



## Water management plan of thyssenkrupp Steel Europe AG – Duisburg North site

### Production facilities and water management

thyssenkrupp Steel Europe AG operates an integrated steel mill with sintering facilities, coke plant, blast furnaces, steel mills, rolling mills and coating lines at the Duisburg North site.

The water supply for all plants and partner companies is ensured by the water management system of thyssenkrupp Steel Europe AG. Water is reused up to 40 times in the water circulation systems.

### Groundwater extraction

A company-owned well for the irrigation of a storage facility is in the Walsum area of the site. A water law permit has been obtained for the operation of this well. In addition, groundwater measurements are conducted regularly by the company to identify negative effects on the groundwater level in time and to initiate appropriate measures.

### Water supply from third parties

With the exception of the extraction of groundwater from the wells, thyssenkrupp Steel Europe AG is supplied almost exclusively by external energy suppliers.

### Drinking water supply

The drinking water supply for the Duisburg-Nord site is provided by local urban water supply utilities and therefore meets the requirements of the Drinking Water Ordinance. thyssenkrupp Steel Europe AG receives the drinking water at several transfer points with volume counting devices into its own extensive pipe network for internal distribution.

### Process water supply

The process water is drawn from Gelsenwasser AG<sup>1</sup> wells located on the banks of the Rhine.

Gelsenwasser AG has water law permits for the withdrawal of water from these wells, in which the sources and withdrawal quantities are defined. Compliance with the specifications is continuously monitored and documented by the operator.

In the approval process for permits under water law, the effects on the water balance are regularly assessed as part of environmental impact assessments and any necessary measures are derived.

To achieve the goal of balance in groundwater resources, groundwater levels are regularly monitored at numerous measuring points and recorded along with groundwater withdrawal rates.

Within the scope of management plans from the European Water Framework Directive<sup>2</sup>, Gelsenwasser AG supports municipalities in reviewing and updating their water supply concepts. With these water supply concepts needs and impacts also regarding climate change can be recognized even better, so that in case of misdevelopments countermeasures can be taken in the medium term.

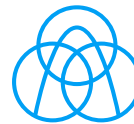
### Wastewater discharge

The discharge of wastewater requires an official permit according to German water law. This includes limits to ensure that the impact of the wastewater on the population or the environment is kept to a minimum. Both, the quantity, and the composition of the discharged wastewater partial flows, as well as the total discharge, are regularly monitored and precisely documented.

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<sup>1</sup> [www.gelsenwasser.de](http://www.gelsenwasser.de)

<sup>2</sup> [www.umwelt.nrw.de/umwelt/umwelt-und-wasser/gewaesser](http://www.umwelt.nrw.de/umwelt/umwelt-und-wasser/gewaesser)



As a result of the extensive monitoring and the measures derived from it, it has been possible to significantly reduce the wastewater volumes on the Duisburg Nord site in recent decades within the framework of the legal requirements. In addition, wastewater quality is continuously improved by optimizing the facilities.

In accordance with the requirements of the water law, all sewers are inspected, their condition documented and, where necessary, rehabilitated. Regular cleaning and camera inspection of the sewers is conducted by expert companies.

### **Indirect discharge**

The sanitary wastewater and most of the process wastewater generated are discharged into sewers belonging to the Emschergenossenschaft<sup>3</sup>, where they are treated in their wastewater treatment plant.

The Emschergenossenschaft operates the biological wastewater treatment plant “Alte Emscher” in the immediate vicinity of the operating area, which processes both industrial and municipal wastewater from a catchment area of around 3,100 hectares. The wastewater flows of thyssenkrupp Steel Europe AG are monitored by the Emschergenossenschaft. When required, the Emschergenossenschaft is in direct contact with thyssenkrupp Steel Europe AG to ensure compliance with the relevant wastewater parameters.

### **Direct discharge**

The remaining process wastewater and precipitation water are treated in the company's own wastewater and several rainwater treatment plants. Subsequently it has such a high water quality that it can be discharged directly into the river Rhine. The process wastewater is discharged directly into the Rhine via a total of six discharge points and is regularly monitored both by the plant's own specialist departments and by the responsible authorities.

### **Flood risks and heavy rain events**

No risks of flooding (HQ100) or heavy rainfall have been identified for the Duisburg-Nord site based on the maps provided by the district government<sup>4</sup>. Nevertheless, these risks are regularly reassessed by the authorities and additionally discussed with the Emschergenossenschaft.

### **Polder facility**

thyssenkrupp Steel Europe AG operates, if necessary, a polder system at the Duisburg-Nord site with a total of 11 wells to protect the hot strip mill 2 in the event of elevated groundwater levels. For this purpose, thyssenkrupp Steel Europe AG also has a water law permit.

### **Resource conservation and exchange with commercial water users**

thyssenkrupp Steel Europe AG is committed to efficient water use and resource conservation in line with the needs of present and future generations - even though the city of Duisburg is forecasting a decline in population.<sup>5</sup> Continuous improvement in all areas is therefore essential to minimize environmental and social impacts. This is also achieved through a constant exchange with other commercial water users via the Emschergenossenschaft.

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<sup>3</sup> [www.eglv.de](http://www.eglv.de)

<sup>4</sup> [www.brd.nrw.de](http://www.brd.nrw.de)

<sup>5</sup> [www.it.nrw/bevoelkerungsvorausberechnung-nrw](http://www.it.nrw/bevoelkerungsvorausberechnung-nrw)