# PETROTAC BRIDGE DECK WATERPROOFING MEMBRANE on FIVE MILE CREEK BRIDGE Experimental Feature OR 85-04

First Interim Report

by

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## INTRODUCTION

During the 1970's, the Oregon State Highway Division was involved in a Federally funded experimental program to evaluate various waterproofing membrane systems for bridge decks. Through this program, a list of approved products and/or systems was developed. Since the completion of that study, several of these products have been discontinued and replaced with new, redesigned products. While some of the original products are still available, it was felt the newer products, developed from current technology, should be evaluated, as these are purported to be more durable and often less expensive.

On October 17 and 18, 1985, one of these new bridge deck waterproofing systems, Bridge Deck Grade (BDG) Petrotac, was installed on the deck of Five Mile Creek Bridge. Manufactured by Phillips Fibers, Petrotac is an impermeable, nonwoven fabric membrane used to protect a bridge's reinforcing steel from moisture and harmful chlorides. BDG Petrotac is manufactured in 36" wide strips, with a self-sealing edge to insure full closure when strips are overlapped.

A research program was implemented to inspect and evaluate this membrane over a period of two and a half years. This report documents the installation of the Petrotac system, and the results of the first evaluation.

## CONSTRUCTION

Located approximately 15 miles south of Ukiah, Oregon, the bridge, constructed in the summer of 1985, is designed to carry light, infrequent, tourist and logging traffic. The 63.75' x 32.0' deck is constructed of 8 precast, prestressed slabs, with a 5 degree horizontal curvature, an 8% super-elevation, and a 1% grade. There is approximately a 1/2" vertical difference between the four-foot slabs, with the lower edge of the slabs tilted in the same direction as the super-elevation. Prior to membrane installation, the concrete deck had a rough screed finish.

October 17

Construction began by grouting the top 1" of all joints with W. R. Meadow's Sofseal Joint Sealant. The hot, liquid Sofseal ran towards the lower side of the deck, and the Petrotac representative advised the contractor to remove all the excess on the deck's surface.

Gibson-Holmans 6001 roofing primer, supplied by the manufacturer's representative, was then applied at a rate of 0.09 gallons per square yard. This primer, a cutback asphalt compound, prepared the concrete deck to accept the rubberized asphalt mastic on the Petrotac. The primer was left to cure overnight before the membrane was installed.

October 18

The deck was swept clean and the Petrotac rubberized asphalt membrane was applied using an 80 pound hand roller. The fabric is manufactured in 3 foot wide rolls, with a 2" strip of tack applied to the edges to aid installation. Longitudinal joints were overlapped a minimum of 4" to shed