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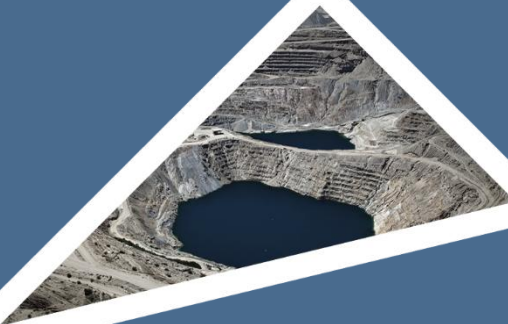
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NON-TECHNICAL EXECUTIVE SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT

MOTUOANE EXPLORATION RIGHT 386 APPLICATION, WITHIN
VARIOUS FARMS IN MATJHABENG AND MOQHAKA LOCAL
MUNICIPALITIES, LEJWELEPUTSWA AND FEZILE DABI DISTRICT
MUNICIPALITIES, FREE STATE PROVINCE, SOUTH AFRICA

PASA Ref: PR 12/3/386

JUNE 2026



1 EXECUTIVE SUMMARY

1.1 INTRODUCTION AND OVERVIEW

D3 Energy South Africa Pty Ltd (previously Motuoane Energy (Pty) Ltd) ¹(hereafter referred to as D3 Energy / the Applicant) compiled and submitted an application for an Exploration Right (ER) to explore hydrocarbons, in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 – MPRDA, as amended) to the Administrative Authority (AA), the Petroleum Agency South Africa (PASA) in 2024. The accepted (not yet approved) ER is located over an area of approximately 58 000 hectares (ha) / 580km², covering various farms near the towns of Welkom, Virginia, Hennenman and Odendaalsrus, within the Free State Province. The local municipalities in which the proposed exploration area is located are Matjhabeng and Moqhaka Local Municipalities, which are part of the Lejweleputswa and Fezile Dabi District Municipalities, respectively. Noticeable boundaries of ER386 are 28°13'28.95"S; 26°55'2.76"E in the South, 27°57'37.57"S; 26°48'49.15"E in the West, 27°59'13.57"S; 27°11'13.06"E in the East and 27°46'34.45"S; 26°57'44.05"E in the North, the central coordinates are approximately 27°58'23.27"S; 26°59'38.94"E

D3 Energy proposes to explore all saleable gases including but not limited to Methane, Carbon Dioxide, Helium, and Nitrogen in the licensed area. Published reports, general experience, experience within D3 Energy and contacts with individuals familiar with the area indicate the presence of potentially commercial quantities of these gases. Direct evidence includes gas-emitting boreholes, nearby commercial gas production, gas encountered during drilling and underground mining operations. Due to the large area and complex exploration methodology, the ER will be required for an initial period of three years with the option to renew three additional periods of two years resulting in a total of nine years.

The Applicant previously submitted an Environmental Authorisation (EA) Application (12/3/386) to Petroleum Agency SA (PASA) as the AA on 15th May 2025 which effectively lapsed on the 1st of December 2025. A Final Scoping Report which was subjected to the 30-day legislated public review and comment period was submitted to PASA for consideration on 30th June 2025 and accepted on 13th August 2025. According to the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulation 23 (1), 2014 as amended, and as indicated in Scoping Acceptance Letter, an EIA Report which must have been subjected to a minimum of 30-day legislated public review and comment period was required to be submitted to PASA within 106 days from date of Acceptance of the Scoping Report (i.e., by 1st December 2025). Due to delays in finalizing access agreements for specialist studies within the Harmony Cluster, NEMA EIA Regulation 23 (1), 2014 as amended could not be met. As a result, the initial EA 12/3/386 Application lapsed and could not be considered further by the relevant authorities. Subsequently, all application and public participation processes and/or opportunities associated with the application were suspended.

