3/219

Kennis geskied hiermee dat Shell Exploration Company B.V. (Shell) 'n aansoek gerig het aan die Petroleumagentskap van Suid-Afrika (PASA) om eksplorasie regte vir gaseksplorasie-aktiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het 'n eksplorasielisensie-aansoek ingedien waarna verwys word as die Westelike Wyk, wat gebiede in die Wes-Kaap en die Noord-Kaap insluit, PASA verwysingsno. 12/3/219.

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- Geofisiese dataverkryging en studies
- Die boor van eksplorasieboorgate met maontlike stimulasie van gas (hidrouliese breking) en die toets van vloeitempo

Die presiese liggings van maontlike eksplorasie-aktiwiteite binne die voorgestelde gebied is nog nie geïdentifiseer nie.

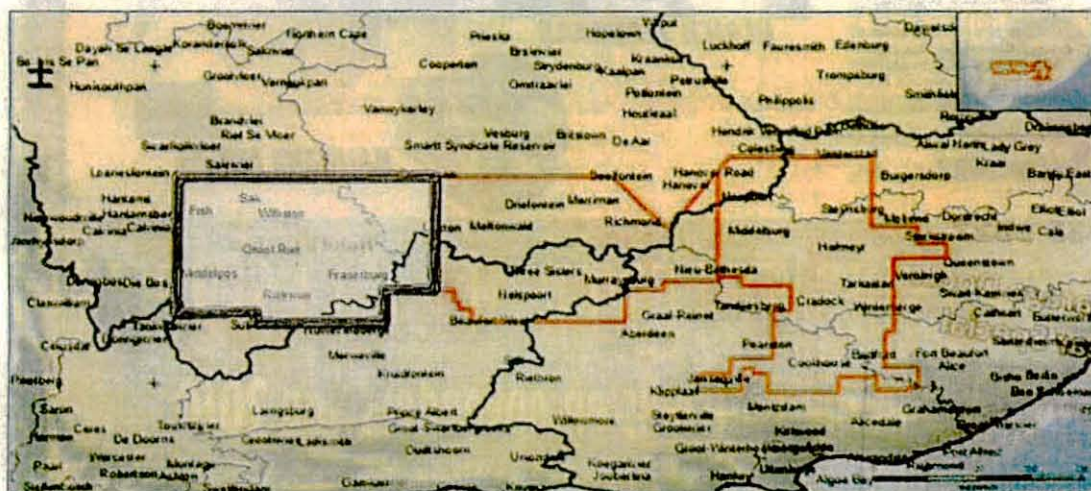
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Kontak asseblief die Kantoor van Openbare Deelname om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:

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Golder Associates
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Datum van kennisgewing: Januarie 2011
Sluitingsdatum vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011

Take part cour in Kl

THE Africana ry Trust that published last planning a n of workshops, upcoming year will take place Paper Conserv Bookbinding Training Cen the Gowies B at the Big H Kimberley.

The dates at 8 to 10 Marc king of deco papers present Alan Jeffrey. R1 800.

5 to 6 April identification, gement and p vation of manu collections p ted by Lesley and Janine Di Cost: R1 200.

3 to 4 May introduction to books, special Africana ma presented by 1 Barben. R1 200.

7 to 9 June: duction to le binding present Keith Seaford. R1 600.

2 to 3 August: graphy begin course present Annette Cox Cost: R1 200.

6 to 7 Septer Exploring the v of maps - import of preserving, sent by Prof. Liebenberg. R1 200.

20 to 22 Septer Photographic a val enclos (hands-on a shop) presented D. Wickert-L mann & K. Seal Cost: R1 800.

The date the course, Ide ation of grap techniques ; construction of tective mounts, sent by Ann Ph ritus and Lazaru helaj, must still the B&GP, put sh by sometime in C t. The cost R1 600.

The fees for tl courses include workshop, refr ments and lun Participants will responsible for tl own accommoda and transport.

Phone the Afr na Library on 830-6247 for more formation.



**UITNODIGING OM KOMMENTAAR TE LEWER
OMGEWINGSBESTUURSPROGRAM (OBP)
VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK
IN DIE SUIDWESTELIKE KAROOKOM**



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Datum van kennisgewing: Januarie 2011

Sluitingsdatum vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011

NR 211 70

Weer vertraag weerkundige

DE AAR— Mnr Danie Ferreira, bestuurder van die weerkantoor op De Aar, se planne is lolk in die wile gery deur die weer en hy kon weer eerstehandes ondervind oor die mag wat die weer kan uitoefen op die mens en sy planne.

Mnr Ferreira het Suid-Afrika op 8 Desember 2010 verlaat op die SA Agullas vir een van sy vele reise na Antartika, waar hy vir 'n paar maande die groepie van die weerdieners sal wees.

Binne ongeveer 14 dae sou hy op die SANAE-basis op Antartika wees. Die SA Agullas word by sy landingspunt op Antartika gestuit deur 'n yswand van ongeveer 22-25 meter.

Daarvandaan word personeel na die SANAE-basis met 'n helikopter na die basis gevlieg, wat nou bo-op 'n berg geleë is, aangesien die vorige basis wat op ys gebou was, ingesink het.

Dit is hier by die landingspunt waar die weerspan se planne drasties verander het. Hulle is maksimum 15-20 minute se vlieg met die helikopter van hulle bestemming af, maar die weer het hulle nie toegelaat om te kon vlieg nie en vir langer as 'n week was hulle by die landingspunt opgehou en het eers die SANAE-basis 30 Desember bereik.

Voor sy vertrek het mnr Ferreira aan *Die Echo* gesê dat daar op Kersdag by die basis mooi na hulle gekyk sou word en ons kan net hoop dat die SA Agullas oor dieselfde fasiliteite beskik.

Hoërskool De Aar presteer

• Vervolg van Bladsy 1

Andrea skryf haar sukses toe aan die genade en hulp van die Almagtige, harde werk asook haar broer Bradley en haar ganse familie.

Vanaf Graad 4 was sy die toppresterder in haar klas en was hierdie laaste eksamen baie gemotiveerd om aan haarself te bewys dat sy as 'n toppresterder bo kan uitkom.

Sy is reeds by die Universiteit van Stellenbosch goedgekeur en ingeskryf as 'n mediese student vir 2011.

Sy het reeds 'n begeerte om haar Zuma jaar in die Noord-Kaap te kom doen met haar versier op Upington, waar haar ouma woon en ook reeds mediese hulp benodig.

Andrea glo aan 'n goed gebalanseerde lewe en was vir drie jaar deel van HSDA se eerste hokkie-span en verlede jaar die reserwe vir die Noord-Kaap hokkie-span.

Sy was ook 'n kringleier vir die Christen Studente Vereniging van die skool en die onderhoofdogter van 2010.

Andrea se boodskap aan die jeug is dat hulle nederig moet bly, hulle jeug moet geniet, maar bereid moet wees om verantwoordelikheid vir hulle eie toekoms te neem.

Sy sê die jeug moet in hulle self glo en weet dat hulle dit kan.



Hoërskool Philipstown is 'n klein skool in ons omgewing wat die afgelope paar jaar verbasend het en die toekenning ontvang het vir die skool in die Noord-Kaap wat die grootste vordering getoon het en hul slaagsyfer met meer as 16% opgekyf het!

Twee sterf in brandvoorval

DE AAR— Die SAPD benodig inligting in 'n saak van 'n brandvoorval in Aandblomstraat in Happy Valley.

Twee persone, 'n man en vrou, het verlede jaar op 15 Desember in die plaaslike Sentrale Karoo Hospitaal aan brandwonde beswyk nadat hulle woning omstreeks 1:30 in die vroeë oggendure in ligte laaie was.

Die bure het die brand probeer blus, maar die twee inwoners het toe reeds soveel brandwonde opgedoen dat hulle 'n uur nadat hulle in die plaaslike hospitaal opgeneem is, aan die brandwonde beswyk het.

Daar is nog onduidelikheid hoedat die brand ontstaan het en persone met inligting word gevra om Sersant Karel Von Waltleben van Sunrise poliëstasie te kontak by die volgende nommer (053) 632-6125.



UITNODIGING OM KOMMENTAAR TE LEWER OMGEWINGSBESTUURSPROGRAM (OBP) VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK IN DIE SUIDWESTELIKE KAROOKOM



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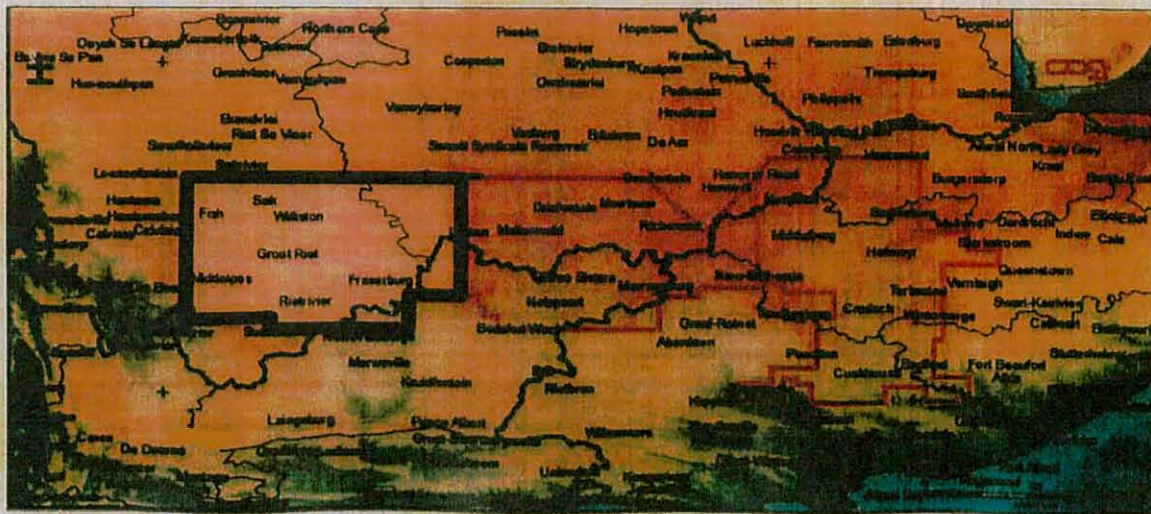
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Datum van kennisgewing: Januarie 2011

Feminine touch

Vroulik wees

Punchy Portulacas

Native to the hot, dry plains of southern Brazil, Uruguay and northern Argentina, Portulaca is now grown throughout the world as a favourite summer bedding plant.

Its popularity, especially in South Africa, is hardly surprising, as this tough little bedding plant rewards the garden with masses of brightly coloured blooms.

Portulacas, commonly known as 'Vygies', or moss roses, takes the heat better than most - in fact, the hotter it gets, the better they like it.

The bright single or double flowers bloom freely in all shades except blue. Fairly low growing, they make ideal flowerbed and hanging basket fillers.

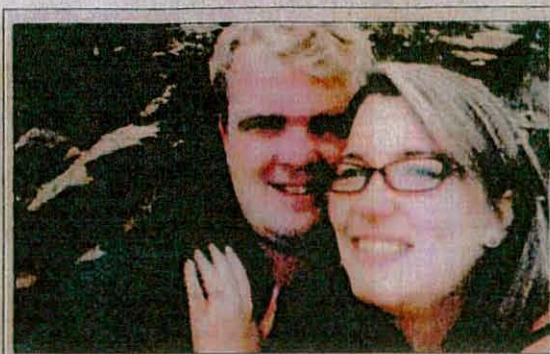
New hybrids with a neat, compact form are now available. They come into bloom quicker and stay flowering for longer. They grow well in poor, sandy or gravelly soils, as long as it drains well.

Most importantly they need a sunny home. Fortunately, while they are attractive to our eye, pests find them quite unappealing.

Information supplied by the Bedding Plant Growers Association. Go to www.lifeisagarden.co.za for more.



Portulaca grandiflora.



Liz and the late Gerry van Niekerk have great pleasure in announcing the engagement of Tracy to Justyn, son of Mervyn and Lynn Palmer from Bloemfontein. God bless them both.



INVITATION TO COMMENT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP) FOR PROPOSED SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT



PASA Reference No.: 12/3/220

Notification is given that Shell Exploration Company B.V. (Shell) has applied to the Petroleum Agency of South Africa (PASA) for the exploration rights to undertake gas exploration activities in the South Western Karoo Basin, South Africa. Shell has submitted an exploration licence application referred to as the Central Precinct, intersecting the Western and Northern Cape, PASA Reference No. 12/3/220.

The purpose of exploration activities will be to assess whether there is a viable unconventional gas (shale gas) resource within the proposed 30 000 square kilometre exploration area. Proposed exploration activities will include:

- Conducting geophysical data acquisition and studies; and
- Drilling exploration wells with possible gas stimulation (hydraulic fracturing) and flow testing.

The precise locations within the proposed area where exploration activities may take place have not yet been identified. For Shell to be awarded an exploration licence, the company is required to submit an exploration application in terms of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002) to the PASA; and compile an Environmental Management Programme (EMP) and to consult with Interested and Affected Parties (I&APs).

Golder Associates, an independent consultancy, is undertaking the EMP process including the public consultation process. I&APs are invited to attend any one of the Open House meetings that will be convened:

	VENUE	DATE	TIME
1.	Victoria-West: Town Hall , 36 Kerk Street, Ubuntu Municipality, Victoria-West	Tuesday 25 January 2011	09:00 - 12:00
2.	Beaufort-West: Grasdene Hall , 15 Kerk Street, Beaufort-West	Thursday 27 January 2011	09:00 - 12:00
3.	Murraysburg: Town Hall , 23 Beaufort Street, Murraysburg	Friday 28 January 2011	10:00 - 13:00
4.	Graaff-Reinet: Sappa Rm , Town Hall, 71 Hout Street, Camdeboo Municipality, Graaff-Reinet	Friday 28 January 2011	17:00 - 20:00

To register as an I&AP and obtain an Information Document please contact the Public Participation Office:

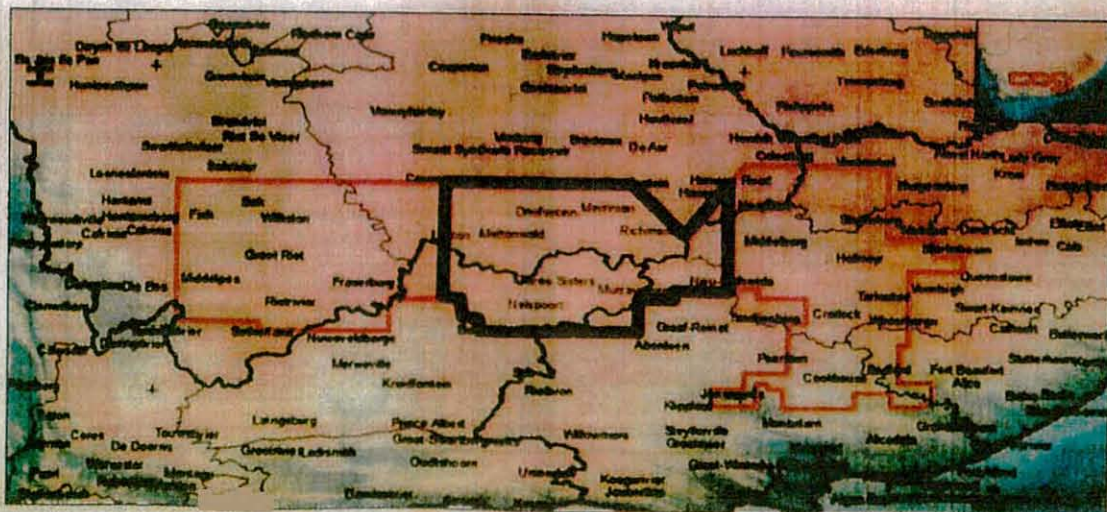
Toni Pieterse / Nomthi Mnisi
Golder Associates

P.O. Box 6001, HALFWAY HOUSE, 1685

Tel: (011) 254 4805 / (011) 313 1072 or Fax: (011) 315 0317

E-mail: centalkaroo@golder.co.za

Website: www.golder.co.za



Date of notice: January 2011
Due date to register as I&AP: Friday 18 February 2011



Portulaca 'Plizzard' Vivid Yellow

Colesberg (correspondent: Jan Badenhorst & Erna Enslin)

Premier applauds Northern Cape matrics

COLESBERG — Premier Hazel Jenkins last week congratulated the Northern Cape's matrics for raising the principal pass rate by a whopping 11% - from the previous year's 61.3% to last year's 72.34%. She extended her personal congratulations to the successful candidates at an awards ceremony at the Christian Revival Church in Kimberley on Tuesday last week.

Quoting Nelson Mandela, she said that education is the great engine of personal development. It is through education that the daughter of a peasant can become a doctor; that the son of a mineworker can become the head of a mine; that a child of a farmworker can become president of a nation.

It is what we make out of what we have, not what we are given, that separates one person from another. As an example she cited her own personal history - from being a political activist on the street of Cape Town, as a teacher through the corridors of Pixley Ka Seme District Municipality to the hallowed halls of power as Premier in Kimberley's parliament.

She also recalled Os Guinness, another luminary from yesteryear, who described those participating in the adventure of life as people who use their talents and resources to be fruitful and add value to the world - quite literally making the invisible visible, the future present, the impossible an achievement, the desired and experience, and the dream a fulfillment...

Whereas the province scraped through with a pass rate of 61.3% in 2009 (a drop of 11% from the previous year), the province rallied learner, teacher and parental support during the past year by setting a target of 70% for the end of

2010. In the end, everybody over-achieved by exceeding that goal by a full 2.34% she told a very appreciative audience. During the year under review, costs also had to be severely curtailed in the Education Department, as expenditure had

overrun to the tune of R175 million in 2008/9 and additional excess spending of R165 million was anticipated for the 1009/10 financial year. The department further had to carry over a burden of unpaid debts amounting to R65 million from the

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previous financial year to 2009/10. Despite these temporary setbacks, she said that the province should nevertheless strive to achieve world-class excellence in education. We can no longer tolerate failure; it will no longer be acceptable for any

child to fail, no longer acceptable for any school to fail its pupils, no longer acceptable for young people to drop out of education without good qualifications, without everybody pitching in and acting collectively, she said.



UITNODIGING OM KOMMENTAAR TE LEWER OMGEWINGSBESTUURSPROGRAM (OBP) VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK IN DIE SUIDWESTELIKE KAROOKOM



PASA Verwysingsno. 12/3/221

Kennis geskied hiermee dat Shell Exploration Company B.V. (Shell) 'n aansoek gerig het aan die Petroleumagentskap van Suid-Afrika (PASA) om eksplorasie regte vir gaseksplorasie-aktiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het 'n eksplorasielisensie-aansoek ingedien waarna verwys word as die Oostelike Wyk, wat gebiede in die Noord-Kaap en die Oos-Kaap insluit, PASA verwysingsno. 12/3/221.

Die doel van die eksplorasie-aktiwiteite sal wees om vas te stel of daar lewensvaibare hulpbronne van onkonvensionele gas (skaliegas) binne die voorgestelde 30 000 vierkante kilometer van die eksplorasiegebied bestaan. Die voorgestelde eksplorasie-aktiwiteite sal die volgende behels:

- Geofisiese dataverkryging en studies
- Die boor van eksplorasieboorgate met maandelike stimulasie van gas (hidrouliese breking) en die toets van vloeitempo

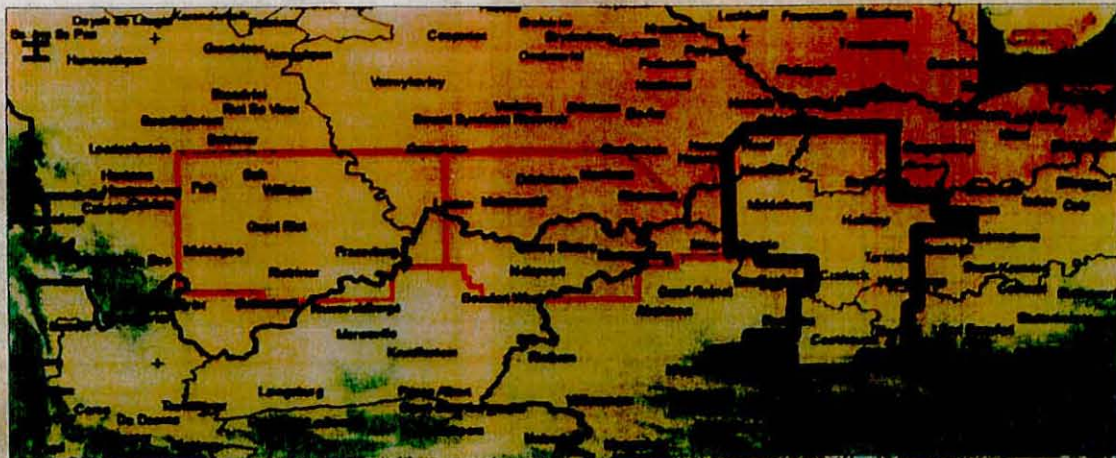
Die presiese liggings van maandelike eksplorasie-aktiwiteite binne die voorgestelde gebied is nog nie ge-identifiseer nie. Voor 'n eksplorasielisensie aan Shell toegestaan kan word, word daar vereis dat die maatskappy 'n aansoek om eksplorasie by PASA indien ingevolge die Wet op die Ontwikkeling van Minerale- en Petroleumhulpbronne (WOMPH) (Wet 28 van 2002), 'n omgewingsbestuursprogram (OBP) saamstel en die Belanghebbende en Geaffekteerde Partye (B&GPs) raadpleeg.

