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Construction of deep LFG-wells on old municipal solid waste (MSW) landfill Bukovžlak

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In year 2000 part of the Bukovžlak old municipal landfill was closed (since 1972 total deposited 729,000 tons of municipal waste) and open a new section on the eastern side of the landfill (till 2013 landfilled 617,103 t of municipal solid waste), where will be disposed mostly heavy fraction from MBO to the final filling of the old landfill Bukovžlak. At the old landfill Bukovžlak, SIMBIO d.o.o, currently have two Jenbacher gas engine rated power of 625 kWe (since 2003) and 1,063 kWe (since 2007). In year 2008 both gas engines operated, which are from the landfill gas produced on average 1.55 kWh/Nm^3 electricity today occasionally operates only a small gas engine, which produces only a third of the electricity. In year 2013 and 2014 we began to systematically monitor the concentrations of CH_4, CO_2 and O_2 in landfill gas in landfill gas branches V6, V4 and V3. In vertical gas-wells V3/1, V3/2, V3/4, V3/6, V4/1 and V4/5 was measured very high levels of O_2 concentrations (up to 20%), which has shown on the leak at outlet gas-well area in the landfill and direct entry of atmospheric air through the coating layer of the landfill. Thus, in 2014, we performed a very successful rehabilitation with instillation the expandable polyurethane foam (PU) in the mouth area of the four gas-wells to a depth up to 6 m. In 2015, we first measured the concentrations of CH_4, CO_2 and O_2 in landfill gas in the remaining gas-wells their entire available depth and then proceed with the rehabilitation of the mouth area of some intact gas- wells and replacement heads of gas-wells. With the measurement of gas concentrations, temperature and flow of landfill gas, we find out that in the deeper parts of the landfill still have enough organic matter to the appropriate conditions allowing the formation of landfill gas as energy use in gas engines. In 2016 we started with construction of six new deep gas-wells (4 two-pipe and two-pipe perforated with limited height) with a view to extracting landfill gas from the deeper parts of the landfill and eliminating potential landfill gas leak in the upper area of the gas-well.

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