

## Project Info



20 / 03 / 18



CC5™ Bulk Rolls



20,600m<sup>2</sup>



Transverse layers



Central Nuclear Embalse,  
Province of Córdoba,  
Argentina



INMAC



CC used to provide  
erosion protection to  
a section of a channel  
modified for use as a  
reservoir



Completed CC canal lining installation

In March 2018, Concrete Canvas® (CC) GCCM\* was used to provide an erosion protection layer to a newly created reservoir on the site of Central Nuclear Embalse Power Plant in the Province of Córdoba region of Argentina.

Following the Fukushima incident in 2011, all nuclear power plants in Argentina which are not located on the coast were modified to upgrade their safety measures.

On the site of the Embalse Nuclear Power Plant, it was established that a reservoir was required to hold water which could be used to cool the reactor in the case of an emergency.

It was decided that the reservoir should be built on an existing channel which transports cooling water from the power plant to a nearby lake.

The channel, which measures 50m wide, was therefore modified along a 300m stretch with an additional 1.5m of depth excavated to act as a reservoir. This section of channel was lined with CC.

The works were carried out by INMAC for Nucleoeléctrica Argentina S.A. with consultancy services provided by CORPI S.A.

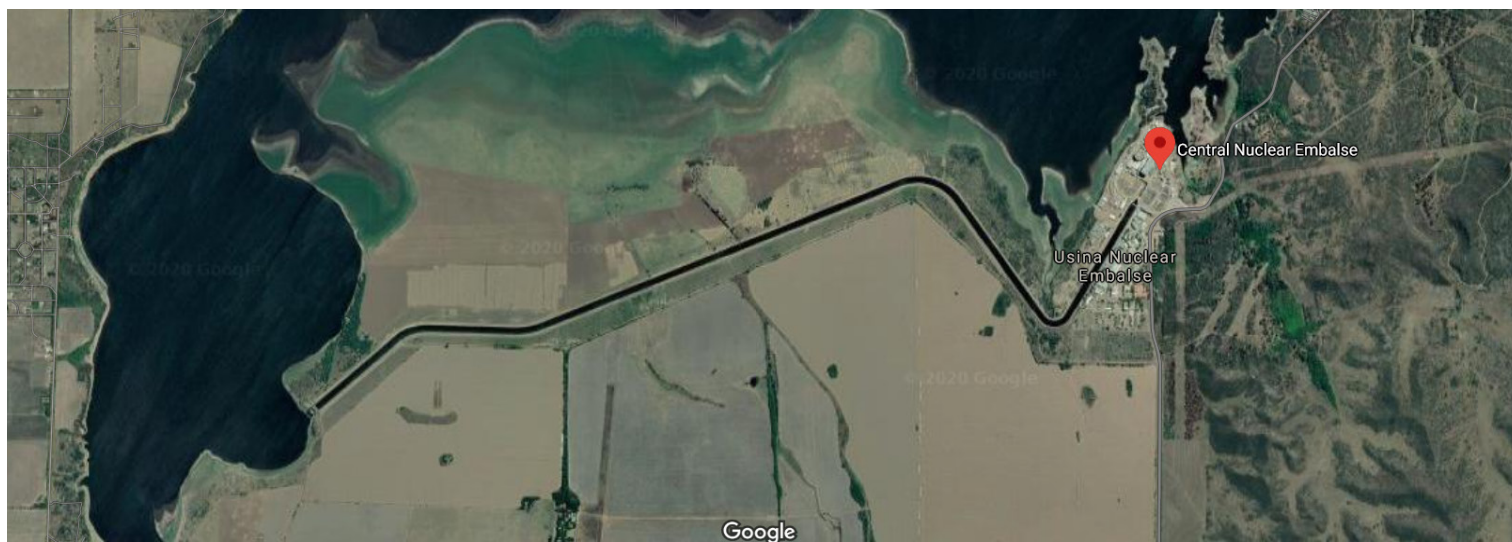
\*Geosynthetic Cementitious Composite Mat



Conventional concrete in the form of concrete slabs was initially considered. However, the heavy machinery, vast number of vehicles required for deliveries and restricted access to the channel itself meant the concrete slabs were deemed impractical. The client also required the works to be completed fairly quickly; the installation of the slabs would have required considerable time and resources at great expense. The consultant on the project, CORIPA S.A. recommended CC as a rapidly deployable solution, saving time, reducing logistical requirements and saving costs.

Prior to installation, the reservoir section was excavated, vegetation and rocks removed and the substrate graded to create a smooth surface on which to install the CC. Anchor trenches were also prepared on the channel shoulders.

Single continuous lengths of CC were deployed from a spreader beam suspended from a backhoe. The material was laid transversely across the width of the reservoir with the leading and trailing edges secured within the anchor trenches using ground pegs. Subsequent layers of CC were laid so as to overlap the previous by 100mm before being thermally bonded to reduce permeability of the joints. Temperatures reached up to 40°C on site, so the CC was hydrated at the end of each working day to reduce the chance of the water evaporating, which could prevent sufficient hydration and prevent the CC reaching its full strength.



Location of the Nuclear Powerplant



Canal section following ground works and preparation of anchor trenches



CC delivered in bulk rolls



CC bulk rolls deployed from spreader beam and excavator



Layers of CC thermally bonded to reduce joint permeability



Installation progress



CC hydrated using bowser and hose



CC lined section of the canal seen on Google Earth



*A total of over 20,000m<sup>2</sup> of CC were installed*

A team of six people worked eight-hour days, installing 400-600m<sup>2</sup> each day. A total of 20,600m<sup>2</sup> were installed over a period of 1.5 months.

The works were successfully completed within the deadline provided by the client. The use of CC not only reduced the installation time for protecting the reservoir channel section but also simplified logistical requirements associated with the concrete slab option. As a result, security on the site was not compromised and the operation of the power plant could continue without any disruptions.