Die OBP-proses, insluitend die proses van openbare raadpleging, word deur Golder Associates, 'n onafhanklike konsultasiefirma, hanteer. B&GPs word vriendelik uitgenooi om enige van die volgende Ophuisvergaderings by te woon:

	PLEK	DATUM	TYD
1.	Hofmeyr: Rolbalklub, Plaas Rietfontein	Maandag 24 Januarie 2011	09:00 - 12:00
2.	Graaff-Reinet: Sappa-kamer, Stadsaal, Houtstraat 71, Camdeboo Munisipaliteit, Graaff-Reinet	Vrydag 28 Januarie 2011	09:00 - 12:00
3.	Somerset-Oos: Stadsaal, Najolistraat 67, Bloukraanroete Munisipaliteit, Somerset-Oos	Maandag 31 Januarie 2011	09:00 - 12:00
4.	Port Elisabeth: Stadsaal, Munisipale Kantore, Goven Mbeki laan, Brister-huis, Port Elisabeth	Maandag 31 Januarie 2011	17:00 - 20:00

Kontak asseblief die Kantoor van Openbare Deelname om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:

Toni Pieterse / Nomthi Mnisi
Golder Associates
Posbus 6001, HALFWAY HOUSE, 1685
Tel: (011) 254 4805 / (011) 313 1072 of Faks: (011) 315 0317
Epos: easternkara@golder.co.za
Webwerf: www.golder.co.za



Datum van kennisgewing: Januarie 2011
Sluitingsdatum vir registrasie as 'n B&GP: Vrydag 18 Februarie 2011



**UITNODIGING OM KOMMENTAAR TE LEWER
OMGEWINGSBESTUURSPROGRAM (OBP)
VIR DIE VOORGESTELDE GASEKSPLORASIEPROJEK
IN DIE SUIDWESTELIKE KAROOKOM**



PASA Verwysingsno. 12/3/219

Kennis geskied hiermee dat Shell Exploration Company B.V. (Shell) 'n aansoek gerig het aan die Petroleumagentskap van Suid-Afrika (PASA) om eksplorasieregte vir gaseksplorasietaiwiteite in die suidwestelike Karookom, Suid-Afrika. Shell het 'n eksplorasielisensie-aansoek ingedien waarna verwys word as die Westelike Wyk, wat gebiede in die Wes-Kaap en die Noord-Kaap insluit, PASA verwysingsno. 12/3/219.

Die doel van die eksplorasietaiwiteite sal wees om vas te stel of daar lewensvatbare hulpbronne van onkonvensionele gas (skalie-gas) binne die voorgestelde 30 000 vierkante kilometer van die eksplorasiagebied bestaan. Die voorgestelde eksplorasietaiwiteite sal die volgende behels:

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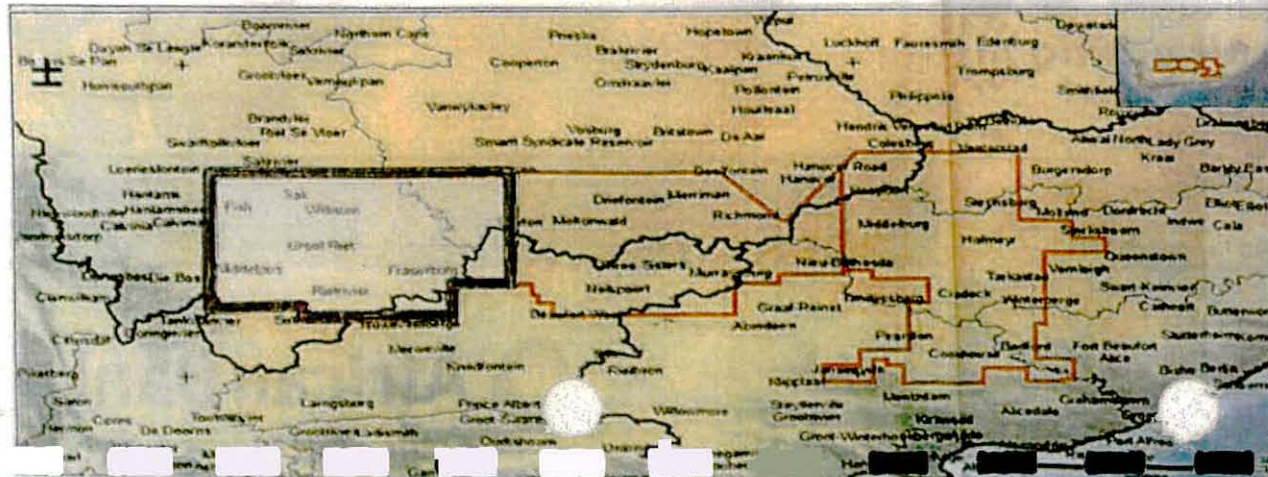
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	PLEK	DATUM	TYD
1.	Loxton: Gemeenskapsaal, Sportvelde, Vygiestraat, Loxton	Woensdag 26 Januarie 2011	10:00 – 13:00
2.	Kaapstad: Edgemead Rolbalklub, Edgemeadweg, Edgemead, Kaapstad	Dinsdag 1 Februarie 2011	17:00 – 20:00
3.	Sutherland: Kerksaal, Nederduits Gereformeerde Kerk, Piet Retiefstraat, Sutherland	Woensdag 2 Februarie 2011	14:00 – 17:00

Kontak asseblief die Kantoor van Openbare Deelname om as 'n B&GP te registreer en 'n inligtingsdokument aan te vra:

Toni Pietersen / Nomthi Mnisi
Golder Associates
Posbus 6001, HALFWAY HOUSE, 1685
Tel: (011) 254 4805 / (011) 313 1072 of Faks: (011) 315 0317
E-pos: west@nkaroo@golder.co.za
Webwerf: www.golder.co.za



TOP CD KEUSES



Dra jou Hart op jou Tong



Afrikaans is groot vol 3

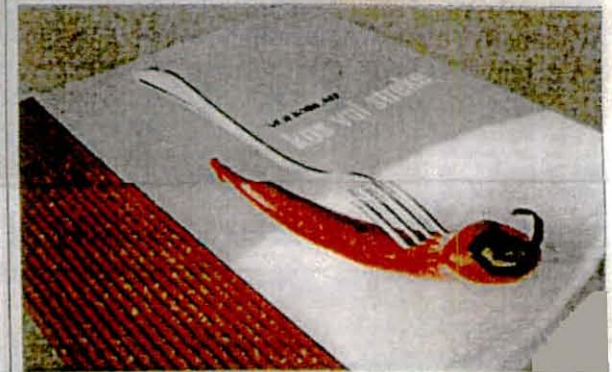


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APPENDIX D

Copies of posters and presentations made available at the open houses

DRAFT



1 INTRODUCTION TO THE PROJECT

WHO IS THE PROPONENT?

The Shell Exploration Company B.V. (Shell) is part of Royal Dutch Shell, a global group of energy and petrochemical companies active in more than 90 countries with over 100,000 full-time employees worldwide.

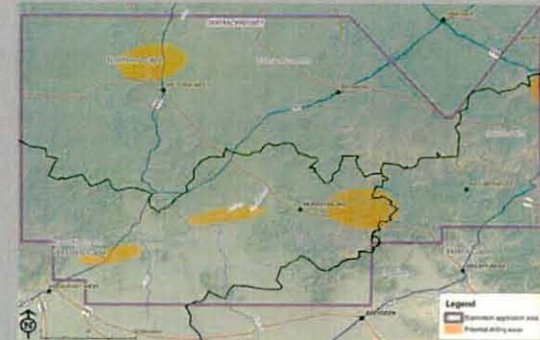
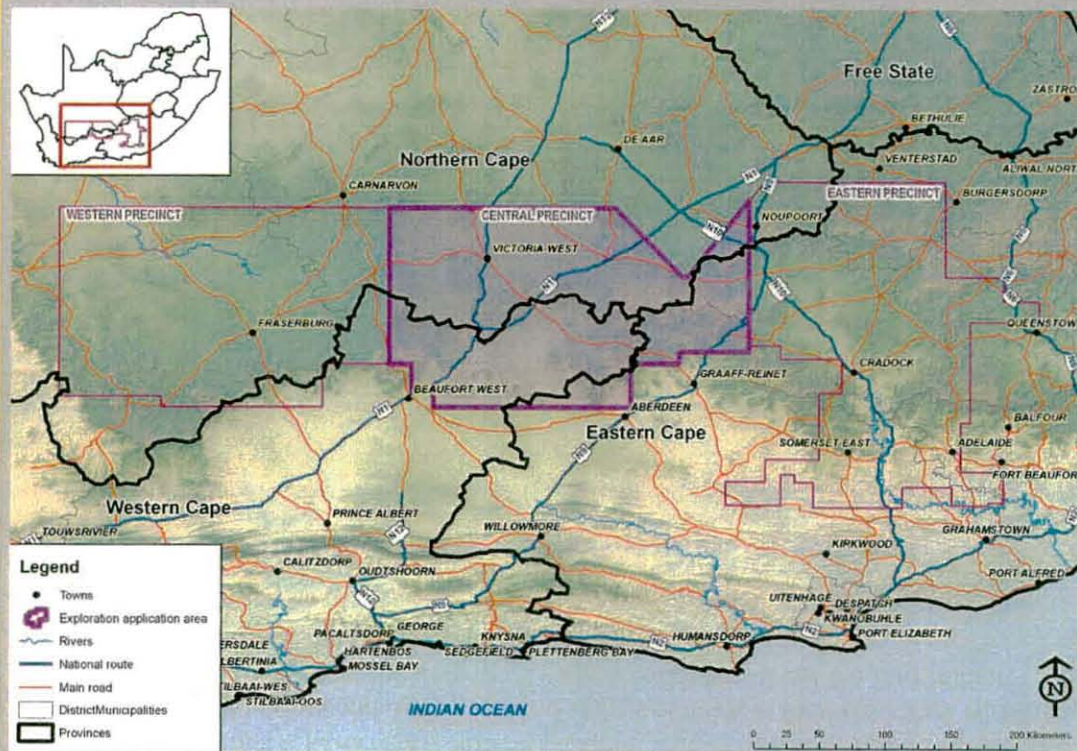
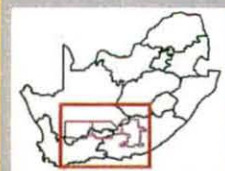
In 2009 the company produced 3.1 million barrels of oil equivalent per day and had more than 44,000 service stations world-wide.

Shell's association with South Africa dates back to 1902. Shell South Africa has a nationwide network of service stations and sells petroleum derived fuels and chemicals.

WHO IS THE CONSULTANT?

Golder Africa (Pty.) Ltd. (Golder) is a global company providing consulting, design, and construction services in our specialist areas of earth, environment, and the related areas of energy. From 160 offices worldwide, our nearly 7,000 employees work with clients to manage their environmental and engineering activities in a technically sound, economically viable, and socially responsible manner.

Shell has appointed Golder Associates to act as the independent consultant to undertake the Environmental Management Plan (EMP) process. This includes the management of the public consultation process and creation of the final EMP submission. Completion and approval of the EMP (by PASA) is only the first step towards environmental authorisation for exploration activities. If the EMP is approved by PASA then the next step will be for PASA to consider awarding the Exploration Right to Shell. If successfully awarded, then other regulatory approvals will still need to be obtained before exploration activities can commence.



The decision on the precise locations where exploration activities may take place has not been made because only desktop studies have been completed so far. The figure above is provided as an illustration of notional areas within which exploration activities may take place in order that Shell can then better understand the geological properties deep underground. Investigations into the surface characteristics and the environment are in progress, seeking the opinions of stakeholders to help develop options for possible locations to perform future activities.

Central Precinct project area (shaded), and adjacent exploration rights applications.

OVERVIEW OF THE PROJECT

Shell Exploration Company B.V., has applied to the Petroleum Agency of South Africa (PASA) for the rights to undertake natural gas exploration in the South Western Karoo Basin (Central Precinct, intersecting the Eastern, Western & Northern Cape, PASA Reference No. 12/3/220). If approved, exploration will take place in a 30 000 km² area within the local municipalities of:

Camdeboo, Inxuba Yethemba, Ubuntu, Umsobomvu, Kareeberg, Beaufort West, WCDMA 05.

- Exploration activities will include:
- Conducting geophysical data acquisition studies
 - Drilling exploration wells and possibly gas flow evaluation by stimulating the flow of gas (a term called hydraulic fracturing).

A complete list of properties within the proposed gas exploration area is available from:

- <http://www.golder.co.za>
- Golder Public Participation Office
Golder Associates Africa
P O Box 6001 South Africa
Tel: 011 254 4805/1072 Fax: 011 315 0317
E mail: centralkaroo@golder.co.za
www.golder.co.za



2. PROJECT DESCRIPTION

Proposed

SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT CENTRAL PRECINCT

Shell Exploration Company B.V.



EXPLORATION ACTIVITIES

Magneto-Tellurics (MT) Acquisition of Geophysical Data

This technique has already been used successfully by academic institutions to study the geological history of the Karoo area. Naturally varying magnetic fields, caused by sunspot and even distant thunderstorm activity induce electrical fields in the earth. Shell wishes to use this technique to measure the very small magnetic fields and use the information recorded to map the subsurface geology.

The MT equipment fits easily into a small suitcase, can be carried by one person and the equipment records data overnight before being moved to a new location the next day. The distance between measuring locations would typically be planned to be 3 km – 10 km apart.

Shell will engage with land owners to seek permission to access their land to allow any MT measurements to be made.



Placing magneto-tellurics sensors for geophysical data collection.



The drill site may require up to 1 ha of land. After drilling, the equipment will be removed. Land at unproductive wells will be appropriately rehabilitated.



Hydraulic fracturing. A steel casing inside the well protects shallow fresh-water aquifers.

Exploration Drilling

To search for gas trapped in the shale, Shell may drill down to depths of as much as 4000 m – 5000 m using a temporary drilling rig that would be brought by road (similar to the photograph).

At the surface, the drilling rig would use a mechanical rotating drill bit to make a hole approximately 50 cm – 75 cm diameter. The diameter of the hole gets smaller as drilling gets deeper, with the final hole diameter possibly being as small as 20 cm.

Evaluation of Gas Flow

Following drilling and evaluation of the rock cuttings, the temporary drilling rig would be removed. If there are indications that gas is present in the rock, because it is held tightly in the shale rock it is not expected to flow. Any gas found must be made to flow so that Shell can evaluate further its properties. A technique called hydraulic fracturing ('fracking') would be used, which pumps a mixture of 99% water and sand, with a small amount of chemicals, under high pressure, deep underground to try to create small fractures in the shale layer of rock. This technique would then allow the controlled measurement of small amounts of gas if it can be made to flow.

SUPPORTING INFRASTRUCTURE

Well Site

At a well site, which might be up to 1 ha in size, a temporary drilling rig is used, which is transported on trucks to the site for the duration of drilling activities then removed. Before bringing the equipment and the rig to a site, a suitable access road must be found, which might then require preparing or compacting for heavy loads. In addition, at the site, other infrastructure may be needed that could include portable offices, generators, lighting equipment and fuel storage. Dependent upon regulatory approvals, operations may take place 24 hours a day for the period whilst the well is being drilled. After the well is drilled, the drilling rig equipment is taken away.

Water Supply

Water is required to cool and lubricate the drill bit and to carry rock cuttings to the surface for analysis. Having analysed the results from a well, if the presence of gas is observed then it may be required to undertake hydraulic fracturing of the rock to allow further evaluation of whether gas will flow. Shell is investigating potential water sources including sea water, surface water and deep saline aquifers in order to support drilling activities. As outlined on a separate poster, the use of water is a regulated activity which will require compliance with relevant permit approval processes.

Waste Management

Water conservation is an important consideration. Water returning to the surface during drilling will be re-used for further drilling operations, where feasible. All these aspects will be part of a waste management implementation plan which will be developed for each well site location to consider all aspects of waste management. These plans will comply with all relevant national and local legislation.

WHAT IS SHALE GAS?

Shale gas, or unconventional gas, is natural gas found deep underground in fractures, pores and organic material in shale rocks located in some parts of the world. Natural gas is a valuable source of clean energy that would help raise living standards and support South Africa's expanding economy.

WHY EXPLORATION HERE?

In the 1960's, some exploration activities took place in the Karoo. Whilst looking for oil, they did find indications of gas in a few wells at depths down to about 5 km. At that time standard technologies available did not allow gas that was held "tight" in the rocks to flow, so exploration stopped. Today, technology makes it possible to make "tight" gas flow safely, efficiently and responsibly.

Shell has determined that gas is likely to be present across the South Western Karoo Basin but it is not known how much exists. Exploration will allow this to be determined.

Shell has also made two other applications for consideration by PASA with Reference Nos. 12/3/219 and 12/3/221 respectively.

3. EXPLORATION PROGRAMME

Proposed
SOUTH WESTERN
KAROO BASIN
GAS EXPLORATION PROJECT
CENTRAL PRECINCT



Shell Exploration Company B.V.

THE SHORT TERM

Technical studies will form part of the Environmental Management Programme (EMP) process. The EMP will provide a broad data base, to help PASA decide whether to award exploration rights to Shell. If successful, other regulatory approval processes must be followed before exploration activities can commence.

PASA is expected to make a decision during 2011 regarding the EMP, then if approved, consider whether to award the initial three year Exploration Rights. Before PASA makes these decisions, environmental and regulatory requirements and permissions must be obtained from the respective legislative authorities.

Consultation with stakeholders and landowners will be essential at each stage. If PASA awards the Exploration Right, then in compliance with environmental and other regulatory requirements, drilling may begin towards the end of 2012.

If indications of gas are found during the initial Exploration Right period, then Shell must make a formal application to PASA seeking to renew the Exploration Rights and to undertake additional exploration activities. This renewal process can occur three times, allowing potentially for up to nine years of exploration activities to be undertaken.

If the results are discouraging, then Shell could cease exploration activities at any stage and would implement specific rehabilitation programmes related to activities undertaken up to that time.

THE LONGER TERM

If a well yields gas, then additional wells would need to be drilled to understand the geological characteristics around that particular area. These wells could be located 5 km – 25 km away from the original well. In all cases, drilling of wells will always require obtaining the relevant regulatory approvals. If the indications continue to be positive, the

intent would be to try to drill several wells from a single, existing site, to reduce the amount of land used. Additional infrastructure would be required to connect the sites so that the gas can be distributed or used to generate energy locally, feeding into existing national electricity infrastructure.

LEGAL REQUIREMENTS

Shell will comply with all legal requirements relevant to the exploration activities and will in addition, follow its own stringent internal guidelines on environment and social performance that require an integrated environmental, social and health impact assessment to be carried out prior to the start of drilling operations. Shell will work closely with regulators, stakeholders and landowners.

SUMMARY OF THE ENVIRONMENTAL REGULATORY FRAMEWORK

Award of an exploration right requires: Submission to the Petroleum Agency of South Africa (PASA) of an exploration right application in terms of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002), accepted on 14th December 2010, compilation of an Environmental Management Programme (EMP), consultation with Interested and Affected Parties (I&APs) and compliance with:

(i) Mineral and Petroleum Resources Development Act (Act 28 of 2002): Section 79 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) stipulates that an applicant for an exploration right is: (4)(a) to notify and consult with any affected party; (4)(b) to submit an environmental management programme [EMP] in terms of Section 39 within a period of 120 days from the date of the notice.

(ii) National Environmental Management Act (Act 107 of 1998): The EIA Regulations GN R543 under the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) (as amended) set out a list of identified activities that may not commence without environmental authorisation from the competent authority. Should the project include activities listed under GN R544, GN R545 and GN R546, the Environmental Impact Assessment (EIA) procedure as provided for in Regulations 27 to 36 of the NEMA EIA Regulations GN R543 will be followed. The NEMA EIA will commence subsequent to the submission of the EMP to PASA.

(iii) National Water Act (Act 36 of 1998): Several water uses, as defined in terms of Section 21 of the National Water Act (Act 36 of 1998), may form part of the proposed project. Examples of such water uses may include: Section 21(a) "taking water from a water source"; Section 21(b) "storing of water" and Section 21(g) "disposing of waste in a manner which may detrimentally impact on a water resource". In such cases, an Integrated Water Use License Application (IWULA) will need to be lodged with the Department of Water Affairs (DWA) to obtain the required license. The IWULA process will be undertaken by Golder's water and waste management specialist team. The application process will not commence until after the submission of the EMP.

4. EMP PROCESS



Proposed
**SOUTH WESTERN
 KAROO BASIN
 GAS EXPLORATION PROJECT
 CENTRAL PRECINCT**

Shell Exploration Company B.V.

EMP PROCESS

KEY STEPS	DATES
Submit gas exploration licence application to PASA	03-12-2010
Acceptance by PASA	14-12-2010
Announce EMP process and notify I&APs	03-01-2011 to 18-02-2011
Open houses	24-01-2011 to 04-02-2011
Public review of Draft EMP	28-02-2011 to 01-04-2011
Public meetings/open houses	14-03-2011 to 25-03-2011
Submit final EMP to PASA	11-04-2011

Letter to registered I&APs to inform them of PASA's decision.

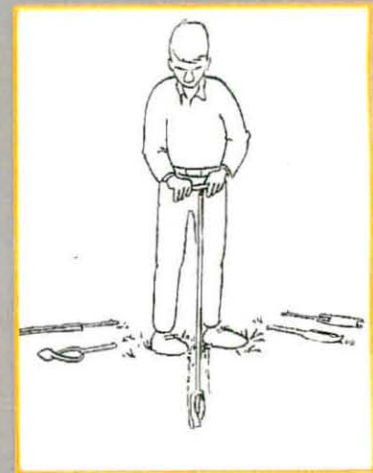
EMP STUDIES

The Petroleum Agency of South Africa (PASA) is the lead decision-making authority for the EMP in terms of the MPRDA. Approval of the EMP is a key requirement prior to PASA considering the award of an Exploration Right. As part of the EMP process, technical studies will be conducted on:

- Soil
- Air quality
- Surface and groundwater
- Ecology / biodiversity
- Environmental noise
- Human health
- Heritage (including palaeontology).

