

SENORO GAS DEVELOPMENT PROJECT LUWUK, CENTRAL SULAWESI – INDONESIA STONE COLUMNS (SC)



Category: Oil and Gas
Developer: Joint Operation Board Pertamina
Medco E&P Tomori Sulawesi
Contractor: Tripatra Samsung Consortium
Area / Quantity: 8,000 m²
Year: 2013



PROJECT DESCRIPTION

The Project is a Gas Development Project. The field is located onshore near the coast in the Senoro –Toili block on the Eastern arm of Central Sulawesi, approximately 75 km southwest of the city of Luwuk. Senoro Gas Development is part of integrated gas-LNG project development in the area i.e. Donggi & Martindok belong to PPGM and LNG plant belongs to PT. DSLNG. The project will initially develop for 14 wells and the Facilities required for gathering, flowing, processing, delivering sales gas, and stabilized condensate, including condensate storage system.



Figure 1: View of Senoro Gas Development Project Area– Soil Improvement Works

SOIL CONDITION / GEOTECHNICAL PROBLEM

The geotechnical investigation carried out on site found 6 different layers up to a depth of +/- 30m. The layer 1 is composed of the platform material (dense gravelly sand) with a thickness from 1.5 to 2.3m laying on a very soft clay layer to a thickness of 1.2 to 3.0m and a succession of 4 layers from medium to dense sand sensitive to liquefaction.

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MENARD SOLUTION

The solution proposed by Menard Asia in order to guarantee bearing capacity (up to 414kPa during seismic event), tilting, dishing and edge settlements and mitigate the liquefaction risk under earthquake magnitude of $M = 6.90$, was to execute Stone Columns. The maximal depth achieved is of 15m for a total of 30,941m and 2,620 points representing an area of 8,000m²



Figure 2: Stone Column Equipment at the Project Area

QUALITY CONTROL

Implementation of quality control procedures by Menard consists of hand over report including a joint survey on the working area, compaction control carried out by Plate Load Test, material quality control with sieve analysis, and record sheet control on the stone column works.