The Applicant has resubmitted an EA Application (Amended) for the same activities (seismics and drilling wells for all saleable gases including but not limited to Methane, Carbon Dioxide, Helium, and Nitrogen), within the same approximate 58 000ha footprint (Exploration Right 386). It is important to note that although the application area remains the same footprint (i.e., 58 000ha), the exploration activities have been reduced from eleven (11) drilling wells and sixteen (16) seismic transects to five (5) drilling wells and nine (9) seismic transects, respectively.

The proposed activities to be undertaken as part of the exploration activities include the following:

- Identifying existing blowers within the ER, undertaking well workover and intervention if necessary;

¹ It must be noted that that D3 Energy South Africa has recently changed its name from Motuoane Energy (Pty) Ltd. The EA Application / Project name will also be changed **from Motuoane Exploration Right 386 Application**, Within Various Farms in Matjhabeng and Moqhaka Local Municipalities, Lejweleputswa and Fezile Dabi District Municipalities, Free State Province, South Africa **to D3 Energy Exploration Right 386 Application**, Within Various Farms in Matjhabeng and Moqhaka Local Municipalities, Lejweleputswa and Fezile Dabi District Municipalities, Free State Province, South Africa during the final submission of the EIA Report and EA Application Form.



- The undertaking of new core exploration well drilling and undertaking well workover and intervention where necessary (at preidentified / new areas of interest);
- Undertaking seismic survey and/or magnetotellurics survey activities (at preidentified / new areas of interest);
- Perform gas composition analysis on gas from existing boreholes and newly drilled wells on the ER;
- Conduct borehole and well gas flow testing of existing boreholes and any new wells drilled; and
- Conduct borehole and well wireline logging of existing boreholes and any new wells drilled.

Each exploration well will have an overall depth of up to 650m and a maximum width of 350mm, commencing with a 323mm width spud hole section drilled to 6m total vertical depth (TVD), followed by 254mm width conductor hole section drilled to 80m TVD, then an intermediate hole section of 203mm width drilled to 450m TVD and finally an open hole section of 144mm width drilled up to 650m TVD. The actual hole and casing sizes and configurations will vary depending on the specific geological characteristics and functional requirements. Each borehole will be steel cased and have cement barriers to prevent leaks as well as plugged at the end of exploration to prevent groundwater seepage.

The seismic survey activities are proposed throughout the exploration right as and when necessary. D3 Energy will search records at the Council for Geoscience and the Petroleum Agency for seismic data that was acquired on the Exploration Right in the past. If no data is available, D3 Energy will acquire its own seismic or telluric data on the property, following proper environmental protocols and with the written permission of the landowner. There are nine (9) preliminary proposed transects for seismic / telluric survey, approximately 70km long around known structures and possible drill locations. Seismic and/or telluric locations and lengths are subject to be changed as knowledge increases. Although the vibroseis technique is the likely method to be undertaken for the seismic activities. There is also a potential alternative to the vibroseis known as the Propelled Energy Generators (PEGs), more commonly referred to as the Accelerated Weight Drop Seismic (AWD) which D3 Energy may consider over the vibroseis.

The proposed project infrastructure triggers various listed activities in terms of the NEMA Listing Notices 1, 2 and 3 and a full Scoping and Environmental Impact Assessment process is being undertaken. The relevant Water Use Licence (WUL) application will be submitted where applicable for the triggers under the National Water Act (Act 36 of 1998 – NWA), respectively. D3 Energy has appointed Environmental Impact Management Services (Pty) Ltd (EIMS) as the Independent Environmental Assessment Practitioner (EAP) to assist with undertaking the required assessment and authorisation processes (including the statutory public participation), and to compile and submit the required documentation.

1.2 PURPOSE OF THE EIA REPORT

The previously completed Scoping Phase of the EIA process identified potential issues associated with the proposed project and defined the extent of the studies required for the EIA Phase. The Scoping Phase also identified potentially sensitive areas within the study site. This EIA Report addresses those identified potential negative and positive environmental impacts (direct, indirect, and cumulative impacts) associated with all phases of the project including design, construction, operation, decommissioning and closure. The EIA Phase recommended appropriate mitigation measures for potentially significant environmental impacts.

