Petroleum Agency SA



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QUESTION AND ANSWERS: TENDER PASA-T-2024-05

1. Question:

Are there any permitting requirements that need to be applied for by the contractors? Are there EIA requirements for the project?

Response:

Environmental Authorisation and Environmental Impact Assessment Process

The successful bidder will be required to appoint an independent Environmental Assessment Practitioner to undertake an environmental impact assessment (EIA) over the approved/ agreed area(s) targeted for the seismic survey. Under normal circumstances, as guided by the EIA regulations, when an application for a reconnaissance permit is involved, the EIA process will require the following:

- a. Lodgement of the Environmental Authorisation (EA) application
- b. Commissioning of an EIA process aimed at identifying and assessing potential environmental and socio-economic impacts of the proposed activity(s).
- c. Submission of the basic assessment report (BAR) and Environmental Management Programme (EMPR) within 90 days or 140 days from the date of lodgement. 140 days applies where additional time is required by the Environmental Consultant to address issues that were not envisaged when undertaking the process.
- d. The BAR includes the results of the public consultation process undertaken during the EIA process. Public consultation process undertaken as part of the environmental impact assessment process does not involve obtaining consent to access the private property. That is a separate process.
- e. Review of the BAR and EMPR by the relevant authority within 107 days from the date of receipt.

Petroleum Agency SA foresees that an application for environmental authorisation may not be required, however, the proposed seismic survey and/or other geophysical data acquisition surveys may have associated environmental and/or socio-economic impact, therefore an environmental impact assessment must be undertaken.

An assessment of the potential impact of the seismic survey on traffic may be required as part of the EIA and must include the development of a traffic control plan.

PASA is engaging with the Department of Forestry, Fisheries, and the Environment to clarify whether an environmental authorisation will be required or not.

2. Supporting administrative, geological and environmental geospatial data and information for the onshore

A data room for online viewing of available legacy seismic and associated well and geological information was setup (for the purposes of a proposal) to assist bidders with understanding the geology and complexity of the subsurface over the area.

Basic spatial data in the form of ESRI shapefiles have been prepared for uploading on the relevant e-portal and Agency website for bidders to access to support their planning and logistics efforts (for the purposes of a proposal).

A MAP INDEX showing the locations of major towns, legacy seismic and the 1:250 000 topographic/geological map index sheet is provided. Bidders are referred to the websites of national departments and/or institutions to access administrative, geological and environmental related geospatial data and information as follows:

- Chief Directorate: National Geospatial Information (CD: NGI) administrative and cadastral geospatial data and information
- Council for Geoscience (CGS) geological and geophysical geospatial data and information
- Department of Fisheries, Forestry and the Environment (DFFE) protected areas

3. Administrative/Cadastral Information

The Chief Directorate: National Geospatial Information under the Department of Agriculture, Land Reform and Rural Development hosts the **National Geospatial Geoportal**. The Geospatial Portal facility provides a Geographical User Interface (GUI) for CD: NGI clients to interact with geospatial data and to download data content made available in the geoportal <u><click to access the National Geospatial Portal></u>.

The data in the geoportal is arranged according to predefined workspace tabs and Catalogue (Catalog) information. The Catalogue (Catalog) contains data for download. Searching the Catalogue (Catalog) will require basic knowledge of CD: NGI map reference indexes and the file naming conventions. A user manual is available on the geoportal under the **Help Menu** <u><click to</u> <u>access the user manual></u>.

4. Geological Data and Information

The Council for Geoscience (CGS) is the national custodian of all geoscientific information and its dissemination to stakeholders and clients. According to the Geoscience Act (Act No. 100 of 1993)

and its Amendment (Act No. 16 of 2010), geoscientific data and information records published by the CGS in the form of maps, documents and databases are available to stakeholders and clients.

The Council for Geoscience hosts an **Interactive Web Portal** <u><click to access the interactive web</u> <u>portal></u> which was developed to facilitate the sharing of data and information with stakeholders and clients. Data uploaded on this portal is available at no cost and are subjected to the conditions stipulated in the License Agreement.

A Getting Started user guide is available from the CGS web portal. <u><click to access the Getting</u> <u>Started User Guide></u>

5. REGISTER of Protected Areas (PAR)

According to the National Environmental Management: Protected Areas Act (Act 57 of 2003), the Department of Fisheries Forestry and the Environment maintains a register called the Register of Protected Areas.