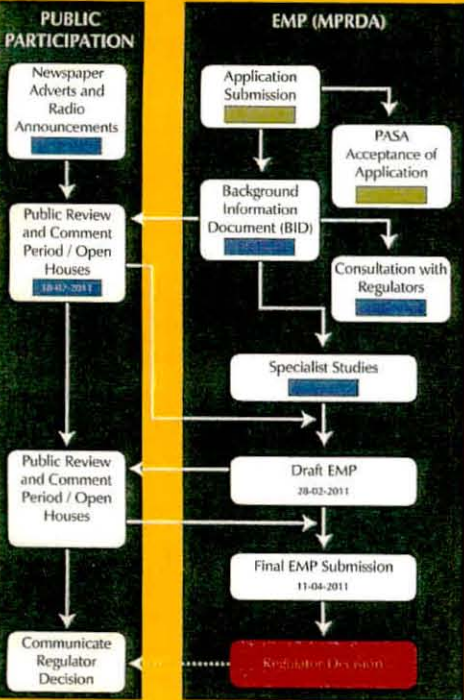


Faunal studies include the use of sophisticated recording devices to gather data on bird populations.



Sampling and analysis of water extracted from boreholes is an important component of Golder's environmental assessment and monitoring process.

Soil sampling enables scientists to establish a soil profile.



LEGEND
 ■ Authorisation
 ■ Process Step
 ■ Process Step

PERMISSION FOR ACCESS TO LAND

Landowners are currently being asked by Golder's environmental specialists for permission to access their land. The team will work under a strict code of conduct which requires for example, prior permission for access, and no disturbance of farm activities. Specialists will inform landowners on arrival and departure. Individuals will carry identification and a letter of appointment from Golder.

Shell must submit the EMP within 120 days of the date on which PASA accepts the exploration right application. If PASA approves the final EMP then the next approval would be for PASA to grant the Exploration Right. Further permits and regulatory approvals will be still need to be obtained before Shell can commence exploration activities.



5 PUBLIC CONSULTATION PROCESS



Proposed
**SOUTH WESTERN
 KAROO BASIN
 GAS EXPLORATION PROJECT
 CENTRAL PRECINCT**

Shell Exploration Company B.V.

PUBLIC CONSULTATION PROCESS

If possible, Interested and Affected Parties (I&APs) are requested to formally register as stakeholders by Friday 18 February 2011, in order that questions, issues, concerns or ideas from I&APs can be formally included in the draft EMP document, which will be created around that time to be made available to the general public for review and comment late in February 2011.

Of course, I&APs can register after this date. Your registration forms a vital contribution to the engagement process to develop the EMP in accordance with MPRDA regulations and to inform decision-making on the proposed project.

Announcements relating to the project will be made through newspapers. Radio announcements were made between January 10th and 16th 2011.

Note:
 Following completion of the EMP, it will be reviewed by PASA. If they approve the EMP then the next stage will be for PASA to consider awarding the Exploration Right. If an Exploration Right is granted, Shell must then obtain regulatory approvals related to the activities it then wishes

to undertake. For example, in accordance with the NEMA EIA legislation, for specific locations where drilling activities may take place, new environmental measurements and public consultation will have to be undertaken, and once again regulatory approval granted by the respective regulatory body.

BID AT PUBLIC PLACES



RADIO STATIONS AND BROADCAST TIMES 10 - 16 JANUARY 2011

RADIO STATION	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
RSG	17h00-19h00	17h00-19h00	15h00-17h00	17h00-19h00	17h00-19h00	10h00-13h00	13h00-18h00
SA FM	09h00-12h00 16h00-19h00 19h00-21h00	09h00-12h00 16h00-19h00 19h00-21h00	09h00-12h00 19h00-21h00	09h00-12h00 19h00-21h00	09h00-12h00 12h00-16h00 21h00-24h00	12h00-21h00	12h00-21h00
Radio Kingfisher	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Link FM Stereo	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00 18h00-20h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00 18h00-20h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	
Nkqubela Radio	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Radio Unitra	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Bush Radio	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Radio Tygerberg	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00 18h00-20h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00 18h00-20h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	
Radio Zibonele	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00

RADIO ANNOUNCEMENTS

"Shell has applied to the Petroleum Agency of South Africa for exploration rights in the South-Western Karoo Basin, to assess whether there is a viable unconventional gas resource. Shell must compile an Environmental Management Programme in line with national legislation. Listeners may contact Toni Pieterse at 011 254 4805 for more information."

NEWSPAPERS

PAPER NAME	AREA	FIRST PUBLICATION
COMMUNITY PAPERS		
Noordkaap	Barkly West	12-01-2011
De Aar Echo	De Aar	14-01-2011
Graaff Reinet & Karoonuus	Aberdeen	14-01-2011
Die Plattelander	Springbok	14-01-2011
Noordwester Oewernuus	Calvinia	21-01-2011
Victoria West Messenger	Victoria West	14-01-2011
REGIONAL PAPERS		
Volksblad	Regional	10-01-2011
NATIONAL PAPERS		
Rapport	National	16-01-2011
Sunday Times	National	16-01-2011

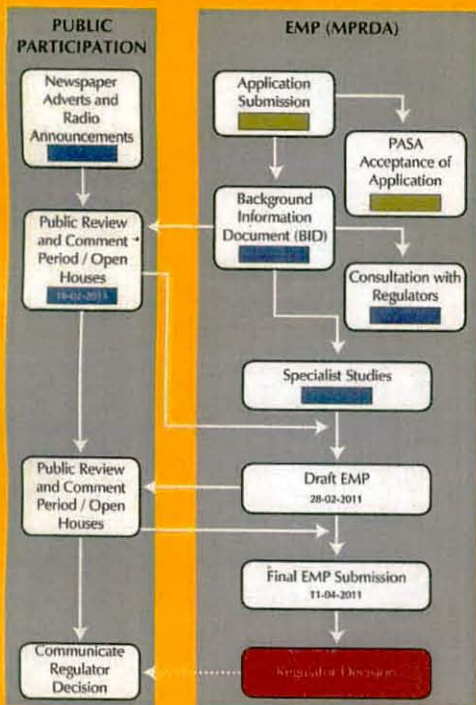


6. REGULATORY PROCESS MAP

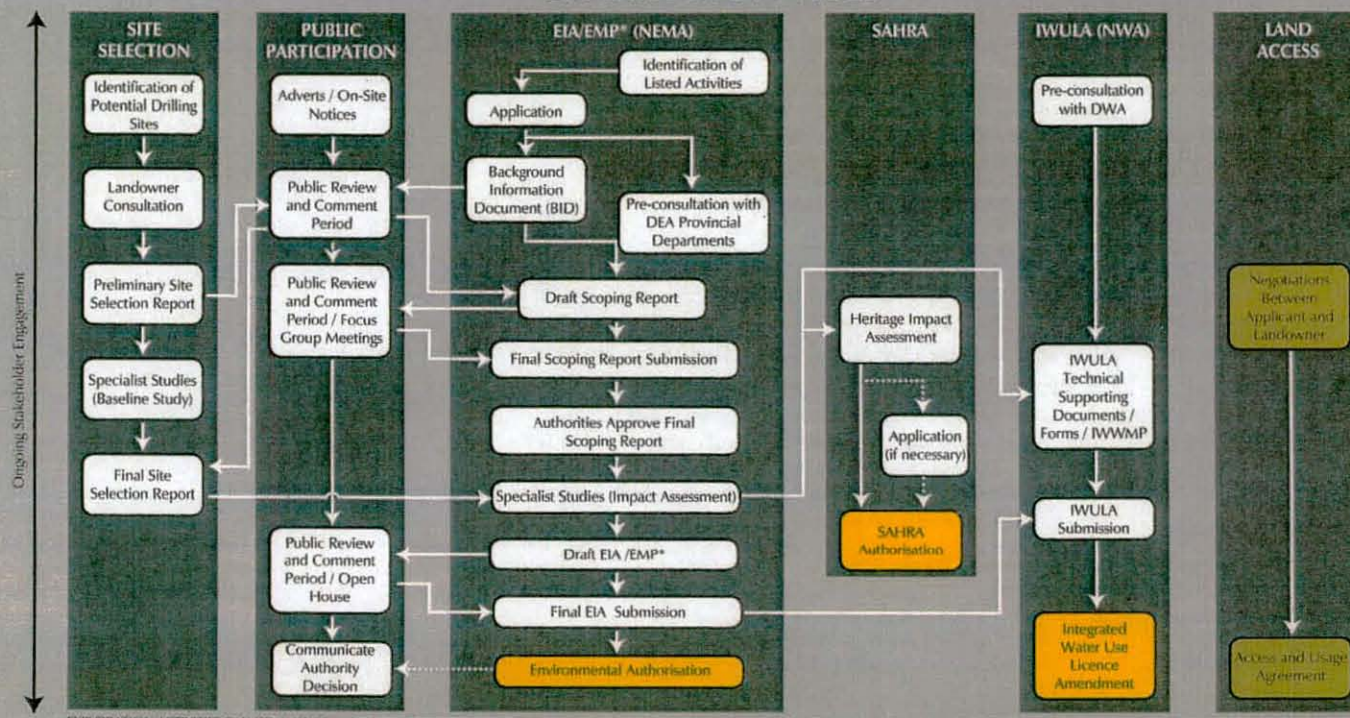


Proposed
**SOUTH WESTERN
 KAROO BASIN**
 GAS EXPLORATION PROJECT
 CENTRAL PRECINCT
 Shell Exploration Company B.V.

PHASE 1 EMP PROCESS



GRAPHICAL ILLUSTRATION OF THE WORKFLOW FOR ENGAGEMENTS AND REGULATORY APPROVALS POTENTIALLY REQUIRED DURING THE SOUTH WESTERN KAROO EXPLORATION PROJECT RELATED TO DRILLING AN EXPLORATION WELL



EXPLORATION ACTIVITIES CAN COMMENCE

* An EIA in terms of the NEMA requires an Environmental Management Plan (EMP) to support the application.

Note: The acquisition of geophysical data (MT) will require a different approval process, however, in all cases, permission to enter the property must first be obtained from the landowner. The approval process will most likely involve land access negotiations.

- EIA - Environmental Impact Assessment
- NEMA - National Environmental Management Act, 1998
- NWA - National Water Act, 1998
- SAHRA - South African Heritage Resource Agency
- IWULA - Integrated Water Use Licence Application
- IWVMP - Integrated Water and Waste Management Plan
- BID - Background Information Document
- EMP - Environmental Management Programme



1 INLEIDING TOT DIE PROJIEK

WIE IS DIE PROPONENT?

Die Shell Exploration Company B.V. (Shell) is deel van Royal Dutch Shell, 'n globale groep energie en petrochemiese maatskappye, wat aktief is in meer as 90 lande met meer as 100,000 voltydse werknemers wêreldwyd.

In 2009 het die maatskappy 3.1 miljoen vate van olie ekwivalent per dag geproduseer, en het meer as 44,000 vulstasies wêreldwyd gehad.

Shell se verhouding met Suid-Afrika dateer reeds vanaf 1902. Shell Suid-Afrika het 'n landswye netwerk van vulstasies en verkoop petroleum verwante brandstowwe en chemikalieë.

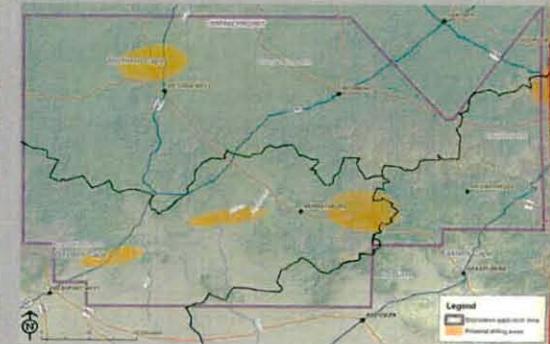
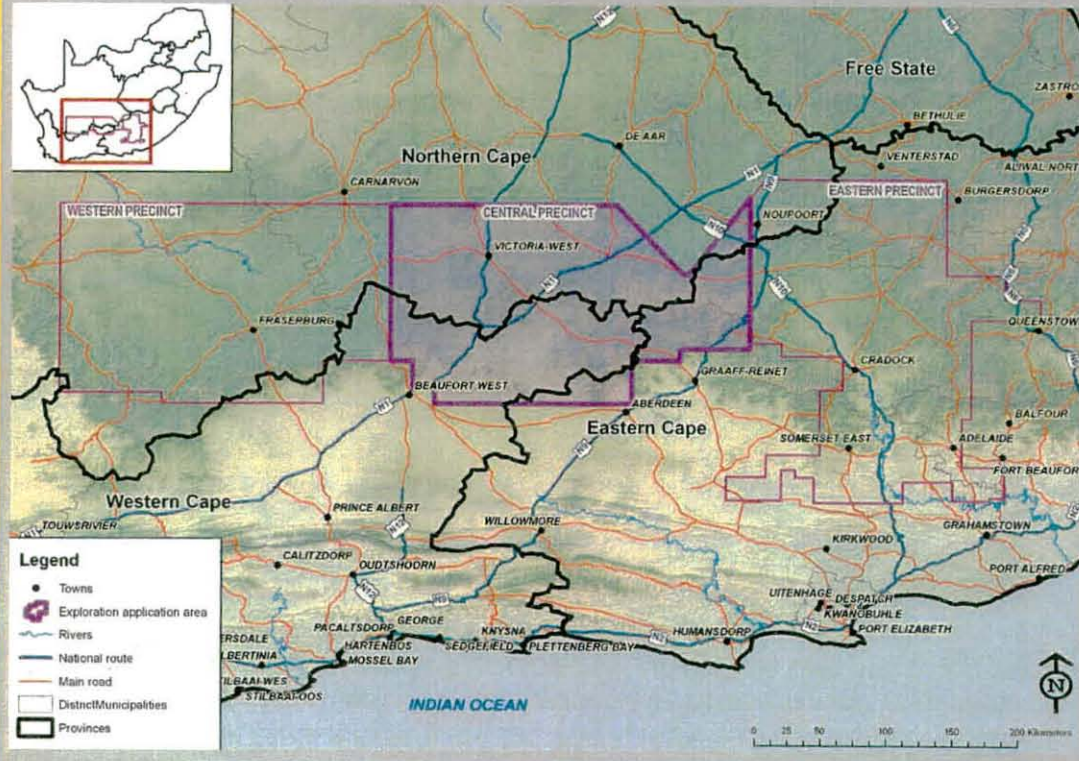
WIE IS DIE KONSULTANT?

Golder Associates Africa (Pty) Ltd (Golder) is 'n wereldwye maatskappy wat konsultasie, ontwerp, en konstruksiedienste in ons spesialisingsareas van aards, omgewings- en verwante areas van energie lewer. Uit 160 kantore wêreldwyd werk ons naas 7,000 werknemers met kliënte om hulle omgewings en ingenieursaktiwiteite in 'n tegniese aanvaarbare, ekonomies ewensvatbare en sosiale verantwoordelike manier te bestuur.

Shell het Golder Associates as onafhanklike konsultant aangestel om die Omgewingsbestuursplan (OBP) prosesse te hanteer. Dit sluit die bestuur van die openbare raadpleging prosesse en ontwikkeling en indiening van die finale OBP. Die afhandeling en inhandiging van die OBP by PASA is die eerste stap na omgewingsmagtiging vir eksplorasië aktiwiteite. Indien die OBP goedgekeur word deur PASA, is die volgende stap vir PASA om die toekenning van eksplorasië regte aan Shell te oorweeg. Indien die toekenning suksesvol is, moet ander owerheidsgoedkeuring ook eers verkry word voor eksplorasië aktiwiteite aan begin.



Voorgestelde
**SUIDWESWELIKE
KAROOKOM**
GASEKSPLORASIE PROJIEK
SENTRALE WYK
Shell Exploration Company B.V.



Die besluit oor die presiese liggings waar eksplorasië aktiwiteite kan gebeur is nog nie geneem nie, omdat slegs lessenaarstudies tot dusver voltooi is. Die figuur hierbo is voorsien as 'n illustrasie van aanduidende areas waarin eksplorasië aktiwiteite mag gebeur, sodat Shell die geologiese eienskappe diep ondergrond beter kan verstaan. Ondersoeke in die oppervlak eienskappe en die omgewing is huidige aan die gebeur, en die opinies van belanghebbenes word gesoek om opsies vir moontlike terreine vir toekomstige aktiwiteite te help ontwikkel. Sentrale Wyk projek area (geskad), en naasliggende eksplorasië regte aansoeke.

OORSIG VAN DIE PROJIEK

Shell Exploration B.V. het aan die Petroleumagentskap van Suid-Afrika (PASA) 'n aansoek gerig om eksplorasië regte vir natuurlike gas eksplorasië-aktiwiteite in die Suidwestelike Karookom, Suid-Afrika (Westelike Wyk, wat gebiede in die Wes-Kaap en Noord-Kaap insluit, PASA verwysingsno. 12/3/220). Indien goedgekeur, sal eksplorasië plaasvind in 'n

30 000 km² area in die plaaslike munisipaliteite van: Camdeboo, Inxuba Yethembu, Ubuntu, Umsobomvu, Kareeberg, Beaufort Wes, WCDMA 05 Eksplorasië aktiwiteite sal insluit:
■ Geofisiese data insameling studies
■ Die boor van eksplorasië gate met moontlike gasstimulering (hidroliëse breking en toetswerk)

'n Volledige lys van eiendomme in die voorgestelde gas eksplorasië area is beskikbaar vanaf:

■ <http://www.golder.co.za>

Openbare Deelname Kantoor
Golder Associates Africa
P O Box 6001 Suid Afrika
Tel: 011 254 4805/1072 Fax: 011 315 0317
E mail: centralkaroo@golder.co.za
www.golder.co.za



2. PROJEK BESKRYWING



Vorigesblads

SUIDWESTELIKE KAROOKOM GASEKSPLORASIE PROJEK SENTRALE WYK Shell Exploration Company B.V.



WAT IS SKALIE-GAS?

Skalie-gas, of onkonvensionele gas, is aardgas wat diep onder die aardoppervlak binne-in breuke, porieë en organiese materiaal in skalie gevind word. Aardgas is 'n waardevolle bron van skoon energie wat sal help om Suid-Afrika se vergrotende ekonomie te ondersteun.

WAAROM EKSPLORASIE HIER?

In die 1960's het sommige eksplorasietaakwiteite in die Karoo plaasgevind. Terwyl hulle olie gesoek het, het hulle aanduidings van gas in 'n paar boorgate gevind tot dieptes van omtrent 5 km. Op daardie stadium kon die standaard tegnologie wat beskikbaar was nie die gas wat "dig" vasgevang was in die rots laat vloei nie, so eksplorasietaakwiteite het gestop. Vandag maak tegnologie dit moontlik om die "digte" gas veilig, effektief en verantwoordelik te laat vloei.

Shell het bepaal dat gas moontlik teenwoordig is regoor die Suidwestelike Karoo, maar dit is nie bekend hoeveel bestaan nie. Eksplorasietaak sal toelaat dat dit bepaal kan word.

Shell het ook twee ander aansoeke gerig vir oorweging deur PASA met verwysing nos 12/3/219 en 12/3/221 onderskeidelik.

EKSPLORASIE AKTIWITEITE

"Magneto-tellurics" (MT) Insameling van Geofisiese Data

Hierdie tegniek is alreeds suksesvol deur akademiese instansies gebruik om die geologiese geskiedenis van die Karoo area te bestudeer. Natuurlike wisselende magnetiese velde, veroorsaak deur sonvlek en selfs veraf donderstormaktiwiteite veroorsaak magnetiese velde in die aarde. Shell wil hierdie tegniek gebruik om die baie klein magnetiese velde te meet en die inligting te gebruik om die ondergrondse geologie te karteer.

Die MT toerusting pas maklik in 'n klein handtas, kan gedra word deur een persoon en die toerusting versamel data oornag voor dit die volgende dag na 'n nuwe terrein geskuif word. Die afstand tussen die metingsareas word tipies beplan om tussen 3 km en 10

km uit mekaar te wees. Shell sal in kontak tree met grondeienaars om toestemming te verkry om hulle land te betree vir enige MT metings om gemaak te kan word.



Neerlê van "magneto-tellurics" sensors vir geofisiese data insameling



Die boorterrein mag tot 1 ha grond benodig. Na boorwerk word die toerusting verwyder. Grond by onproduktiewe gate sal soos geskik gerehabiliteer word



Hidrouliese breking. 'n Staal omhulsel in die boorgat beskerm die oppervlakkige varswaterbronne.

ONDERSTEUNENDE INFRASTRUKTUUR

Boorterrein

By 'n boorterrein, wat tot 1 ha groot kan wees, word 'n tydelike boortoring gebruik wat vervoer word op trekke na die terrein vir die tydperk van booraktiwiteite en daarna verwyder word. Voor die toerusting en die toring na 'n terrein gebring kan word moet 'n bruikbare toegangspad gevind word, wat moontlik eers voorberei en verhard moet word vir swaar vragte. Verdere infrastruktuur wat benodig mag word op die terrein sluit in tydelike kantore, kragopwekkers, toerusting vir beligting en stoorplek vir brandstof. Afhangend van owerheidsgoedkeuring, kan operasies 24 uur per dag plaasvind vir die tydperk van die gat geboor word. Nadat die gat geboor is, word die boortoring toerusting verwyder word.

Watervoorraad

Water word benodig om die boorpunt af te koel en glad te maak en om rotsuitgrawings tydens boorwerk na die oppervlak te bring vir analise. Na die analise van die resultate van die boorgat en gas teenwoordig gevind word, mag dit nodig wees om hidrouliese breking van die rots te doen om verder te evalueer of die gas sal vloei. Shell ondersoek potensiële waterbronne, insluitend seewater, oppervlakwater en diep soutwater waterdraers om booraktiwiteite te ondersteun. Soos aangedui op 'n aparte plakkaat, is die gebruik van water 'n geregleerde aktiwiteit wat die nakoming van verskeie permit goedkeurings behels.

Eksplorasietaak

Om te soek vir gas diep vasgevang in die skalie, mag Shell boor tot op dieptes van soveel as 4 000 m - 5 000 m, met die gebruik van tydelike boortorings wat per pad gebring sal word (soortgelyk aan die foto).

