

[Home \(/\)](#) / [Special reports \(.../\)](#) / [18 May 2020 \(.../\)](#) / [Remediation of a legacy refinery site makes way for IN-Campus technology park](#)

# Remediation of a legacy refinery site makes way for IN-Campus technology park

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Hydrocarbon Engineering (<https://www.hydrocarbonengineering.com>), Monday, 18 May 2020 12:15

In the 1960s, five refineries were built close to Ingolstadt, Germany. After more than 40 years of operation, the activities at one of those refineries were consolidated into two of the others and it closed. Since then, the dis-used refinery site has been purchased by AUDI AG and Stadt Ingolstadt and is undergoing a 'deep-cleaning' operation. And, despite the coronavirus, environmental remediation and building work has proceeded at the 75 ha. site.

"My team are so proud to be involved in this project, which we believe is the largest ex-refinery remediation task ever undertaken in Germany," said Dr Rüdiger Recknagel, Chief Environmental Officer at Audi. During more than four decades of operations at the refinery which previously existed on this site, there were occasional spillages of oil and other chemicals. This is the legacy which the IN-Campus team are now working to remediate. "Our environmental management experts know that it is a once in a lifetime opportunity to return such a beautiful piece of land bordering the river Danube to its pristine condition. And I am immensely proud of them because they are working so responsibly and achieving all our milestones".



IN-Campus Environmental remediation of legacy refinery at Ingolstadt - air sparging unit (copyright AUDI AG).

With an eye on the breadth of the EH&S agenda, health and safety are being prioritised during the environmental remediation work. Recknagel supports that by confirming that “we are taking all of the relevant precautions by respecting the social distancing procedures and wearing suitable face masks. The workforce has just achieved the milestone of 250 000 hours of incident-free operations since work commenced in 2016.” Automotive production operations in the Audi factory close by took a pause recently, restarting on 29 April. But, for the team working on the IN-Campus project the work continued unabated.



Refinery decommissioning in April 2013 (copyright Bayernoil Raffineriegesellschaft GmbH).

“The excellent safety statistics are just one example,” continues Recknagel. “We are also working within our budget and proceeding according to our timeline. Up to now, we have cleaned-up about 400 000 t of sand and stones from the site. That’s about 65% of the total requirement. And the technologies that we have chosen are performing as expected to return the site to a very high environmental standard: up to now, they have successfully captured and disposed of 450 ts of hydrocarbon pollutants”.



Ingolstadt Refinery in 2005 (copyright Bayernoil Raffineriegesellschaft GmbH).

Almost all the environmental remediation is taking place on-site. Only 10% of the excavated material is removed from the site for further processing or disposal. Air sparging is being used to release volatile pollutants from 10 ha. of land where the refinery and its associated storage tanks once stood. These chemicals are then incinerated using a flare at the site. Ground water is pumped to a purpose-built water treatment system that uses a combination of microbial digestion and physical adsorption processes. Each day, 1200 t of sand, grit, gravel and rocks from the ground are excavated and washed on site. After this washing process, 90% of the

excavated material can be returned to the site to form a clean and stable foundation for future construction work.



IN-Campus Pile driving for ground water capture (copyright AUDI AG).

As the energy transition and e-mobility developments gain momentum worldwide, it is part of the underlying global sustainability narrative that a refinery is making way for BEV development. EH&S concerns will remain at the heart of the project when the site is transformed to become a technology park. Thomas Vogel, Managing Director of IN-Campus GmbH, explains how these concepts are also core to the long-term vision: "The innovation campus that will be created on this site will be used to develop emissions-free driving systems such as Audi's range of battery electric vehicles. There will also be a state-of-the-art crash test facility to ensure that our cars offer the highest standards of safety for their occupants and other road users."

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Read the article online at: <https://www.hydrocarbonengineering.com/special-reports/18052020/remediation-of-a-legacy-refinery-site-makes-way-for-in-campus-technology-park/>