1.B.3 - Geothermal Energy

No emission factors for pollutants that could escape in connection with drilling for tapping of geothermal energy (both near-surface and deep energy) are known for Germany at present. From a geoscientific standpoint, however, it is clear that virtually any drilling will lead to releases of gases bound in underground layers – and the gases involved can include H2, CH4, CO2, H2S and Rn [1)]. In many cases, and especially in drilling for tapping of geothermal energy near the surface, such emissions would be expected to be very low. “Blow-out preventers”, which are safety devices that guard against gas releases, are now used in connection with all deep drilling. In addition, specially modified drilling fluids are used that force gases that are released into the well back into the penetrated rock layers.

A study [2)] estimates that NMVOC emissions from geothermal drilling sum up to nearly 30 kg/a.

References

[1)] UBA (2013). UBA research project No. 360 16 033, University of Stuttgart and Oekopol: “Ermittlung von Emissionsfaktoren von Aktivitätsraten in IPCC-Kategorie 1.B.2.a.i-vi; Diffuse Emissionen aus Mineralöl und Mineralölprodukten” (2013) (not available online)

[2)] UBA. Kaltschmitt, M. (2007): Umwelteffekte einer geothermischen Stromerzeugung -Analyse und Bewertung der klein-und großräumigen Umwelteffekte der geothermischen Stromerzeugung (FKZ 205 421 10). Hamburg