

Nippon Steel & Sumitomo Metal Corp. Wakayama Steel Works / No.1 Coke Oven



Ordering party : Nippon Steel & Sumitomo Metal Corp. (Wakayama Steel Works)

Location : Wakayama-City, Wakayama Prefecture

Project summary : Foundation design for main facilities Coke oven

- Capacity: 2800 tons/day
- Overall width : 290m approx
- Number of installed ovens : 130 ovens
- Transfer cars (Pusher car / Quenching car / Coke guide car)
- CDQ / Dust collector / Conveyor
- Reinforced concrete structure / Pile foundation / Spread foundation
- Design for main building
 - Coal tower : RC + Steel - structure 5F
 - Turbine building : S-structure 2F
 - Chimney : RC-structure, Height : 125m x 2

Services : Geotechnical investigation / Surveying / Basic design / Detailed design

Completion : May 2009

[Environmentally-sound facility]

A new environmentally-sound coke oven was built for the first time in four decades. It has various dust collectors, coke cooling system (Coke Dry Quenching, CDQ) with no dust dispersal, and turbine generator which utilizes heat energy collected by CDQ.

[Services]

We, Nikken Sekkei Civil Engineering, provided the following services:

- (1) Basic design from Feb.,2006
- (2) Planning and implementation of geotechnical investigation and surveying
- (3) Data collection necessary for design
- (4) Detailed design in accordance with the progress of construction.

FEM analysis was carried out to predict settlement of spread foundation for transferring heavy-weight coke oven. Foundation was designed based on the results from FEM analysis of coke oven and related facilities.

Foundation works started in Nov. 2006, and the most of civil works were completed by Feb. 2009. Construction of coke oven started in Sept. 2007, and the new coke oven completed in May 2007 after machine installation / test operation.