

Ground preparation in full swing

Intensive piling work is underway for the structures foreseen as part of the first phase of the flue gas desulphurization project

The work on the currently most important environmental project of the Electric Power Industry of Serbia, construction of a flue gas desulphurization plant on four units of TPP Nikola Tesla A in Obrenovac (A3-A6), is gaining momentum. The project, valued at EUR 167 million, is implemented thanks to loans extended by the Government of Japan and the Japan International Cooperation Agency (JICA). The contractor is a consortium of Japanese companies and the Serbian firm MPP "Jedinstvo" a. d. Sevojno, headed by the Mitsubishi Hitachi Power System (MHPS). Construction of the flue gas desulphurization system officially began in mid-February this year, when the foundation stone was laid, and hundreds of local workers will be involved in the various stages of the plant's construction throughout the project. Work is still underway on the relocation, removal of underground installations, which should be fully completed by the end of the year.

- All underground installations (rain and sewage, water supply and hydrant network) have been completely removed, a new sewage station has been constructed and commissioned, while the old one will be demolished and removed from this area of the site. All underground installations in this area are relocated along a newly designed route. The heating network was removed from the site intended for the absorber of units 5 and 6. In the part of the construction site foreseen for the absorber of units 3 and 4, a propane-butane station was demolished and a new channel excavated and concreted where the existing ash pipeline running through the area of the future absorber for these two units will be relocated. From the future limestone loading and unloading station, signalling cables of the existing railway tracks are being moved and placed in the excavated trench between the second and third railway tracks - Svetozar Dobrasinovic, project manager, says.

Two phases of works

He pointed out that the project was divided into two phases and that the first phase, for which a building permit was obtained, would entail the construction of an unloading station, a building for limestone storage and preparation and a gypsum silo. Upon obtaining a building permit for Phase 2, construction of an absorber, control building and other facilities envisaged in this phase will start next year. In the meantime, construction of an office space for contractors has been completed, and two large sites, totaling six hectares, have been cleared, where pre-assembly works will be carried out and all necessary equipment for this project will be stored.

In the area of the construction site left of the Railway Transport, envisaged for Phase 1

structures, piling is in full swing to ensure the stability of the structures affected by the groundwater table.

- All of the planned gypsum silo piles, totaling 237, were driven at a depth of 20 to 21 meters, with a load bearing capacity of 180 tons each. The terrain is now being cleared to prepare for the pouring of the concrete slab, which will form the foundation of the gypsum silo. A crane will also be installed that will reach a height of 60 meters during the construction of the gypsum silo. The gypsum silo will be just over 40 meters high, and it will be able to store 10,000 tons of gypsum, which is a by-product of the desulphurization process - he emphasizes.

A thousand piles

Limestone unloading building piles are being developed at the same location. So far, 120 of the total 345 piles, 18.5 meters in length, have been driven.

- These are secant piles that will not carry vertical load, but serve as a membrane to prevent groundwater from penetrating. The piles will be driven for both the limestone building (108) and the limestone milling building (64). About 770 piles will be driven at this stage, and a total of about 1,000 piles will be driven, including those under the second phase. In this part of the construction site, an electrical distribution facility will also be constructed, with complete electrical equipment for all Phase 1 facilities, and it will be the only building not resting on piles, but on a classic concrete foundation. In the meantime, before its development starts, soil was replaced, which means that the soil of poor quality has been removed and layers of large and small crushed stone have been put in place according to the design, possessing the required compaction ratio - Dobrasinovic explains.

A concrete plateau has also been constructed on which daily silos will be mounted, up to 17 meters high, from which limestone will be transported to the mills. Three mills are planned, which will have their own concrete foundations and will be under the same roof with daily silos to store limestone in the amount needed for daily use.

When all necessary preparatory, mainly underground works, have been completed, building of the foreseen structures will commence, allowing their development to be visually monitored.

The project implementation period is 42 months, followed by a 12-month warranty period (trial operation). The construction of the desulphurization plant will extend the service life of this thermal power plant by at least 20 years.

Air according to EU standards

After the flue gas desulphurization plant has been constructed, sulfur oxides concentrations in the flue gas will be reduced to below 200 milligrams per cubic meter and the dust content of the flue gas to below 20 milligrams per cubic meter, which is in accordance with current

European standards. The plants are so large in size that they can meet and comply with European environmental standards, should they change, and reduce the concentration of sulfur dioxide in flue gas below 100 milligrams per cubic meter. Wet desulphurization technology will be applied on all four units, using limestone as a reagent.