In 2012 a multi-user spatial database on Protected Areas was developed. The Register of Protected Areas was developed for reporting and mapping purposes of PROTECTED and CONSERVATION AREAS which are included in this database.

All legally declared Protected Areas can be searched and viewed using the **Protected Areas Register (PAR) Interactive Map** <u><click to access the PAR></u>.

The database is called the Protected and Conservation Areas database (PACA) and comprises of all data required for the Register of Protected Areas as well as data on Conservation Areas (areas responsibly managed for biodiversity conservation but not legally declared as protected areas).

6. Selected bibliography and references therein on the evolution, geology, stratigraphy, structure, dolerite and seismic character of the Karoo Basin

Aarnes, I., Svensen, H., Polteau, S., Planke, S., 2011. Contact metamorphic devolatilization of shales in the Karoo Basin, South Africa, and the effects of multiple sill intrusions. Chem. Geol. 281, 181–194. <u>https://doi.org/10.1016/j.chemgeo.2010.12.007</u>

Bräuer, B., Ryberg, T., Lindeque, A.S., 2007. Shallow seismic velocity structure of the Karoo Basin, S. Afr. J. Geol.,110 (2-3) 439–448. <u>https://doi.org/10.2113/gssaig.110.2-3.439</u>.

Catuneanu, O., Hancox, P.J. & Rubidge, B.S., 1998. Reciprocal flexural pp. 1–25, eds Braun, J., Dooley, J., Goleby, B., Hilst, R.v.d. & Klootwijk, behaviour and contrasting stratigraphies: a new basin development model for the Karoo retroarc foreland system, South Africa, Basin Res., 10, 417–439. <u>https://doi.org/10.1046/j.1365-2117.1998.00078.x</u>

Catuneanu, O., Hancox, P.J., Cairncross, B., Rubidge, B.S., 2002. Foredeep submarine fans and forebulge deltas: orogenic off-loading in the underfilled Karoo Basin, Afr. Earth Sci., Volume 35, (4) 489-502, <u>https://doi.org/10.1016/S0899-5362(02)00154-9</u>.

Catuneanu, O., 2004. Retroarc foreland systems—evolution through time. J. Afr. Earth Sci. 38, 225–242. <u>https://doi.org/10.1016/j.jafrearsci.2004.01.004</u>.

Catuneanu, O., Wopfner, H., Eriksson, P.G., Cairncross, B., Rubidge, B.S., Smith, R.M.H., Hancox, P.J., 2005. The Karoo basins of south-central Africa. J. Afr. Earth Sci. 43, 211–253. https://doi.org/10.1016/j.jafrearsci.2005.07.007.

Chere, N., Linol, B., de Wit, M., & Schulz, H, 2016. Lateral and temporal variations of black shales across the southern Karoo Basin - Implications for shale gas exploration. S. Afr. J. Geol., 120 (4) 541–564. <u>https://doi.org/10.25131/gssaig.120.4.541</u>

Chukwuma, K., Tsikos, H., Horsfield, B., Schulz, H-M., Harris, N.B., & Frazenburg, M., 2023. The effects of Jurassic igneous intrusions on the generation and retention of gas shale in the Lower Permian source-reservoir shales of Karoo Basin, South Africa, Int. Journal of Coal Geology, 269, 104219. <u>https://doi.org/10.1016/j.coal.2023.104219</u>.

Galerne, C.Y., Galland, O., Neumann, E., & Planke, S., 2011. 3D relationships between sills and their feeders: evidence from the Golden Valley Sill Complex (Karoo Basin) and experimental modelling, Journal of Volcanology and Geothermal Research, 202 (3–4), 189-199. https://doi.org/10.1016/j.jvolgeores.2011.02.006. Gaynor, S.P., Svensen, H.H., Polteau, S. & Schaltegger, U., 2022. Local melt contamination and global climate impact: Dating the emplacement of Karoo LIP sills into organic-rich shale, Earth and Planetary Science Letters, 579, 117371. <u>https://doi.org/10.1016/j.epsl.2022.117371</u>.

Groenewald, D.P, Day, M.O., Penn-Clarke, C.R., Rubidge, B.S., 2022. Stepping out across the Karoo retro-foreland basin: Improved constraints on the Ecca-Beaufort shoreline along the northern margin, J. Afr. Earth Sci., 185. <u>https://doi.org/10.1016/j.jafrearsci.2021.104389</u>.

