

**ALTERNATIVE COVER DESIGN USING HYDROLOGIC MODELING
FOR AN INERT WASTE PILE IN SOUTHERN CALIFORNIA**

SCOTT J. SALVAS, P.E.

**Camp Dresser & McKee, Inc.
6000 Uptown Blvd. NE, Suite 200
Albuquerque, New Mexico 87110**

Alternative Cover Design Using Hydrologic Modeling for an Inert Waste Pile in Southern California

A gypsum wallboard manufacturing facility, located approximately 18 miles west of El Centro, California, has been producing wallboard and related gypsum products for over 70 years. Over that time period waste product material has been disposed of at an Inert Waste Pile (IWP) located on facility property. The Inert Waste Pile (IWP) currently occupies approximately 78 acres of the 475 acre facility and contains approximately 2,600,000 cubic yards of waste wallboard material. The waste products the IWP has accepted include out-of-specification wallboard material and gypsum spilled during crushing, heating, milling, storage, and mixing.

In 2005, the facility began recycling out-of-specification wallboard from the waste pile and no additional wastes have been added to the pile since then. The IWP is therefore no longer required to support the facility's processes and operation. In addition, the County of Imperial (CA) - Public Health Department is requiring that the facility close the IWP in accordance with Section 21090, Title 27, of the California Code of Regulations.

CDM was hired by the facility to prepare a Closure and Post-Closure Maintenance Plan which included design of an alternative cover system. Because of the unique properties of the gypsum waste material and the very arid climate of the area, infiltration modeling analysis was performed with UNSAT-H software. UNSAT-H is a sophisticated numerical model capable of assessing the water dynamics of unsaturated soils at arid and semi-arid sites by simulating soil water infiltration, runoff, evaporation, plant transpiration, and drainage.

CDM's expertise in designing alternative covers in conjunction with UNSAT-H modeling software allowed CDM to design a cover system that is equivalent to the regulatory prescriptive system, but only approximately half the thickness. This will ultimately allow the facility to save several million dollars in construction costs due to the decrease in required material and the reduced complexity of construction.

Scott J. Salvas, P.E.
Project Engineer
CDM
6000 Uptown Blvd NE
Suite 200
Albuquerque, NM 87110
505-353-3724
505-243-2700 (Fax)
SalvasSJ@cdm.com
www.cdm.com

CDM listen. think. deliver.
consulting - engineering - construction - operations

Biography

Scott Salvas is a Professional Engineer in the State of New Mexico and has a Bachelors Degree in Environmental Engineering from the New Mexico Institute of Mining and Technology. He has 12 years of experience in civil and environmental engineering-related projects including solid waste management, water supply and distribution, and environmental compliance and remediation. Mr. Salvas has been involved in all aspects of civil/environmental engineering projects including master planning, modeling, feasibility studies, permitting, design, and construction administration/inspection. He has performed studies, design, management, and construction oversight for over \$100 million worth of civil and environmental engineering projects. These projects include environmental investigations, landfill gas management, monitoring, design, and construction at over 20 solid waste management facilities in New Mexico and the Southwest Region.