Op die oppervlakte sal die boortoring 'n meganiese draaiboortoring gebruik om 'n gat van omtrent 50 cm - 75 cm in diameter te maak. Die diameter van die gat raak kleiner soos die boorwerk dieper raak, met die finale gat se diameter moontlik so klein as 20 cm

Evaluering van Gasvloei

Na die boorwerk en evaluering van die rotsuitgrawings, moet die tydelike boortoring verwyder word. Indien daar aanduidings is dat daar gas teenwoordig is in die rots, word die gas nie verwag om te vloei nie omdat dit dig vasgehou word in die rots. Enige gas wat gevind word moet gemaak vloei word sodat Shell die gas se eienskappe verder kan evalueer. 'n Tegniek genaamd hidrouliese breking sal gebruik word, wat 'n mengsel van 99% water en sand, met 'n klein hoeveelheid chemikalieë, onder hoë druk in die rots pomp om klein krake in die skalie vlak rots te vorm. Hierdie tegniek sal dan die gekontroleerde meting van klein hoeveelhede gas toelaat, indien die gas aan die vloei gekry word.

Afvalbestuur

Waterbesparing is 'n belangrike oorweging. Water wat na die oppervlak terugkeer tydens boorwerk sal, sover as moontlik, hergebruik word vir verdere booraktiwiteite. Al hierdie aspekte sal deel vorm van 'n afvalbestuur implementeringsplan, wat ontwikkel sal word vir elke boorterrein om al die aspekte van afval bestuur in ag te neem. Hierdie planne sal aan alle relevante nasionale en plaaslike wetgewing voldoen.





DIE KORT TERMYN

Tegniese studies sal deel van die Omgewings Bestuur Progam (OBP) proses vorm. Die OBP sal 'n breë vlak van data verskaf, wat PASA sal help besluit of hulle eksplorasieregte aan Shell moet toeken. Indien suksesvol, moet ander regulatoriese goedkeuringsprosesse gevolg word voor daar met eksplorasië-aktiwiteite begin kan word.

Daar word verwag dat PASA in 2011 tot 'n besluit sal kom rakende die toestaan van die aanvanklike 3 jaar eksplorasieregte. Voordat PASA egter 'n beslissing maak, moet omgewings- en regulatoriese goedkeuring van die respektiewe wetgewende owerhede van Suid-Afrika verkry word.

Raadpleging met belanghebbendes en grondeienaars sal 'n wesentlike deel vorm van elke stadium van die proses. Indien PASA die eksplorasieregte toeken, behoort die boor van 'n aantal boorgate te begin na die einde van 2012, soos bepaal deur omgewings en ander regulatoriese vereistes.

Indien daar aanduidings van gasreserwes gevind word tydens die vooraf eksplorasieregte tydperk, kan Shell 'n formele aansoek gerig word by PASA om hernuwing van die eksplorasieregte en om addisionele eksplorasie-aktiwiteite te onderneem. Die hernuwingproses kan tot drie maal plaasvind, wat vir potensieel tot nege jaar se eksplorasië aktiwiteite toelaat.

Indien die uitslae teleurstellend is, kan Shell op enige stadium die eksplorasie-aktiwiteite staak, en 'n rehabilitasiëprogram implementeer wat geskik is vir al die aktiwiteite tot op daardie stadium.

DIE LANGER TERMYN

Indien 'n boorgate gas oplewer, sal addisionele boorgate geboor moet word om die geologiese eienskappe van die spesifieke area te verstaan. Hierdie gate kan tussen 5 km en 25 km vër van die oorspronklike boorgate geboor word. Die boor van gate sal in alle gevalle die verkryging van die relevante owerheidsgoedkeuring vereis.

WETLIKE VEREISTES

Shell sal aan alle wetlike vereistes van toepassing op die eksplorasie-aktiwiteite voldoen, en sal verder sy eie streng interne riglyne rakende die omgewing en sosiale optrede volg, wat vereis dat 'n geïntegreerde omgewings, sosiale en gesondheidsimpakstudie uitgevoer word voor daar met booraktiwiteite begin word. Shell sal nou saamwerk met reguleerders, belanghebbendes en grondeienaars.

OPSOMMING VAN OMGEWINGSREGULATORIESE RAAMWERK

Die toekenning van eksplorasieregte vereis: Indieging van 'n aansoek om eksplorasieregte in terme van die Wet op die Ontwikkeling van Minerale en Petroleumhulpbronne (Wet 28 van 2002) by die Petroleum Agentskap van Suid-Afrika (PASA), aanvaar op die 14de Desember 2010, samestelling van 'n Omgewings bestuurprogram (OBP), konsultasie met Belanghebbende en Geraakte Partye (BGPs) en voldoening aan:

(i) Die Wet op die Ontwikkeling van Minerale- en Petroleumhulpbronne (Wet 28 van 2002): Artikel 79 van die Wet op die Ontwikkeling van Minerale- en Petroleumhulpbronne (Wet 28 van 2002) (WOMPH) bepaal dat 'n aansoeker om 'n eksplorasieregte:

(4)(a) enige geaffekteerde party in kennis moet stel en moet raadpleeg; en

Indien die aanduidings aanhoudend positief is, is die ideaal dat verskeie boorgate vanaf 'n enkele, bestaande terrein geboor sou word om so min as moontlik grondoppervlak te gebruik. Addisionele infrastruktuur sou benodig word om die terreine met mekaar te verbind, ten einde die gas te versprei of energie plaaslik

op te wek, wat dan in die bestaande nasionale energie-infrastruktuur ingevoer kan word.

(4)(b) ingevolge Artikel 39, binne 120 dae vanaf die datum van kennisgewing 'n omgewingsbestuursprogram (OBP) moet inlewer.

(ii) Wet op Nasionale Omgewingsbestuur (Wet 107 van 1998): Die OIS-regulasies SK R543 onder die Wet op Nasionale Omgewingsbestuur (WNOB) 1998 (Wet 107 van 1998) (soos gewysig) sit 'n lys van geïdentifiseerde aktiwiteite uiteen wat nie 'n aanvang mag neem sonder omgewingsmagtiging deur die betrokke owerheid nie. Indien die projekaktiwiteite behels wat gelys word in SK R544, SK R545 en SK R546, sal die Omgewingsimpakstudie (OIS) prosedure, soos bepaal in Regulasies 27 tot 36 van die WNOB OIS-regulasies SK R543, gevolg word. Die WNOB OIS sal begin ná die inlewing van die OBP aan PASA.

(iii) Nasionale Waterwet (Wet 36 van 1998): Verskeie watergebruike omskryf in Artikel 21 van die Nasionale Waterwet (Wet 36 van 1998) sal moontlik deel vorm van die voorgestelde projek. Voorbeelde van dergelike watergebruike sluit in: Artikel 21 (a) "die neem van water vanuit 'n waterbron", Artikel 21 (b) "die stoor van water", en Artikel 21 (g) "die verwydering van afval op 'n wyse wat 'n nadelige invloed op 'n waterbron mag hê". 'n Aansoek om 'n Geïntegreerde Watergebruiklisensie (AGWGL) sal by die Departement van Waterwese (DWW) ingedien moet word ten einde die vereiste lisensies te bekom. Die AGWGL-proses sal deur Golder se water- en afvalbestuurspecialiste onderneem word, kort na die indiening van die OBP.



4. OBP PROSES



Voorliggende
**SUIDWESTELIKE
 KAROOKOM**
 GASEKSPLORASIE PROJEK
 SENTRALE WYK
 Shell Exploration Company B.V.

OBP PROSES

LANGRIKE STAPPE	DATAUM
Indiening by PASA van aansoek om lisensie vir gaseksplorasië	03-12-2010
Aanvaarding deur PASA	14-12-2010
Aankondiging van OBP-proses en kennisgewing aan B&G's	03-01-2011 to 18-02-2011
Opehuise	24-01-2011 to 04-02-2011
Openbare bespreking van OBP-ontwerp	28-02-2011 to 01-04-2011
Openbare vergaderings/opehuise	14-03-2011 to 25-03-2011
Lewering van finale OBP aan PASA	11-04-2011
Brief aan geregistreerde B&G's om hulle van PASA se beslissing in kennis te stel.	

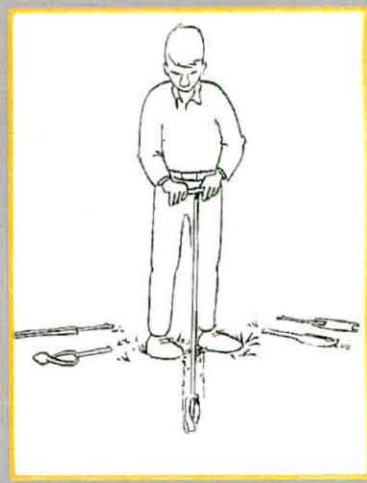
OBP STUDIES

Die Petroleum Agentskap van Suid-Afrika (PASA) is die hoof besluitnemende owerheid vir die OBP in terme van die WOMPH. As deel van die OBP proses sal tegniese studies gedoen word op:

- Grond
- Luggehalte
- Oppervlak- en grondwater
- Ekologie / biodiversiteit
- Omgewingsgeraas
- Menslike gesondheid
- Erfenis (insluitend paleontologie)

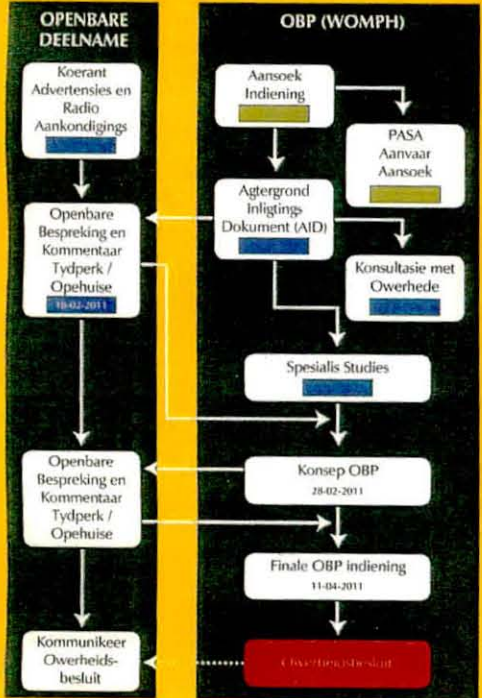


Fauna studies sluit die gebruik van gesoëstikeerde opnemingsstoele in om data in te samel oor voël populasies.



Insameling en analise van watermonsters uit bestaande boorgate (onderhevig aan toestemming) is 'n belangrike komponent van Golder se omgewingsbepalings- en monitoringsproses.

Grondmonsters laat wetenskaplikes toe om 'n grondprofiel vas te stel.



SLEUTEL
 ■ Goedkeuring
 ■ Proses Stap V
 ■ Proses Stap B

TOESTEMMING VIR TOEGANG TOT GROND

Grondeienaars word tans deur Golder se omgewingspesialiste versoek om hulle toestemming vir toegang tot hulle grond te verleen. Die span sal volgens 'n streng gedragkode te werk gaan. Hierdie gedragkode vereis byvoorbeeld vooraf toestemming vir toegang, en dat die plaas se aktiwiteite nie versteur word nie. Spesialiste sal grondeienaars in kennis stel van hulle aankoms en wanneer hulle 'n e... om verlaat. Alle persone sal identifiseer asook 'n aanstellingsbrief van Golder.

Shell moet die OBP binne 120 dae van die datum waarop PASA die aansoek om eksplorasieregte aanvaar het indien. Indien PASA die finale OBP goedkeur, sal die volgende stap die toekenning van eksplorasieregte behels deur PASA. Verdere permitte en owerheidsgoedkeuring moet verkry word voor Shell kan voortgaan met eksplorasie aktiwiteite.



5. OPEENBARE DEELNAME PROSES

Voorgestelde
**SUIDWESTELIKE
 KAROOKOM**
 GASEKSPLORASIE PROJEEK
 SENTRALE WYK



Shell Exploration Company B.V.

OPEENBARE DEELNAME PROSES

Indien moontlik, word Belanghebbende en Geaffekteerde Partye (B&GPs) versoek om formeel te registreer as belanghebbenes een Vrydag, 18 Februarie 2011, sodat raë, sake, kommernisse of idees vanaf B&GPs formeel ingesluit kan word in die konsep OBP dokument. Die dokument sal ongeveer in laat Februarie 2011 beskikbaar gemaak word vir die algemene publiek vir bespreking. Natuurlik kan B&GPs na hierdie datum registreer. U registrasievorm 'n noodsaaklike bydrae tot die kaskelingsproses om die OBP in bestek met VOMPH se regulasies te ontwikkel, asook om besluitneming in die projek in te lig.

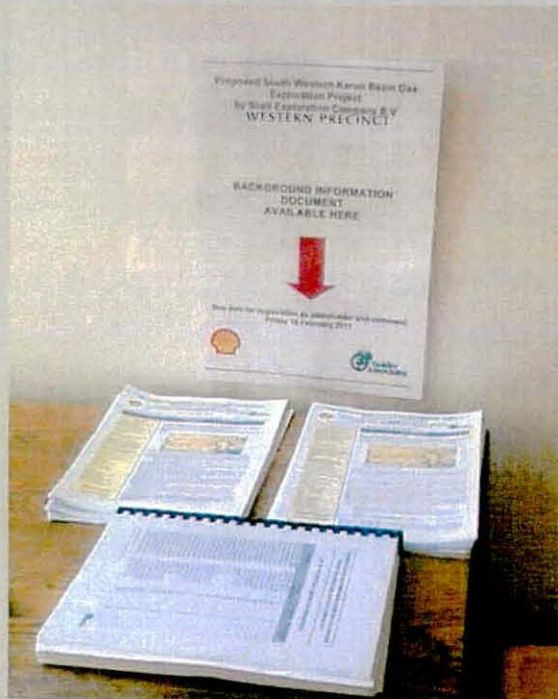
Bankondigings verwant aan die projek sal deur koerante gemaak word. Radio bankondigings was gemaak tussen 10 en 16 Januarie 2011.

Nota:

Na die voltooiing van die die OBP, sal dit hersien word deur PASA. Indien hulle die OBP goedkeur, sal die volgende fase wees vir PASA om die toekennings van eksplorasieregte te oorweeg. Indien 'n eksplorasiereg toegeken word, moet Shell die owerheidsgoedkeuring

verkry vir die aktiwiteite wat hulle wil onderneem. Byvoorbeeld, in bestek met WNOB OIS wetgewing moet nuwe omgewingsbepalings en openbare konsultasie plaasvind vir spesifieke areas waar booraktiwiteite mag plaasvind, en owerheidsgoedkeuring moet verkry word by die respektiewe beheerliggaam.

AID BY OPEENBARE PLEKKE



RADIO STASIES EN UITSAAI TYE 10 – 16 JANUARIE 2011

RADIO STASIE	MAANDAG	DINSDAG	WOENSDAG	DONDERDAG	VRYDAG	SATERDAG	SONDAG
RSC	17h00-19h00	17h00-19h00	15h00-17h00	17h00-19h00	17h00-19h00	10h00-13h00	13h00-18h00
SA FM	09h00-12h00 16h00-19h00 19h00-21h00	09h00-12h00 16h00-19h00 19h00-21h00	09h00-12h00 19h00-21h00	09h00-12h00 19h00-21h00	09h00-12h00 12h00-16h00 21h00-24h00	12h00-21h00	12h00-21h00
Radio Kingfisher	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 09h00-18h00	12h00-16h00
Link FM Stereo	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	
Nkqubela Radio	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Radio Unitra	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Bush Radio	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00
Radio Tygerberg	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	
Radio Zibonele	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	06h00-09h00 12h00-14h00 16h00-18h00	09h00-18h00	12h00-16h00

RADIO AANKONDIGING

"Shell het aansoek gedoen by die Petroleum Agentskap van Suid-Afrika vir eksplorasieregte in die Suidwestelike Karoosom, om te bepaal of daar 'n genoegsame onkonvensionele gasbron is. Shell moet 'n Omgewingsbestuurprogram in lyn met nasionale wetgewing saamstel. Luisteraars kan Toni Pietersen by 011 254 4805 kontak vir meer inligting."

KOERANTE

KOERANT NAAM	AREA	EERSTE PUBLIKASIE
GEMEENSKAPSKOERANTE		
Noordkaap	Barkly Wes	12-01-2011
De Aar Echo	De Aar	14-01-2011
Graaff Reinet & Karoenuus	Aberdeen	14-01-2011
Die Plattelander	Springbok	14-01-2011
Noordwester Oewernuus	Calvinia	21-01-2011
Victoria West Messenger	Victoria Wes	14-01-2011
STREEKSKOERANTE		
Volksblad	Streeks	10-01-2011
NASIONALE KOERANTE		
Rapport	Nasionaal	16-01-2011
Sunday Times	Nasionaal	16-01-2011



Neem oorsake in ag

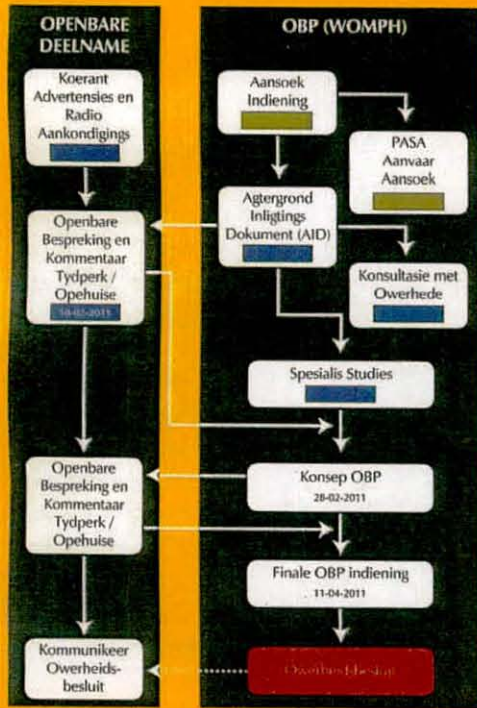
6. REGULERINGSPROSES KAART

Voorgeselde

SUIDWESTELIKE
KAROOKOM
GASEKSPLORASIE PROJEEK
SENTRALE WYK
Shell Exploration Company B.V.



FASE 1 OBP PROSES

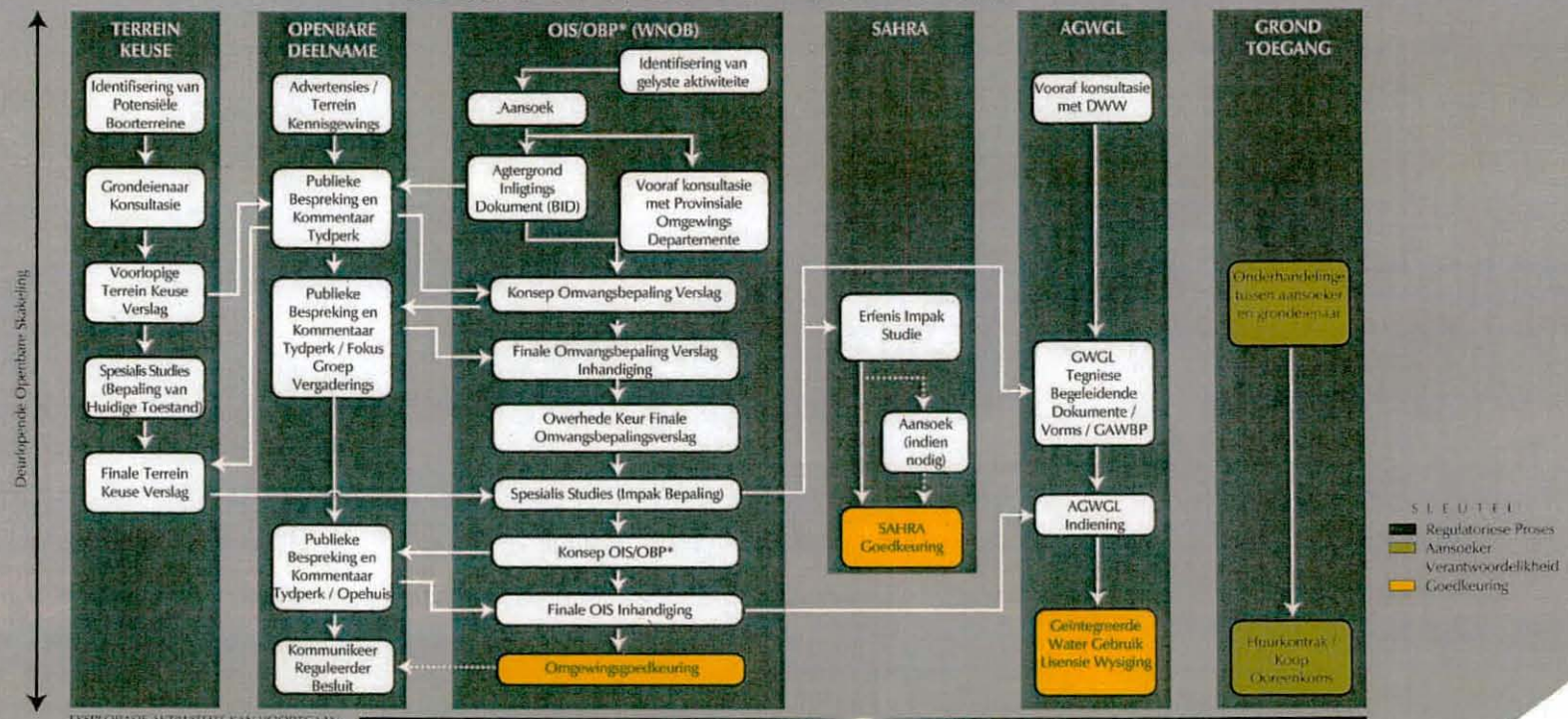


SLEUTEL

- Goedkeuring
- Proses Stap Voltooi
- Proses Stap Besig

OIS - Omgewingsimpakstudie
WNOB - Wet on Nasionale Omgewingsbestuur, 1998
NWW - Nasionale Waterwet, 1998
SAHRA - Suid-Afrikaanse Erfenis Hulphron Agentskap
GAWGL - Geïntegreerde Watergebruik Lisensie
GAWBP - Geïntegreerde Aival Water Bestuurplan
AID - Agtergrond Inligtings Dokument
OBP - Omgewingsbestuurprogram

GRAFIESE ILLUSTRASIE VAN DIE WERKSVLOEI VIR SKAKELING EN OWERHEIDSGOEDKEURING WAT POTENSIEEL BENODIG WORD TYDENS DIE SUIDWESTLIKE KAROO EKSPLORASIE PROJEEK VERWANT AAN DIE BOOR VAN 'N EKSPLORASIEBOORGAT



SLEUTEL

- Regulatoriese Proses
- Aansoeker
- Verantwoordelikheid
- Goedkeuring

* 'n OIS in terme van die WNOB vereis 'n Omgewingsbestuursplan (OBP) om die aansoek te ondersteun.