The EIA Phase is aimed to achieve the following:

- Provide an overall description and assessment of the social and biophysical environments affected by the proposed alternatives put forward as part of the project.
- Assess potentially significant impacts (direct, indirect and cumulative, where required) associated with the proposed project.
- Comparatively assess identified feasible alternatives put forward as part of the project.



- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- Undertake a fully inclusive public involvement process to ensure that I&AP are afforded the opportunity to participate, and that their issues and concerns are recorded.

1.3 NEEDS AND DESIRABILITY OF THE PROJECT

Exploration for additional domestic hydrocarbon reserves is considered important, and any discoveries would be well received by the local market. The Department of Energy's Integrated Resource Plan (2010-2030) supports this view, stating that regional and domestic gas options should be pursued. The government's official position is that exploration and development of oil and gas fields should be encouraged. The identification of potential geological structures or "prospects" within the proposed exploration licence area for future exploration and possible well-drilling provides an opportunity to develop a South African oil and gas industry resulting in long-term benefits consisting of access to new energy sources, improved security of supply, major in-country investments in a development project and reduced dependence on the importation of hydrocarbons. There is also potential in the long-term for local economic stimulation through direct employment, future business opportunities, royalties, and tax revenues.

The Applicant has undertaken three authorised drilling activities (3 exploration boreholes) to date in the extended region, however the information recorded (observations) is inadequate to make a conclusive detailed reporting on the quantity of hydrocarbons and/or suitable drilling locations for production purposes. Therefore, the Applicant proposes to undertake up to five (5) new exploration boreholes and to acquire ground based seismic surveys (~70km of new seismic transects) within the ER386 area. The seismic survey will be used to better understand the subsurface discontinuities, layering, and probable rocks/structures. Analysis of the seismic surveys and additional drilling wells will provide more precise information to determine the viability of the exploration project into the production phase. The proposed activities, if approved, will allow the applicant to determine if there is an economically viable resource available in the area. It is important to note that the exploration right will not provide the required authorisation for production activities to be undertaken. As such, any future intention to undertake production of hydrocarbons within the exploration right area would require a further application, investigation, and public consultation process.

1.4 PUBLIC PARTICIPATION

The public participation process for this application has been undertaken in accordance with the requirements of the NEMA EIA Regulations, and in line with the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project and have their views considered and included as part of project planning. The PPP commenced on the 14th of March 2025 with an initial notification and call to register to interested and affected parties (I&APs). The comments received from I&APs during the initial call to register and commenting period so far have been captured in Public Participation Report.

The PPP commenced on the 14th of March 2024 with an initial notification and call to register for a minimum period of 30 days. The initial notification was undertaken in English, Afrikaans and Sesotho and was given in the following manner:

- Notification letters in English, Afrikaans and Sesotho, faxes, and emails were distributed to all pre-identified key I&APs including government organisations, NGOs, relevant municipalities, ward councillors, landowners and other organisations that might be affected. Background Information Document in English, Afrikaans and Sesotho was compiled and uploaded to the EIMS website.
- Advertisements describing the proposed project and EIA process were placed in the local newspaper with circulation in the vicinity of the study area. The initial advertisement was placed in the Vista Newspaper (in English, Afrikaans and Sesotho) on the 20th of March 2025. Gazette Notice was published in the National Gazette on the 11th of April 2025.



- A1 correx site notices in English, Afrikaans and Sesotho were placed at 99 locations within the local project area between the 17th and 20th of March 2025. Fifty (50) A1 correx board site notices were replaced with the revised version of the map (smaller footprint) at 50 locations within the proposed project study area.
- Eight (8) A3 posters in English, Afrikaans and Sesotho were placed at local public gathering places in Virginia, Welkom, Thabong, Bronville and Saaiplaas.

