INTEGRATED M.S.W. TREATMENT PLANT - **MESSINA**

The plant design is developed in accordance to a public tender for the construction of an integrated system for the M.S.W. management in the Municipality of Messina (CIG 55388378E1), which was issued by the Commissioner for the Waste Emergency in Sicily (O.P.C.M. 9/7/2010 n. 3887 - D.L. n. 43/2013). The plant lay-out provides one mechanical treatment line for the screening of M.S.W. with a capacity of 32.1 t/h, 12 hours/day. The process-line layout is the following: a wide area for the storage of the incoming wastes, a shredding and a double-stage screening (with holes from 130 to 80 mm).
This is aimed to separate the following materials:
i) oversize fraction >130 mm, by which nonferrous metals (e.g. aluminium cans) and ferrous materials will be separated;
ii) oversize fraction 80÷130 mm, by which ferrous materials will be separated;
iii) underscreen fraction <80 mm, which must be processed with biological treatment.
The designed layout also provides the construction of a landfill with a capacity of 270.000 m^3 which will be used for the final disposal of the fraction deriving from the mechanical treatment, and the construction of a leachate treatment system, which is constituted by an ultrafiltration and four-steps reverse osmosis sections for completely purifying the wastewater.
The underscreen fraction deriving from the mechanical treatment will be processed within aerobic biological tunnels, which are closed and air forced with blowers, in order to obtain stable and dry materials which can be sent to disposal or recycled.
The buildings will be kept in constant depression in order to ensure the health of workers; the air is recirculated within the aerobic tunnels to facilitate the biological process.
Lastly, the exhaust air will be treated with two scrubbers and a biofilter, and so treated air can be given off into the atmosphere, since pollutant concentrations are reduced to the levels set forth by law.

DESIGN DATA

Public client
Commissario Delegato per l'emergenza Rifiuti in Sicilia (ex O.P.C.M. 9/7/2010 n. 3887 - D.L. n. 43/2013)
Tasks assigned and carried out Final design
Cost: € 11.868.548,20
Location C.da Pace (ME)
UTM Coord. (Zone 33S) 549,820 E - 4,233,230 N
Site area 39.300 m^2
Shed surface 2.400 m^2
Landfill surface 23.420 m^2
Design level Final design
Designing period 2014

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, D8, D9, D14, D15, R3, R4, R5, R13.
Potential capacity: 102.200 t/y; 32.1 t/h
Treatment lines: one
Mechanical pretreatment: shredding - double screening (130 mm and 60 mm) - ferrous and nonferrous metals recovery
Biological treatment: aerobic stabilization of undersreen materials (seven tunnels, dimensions 8x35 m each)
Landfill disposal: 278.600 m^3, lifetime 43 months
ACCESSORY EQUIPMENT
Air treatment: 120.000 Nm^3/h
Air treatment system: two wet scrubbers and one biofilter (partitioned into two sections)
Total biofilters surface: 960 m^2
Leachate treatment system: ultrafiltration and four-phases reverse osmosis, maximum L
Leachate flow rate: 60 m^3/d
Leachate storage: 350 m^3
Clarified effluent: surface drain within the levels set forth by Italian law (D.Lgs. 152/06)