Nota: Die verkryging van geofisiese data (MT) vereis 'n ander goedkeuringsproses, maar in sommige gevalle, moet toestemming of toestemming van die grondeienaar te betree eers verkry word vanaf die grondeienaar. Die goedkeuring proses sal heel moontlik grond-toegang onderhandelings behels.





SOUTH WESTERN KAROO BASIN GAS EXPLORATION APPLICATION PROJECT

Open Houses 24 January to 04 February 2011



Draft Agenda

1. Welcome, introduction & meeting conduct
2. Overview of EMP & Public Consultation Process
3. Overview of Shell and Exploration Applications
4. Discussion
5. Next Steps
6. Closure
7. Open House



INTRODUCTIONS

SHELL EXPLORATION COMPANY B.V.

- Dr Adam Dodson, Exploration Manager – Unconventional Oil & Gas New Venture
- Janneke Abels, General Manager
- Sreejeeta Datta, Environmental Specialist
- Linda Ntombela, External Relations

GOLDER ASSOCIATES

- Dr Brent Baxter, Project Director
- Tisha Greyling, Project Advisor
- Olivia Chapman, EMP Project Manager
- Antoinette Pietersen, Public Consultation Task Leader
- Elna de Beer, Public Consultation
- Nomthi Mnisi, Public Consultation

March 2, 2011

3



MEETING OBJECTIVES

- To share information with I&APs about the exploration applications, EMPs and consultation process;
- To provide I&APs with an opportunity to raise questions, issues of concern and/or mutual benefit, or alternatives; and
- For I&APs to contribute local knowledge.

March 2, 2011

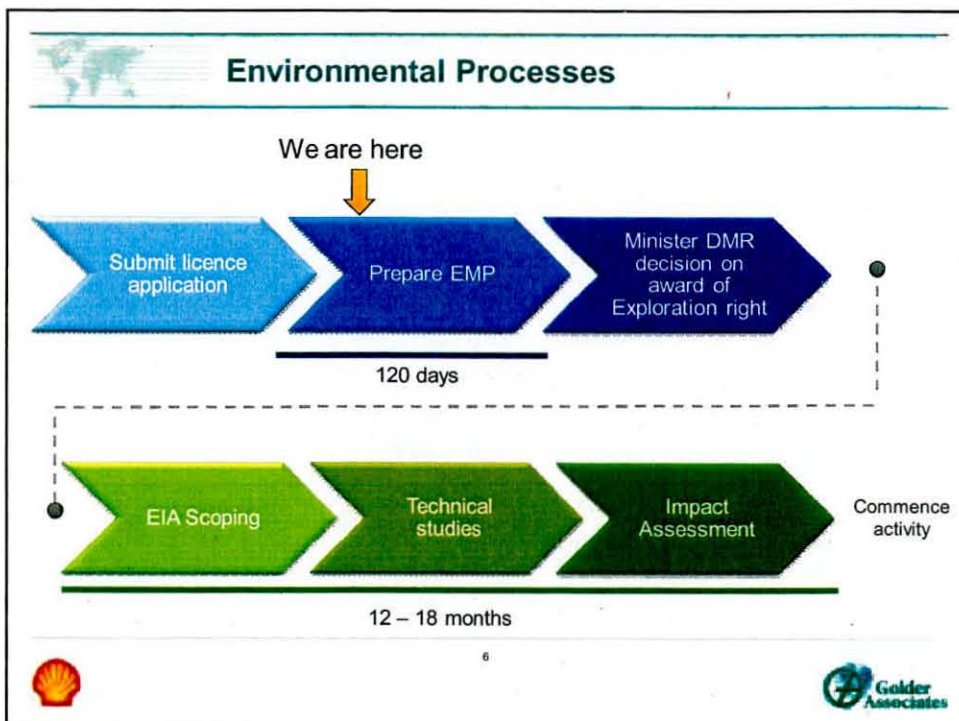
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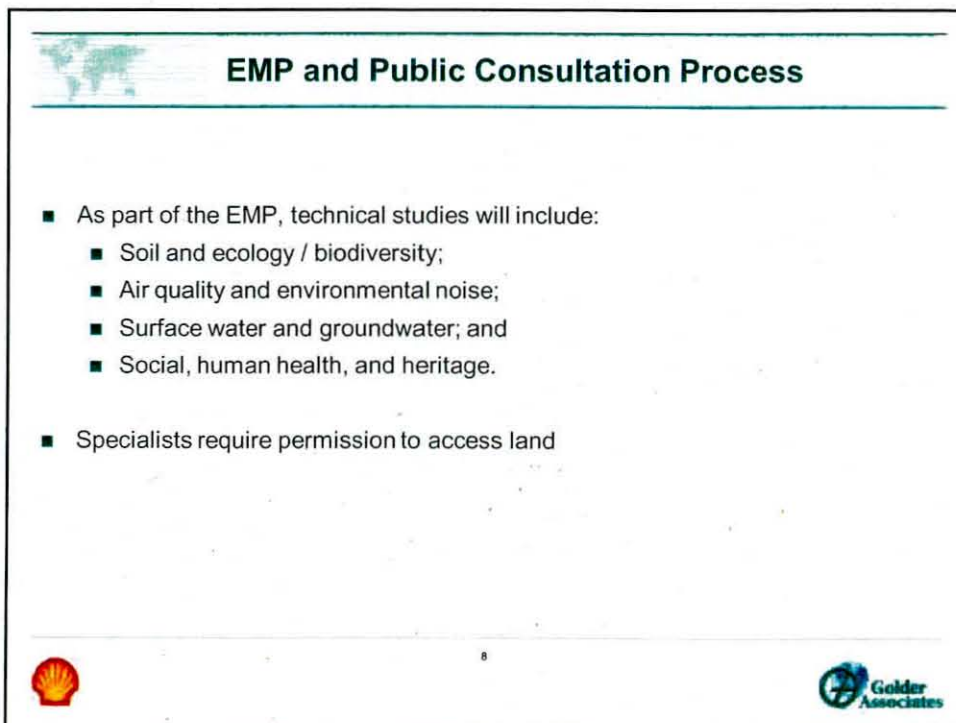
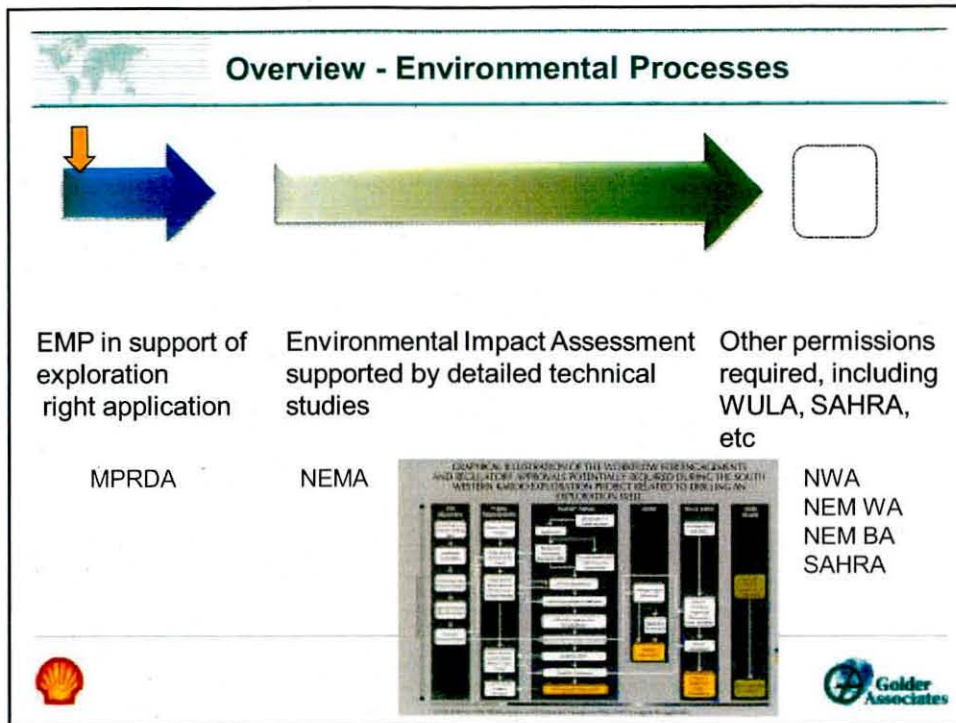



MEETING CONDUCT

- Work through the facilitator;
- Be constructive;
- One question at a time;
- Show respect - focus on the issue, NOT the person; and
- Agree to disagree.



March 2, 2011 5






 **EMP and Public Consultation Process**

- Stakeholder consultation:
 - Announcement:
 - Landowner letters
 - Newspaper advertisements (local, provincial and national); radio announcements; posting letters; emailing; making announcement documents available at public places and on Golder website; and
 - Public meetings / open houses
 - Document review
 - Draft EMP document / obtaining comments and further issues
 - Public meetings / open houses

 9 


 **EM Program – Key milestones**

January 2011

- Letters/email, newspapers, radio,
- Open houses



April 2011


- Update EMP
- Submission to PASA



February/March 2011

- Technical studies
- Draft EMP
- Public Review
- Public Meetings


 10 



Thank you

March 2, 2011

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SOUTH WEST KAROO: EXPLORATION RIGHT APPLICATIONS

January 2011

Shell Upstream International

Definitions and Cautionary Note

Reserves. Our use of the term "reserves" in this presentation means SEC proved oil and gas reserves for all 2009 data, and includes both SEC proved oil and gas reserves and SEC proven mining reserves for 2007 and 2008 data. **Reserves.** Our use of the term "reserves" in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves or SEC proven mining reserves. Resources are classified within the Society of Petroleum Engineers 2P and 2C definitions.

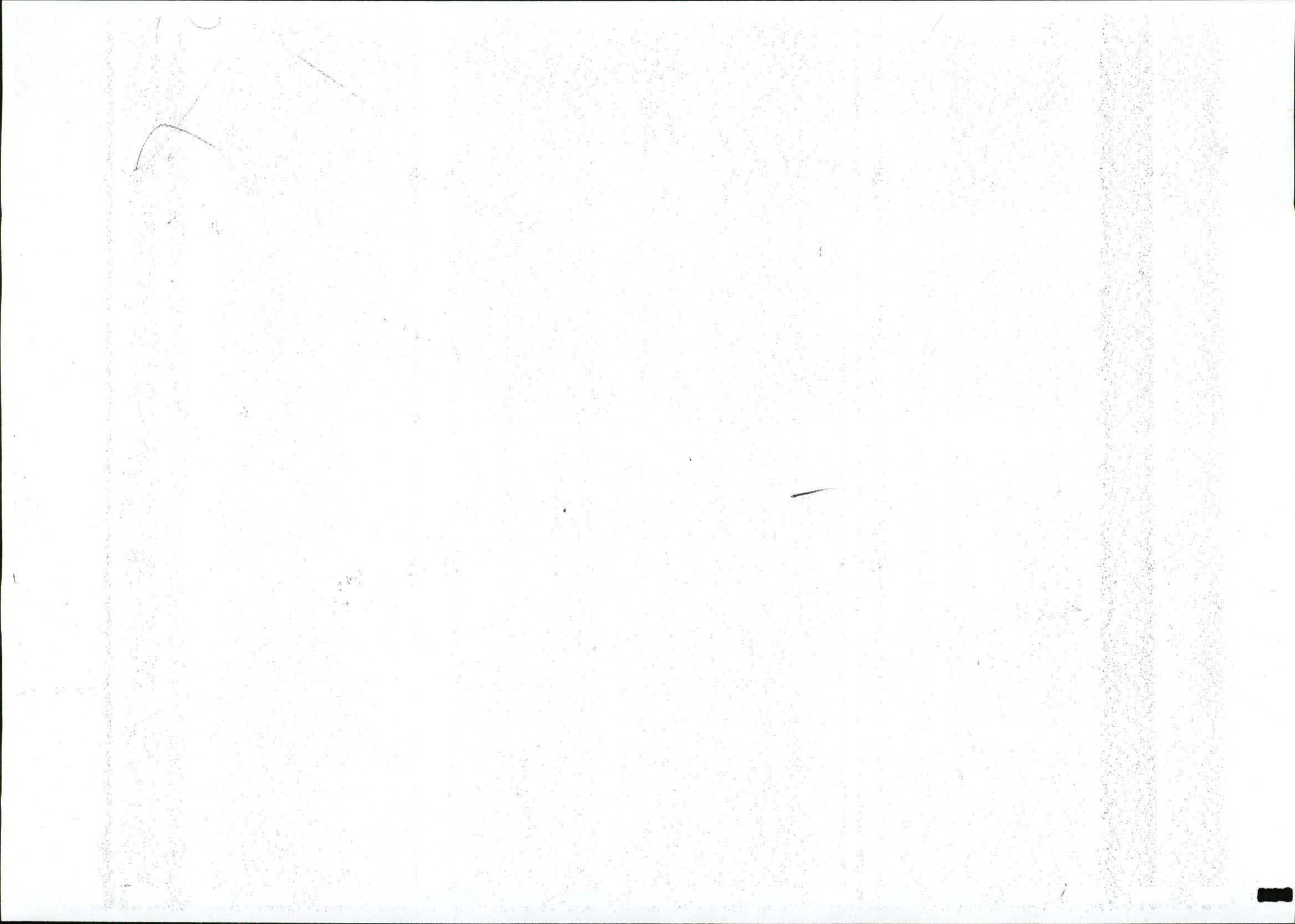
Our use of the term "organic reserves" in this presentation means SEC proved oil and gas reserves and SEC proven mining reserves for 2007 and 2008 (excluding changes resulting from acquisitions, divestitures and year-end production). To facilitate a better understanding of underlying business performance, the financial results are also presented on an estimated current cost of supplies (CCS) basis as applied for the Oil Products and Chemicals segment earnings. Earnings on an estimated current cost of supplies basis provides useful information concerning the effect of changes in the cost of supplies on Royal Dutch Shell's results of operations and is a measure to manage the performance of the Oil Products and Chemicals segments but is not a measure of financial performance under IFRS.

The companies in which Royal Dutch Shell, its directly and indirectly held investments and associates invest, in this presentation, "Shell", "Shell group" and "Royal Dutch Shell" are sometimes used for convenience and do not refer to Royal Dutch Shell plc and its subsidiaries or parent. Likewise, the words "we", "our" and "us" are also used to refer to subsidiaries or parent or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. "Subsidiaries", "Shell subsidiaries" and "Shell companies" is used in the presentation to refer to companies in which Royal Dutch Shell either directly or indirectly has control, by having either a majority of the voting rights or the right to exercise a controlling influence. The companies in which Shell has significant influence but not control are referred to as "associated companies" or "associates" and companies in which Shell has joint control are referred to as "jointly controlled entities". In this presentation, associates and jointly controlled entities are also referred to as "non-fully-accounted investments". The term "Shell interest" is used for convenience to indicate the direct and/or indirect (for example, through our 24% shareholding in Woodside Petroleum Ltd) ownership interest held by Shell in a venture, partnership or company, after exclusion of all non-party interest.

This presentation contains forward-looking statements concerning the financial condition and business of Royal Dutch Shell. All statements other than statements of historical fact are or may be deemed to be forward-looking statements. Forward-looking statements are statements of future expectations that are based on management's current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management's expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are qualified by their use of terms and phrases such as "anticipate", "believe", "could", "estimate", "expect", "intend", "may", "might", "objectives", "outlook", "could", "estimate", "expect", "intend", "may", "might", "objectives", "outlook", "could", "estimate", "expect", "intend", "may", "might", "objectives", "outlook". Caution should be taken not to place undue reliance on forward-looking statements. Actual factors that may affect future changes include: (a) market fluctuations in crude oil and natural gas; (b) changes in demand for the Shell's products; (c) currency fluctuations; (d) drilling and production results; (e) reserve estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including potential litigation and regulatory measures as a result of climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and nationalization of the terms of contracts with governmental entities, delays or cancellations of government contracts and other governmental actions; (m) the risk of a global economic downturn; and (n) other factors not specifically mentioned in this presentation. Additional factors that may affect future results are contained in Royal Dutch Shell's 2010 Form 20-F for the year ended 31 December, 2009 (available at www.shell.com/ir) and www.shell.com/ir). These factors also should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, 17 January 2011. Neither Royal Dutch Shell nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation. There can be no assurance that ongoing payments will match or exceed those set out in this presentation in the future, or that they will be made at all.

The United States Securities and Exchange Commission (SEC) permits oil and gas companies, in their filings with the SEC, to disclose only proved reserves that a company has demonstrated by actual production or conclusive formation tests to be economically and legally producible under existing economic and operating conditions. We use certain terms in this presentation, such as resources and oil in place, that SEC's guidelines strictly prohibit us from including in filings with the SEC. U.S. investors are urged to consult closely the disclosure in our Form 20-F, File No. 1-33275, available on the SEC website www.secdatabase.com. You can also obtain these forms from the SEC by calling 1-800-SEC-0330.

Shell Upstream International



ABOUT ROYAL DUTCH SHELL

- We are active in more than 90 countries
- In South Africa since 1902
- Shell's business areas are :
 - Upstream: Explore for and produce new oil & gas reserves
 - Downstream: Refines, supplies and trades oil products
- We are committed to health, safety, environment and sustainable development

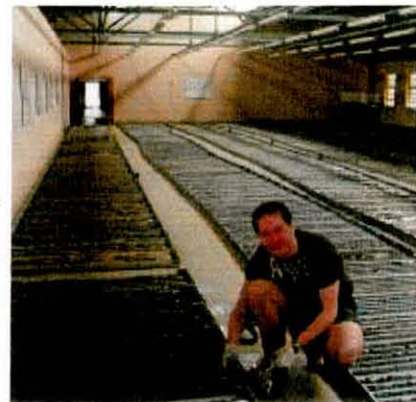


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EXPLORING FOR GAS IN THE KAROO BASIN

- South Africa is faced with the challenge of meeting growing energy demand – finding & extracting natural gas could help meet this demand.
- In the 1960's some exploration activities occurred in the Karoo:
 - Whilst looking for oil, Soekor found indications of gas in a few wells at depths down to ~5 km;
 - 1960's technology did not allow gas held "tight" in the rocks to flow, so exploration stopped;
 - Today, technological advances make it possible to make "tight" gas flow.



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EXPLORING FOR GAS IN THE KAROO BASIN

- In December 2009, Shell was awarded a 12 month Technical Cooperation Permit (TCP) by Petroleum Agency South Africa (PASA) which:
 - Allowed desktop studies to be performed but no on-the-ground work.
 - Supported the idea that gas may be present; however Shell cannot predict the precise location, volume, quality or flow rate without carrying out new on-the-ground activities.

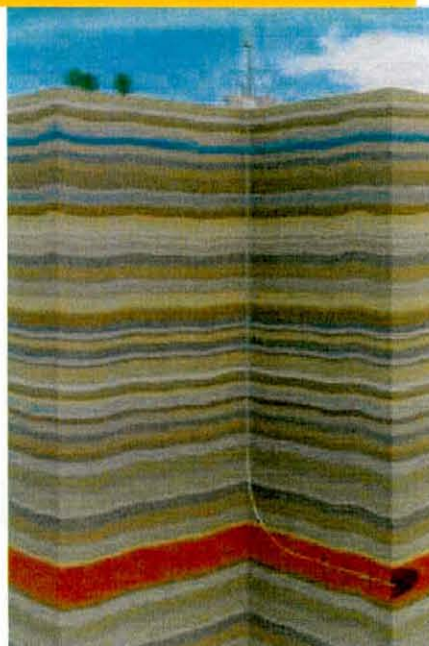


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WHAT IS SHALE GAS?

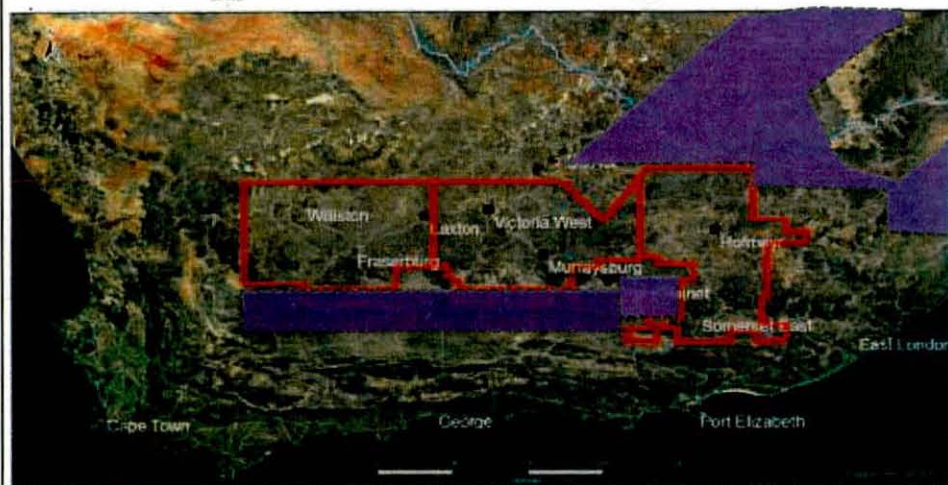
- Shale gas is natural gas contained in a rock similar to clay baked hard by heat and pressure over millions of years.
- Shale gas is very tightly held in the shale, therefore it does not flow easily.
- Hydraulic fracturing, pumping water and sand into the shale at high pressure, can release this gas.