Notification regarding the availability of this Scoping Report for public review was given in one or more of the following manner to all registered I&APs (which includes key stakeholders and landowners):

- Facsimile notifications with information similar to that in the registered letter described above;
- Email notifications with a letter attachment containing the information;
- SMS notifications with the relevant information; and/or
- Registered letters (only where no other communication method could be established with the I&AP).

The scoping report was made available for public review and comment from the **15th of May 2025 to the 18th of June 2025** for a period of 30 days.

Notification regarding the scoping phase public meeting was given in the following manner to all registered I&APs (which includes key stakeholders and landowners):

- Email notifications with a letter attachment containing the information; and/or
- Facsimile notifications; and/or
- SMS notifications with the relevant information; and/or
- Registered letters (only where no other communication method could be established with the I&AP).

The Scoping Phase Public Meeting was held at Harmonie Primary School, 2 Vondeling Road, Glen Harmony Virginia, on the 28th of May 2025 from 16:00 to 18:00. All registered I&APs were notified of the public meeting during the notification of the availability of the Scoping Report for public review and comment on the 25th of May 2025. A reminder of the Public Meeting was sent to all registered I&APs on the 26th of May. All attendees were asked to sign the attendance register upon entering the facility and were encouraged to fill in the comment sheet or provide comments to the project email address should they have any comments/queries regarding the project. All attendees were informed that the presentation and meeting would be recorded to ensure an accurate record for the meeting minutes. EIMS facilitated a formal presentation, followed by a Question-and-Answer session where attendees could raise any questions, concerns, or comments about the project.

On the 4th of December 2025, registered I&APs were notified that the EA Application (12/3/386) submitted by D3 Energy Pty Ltd to PASA on 15th May 2025 effectively lapsed on 1st December 2025. A Final Scoping Report which was subjected to the 30-day legislated public review and comment period was submitted to PASA for consideration on 30th June 2025 and accepted on 13th August 2025. According to NEMA EIA Regulation 23 (1), 2014 as amended, and as indicated in Scoping Acceptance Letter, an EIA Report which is required to be subjected to a minimum of 30-day legislated public review and comment period was required to be submitted to PASA within 106 days from date of Acceptance of the Scoping Report (i.e., by 1st December 2025). Due to delays in finalizing access agreements for specialist studies with one of the key landowners, the NEMA EIA Regulation 23 (1), 2014 as amended could not be met. As a result, the EA 12/3/386 Application lapsed and could not be considered further by the relevant authorities. Subsequently, all public participation processes and/or opportunities associated with the application were suspended until further notice.

On the 13th of April 2026, registered I&APs were notified that the Applicant (D3 Energy) intends to resubmit an Amended EA Application for the same activities (seismics and drilling wells for all saleable gases including but not limited to Methane, Carbon Dioxide, Helium, and Nitrogen), within the same approximate 58 000ha footprint (Exploration Right 386). Registered I&APs were advised that although the application area remains the same



footprint (i.e., 58 000ha), the revised exploration activities were reduced from 11 drilling wells and 16 seismic transects to 5 drilling wells and 9 seismic transects respectively.

Registered I&APs were also advised that in line with NEMA EIA Regulation 21 (2), 2014 as amended, once the Amended EA Application has been resubmitted, the legislated process will proceed into the EIA Phase. The Public Participation Process for the Application will therefore proceed into the EIA Phase. In addition, registered I&APs were advised that they will be notified accordingly of opportunities to participate in the application which will include public review and commenting period of the EIA Report as well as Public and Focus Group Meeting Opportunities.

Notification regarding the availability of this EIA Report for public review was given in the following manner to all registered I&APs (which includes key stakeholders and landowners) in line with the accepted plan study:

- Registered letters (only where no other communication method could be established with the I&AP) with details on where the EIA Report can be obtained and/or reviewed, public meeting date and time, EIMS contact details as well as the public review comment period; and/or
- Facsimile notifications with information described above; and/or
- Email notifications with a letter attachment containing the information described above.

