LANDFILL FOR **NON-HAZARDOUS WASTE** CONSTRUCTION OF "A" AND "B" BASINS IN LENTINI

The landfill is included in the non-hazardous waste category in accordance with the Law Decree nr. 36/03 and Law Decree No. 152/06 and further amendments. The buried waste will mainly be constituted by dry fraction deriving from mechanical treatment (screening material), European Waste Code: 191212 and stabilized wet fraction, EWC 190503.
The plant consists of two cells, amounting 1.100.000 m^3 and 814.000 m^3 of volume respectively. Both cells are waterproofed in order to preserve the environmental matrices in accordance with the Law Decree No. 36/03.
Each cell will be equipped with a double collection system for leachate generated within the landfill, this system counts with a main upper-network for regular leachate accumulation and a secondary lower-network which serves as a backup. Leachate collection pipe network counts with separate sumps where leachate is conveyed by pumps and stored into two separated steel tanks, in order to allow temporary storage before treating the leachate.
Leachate will be treated, within the same landfill site, through a physical-chemical process. The treated effluent within the limits established by the Law Decree No. 152/06 will be discharged into surface-receptors water bodies while the concentrate sludge generated is pumped over the upper landfill section through a specific infiltration system.
The plant is completed by the landfill gas management system for the extraction, collection and upgrading of the biogas generated by the landfill during operation and post-closure periods. This system allows energy recovery by converting biogas in a bio-fuel which can be injected in the natural has grid and eventually be used as a fuel for the transportation sector. The transformation of bio-wastes into clean energy helps societies to make progress toward becoming circular economies.

DESIGN DATA

Private client
SICULA TRASPORTI s.r.l.
Tasks assigned and carried out Final and executive design, Integrated Environmental Authorization application and construction management
Cost € 40.195.425,48
Location Lentini (SR)
UTM Coord. (Zone 33S) 502,790 E - 4,135,670 N
Site area 171.000 m^2
Surface of the basins
A 41.800 m^2
B 35.500 m^2
Total volume 1.914.000 m^3
Construction period 2012

TECHNICAL DATA

Operations according to Encl. B and C referring to Part IV of Law Decree No. 152/06 (D.Lgs. 152/06) and further amendments D1, D9, D15.
Maximum potentiality: 350.000 t/year
Expected operating life: 9 years
Days of disposal per year: 320
Maximum production of leachate expected: 50 m^3/d
Maximum theoretical biogas production expected: 5÷15 Nm^3/waste x y
Accessory equipment: leachate treatment system which provides an ultrafiltration stage and four reverse osmosis stages, with a potentiality of 50 m^3/d
Biogas treatment: cogeneration system for the production of electricity
86 vertical wells for biogas collection
one suction sub-station and regulation system
biogas purification system
three Jenbacher engines JGS312 and one emergency torch