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SHELL'S EXPLORATION RIGHT APPLICATIONS

- In December 2010, Shell made three separate Exploration Right applications for consideration by PASA
 - Other companies are following a similar process in the Karoo.



SHELL'S EXPLORATION RIGHT APPLICATIONS

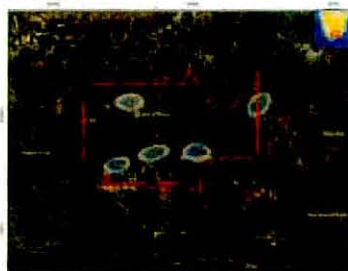
- In terms of MPRDA (Act 28 of 2002) Shell has 120 days to create an Environmental Management Programme (EMP) and submit it to PASA for their consideration.
- If the EMP is approved by PASA only then will PASA consider granting Exploration Rights to Shell. Thereafter many other permits must be obtained before exploration operations can commence.
- Exploration Rights granted by the Minister of Minerals are for three years. Shell can seek (from PASA) up to three additional two year renewals. In total up to 9 years exploration rights may be awarded.



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EXPLORATION : INDICATIVE AREAS TO UNDERSTAND

- Precise locations where exploration may take place are still to be finalised; at this stage only desktop studies have been completed.
- Investigations into the surface characteristics and the environment are in progress, and we are seeking the views of stakeholders which will be considered in the development of options for possible locations to undertake exploration activities.



Illustrations – Exploration Right Application Area & notional areas within which exploration activities may occur to help better understand the geological properties.

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EXPLORATION OVERVIEW

Exploration activities may include:

- Acquisition of geophysical data
- Exploration drilling
- Potentially further evaluation of gas flow (hydraulic fracturing)

Associated Infrastructure activities will include:

- Well site & access roads that will require :site preparation, compaction for heavy load, on-site portable offices, generators, lighting equipment and fuel storage , waste management
- Rehabilitation of land



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WATER

- Water is needed during exploration :
 - To carry rock cuttings to the surface during drilling;
 - To cool and lubricate the drill bit;
 - To let the gas flow by hydraulic fracturing.
- Shell is investigating a number of potential water sources to support the requirements of the drilling and fracturing operations:
 - Seawater;
 - Surface water (only if in abundance);
 - Deep saline aquifers.
- Depending on the volumes required, water may be stored on site in tanks or in lined storage ponds



APPENDIX E

Lists of meeting participants

PREPARED



PROPOSED SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT

Stakeholders who attended the Murraysburg public meeting on

Friday, 28 January 2011

Name	Organisation	City
Abels, Janneke	Shell	Bryanston
Baker, Peter	Richmond Community Development Foundation	Parklands
Ballantyne, Jennifer	Land owner	
Bans, Oscar	ANC	Murraysburg
Baxter, Brent	Golder Associates	Halfway House
Beal, Maria	Nama Karoo Foundation	Graaff Reinet
Biggs, Linda		Murraysburg
Biggs, William	Farmer	Murraysburg
Booyesen, David	Youth	Murraysburg
Carey, Charles		Murraysburg
Chapman, Olivia	Golder Associates	Halfway House
Cloete, Jos	Boer	Murraysburg
Cloete, Josias	Jos and Ida Cloeter	Murraysburg
Conradie, Bennie	Private	Murraysburg
Datta, Sreejeeta	Shell	Durban
Dodson, Adam	Shell	Bryanston
Du Toit, W.M.	Owner	Murraysburg
Erasmus, Casper	C J Erasmus Family Trust	Richmond
Festus, Enrico		Murraysburg
Festus, Mike		Murraysburg
Galant, Leonard		Murraysburg
Herholdt, Gillie	Private	Beaufort West
Herholdt, Sielie	Farmer	Beaufort West
Jantjies, Bonakele		Murraysburg
Jooste, Andrew		Murraysburg
Junies, Randal Lance		Murraysburg
Kingwill, Geoff	Land owner	Graaff Reinet
Kingwill, Peter	Private	Murraysburg
Klaassen, Hendrik		Murraysburg
Kruger, Andries		Murraysburg
Light, Derek	Derek Light Attorney	Graaff Reinet
Mafentile, Masxole Peskio		Murraysburg
Mans, Johannes	J & JM Trust	Rustenberg
Martin, Jacques	M Youth Action	Murraysburg
Mikwana, Bulelani		Murraysburg
Mnisi, Nomthi	Golder Associates	Halfway House
Monge, Zagory Daniel		Murraysburg
Paxton, Neville	Manager	Murraysburg
Pienaar, Jaco	Boer	Murraysburg

Name	Organisation	City
Pietersen, Toni	Golder Associates	Halfway House
Plaatjies, Bertram	ANC	Murraysburg
Plaatjies, Lionel		Murraysburg
Retief, D.C.	Farmer	Graaff Reinet
Retief, Philippie	Land owner, farmer	Murraysburg
Rossouw, Danie	Boer	Murraysburg
Rossouw, Wynand		Murraysburg
Snijder, Frank	Golder Associates	Halfway House
Sopete, Andile	SKDM	Murraysburg
Theron, Gourie	Boer	Beaufort-West
Theron, Jacobus Petrus	Boer	Murraysburg
Theron, Johan	Boer	Murraysburg
Theron, Johannes		Murraysburg
Theron, René	Resident	Murraysburg
Troskie, A	Boer	Graaff Reinet
Tshikolo, Siphelo	Youth Forum	Murraysburg
van der Merwe, Fanus	Boer	Murraysburg
van der Merwe, Izak	Land owner	Murraysburg
van Heerden, Carel		Murraysburg
van Heerden, Karel Sebastiaan	Boer	Murraysburg
van Heerden, Roelof		Murraysburg
Viljoen, Kobus	Boer	Richmond
Wallis, A.H.	Farmer, Land owner	Graaff Reinet

PROPOSED SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT

Stakeholders who attended the Graaff-Reinet Public Meeting on

Friday, 28 January 2011

Name	Organisation	City
Kritziner, Wayman	AGRI-EC	Newton Park
Abels, Janeke	Shell	Bryanston
Allermann, Ian	Nieu-Bethesda	Nieu-Bethesda
Anton, Evorse	Principal of Graaff-Reinet Primer	Kroonvale
Baartman, Hermi	Oos Kaapse Burger	Graaff-Reinet
Baker, Peter	Richmond Community Development Foundation	Park Lands
Baxter, Brent	Golder Associates	Halfway House
Biggs, John	Farmer Camdeboo Farmers Association	Graaff-Reinet
Biggs, Linda		Murraysburg
Biggs, William	Grootland Farms cc	Murraysburg
Botha, Francois	Self	Graaff-Reinet
Botha, Geogie	Farmer	Pearston
Brett- Rite, Eddie	Advertiser Reporter	
Burdett, Peter	Sanparks	Graaff-Reinet
Burger, Schalk	Mon Pierre	Wellington
Chapman, Olivia	Golder Associates	Halfway House
Clements, Hayley	Samara Game Reserve	Graaff-Reinet
Daneel, Charlotte	Sneeuberg Nature Reserve	Franschoek
Datta, Sreejeeta	Shell	Bryanston
De La Harpe, Jean	Sneeuberg AA	Graaff-Reinet
De La Harpe, Lionel	Sneeuberg AA	Graaff-Reinet
Dodson, Adam	Shell	Bryanston
Duthie, Andrew	Oufontein Farming	Richmond
Duthie, Sherul	Farmer	Richmond
Erasmus, Aletta & Pieter	Farmer	Middelburg
Fouche, Loenie	Camdeboo Municipality	Graaff-Reinet
Gayra, David	Sneeuberg Nature Reserve	Nieu Bethesda
Gibbons, Bradley	Endangered Wildlife Trust	Parkview
Goedhals, Tinneke	Advertiser Editor/ Photographer	Graaff-Reinet
Grindley, Shirley	Granaat	Graaff-Reinet
Harris, Graham	Farmer	Graaff-Reinet
Hobson, Malcom	Vet / Farmer	Graaff-Reinet
Kingwill, Justin	Blaauwater Trust	Graaff-Reinet
Kingwill, Leonard	Farmer	Graaff-Reinet
Kingwill, Paula	Farmer	Graaff-Reinet
Kroon, Roland	Farmer	Graaff-Reinet
Lakie, Bruce	Heritage Society Nieu Bethesda	Nieu Bethesda
Light, Derek	Derek Light Attornies	Graaff-Reinet
Lord, Graham	Towerwater Fam Pty Ltd	Nieu Bethesda

Name	Organisation	City
Luscombe, David	Farmer	Graaff-Reinet
Macfarlow, Malcolm	State Veteranarian Farmer	Graaff-Reinet
Marais, Wessel	Spekboomberg	Laezonia
Maspero, Wayne	Bergplaas Irene Properties Pty Ltd	Graaff-Reinet
McBride, Robert	Spekboomberg	Laezonia
Merifield, Paul	Farmer Camdeboo	Graaff-Reinet
Mnisi, Nomthi	Golder Associates	Halfway House
Murray, Graham & Brenda	Farmer	Graaff-Reinet
Murray, Julian	Farmer Amandelhoogte Conservancy	Graaff-Reinet
Murray, Richard	Farmer Allendale Rust	Graaff-Reinet
Murray, Walter	Farmer	Graaff-Reinet
Murray, Wayne	Oudeland	Graaff-Reinet
Nage , Annelize Nagel		Graaff-Reinet
Nagel, Bertie	Eienaar	Graaff-Reinet
Nel, Fanie	Roodewal & Buffelshoek Farm	Graaff-Reinet
Ntombela, Linda	Shell	Bryanston
Pietersen, Toni	Golder Associates	Halfway House
Poiesz, Ton	Terra Mare Pty Ltd	Nieu Bethesda
Pretorius , Johan	Farmer	Graaff-Reinet
Rubidge, Jenefer	Zoodvlei Conservation	Redeweed
Rubidge, Robert	Farm Wellwood	Graaff-Reinet
Rupert, Johannes	L'Ormarins	
Schreuder, Mias	L'Ormarins	
Seegers, Laura	Karoo Scarab CC Boerderstroom	Graaff-Reinet
Slater, Richard	The Buchanan Trust & Mount Camneboo Game Reserve	Graaff-Reinet
Spence, Trenly	Farmer	Graaff-Reinet
Spence, Wilmari	Farmer	Graaff-Reinet
Stauth, Roy	Karoo Development Foundation	Graaff-Reinet
Stern, Dave	Stern Family Trust	Graaff-Reinet
Stern, Douglas	Farmer	Graaff-Reinet
Steven-Jennings, Catherine	Farmer	Graaff-Reinet
Steven-Jennings, Harrold	Farmer	Graaff-Reinet
Theron, Jacobus	Farmer	Graaff-Reinet
Tompkins, Sarah	Samara	Graaff-Reinet
van Heerden, Peet	Farmer Guest House Operator	Nieu Bethesda
van Rensburg, Johannes	District Union Chairman	Graaff-Reinet
van Rensburg, John	Boer	Cradock
van Rensburg, Richardt	Rietvallei Landgoed	Graaff-Reinet
van Zyl, Sakxie	F B van Zyl	Graaff-Reinet
Vogel , J	Rondefontein	Graaff-Reinet
Watermeyer, Kevin	Interested	Graaff-Reinet
Wright, Gordon	Andries Stockenstrom Guesthouse / Show Food International	Graaff-Reinet

Name	Organisation	City
Yalolo, Goeffrey	ANC	Graaff-Reinet

PROPOSED SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT

Stakeholders who attended the Beaufort-West open house on

Thursday, 27 January 2011

Name	Organisation	City
Abels, Janeke	Shell	Bryanston
Abrahams, Nicholas (Kwota)	Private/Community	Beaufort West
Baxter, Brent	Golder Associates	Halfway House
Booiman, Jennifer	Radio Gamtia	
Booyesen, Elrico	Individual	Nelspoort
Bostander, Andries	Farmer	Essopville
Bostander, Jan	Farmer	Beaufort West
Crafford, Leon	Sentraal Karoo Distrik Munisipaliteit	Beaufort Wes
Dassie, Martin	Community Member	Beaufort West
Datta, Sreejeeta	Shell	Bryanston
Dodson, Adam	Shell	Bryanston
Jefferson, Anthony (Jeff)	Private/Community	Beaufort West
Jeppe, Alec	Farmer	Beaufort West
Johnson, Merven	Paradys	Beaufort West
Jooste, Simeon	Interested	Hillside
Klamm, Sascha	Beaufort West Tourism	Beaufort West
Lund, Johan	Private/Farmer	Beaufort West
Maritz, Tom	Bo Plaas 2	Beaufort West
Mayekiso, William	Farmer	Beaufort West
Milton-Dean, Sue	Renu-Karoo Veld Restoration cc	Prince Albert
Mjadu, Mzwandile	Karoo National Park	Beaufort West
Mnisi, Nomthi	Golder Associates	Halfway House
Njabu, Edward	Central Karoo District Municipality	Beaufort West
Ntombela, Linda	Shell	Bryanston
Oschmann, Johan	SAPD	Beaufort West
Pantsi, Thami	Individual	Beaufort West
Pienaar, Charl and James	Juriesfontein Farm	Beaufort West
Pietersen, Toni	Golder Associates	Halfway House
Pretoors, Andrei	Community	Leeu-Gamka
Rossouw, Quintus	Karoo Gateway Guesthouse and Airport	Beaufort West
Skisazana, Moses	Central Karoo Economic Development Agency (CKEDA)	Beaufort West
Snijder, Frank	Golder Associates	Halfway House
Steven-Jennings, Robin	Farmer	Beaufort West
Turoni, Ronald	Community Development Worker	Rusdene
van Niekerk, Wilfred	Community Development Worker	Beaufort West
Visser, Barend	Beaufort West Municipality	Beaufort West
Williams, Lesley	Home Affairs	Nieuveld

PROPOSED SOUTH WESTERN KAROO BASIN GAS EXPLORATION PROJECT

Stakeholders who attended the Victoria West public meeting on

Tuesday, 25 January 2011

Name	Organisation	City
Lizbe	Mede eienaars	
Serera	Farm Rietpoort	
Abels, Janeke	Shell	Bryanston
Ackermann, Hendrik	Richmond Agri (Farmers Association)	Richmond
Areus, Chris	uBuntu Municipality	Victoria West
Booyesen, Lunas	SAPS	Victoria West
Botha, Dawie	Boer	Victoria-Wes
Cacadu, Andile	CDW	Victoria West
Chapman, Olivia	Golder Associates	Halfway House
Conroy, Andrew	Farmer Retired Water Supplier VW.	Modder River
Conroy, Anné-Marie	Mon Wesir	Victoria West
Datta, Sreejeeta	Shell	Bryanston
de Klerk, Jan	AgriSA	Victoria West
Dodson, Adam	Shell	Bryanston
Erasmus, Casper	Boer	Richmond
Erasmus, Ryno	EWT	Loxton
Faas, Yhando	YD7	Victoria West
Fourie, Nico	Department of Roads and Public Works	
Gqagqa, Ntombi	Cochsta	Victoria West
Horn, Augustines	NARYSEC	Victoria West
Horn, Mnkedisi	YD7	Victoria West
Human, G	Brakrivier Conservatory	Victoria West
Jackson, Emily	Indyebo Youth Info Centre	Victoria West
Jafta, Khayaletu	Imbyebo Youth Info Centre	Victoria West
Jane, Sindiswa	CDW	
Jaxa, Ntomboouke	NARYSEC	Victoria West
Jefta, Khayaletu	Indyebo YouthInfo Centre	
Jooste, Pieter	Sentraal Karoo Landbou Unie Voorsitter	Victoria-Wes
Kivedo, M.E.	uBuntu Municipality	Victoria West
Kweleto, Eric	Victoria West Youth Development Forum	Victoria West
Luscombe, John	Farmer	Richmond
Luscombe, Lorette	Farmer	Richmond
Malgas, Xolani	LED Manager uBuntu Municipality	Victoria West
Mashiya, Babalwa	NARYSEC	Victoria West
Mitton, Danny	Private	Loxton
Mnisi, Nomthi	Golder Associates	Halfway House
Moseley, Steve	Resident	Loxton
Nel, Vicky	EWT	Loxton
Nolte, Carlo	Swaelfontein Landbou	Loxton
Ntombela, Linda	Shell	Bryanston

Name	Organisation	City
Olivier, Jannie	Farmer (Kweekwa Trust) (Witkrans Trust)	Victoria West
Olivier, Theo	Boer / Voorsitter: Boere Unie	Victoria West
Pietersen, Toni	Golder Associates	Halfway House
Ras, Dirk	Farmer	Victoria-Wes
Riegert, Katriena	uBuntu Municipality	Loxton
Schutz, Wilma	Business Bread & Breakfast	Victoria-Wes
Snyman, Pieter	SKA	Carnarvon
Sulliman, Mohamed	Department of Road and Public Works	
Swiegers, Jan	Boer	Victoria West
Trickey, Stephen	Thornhill Lodge	
van Heerden, J	Farmer	
van Heerden, Johan	Farmer	Victoria West
van Rensburg, Johan	Agri Northern Cape	Kimberly
van Zyl, Louis	Boer	Victoria West
Venter, Willem	Boer	Victoria West
Vermeulen, Johan	Boer	Carnarvon
Victor, Hennie	Rate Payers Association Victoria West	Victoria West
Viljoen, W.	Farmer	Victoria-West
White, Riaan	Victoria West Youth Development Forum	Victoria West
Wiehahn, George Jacob	Abramskraal	Victoria Wes
Wiehahn, Lené	Abramskraal	Victoria Wes



At Golder Associates we strive to be the most respected global group of companies specialising in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organisational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

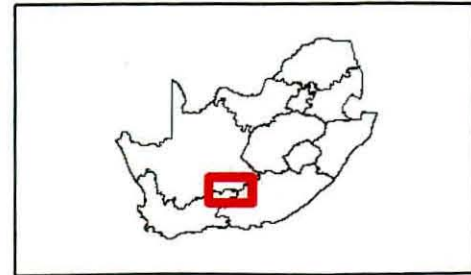
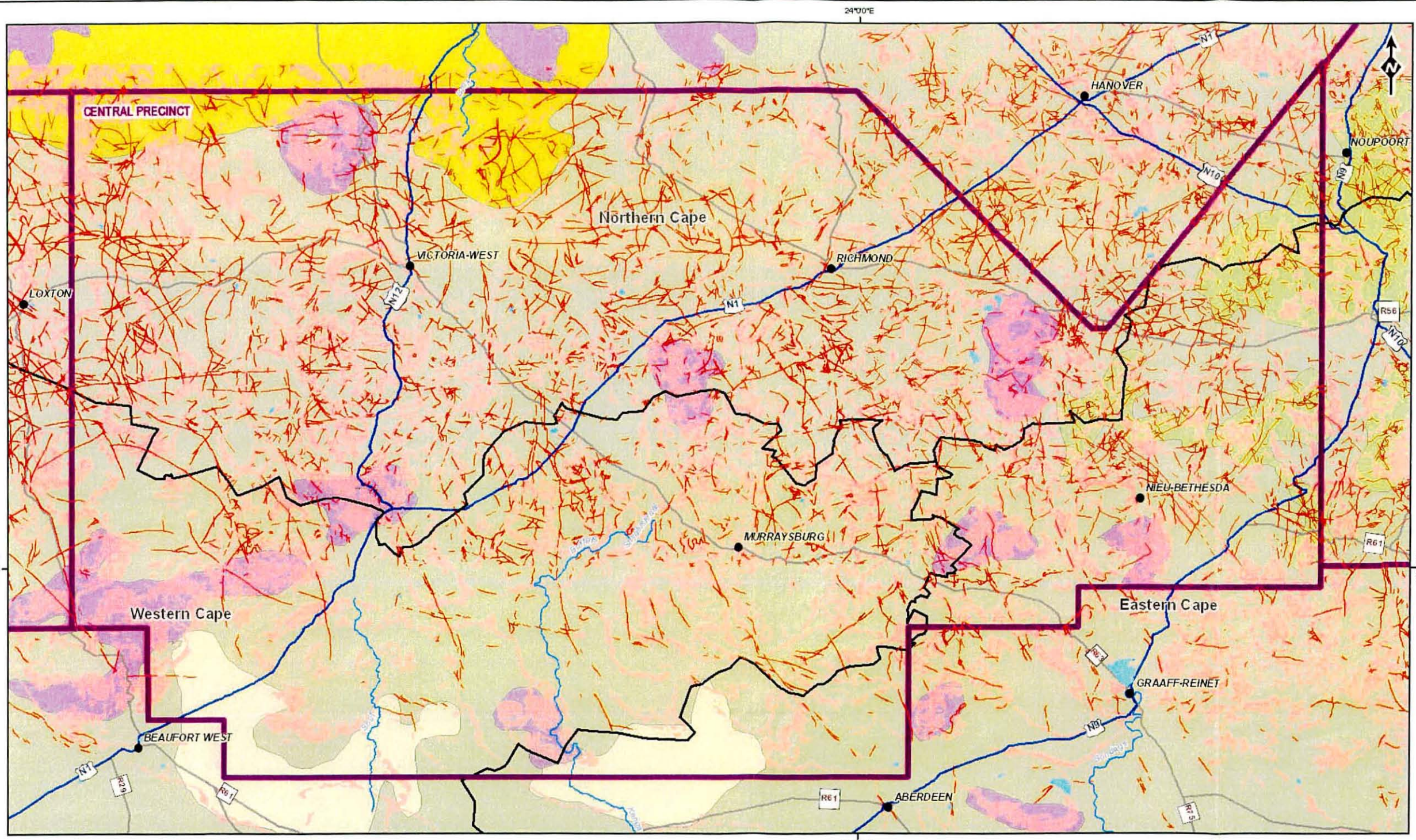
Africa	+ 27 11 254 4800
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Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 3500

