BUILDING PLANT RESILIENCE WITH AN UPGRADE

Introduction

The Oxley Creek Sewage Treatment Plant in South East Queensland was impacted by severe flooding in 2011 causing $32 million worth of damage and forcing part of the treatment plant offline. This prompted a flood resilience upgrade to the facility to reduce the plant's recovery time in case of future flood events.

Oxley Creek Sewage Treatment Plant currently processes 65 million litres of sewage per day and plays an important role in sewage treatment services provided by Queensland Urban Utilities. As one of the largest water distributor-retailers in Australia, Queensland Urban Utilities supplies drinking water, recycled water and sewerage services to a population of more than 1.4 million in South East Queensland.

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Project Overview

From the business case to completion, the plant upgrade project took three years with the help of Monadelphous Engineering, MPA, Voltex and NHP Electrical Engineering. A range of flood proofing measures were incorporated into the design of the upgrade, including an installation of a new high voltage switchroom within a demountable building, which is where NHP's help was enlisted.

The Solution

The project included decommissioning the original high voltage switchroom and the 11kV main switchboard for the site, and replacing it with a new main 11kV switchboard contained within a demountable building. The building was also raised 30cm above the 2011 peak flood line levels.

Within the switchroom, NHP specified the DF-2 air insulated switchgear module with demountable vacuum circuit breakers and a remote operation functionality. Exclusive to NHP switchgear, the cubicles are specifically designed to minimise the consequences of an internal arc and forming a key component of this, is a built-in arc quenching system 'Arc Killer' which can extinguish an arc in less than 50ms.

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With the IEC 61850 GOOSE Based Arc Flash Protection Scheme recently implemented, the project requirements met these standards and assisted with minimising cut-over times and reduced installation time of the switchboard by minimising control wiring and testing. Provided for the complete protection, control and monitoring for this, Agile Protection Relays were integrated into the solution.

As well as the high voltage equipment provided by NHP, there was a detailed design of the switchboard schematics which was undertaken by NHP staff in Melbourne who were very familiar with the product capability and the design quality.

Upon project completion, NHP delivered training sessions and provided training manuals to support Queensland Urban Utilities with ongoing maintenance requirements and operation.

NHP was proud to assist in upgrading the Oxley Creek Sewerage Treatment Plant for flood resilience and optimising operations with a healthy and efficient electrical design.

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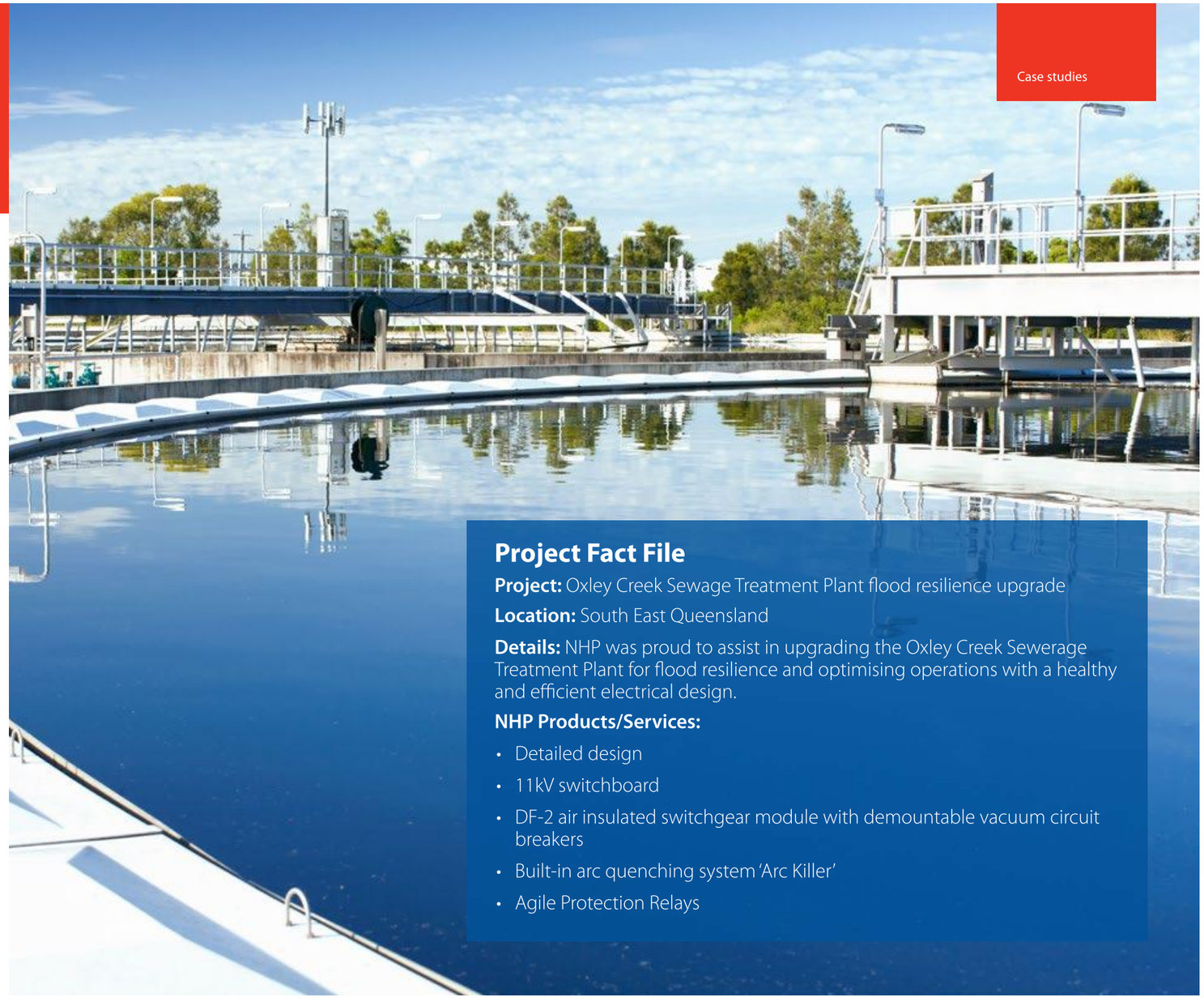

Project Fact File

Project: Oxley Creek Sewage Treatment Plant flood resilience upgrade

Location: South East Queensland

Details: NHP was proud to assist in upgrading the Oxley Creek Sewerage Treatment Plant for flood resilience and optimising operations with a healthy and efficient electrical design.

NHP Products/Services:

- Detailed design
- 11kV switchboard
- DF-2 air insulated switchgear module with demountable vacuum circuit breakers
- Built-in arc quenching system 'Arc Killer'
- Agile Protection Relays