The hardcopies of the EIA report have been placed at Welkom Public Library (Corner Reinet & Tulbagh Str, Welkom), Virginia Public Library (Corner Civic Ave & Virginia Gardens, Virginia), and Phomolong Public Library (Phomolong, Hennenman) while a softcopy version has been placed on the EIMS website (<https://www.eims.co.za/2025/05/14/1681-motuoane-er386-eia-2/>). Comments / concerns should be submitted to EIMS the by no later than **13th July 2026**. The comments / concerns should be directed to EIMS at:

- Contact Person: Mbali Tshabalala
- EIMS Reference Number: 1681
- Postal Address: P.O. Box 2083; Pinegowrie; 2123
- Telephone: (011) 789 7170
- Fax: (086) 571 9047
- E-mail: motuoane386@eims.co.za

Comments raised during the EIA Report public review will be addressed in a transparent manner and will be included in the Final EIA Report to be submitted to both the Administrative and the Competent Authority.

1.5 IMPACT ASSESSMENT AND MITIGATION

The impact assessment identified a range of potential environmental and socio-economic impacts associated with the construction, operation and decommissioning phases of the proposed ER386 Project. The assessment was undertaken using a structured impact identification and screening methodology, taking into account the nature, extent, duration, intensity and probability of identified impacts, as well as the sensitivity of the receiving environment. Each of the identified risks and impacts at the various project phases were assessed.

Construction activities, including well pad establishment, access road construction, site camp establishment, and movement of vibroseis truck may result in the disturbance or loss of natural vegetation, habitat fragmentation, and disturbance to fauna. Indirect impacts may include the introduction of alien invasive species and increased human activity within previously undisturbed areas. Mitigation will focus on impact avoidance and minimisation through micro-siting of infrastructure to avoid sensitive habitats, restriction of disturbance footprints, and implementation of rehabilitation measures. Alien invasive species management, controlled vehicle access, and post-construction rehabilitation will be implemented. Biodiversity mitigation measures have been developed informed by specialist ecological assessments.

Potential impacts include alteration of surface drainage patterns, sedimentation of watercourses, and contamination risks associated with drilling activities, accidental spills or poor waste management. Wetlands



and drainage lines may be particularly sensitive during construction. Buffer zones around watercourses and wetlands have been applied in accordance with best practice and specialist recommendations. Stormwater management controls, spill prevention measures, and emergency response procedures as per the requirements of the Environmental Management Programme (EMPr) will be required to be in place before commencement of activities. Where required, Water Use Authorisations will be obtained in terms of the National Water Act.

Groundwater impacts may arise from drilling activities, well integrity failure, or accidental contamination during handling and storage of drilling fluids and hydrocarbons. Groundwater is an important resource in the project area, particularly for agricultural and domestic use. Well design and construction will comply with recognised industry standards to ensure casing integrity and isolation of aquifers. Groundwater monitoring programmes will be implemented, and handling of hazardous substances will follow strict containment and spill prevention protocols. A groundwater management plan has been developed as part of the EIA.

Soil disturbance, compaction and erosion may occur during construction and operational activities. Loss of topsoil could affect agricultural productivity and rehabilitation success if not properly managed. Topsoil will be stripped, stockpiled and reused for rehabilitation. Erosion control measures will be implemented, including stabilisation of disturbed areas and rehabilitation following construction. Activities will be confined to approved footprints to minimise land degradation.

Potential air quality impacts include dust generation during construction and emissions associated with gas exploration, and vehicle movements. Dust suppression measures will be implemented during construction, including water spraying where necessary. Gas handling and processing infrastructure will be designed to minimise emissions, and flaring will only be permitted during emergency situations.

Noise impacts may occur during drilling, construction and maintenance activities, potentially affecting nearby receptors such as farmsteads and rural communities. Noise-generating activities will be limited to daytime hours where feasible. Equipment will be maintained to minimise noise emissions, and noise monitoring may be implemented where sensitive receptors are present.