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LEGEND	
●	Town
▭ (purple)	Exploration application areas
▭ (black)	Provincial boundary
— (blue)	National route
— (grey)	Main road
— (blue)	River
Simplified geology	
▭ (yellow)	Kalahari
▭ (purple)	Drakensberg
▭ (green)	Tarkastad
▭ (grey)	Adelaide
▭ (yellow)	Ecca
▭ (pink)	Dolerite sill
— (red)	Dolerite dyke
▭ (blue)	Major dam

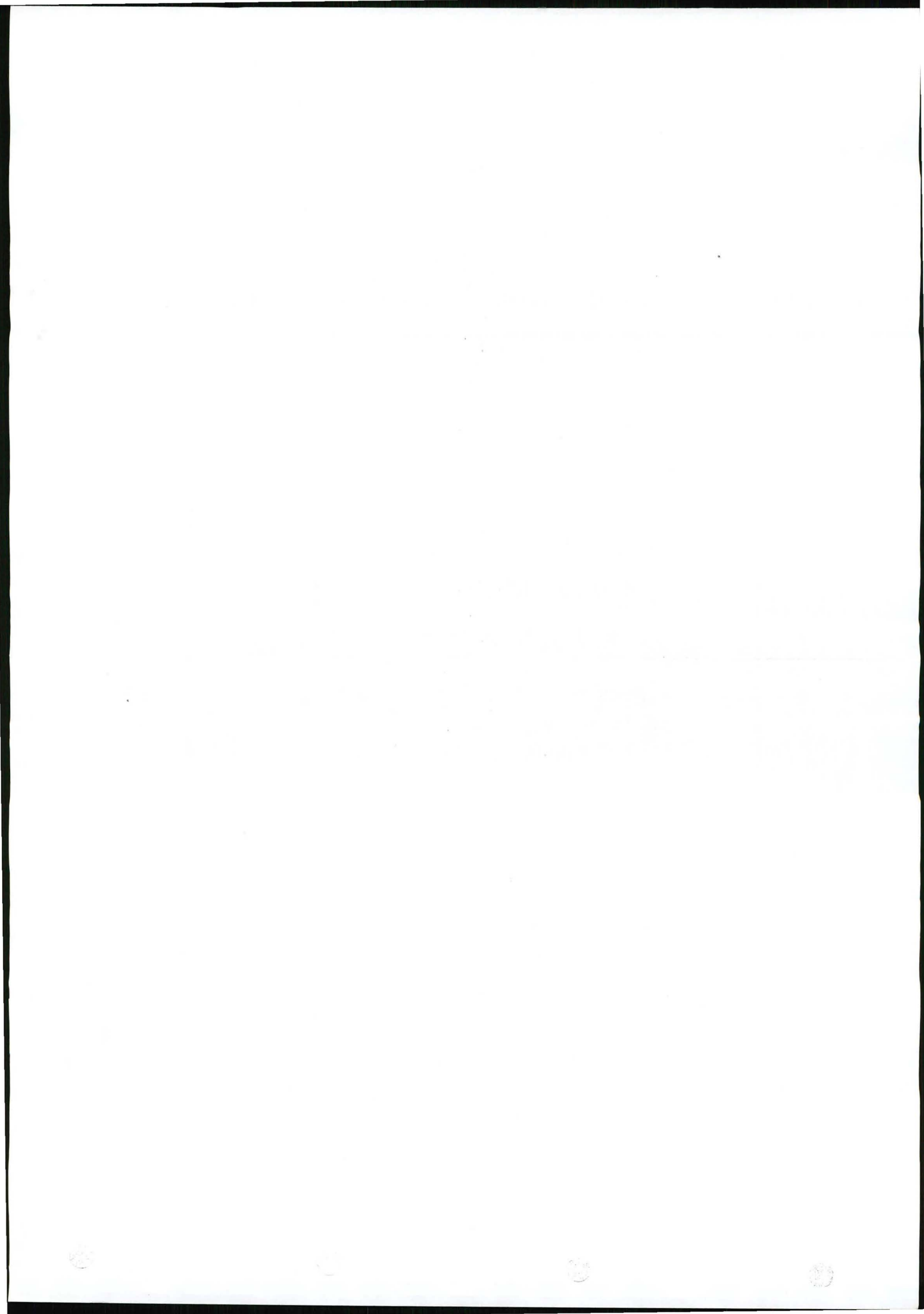
RESOURCES/NOTES
 Compiled from:
 Simplified Geology (1:1,000,000) - DWA
 Published Geological Maps (1:250,000)
 Council of Geoscience

0 5 10 20 30 40
 Kilometres

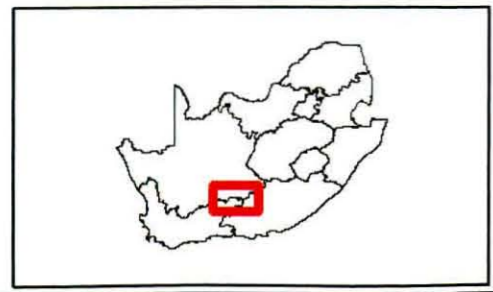
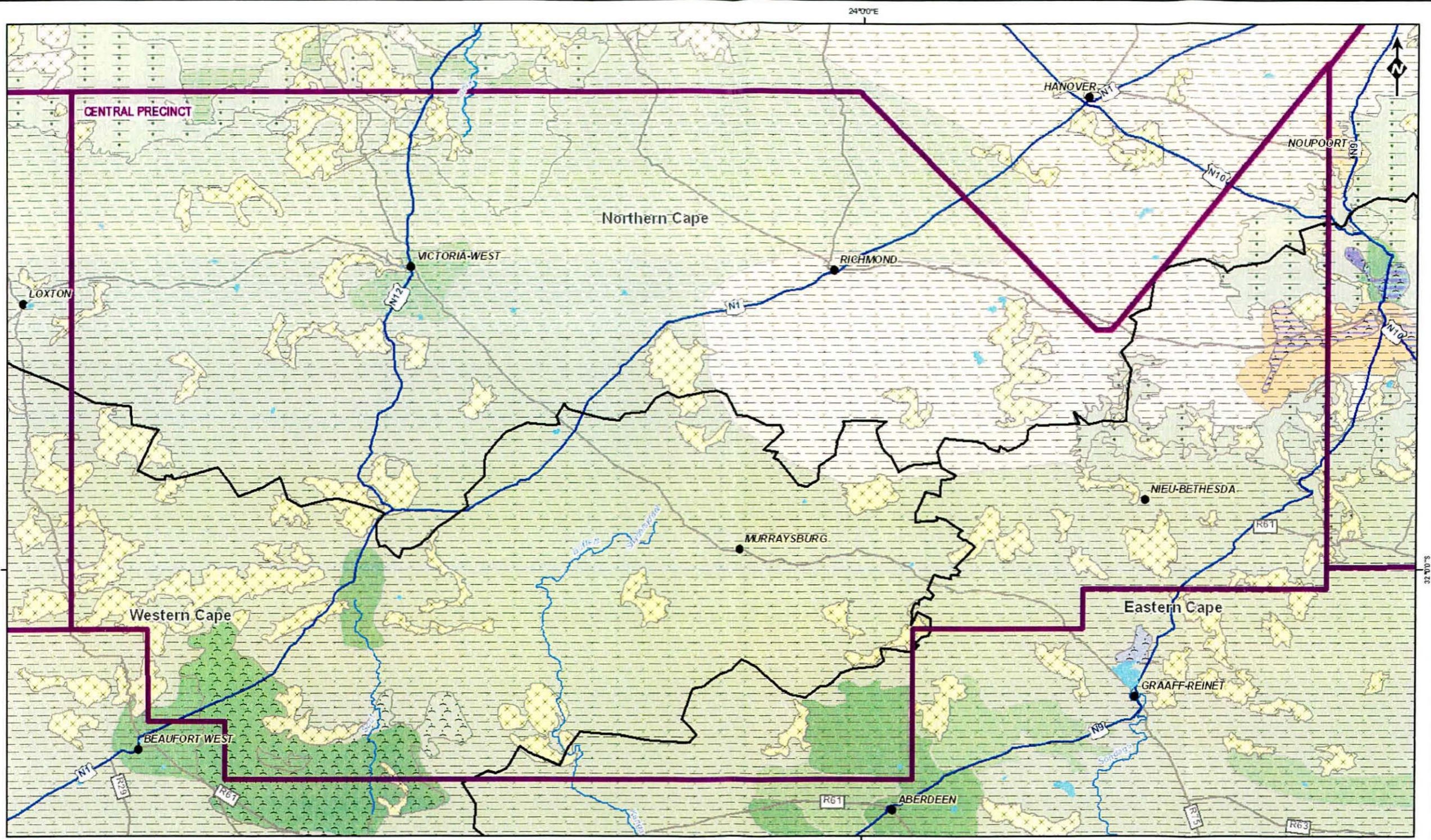
REFERENCE
 PROJECTION GCS Hartbeesthoek 1994

PROJECT		SHELL KAROO BASIN EXPLORATION	
TITLE		MAP C1 REGIONAL GEOLOGY - CENTRAL PRECINCT	
GIS	IDT	2011/02/25	PROJECT No. X000000X
CHECK	FW	2011/02/25	SCALE 1:600,000
REVIEW	GH	2011/02/25	A3 REV 0

Golder Associates
 Johannesburg, South Africa



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LEGEND

Simplified Hydrogeology

- [Symbol] Alluvium (clay, sand, gravel, boulders)
- [Symbol] Mafic/ultra mafic intrusive rocks (dolerite, diabase, diorite, gabbro, dunite, pyroxenite, norite, anorthosite, hornblende, carbonatite)
- [Symbol] Predominantly argillaceous rocks (shale, carbonaceous shale, claystone, mudstone, siltstone)
- [Symbol] Argillaceous and arenaceous rocks (approximately equal proportions)

Groundwater Occurrence - Borehole Yield

- [Symbol] Intergranular 0.5 - 2.0 l/s
- [Symbol] Intergranular > 5.0 l/s
- [Symbol] Fractured 0.5 - 2.0 l/s
- [Symbol] Fractured 2.0 - 5.0 l/s
- [Symbol] Fractured > 5.0 l/s
- [Symbol] Intergranular and Fractured 0.1 - 0.5 l/s
- [Symbol] Intergranular and Fractured 0.5 - 2.0 l/s
- [Symbol] Intergranular and Fractured 2.0 - 5.0 l/s
- [Symbol] Intergranular and Fractured > 5.0 l/s
- [Symbol] Two Layer Intergran & Fract >5.0 & >5.0 l/s
- [Symbol] Two Layer Intergran & Fract >5.0 & >5.0 l/s

Towns

- [Symbol] Exploration application areas
- [Symbol] Provinces
- [Symbol] Rivers
- [Symbol] National route
- [Symbol] Main road
- [Symbol] Major dam

RESOURCE NOTES

Compiled from Hydrogeological Map Series 1:500,000 Scale DWA 1996 - 2003

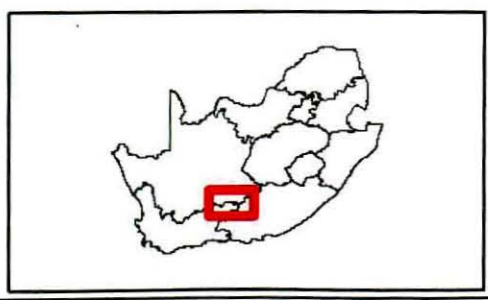
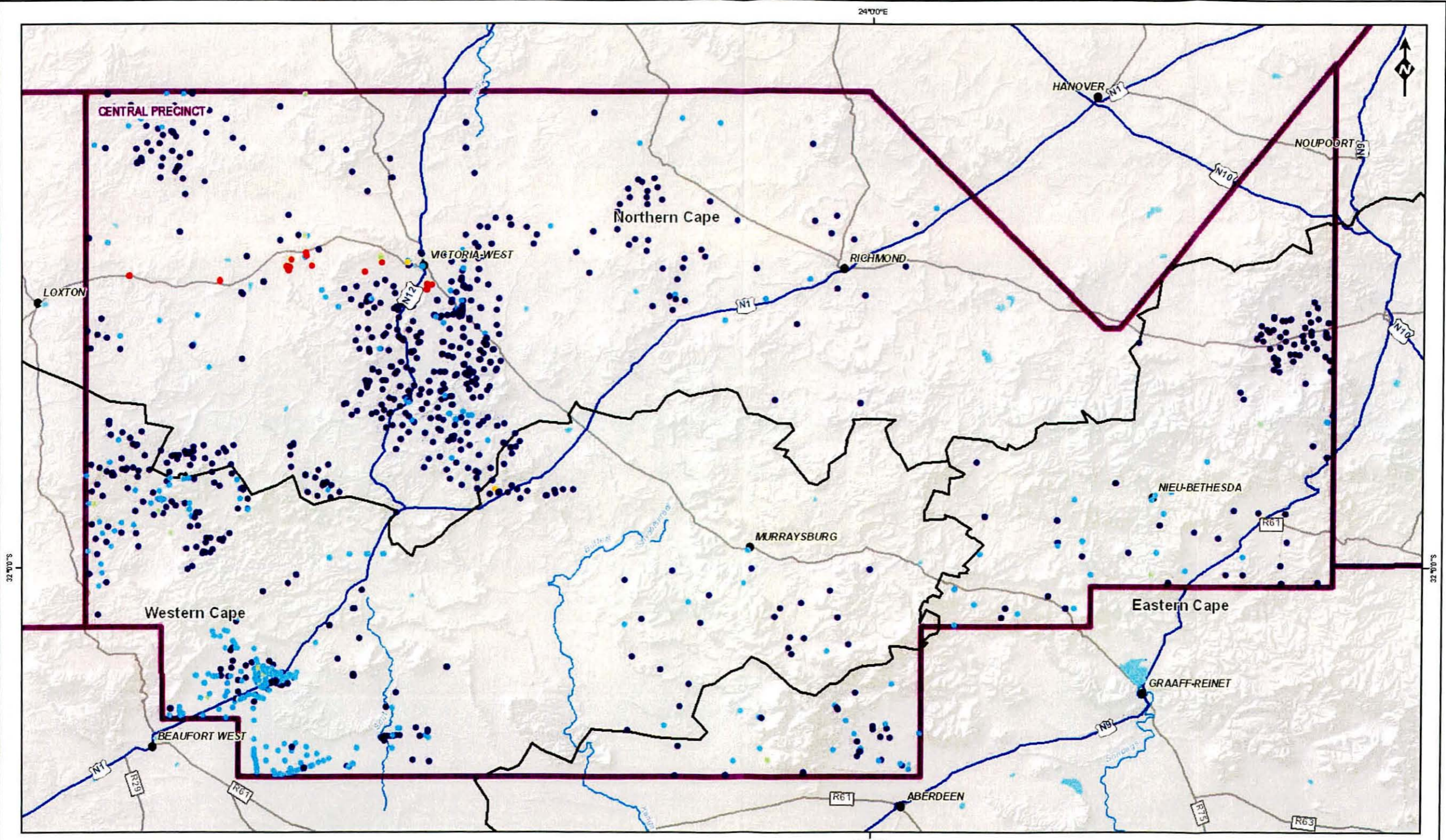
REFERENCE

PROJECTION GCS Hartbeesthoek 1994

PROJECT		SHELL KAROO BASIN EXPLORATION	
TITLE		MAP C2 REGIONAL HYDROGEOLOGY - CENTRAL PRECINCT	
GIS	IDT	2011/02/10	PROJECT No. X0000000X
CHECK	FW	2011/02/10	SCALE 1:800,000
REVIEW	GH	2011/02/10	R2 REV 0



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LEGEND

- Towns
- ▭ Provinces
- ▭ Exploration application areas
- National route
- Main road
- Rivers
- Major dam

Borehole Drilling Depths
Total Records = 1896

- >0 - 50 (1101)
- 50 - 100 (558)
- 100 - 150 (38)
- 150 - 200 (11)
- 200 - 300 (48)
- No Data

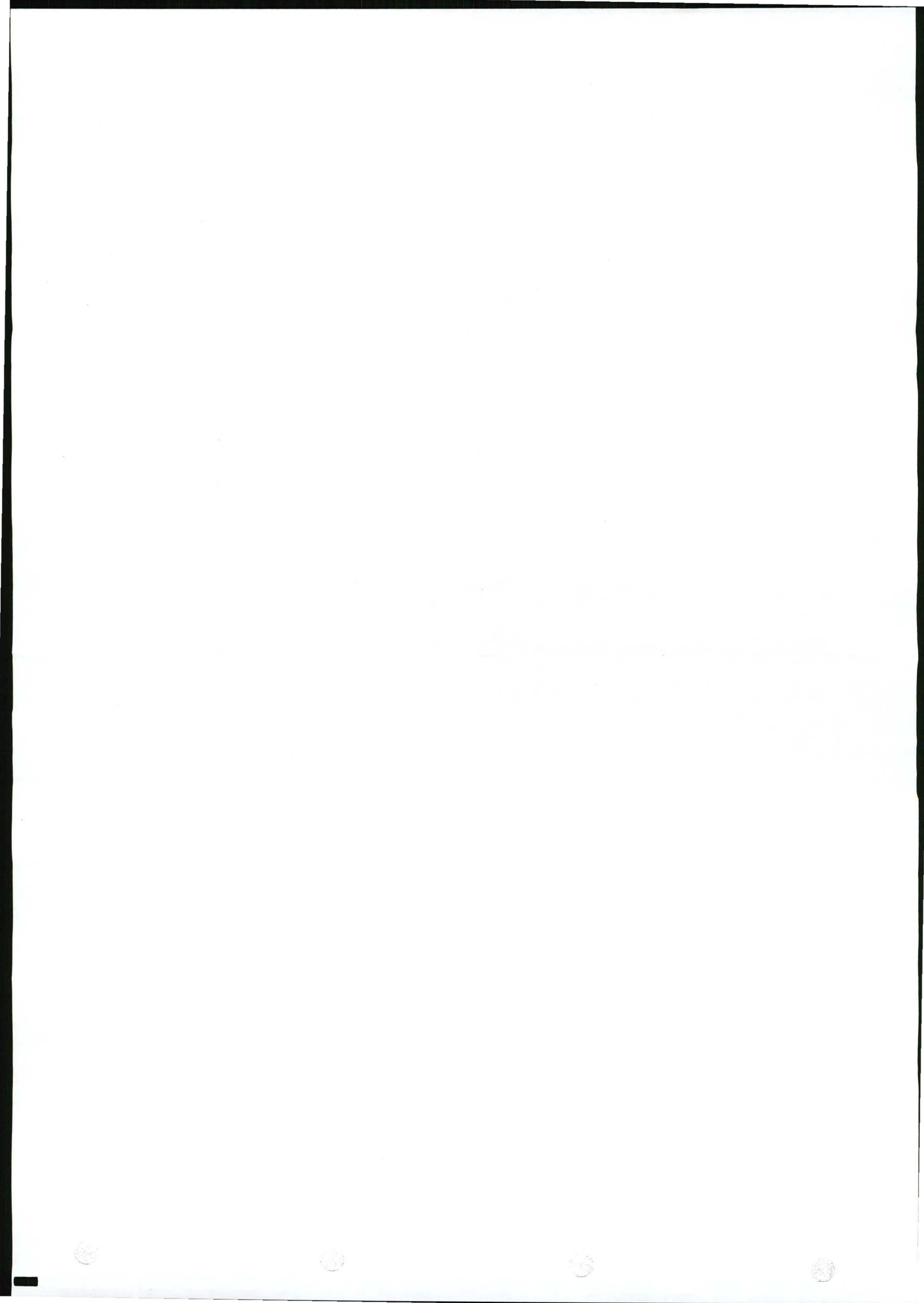
RESOURCE NOTES

Borehole Data Compiled from NGDB Data (DWA - 2008)

