

CASE STUDY



The United States' canal systems are vast and vital. This case study concerns the Grand Valley irrigation system in Colorado. The water used within the Grand Valley originates in the snowpack of the northern Front Range, Middle Park, Gore Range, Elk Mountains, Grand Mesa, and other smaller ranges in northern and central Colorado. It is a critical source of water for agriculture for crops such as peaches, plums, cherries and wine grapes.

Elite Protective Coatings carried out repair test work three years ago on cracked, shotcreted banks. The shotcrete itself is tough to repair as adhesion is an issue, so it was decided to overcoat it with Castagra's SG1. Recently, those repairs were inspected and photographed to provide evidence for justifying future use of this veggie-plastic.

Problem

Three years is considered an adequate length of time to judge the effectiveness of Castagra's SG1 usage, but proof was needed to justify that assertion, particularly as the water industry is considered to be a conservative one.

Any time water is involved, this presents problems as the target area to be coated must be clean and dry.

In this case, cost to the client is paramount as budgets in this industry are relatively low in sharp contrast to the high importance and vital nature of the industry itself.

Solution

Castagra's SG1, which is non-toxic and NSF/ANSI-61 certified for contact with human drinking water, has outstanding adhesion which was particularly critical with making effective repairs on shotcrete. Typical cloth adhesion tests show that it has a grip strength in excess of 100 pounds.

Castagra's SG1 is easily manually applied and can also be sprayed with the company's proprietary spray technology which entirely eliminates the need for solvents. It is also readily foam-able and has a Class A flame retardant rating.



The coating is produced from castor oil and gypsum, and thousands of tanks, steel, and concrete structures have been coated with it, including ship decks. Its high resistance to corrosion has been well demonstrated in frac production water and oil tanks which are often contaminated with the cocktail of chemicals, many of which are corrosive, that are used in that oil extraction process.

Application Results

The coated areas on the shotcreted banks appear to be pristine. Careful and close inspection, particularly along edges, showed no anomalies and no touch-ups were required.

One standout result was the client reported an increased flow rate where plastic sheets had been employed and the effects of the ultra-smooth surfaces created by the coated sections. This effect can benefit irrigation operations. The client also reported satisfaction that Castagra's SG1 would appear to offer additional shotcrete protection from debris impacts in the flow streams.