Buffers have been assigned around identified heritage features to prevent any disturbance on these features. A Chance Finds Procedure will also be implemented for heritage features not identified during this EIA. Any identified resources will be managed in consultation with the South African Heritage Resources Agency (SAHRA) and relevant provincial authorities.

Positive socio-economic impacts include employment creation, skills development and local economic stimulation during construction and operation. Potential negative impacts may include land use conflicts, disruption to agricultural activities, and increased traffic on local roads. Engagement with landowners, renewable energy developers and affected communities will continue throughout the project life cycle. Local employment and procurement will be prioritised where feasible. Traffic management measures will be implemented to minimise disruption, and compensation arrangements will be agreed with affected landowners where applicable.

Health and safety risks may arise from construction activities, handling of hazardous substances, and operational processes. Compliance with occupational health and safety legislation will be enforced. Site-specific Health and Safety Plans, emergency response procedures and staff training programmes will be implemented throughout the project life cycle.

Cumulative impacts may arise from the proposed project in combination with existing and planned mining, energy and agricultural activities in the region, particularly in relation to land use, water resources and socio-economic change. Mitigation measures presented in the EIA are aligned with broader land use planning and regulatory requirements.

The most significant risks and impacts identified were those that remain high in terms of significance even post mitigation measures being considered. The following identified impacts were determined to have a potentially moderate final significance at this stage:

- Negative impact on groundwater quality during operation and closure phases;



- Negative impact on identified wetlands and aquatic species;
- Negative impact on soils and agricultural activities;
- Negative impact on vegetation and habitats;
- Mortality / disturbance of terrestrial species; and
- Positive socio-economic impact through employment opportunities.

The negative impacts, in particular, have been further interrogated and assessed during this EIA phase of the project. Potential preliminary mitigation measures have been identified and will be refined based on input from the Environmental Assessment Practitioner (EAP), public consultation, and specialist assessments during the EIA phase of the project. The associated EMPs identify appropriate mitigation mechanisms for avoidance, minimisation and / or management of the negative impacts and enhancement of the positive aspects.

1.6 ENVIRONMENTAL IMPACT STATEMENT

Various specialist assessments as identified through the DFFE National Web-Based Environmental Screening Tool Report and Site Sensitivity Verification will be undertaken to support the EA Application. The specialist assessments will be undertaken in compliance with the NEMA EIA and DFFE specialist guidelines / protocols (including Risk Assessment Matrix as per NWA) and any other applicable guidelines / protocols. The following EIA-phase specialist studies were conducted:

- Air Quality Impact Assessment (Airshed Planning Professionals);
- Agricultural Potential, Soils & Land Capability (The Biodiversity Company);
- Archaeological and Cultural Heritage Assessment (EIMS);
- Aquatics and Wetland Impact Assessment (The Biodiversity Company);
- Climate Change Assessment (Airshed Planning Professionals);
- Financial Provisions for Closure and Rehabilitation (EIMS);
- Geohydrological Impact Assessment (Gradient Groundwater Consulting);
- Noise Impact Assessment (Airshed Planning Professionals);
- Palaeontological Impact Assessment (Dr Heidi Fourie);
- Social Impact Assessment (Equispectives Research and Consulting Services); and
- Terrestrial Biodiversity Impact Assessment (The Biodiversity Company)

The findings of the specialist studies conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented. Despite the negative impacts caused by the project, it must be considered that there are positive impacts as well, mostly based on the employment opportunities (although minimal). Based on the nature and extent of the proposed and the predicted impacts as a result of the construction, operation and closure of the facility, the findings of the EIA, and the understanding of the mostly low - moderate post-mitigation significance level of potential environmental impacts, it is the opinion of the EIA project team that the environmental impacts associated with the application for the proposed D3 Energy ER386 activities can be mitigated to an acceptable level and the project should be authorized.