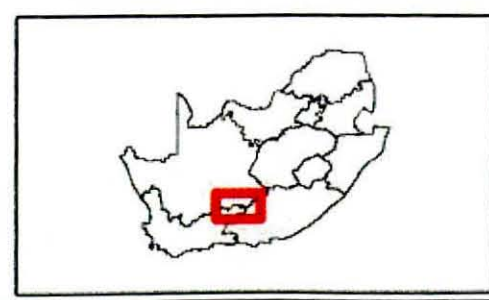
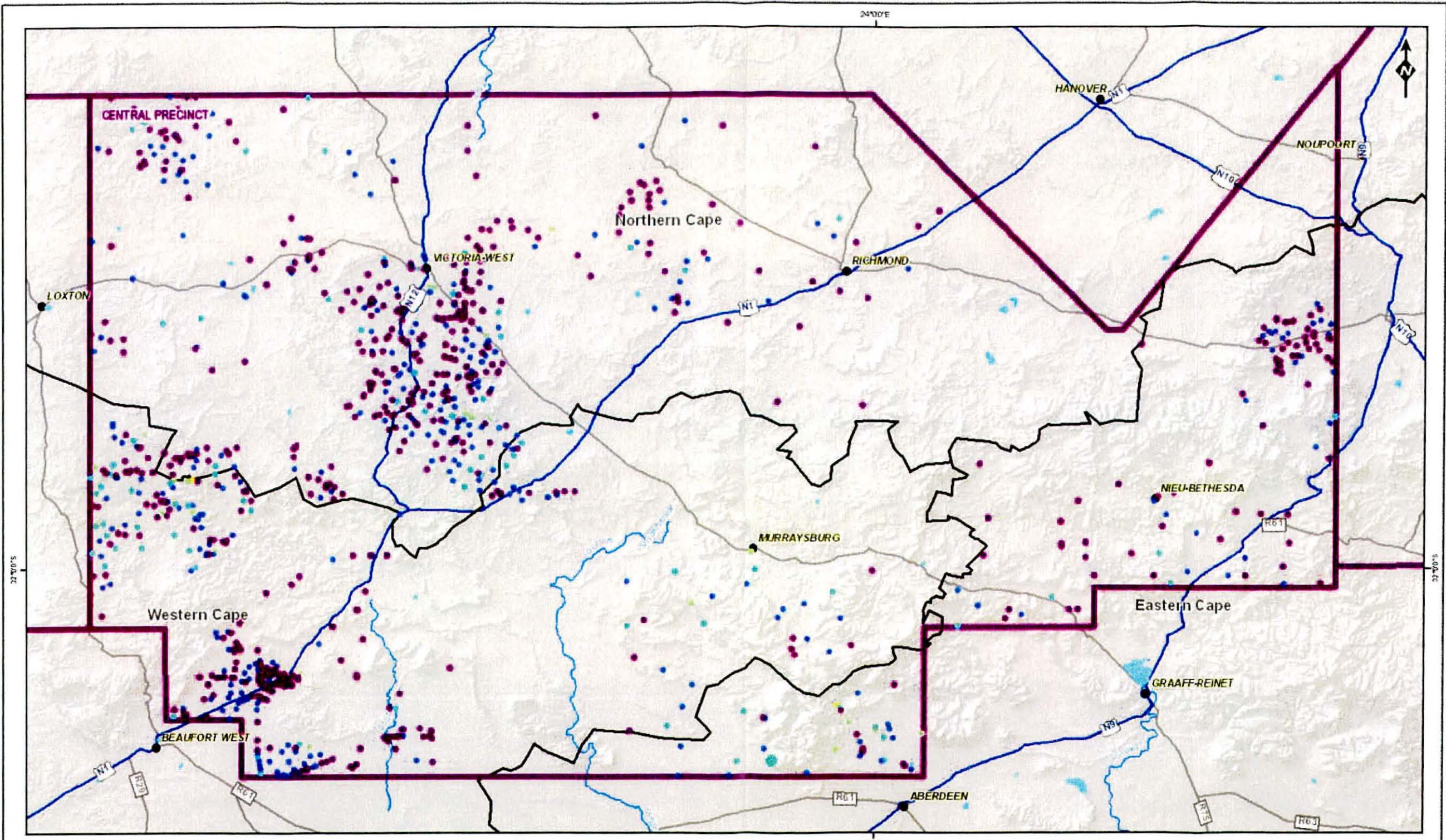
REFERENCE

PROJECTION GCS Hartbeesthoek 1994

PROJECT				
SHELL KAROO BASIN EXPLORATION				
TITLE				
MAP C3				
BOREHOLE DRILLING DEPTHS - CENTRAL PRECINCT				
<p>Golder Associates Johannesburg, South Africa</p>	GIS	IDT	2011/02/15	PROJECT No. X0000000
	CHECK	FJW	2011/02/15	SCALE 1:800,000
	REVIEW	GH	2011/02/15	A3



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LEGEND

- Towns
- Provinces
- Exploration application areas
- National route
- Main road
- Rivers
- Major dam

Groundwater Level (mbgl)
Total Records = 1712

- 0 - 10 (1023)
- 10 - 20 (541)
- 20 - 30 (139)
- 30 - 50 (7)
- 50 - 75 (7)
- 75 - 100 (1)
- > 100 (0)

RESOURCE NOTES

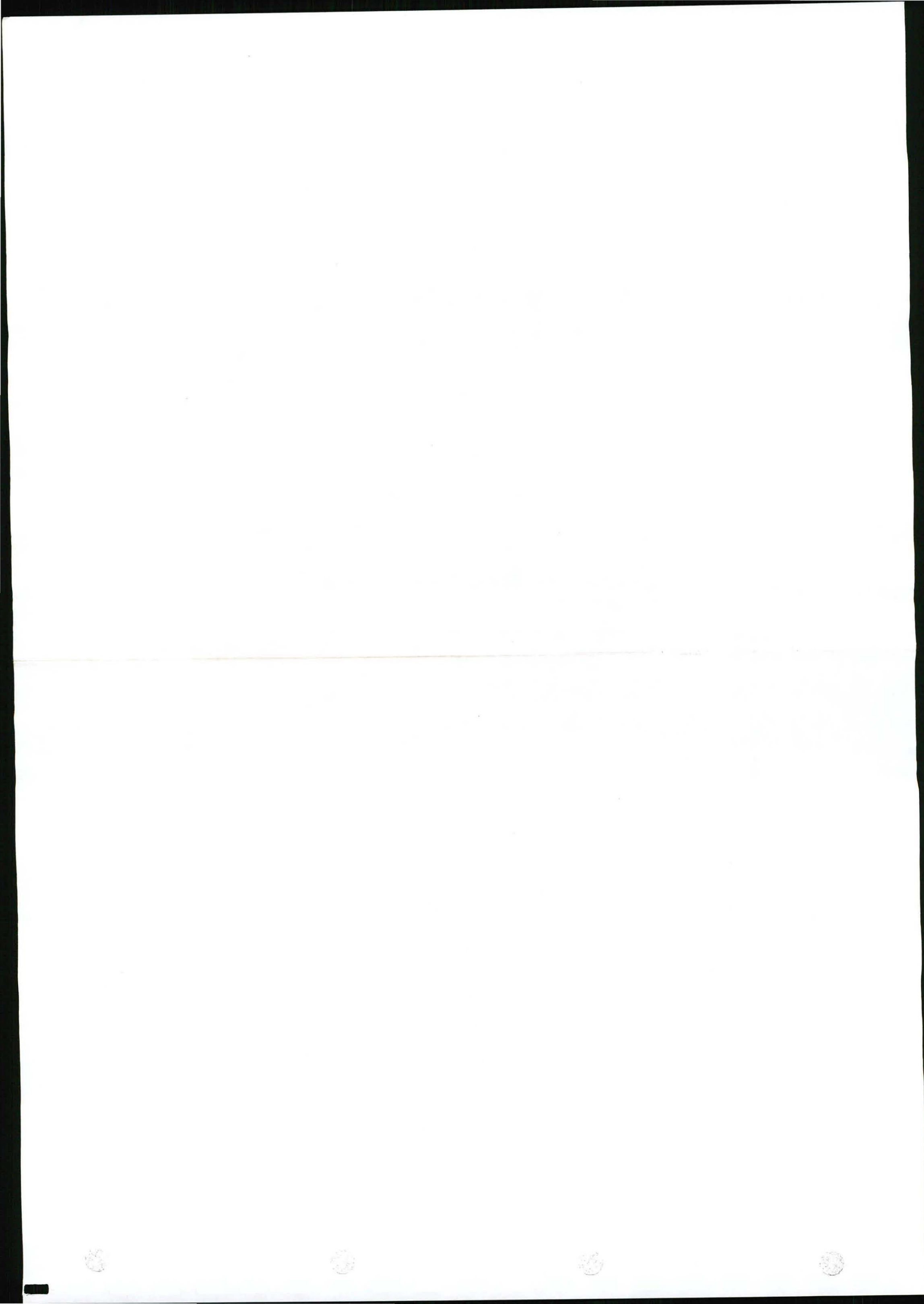
Borehole Data Compiled from
NGDB Data (DWA - 2006)

0 5 10 20 30 40
Kilometres

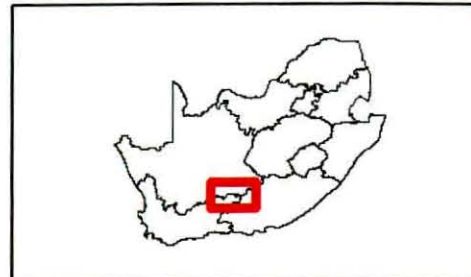
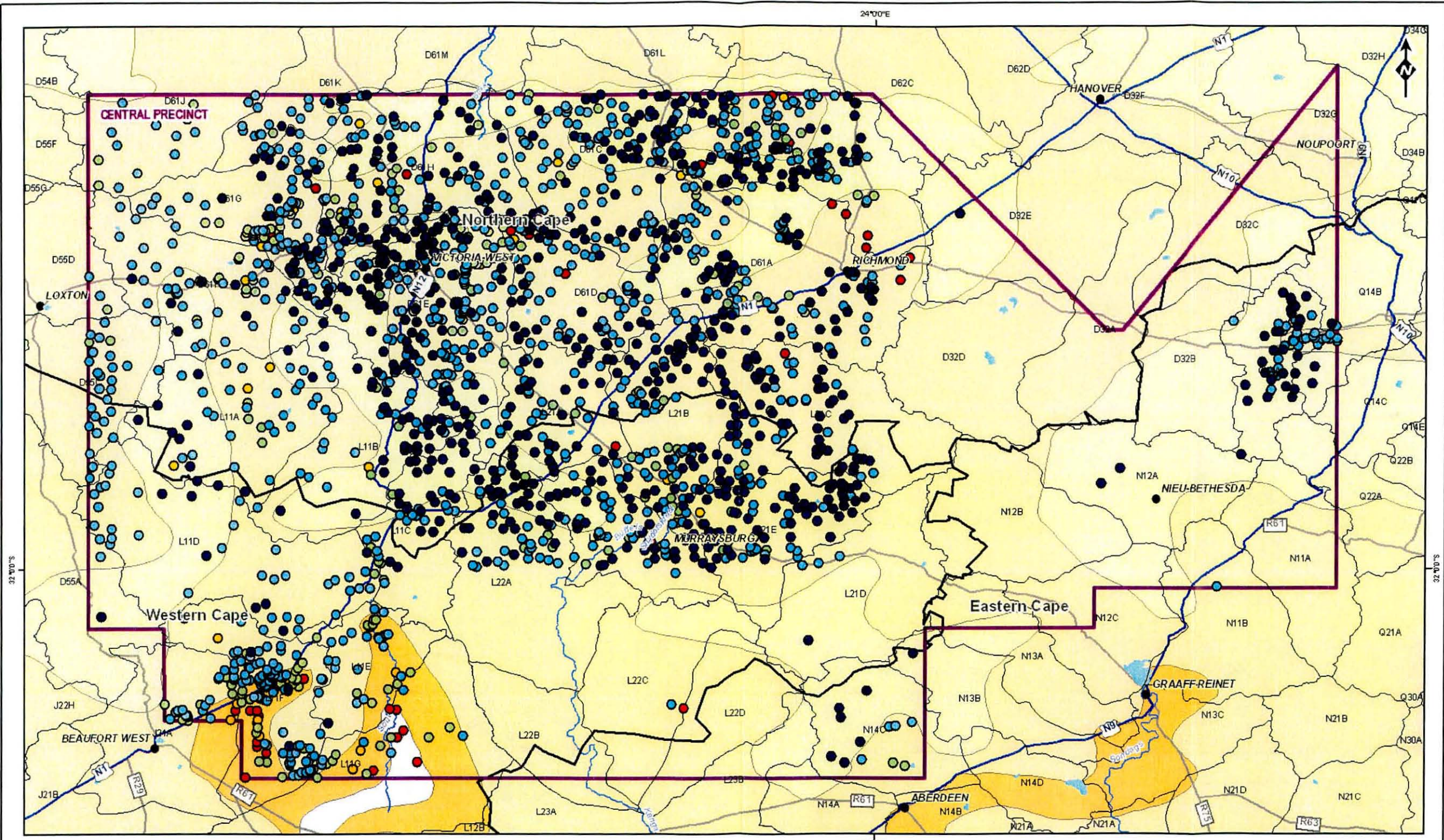
REFERENCE

PROJECTION: GCS Habesatool 1994

PROJECT			
SHELL KAROO BASIN EXPLORATION			
TITLE			
MAP C4 DEPTH TO WATER LEVEL - CENTRAL PRECINCT			
GIS	ET	2011A015	PROJECT No. X0000002
CHECK	FM	2011A015	SCALE 1:800,000
REVIEW	GH	2011A015	AS REV 0



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LEGEND

- Towns
- ▭ Provinces
- ▭ Exploration application areas
- National route
- Main road
- Rivers
- ▭ Major dam
- ▭ Quaternary catchments

Water Quality : Records = 2356

Class:Electrical Conductivity

- Class 0: < 70 (810)
- Class 1: 70 - 150 (1126)
- Class 2: 150 - 370 (317)
- Class 3: 371 - 520 (37)
- Class 4: > 520 (66)

Electrical Conductivity Zones

Source : Hydrogeological Map Series

- ▭ 0 - 70 mS/m
- ▭ 70 - 300 mS/m
- ▭ 300 - 1000 mS/m

RESOURCES/NOTES

Borehole Data Compiled from WQMS Data (DWA - 2008)

REFERENCE

PROJECTION GCS Hartbeesthoek 1994

Scale bar: 0 5 10 20 30 40 Kilometres

PROJECT

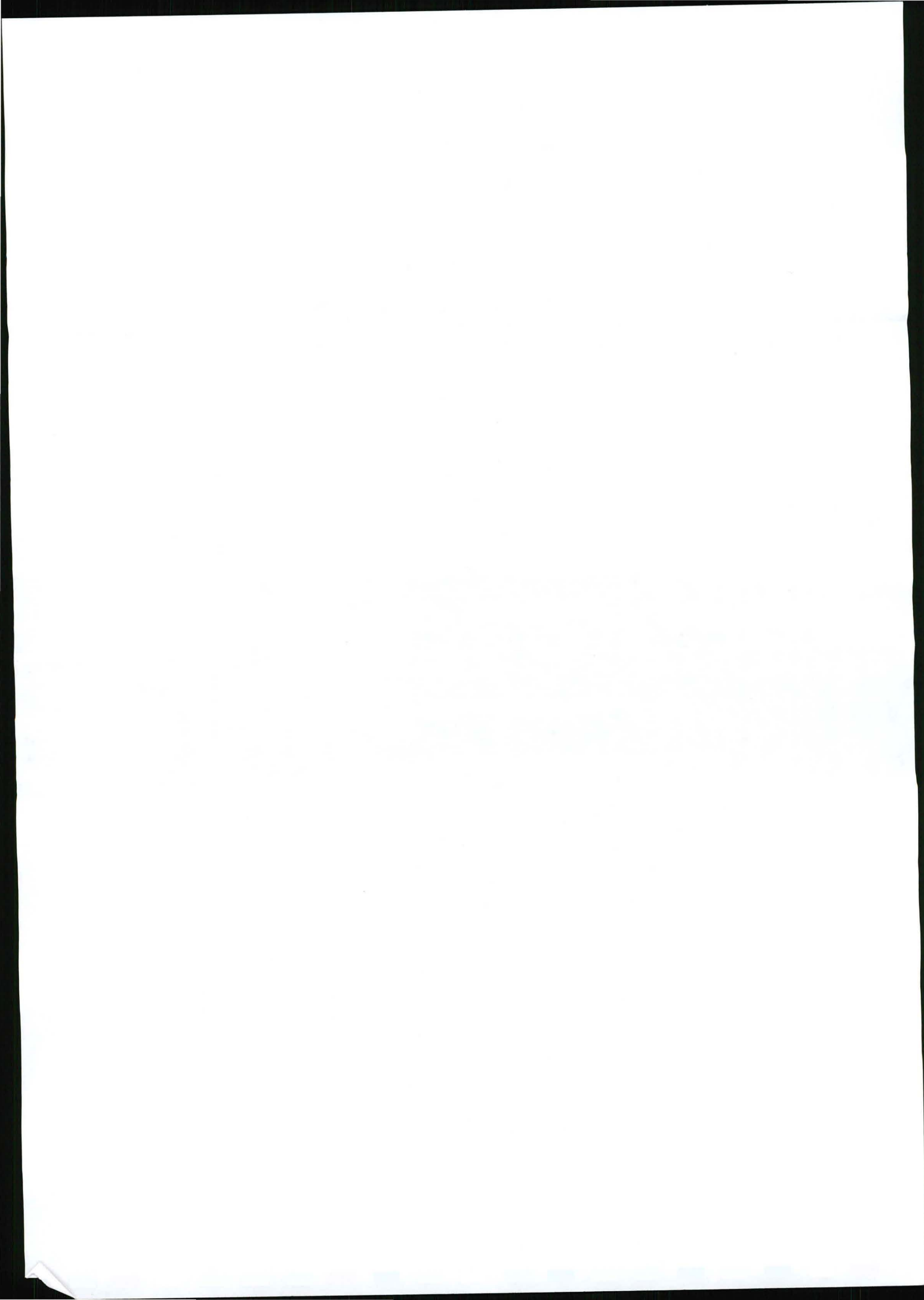
SHELL KAROO BASIN EXPLORATION

TITLE

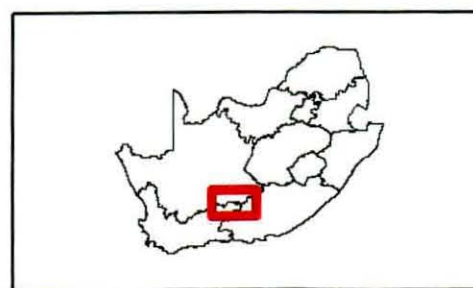
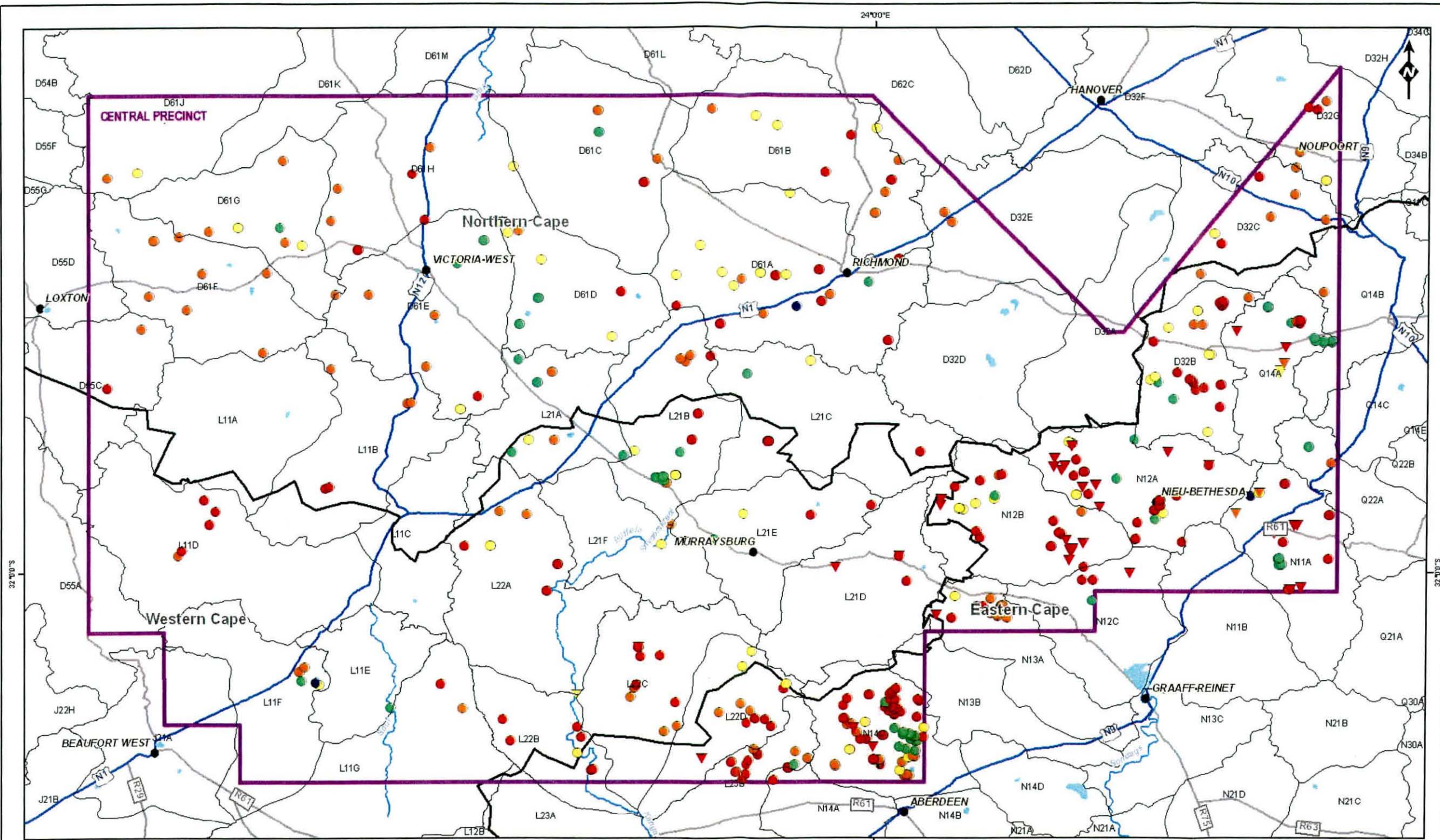
MAP C5
WATER QUALITY (EC) - CENTRAL PRECINCT

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GIS	IDT	2011/02/14	PROJECT No. X000000X
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LEGEND

- Towns
- ▭ Provinces
- ▭ Exploration application areas
- National route
- Main road
- Rivers
- ▭ Major dam
- ▭ Quaternary catchments

Groundwater Use Million m³ / annum

Domestic Use (63 records)	Agricultural Use (465 records)
▼ 0 - 10000	● 0 - 10000
▼ 10001 - 25000	● 10001 - 25000
▼ 25001 - 50000	● 25001 - 50000
▼ 50001 - 250000	● 50001 - 250000
▼ 250001 - 505000	● 250001 - 505000

RESOURCE NOTES

Borehole Data Compiled from WARMS Data (DWA - 2010)

0 5 10 20 30 40
Kilometres

REFERENCE

PROJECTION GCS Hartbeesthoek 1994

PROJECT

SHELL KAROO BASIN EXPLORATION

TITLE

MAP C6
REGISTERED WATER USE - CENTRAL PRECINCT

GIS	IDT	2011/02/14	PROJECT No. X0000000
CHECK	FW	2011/02/14	SCALE 1:800,000
REVIEW	GH	2011/02/14	A3 REV 0

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