/ ASSET PRESERVATION, STRUCTURAL REPAIRS & UPGRADING /

TANK & SILO STRENGTHENING

Liquid storage tanks and silos have to resist the internal filling pressure while always remaining leak-tight. Safe usage of the structure can be jeopardised throughout its service life by corrosion, concrete degradation under aggressive conditions, defects and low-cycle material fatigue. As a consequence, it might become necessary to strengthen these circular structures at some stage.

VSL

A member of
Bouygues Construction

POST-TENSIONING FOR SILO STRUCTURES

Active structural reinforcement can be used to ensure the leak-tightness and durability of retaining structures, such as water tanks, tanks for the storage of other liquids, bio-digesters and silos. Post-tensioning (PT) allows for an optimised design of these structures by resisting the hoop stresses while ensuring pre-compression against cracking. PT can offer significant construction savings through a reduction of the steel quantities required, the avoidance of liners and by enabling shorter construction times thanks to the use of precast segments.

AGEING OF TANK & SILO STRUCTURES

Aggressive conditions within industrial installations or water treatment plants combined with poor detailing or incorrect execution often lead to premature corrosion of post-tensioning tendons in the tank walls. Corrosion can also affect passively reinforced structural elements. Changes to the plant operation process can also create the need for reinforcement of tanks or silos.

REPAIR OF SILO STRUCTURES

Adding additional circumferential PT to circular storage structures is an obvious choice to provide additional strength, (re-) establish leak-tightness and improve durability. At VSL, we are specialists in post-tensioned structures, but are also able to carry out general concrete repairs, including provision of liners and coatings and repairs to seals. We deploy industry-leading specialist methods for working at height, in confined spaces or in contact with hazardous materials, while minimising plant shut-down periods.

LEVERAGING OUR EXPERIENCE

We understand that not every structure is the same and that every operation involves different constraints. We capitalize on our involvement in the construction of numerous storage structures around the world. Our intimate knowledge of PT systems, precasting, erection methods and access solutions allows us to develop innovative repair & strengthening schemes that maximise value-for-money.

01 **PREPARATION WORKS**

Adjust the fill level if required prior to starting the repair.

02 **ACCESS PROVISIONS**

Provide access tailored to the repair scheme.

03 **REPAIR WORKS**

Carry out concrete repairs, crack injection and joint treatments.

04 **INSTALLATION OF TENDONS**

Install the anchorages that keep the tendons in place and allow their stressing. Put tendons in position, taking account of the application limits of our certified systems.

05 **STRESSING**

Stress the tendons – by stressing the system, the silo wall is compressed to the calculated values.

06 **FINISHING WORKS**

Apply liners, coatings and/or waterproofing if required. Depending on the stored contents, this may need to be done on the inside and/or the outside of the tanks.

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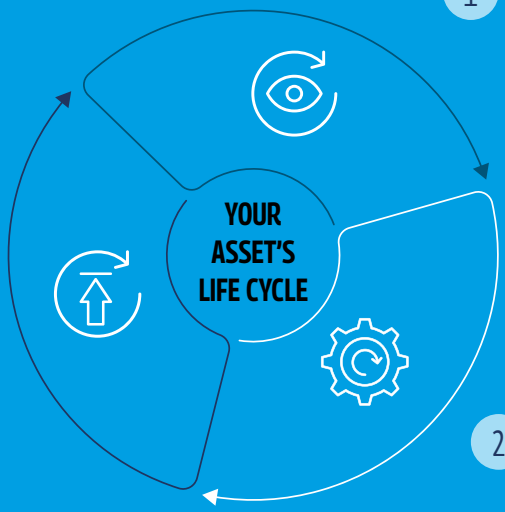

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ASSET PRESERVATION

PREVENTIVE MAINTENANCE
INSPECTION
ASSESSMENT
MONITORING

2

STRUCTURAL REPAIRS

REPAIR
REPLACEMENT

3

UPGRADING

STRENGTHENING
CHANGE OF USE
RESILIENCE ENHANCEMENTS

- CREATIVE ENGINEERING & EFFICIENT METHODS
- IN-HOUSE STRUCTURAL TECHNOLOGIES
- OPERATIONAL SKILLS IN COORDINATION & EXECUTION

WE'RE READY TO MAKE YOUR PROJECT POSSIBLE!

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