

Mormon Island Auxiliary Dam

Jet Grouting Test Section

Folsom, California



Owner:	US Bureau of Reclamation
General Contractor:	TREVIICOS Corporation
Engineer:	USBR – Technical Service Center

Introduction

Mormon Island Auxiliary Dam (MIAD) is located near Sacramento, California. MIAD is an earth fill dam that is a component of the Folsom Dam, which impounds the American River to form Folsom Lake. In the 1990s, MIAD foundation was modified upstream and downstream to limit seismic deformations. Additional seismic strengthening of the MIAD foundation soils in the downstream toe area is still required. In order to treat the potentially liquefiable weak foundation soils, jet grouting was selected by the USBR as the technically preferred method to consolidate the foundations.

Main Features

In order to assess the feasibility of the jet grouting technique for the project, a full scale trial test was designed on a small portion of the dam, using different working parameters.

The project, awarded to TREVIICOS for \$1.4 million, consisted of 22 jet grout columns (18 triple fluid and 4 double fluid type columns). Prior to carrying out any work, 3 verification columns were conducted in accordance with the specification requirements.

The jet grouting operations were divided into two stages to allow verification and adjustment of design parameters. The first phase of the work consisted of 10 triple fluid columns and 11 core holes. The second stage consisted of 8 triple fluid columns, 4 double fluid columns and 23 core holes. In accordance with the original schedule, the project was completed in three and a half months.

Soilmec equipment was used for the execution of the work (i.e. Drill rigs, grouting unit and high pressure pumps).

Jet Grouting Statistics

No. of columns: 22
Total drill length: 1,920 ft
Total jetted length: 940 ft

Equipment

1 - R-312-MP Drill Rig
1 - SM-525 Drill Rig
1 - PSM-980G Drill Rig
1 - 7T-800 High Pressure Pump
2 - 7T-600 High Pressure Pumps
1 - GM-25 Grout Mixing Unit

(SOILMEC Equipment)



Pre-Drilling & Jet Grouting Operations



Spoil Management During Jetting



Verticality Checking



Pre-Drilling And Coring Operations



Density Measurement

The Project was performed in accordance with high safety and quality standards. For the first time, grout density was recorded in real time and spoil quantities were tracked and recorded. Drilling and jet grouting operations were digitally tracked and recorded in real time. Verticality checks were conducted on each and every column and core hole completed.