POWER GENERATION

Two-phase commissioning at new energy-from-waste power station with compact footprint

Limited space at a new energy-from-waste (EfW) plant in northern Germany posed difficulties. The compact site meant Ecolutia had to find an alternative feedwater connection point and relocate equipment two months later.



CLIENT
Power station operator: new build energy-from-waste plant

LOCATION
Germany

SERVICE
Commissioning: Demin production and condensate polishing

DURATION
Phase 1: 7 months
Phase 2: 12 months

<0.1 µS/cm
PRODUCT WATER CONDUCTIVITY

110–480 GPM
DEMIN PRODUCT WATER FLOW RANGE

24-hour
FSE COVER

THE CHALLENGE

A compact construction site with limited open space

During construction of a new energy-from-waste (EfW) power station in Germany, Ecolutia was asked to provide a temporary demineralized water production and condensate recovery solution.

With a compact layout, the active construction site presented several difficulties at the beginning of the project. An earlier site visit identified a flat location for Ecolutia equipment to be placed, but as Ecolutia equipment

KEY DATA

Application
Phase 1 – Demineralization
Phase 2 – Filtration and condensate polishing

Industry
Energy

began arriving the pre-agreed location was already in use for other construction activities. The limited site footprint meant the Ecolutia team had to act quickly to find a new level surface on an already crowded construction site.

The Ecolutia Field Service Engineers (FSEs) co-ordinated with the customer and other suppliers on site to find a suitable space that would not impede ongoing construction work. With some site adjustments a new space was deemed suitable, but the new equipment location meant connecting hoses to the original feedwater access point would hamper others working in the area. A workable solution was achieved with agreement from the customer for Ecolutia to use a nearby street hydrant on the site.

THE SOLUTION

Relocate, re-connect, and add a condensate polishing stage

After some months of working with the revised layout the customer asked for a change to start the next phase of the new plant commissioning. To accommodate arrival of condensate polishing units for treatment of boiler feedwater, Ecolutia relocated its HydroPURE units to a new position.

With the expansion, the existing units moved beneath the ACC fans and adding a Proteus Series unit loaded with GAC allowed filtration of the return condensate water. The second HydroPURE unit added the condensate polishing step, and a Proteus Solo skid provided back-up filtration, should it be needed. Relocating and installing new systems also required decoupling, relaying and reconnecting all hoses used for the entire project.

TREATMENT FLOW PATH

PHASE 1

HYDROPURE
Demineralization

PHASE 2

PROTEUS
GAC filtration

→

HYDROPURE
Condensate polishing

THE RESULTS

From site visits to 24/7 Ecolutia cover

During the initial phase, this project needed demineralized water intermittently, so it was managed by regular FSE site visits combined with Ecolutia's remote monitoring solution. Ecolutia initially commissioned the HydroPURE unit and set up an automated production sequence when the break tank level dropped to a set level. This setup ensured demin water

Feed water source
Phase 1 – Municipal water
Phase 2 – Condensate return

Feed quality
Phase 1 – up to 350 µS/cm
Phase 2 – up to 8 µS/cm condensate, 10 NTU

Production flow rate
Phase 1 – 110 GPM
Phase 2 – 130–480 GPM

Product water quality
<0.1 µS/cm

Treatment flow path
Phase 1 – HydroPURE IX
Phase 2 – Proteus Series: GAC filtration → HydroPURE Condensate polisher

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production was always available and the systems automatically filled the tank and shut down when the upper tank level was achieved.

Once the additional equipment was installed the commissioning phase increased in pace, so Ecolutia began to operate the site on a 24/7 basis. Three FSEs worked on 8-hour shift rotations to keep the demin water production operational, the storage tank level high, and the condensate polishing system running whenever it was needed.

As the new power station construction project was in proximity to residential areas, certain restrictions meant the steam blow and other commissioning activity were limited to certain times. The resulting frequent shutdown and startup events meant Ecolutia FSEs had to remain available on site to operate and maintain equipment so tank levels could be sustained at short notice.

After two months the customer finished the condensate polishing stage so reverted back to the phase 1 setup of having one HydroPURE unit on site, to provide demineralized water for the remaining part of the site commissioning.

COMMISSIONING A NEW PLANT?

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