

Structure Operations and Water Quality

Structure construction field operations can present unique challenges to maintaining compliance with water pollution control regulations. In particular, operations over or adjacent to water bodies require creative thinking to design and implement innovative and effective solutions. This bulletin presents two such structure operations and the practices that were devised to maintain water quality.

Bridge Abutment Construction

A contractor in District 7 had the difficult task of constructing a bridge abutment adjacent to a creek (Photo 1). To construct this abutment, it was necessary to drill horizontally into bedrock to set reinforcing bars. Epoxy was then placed into the holes to adhere the bars to the bedrock.

In the *Caltrans Construction Site Best Management Practices (BMPs) Manual*, (November 2000), Liquid Waste Management BMP (WM-10) addresses the capture and disposal of liquid wastes. However, in some instances, the specific methods of capture provided do not fit field conditions.

To prevent the discharge of drilling slurry, drilling fluids, or epoxy into the creek, the contractor erected and attached a control flume, similar to rain gutters, to the surface of the wall and underneath the drilling operation. The liquid drilling wastes were captured in the flume and transported by gravity to a containment bucket (Photo 2).

The bucket was monitored and replaced as needed to prevent overflow. The waste material was disposed of in accordance with the November 2000 Manual.

Partial Bridge Demolition

In District 11, a contractor was removing concrete barrier from the edge of a bridge spanning a creek using a remote-controlled jackhammer (Photo 3).

The challenge was to devise a practice to prevent the concrete debris resulting from the demolition from falling into the creek. The contractor decided to use a specialized bucket attached to the arm of the backhoe that could be placed under the area of the concrete barrier being demolished (Photo 4).

The concrete debris was captured nicely in the bucket, stockpiled in an area off the bridge, and later removed from the project. This innovative practice prevented the need for more expensive containment systems, creek protection, or debris removal.

If It Makes Sense and Does the Job – Go With It

In situations where prescribed or approved BMPs do not fit field conditions, use your judgment as a Resident Engineer to decide if a practice designed by a contractor will ensure compliance with storm water protection requirements. You may also want to discuss details with your District Storm Water Coordinator.



Photo 1: Drilling adjacent to a stream for tieback wall anchors.



Photo 2: The use of a control flume to collect waste from drilling operations.



Photo 3: Remote-controlled jackhammer used for removal of a concrete barrier.



Photo 4: Attachment used with a backhoe to collect concrete debris.