Johnson, M.R., van Vuuren, C.J., Visser, J.N.J., Cole, D.I., Wickens, H.d.V., Christie, A.D.M., Roberts, D.L. & Brandl, G., 2006. Sedimentary rocks of the Karoo Supergroup, in The Geology of South Africa, pp. 461–499, eds Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J., Geological Society of South Africa and Council for Geoscience.

Lindeque, A.S., Ryberg, T., Stankiewicz, J., Weber, M.H., de Wit, M.J., 2007. Deep Crustal Seismic Reflection Experiment Across the Southern Karoo Basin, South Africa. S. Afr. J. Geol., 110, 419-438. <u>https://doi.org/10.2113/gssajg.110.2-3.419</u>.

Lindeque, A.S., De Wit, M.J., Ryberg, T., Weber, M. & Chevallier, L., 2011. Deep crustal profile across the Southern Karoo basin and Beattie magnetic anomaly, South Africa: an integrated interpretation with tectonic implications, S. Afr. J. Geol., 114, 265–292. https://doi.org/10.2113/gssajg.114.3-4.265

Linol, B., Chere, N., Muedi, T., Nengovhela, V., de Wit, M.J., 2016. Deep Borehole Lithostratigraphy and Basin Structure of the Southern Karoo Basin Re-Visited. In: <u>Linol, B., de Wit, M. (eds) Origin</u> and Evolution of the Cape Mountains and Karoo Basin. Regional Geology Reviews. Springer, Cham. <u>https://doi.org/10.1007/978-3-319-40859-0_1</u>

Rowsell, D.M. & De Swardt, A.M.J., 1976. Diagenesis in Cape and Karroo sediments, South Africa, and its bearing on their hydrocarbon potential, Trans., Geol. Soc. South Afr., 79, 81–145.

Scheiber-Enslin, S.E., Ebbing, J. & Webb, S.J., 2014. An integrated geophysical study of the Beattie Magnetic Anomaly, South Africa, Tectonophysics, 636, 228–243. https://doi.org/10.1016/j.tecto.2014.08.021.

Scheiber-Enslin, S.E., Webb, S.J., & Ebbing, J., 2014. Geophysically plumbing the main Karoo Basin, South Africa. S. Afr. J. Geol. 117(2), 275–300. <u>https://doi.org/10.2113/gssajg.117.2.275</u>

Scheiber-Enslin, S.E., Ebbing, J. & Webb, S.J., 2015. New depth maps of the main Karoo basin, used to explore the cape isostatic anomaly. S. Afr. J. Geol., 118, 261–284. https://doi.org/10.2113/gssajg.118.3.225

Scheiber-Enslin, S.E., Ebbing, J. & Webb, S.J., 2016. An isostatic study of the Karoo basin and underlying lithosphere in 3-D. Geophys. J. Int. 206, 774–791. <u>https://doi.org/10.1093/gji/ggw164</u>

Scheiber-Enslin, S.E., Manzi, M & Webb, S.J., 2021. Seismic imaging of dolerite sills and volcanic vents in the Central Karoo, South Africa: implications for shale gas potential. S. Afr. J. Geol. 124(2). https://doi.org/10.25131/sajg.124.0043.

Stankiewicz, J., Ryberg, T., Schulze, A., Lindeque, A.S., Weber, M.H. & De Wit, M.J., 2007. Initial results from wide-angle seismic refraction lines in the southern Cape, S. Afr. J. Geol., 110, 407–418. https://doi.org/10.2113/gssajg.110.2-3.407.

Tankard, A., Welsink, H., Aukes, P., Newton, R., & Stettler, E., 2009. Tectonic evolution of the Cape and Karoo basins of South Africa. Marine and Petroleum Geology, 26, (8), 1379-1412, <u>https://doi.org/10.1016/j.marpetgeo.2009.01.022</u>.

Veevers, J.J., Cole, D.I., Cowan, E.J., 1994. Southern Africa: Karoo Basin and Cape Fold Belt. In: Geological Society of America Memoirs. Geological Society of America, pp. 223–280. Checked April 2020. <u>https://pubs.geoscienceworld.org/books/book/191/chapter/3793611/</u>.