PROJECT FACT SHEET

CONTRACT TITLE: Design Criteria for Field Implementation of Electro-Osmosis (PARTNERSHIP)

ID NUMBER: P-85

B&R CODE: AC1005000

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PROJECT SITE
CITY: Berkeley **STATE:** CA
CITY: Livermore **STATE:** CA
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CONTRACT PERFORMANCE PERIOD:
4/15/1998 to 4/14/1999

PROGRAM: Supporting Research
RESEARCH AREA: Partnership/Oil Recovery Technology
PRODUCT LINE: ADIS

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	0	0	0
FISCAL YR 1998	70	0	70
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	70	0	70

OBJECTIVE: Design criteria for field implementation of Electro-Osmosis. Experiments on sea-bottom samples show technique for strengthening structural components of off-shore facilities with footings and elements below the sea floor is applicable.

PROJECT DESCRIPTION:

Background: Electro-osmosis, performed in sea floor sediments by an induced current, has the ability to increase bearing capacity and shear strength of the sediments in the vicinity of the effected area. Pore water has the tendency, under electro -osmosis, to move away from the positively charged anode toward a negatively charged cathode. As the pore water moves, sand/shale consolidation in the vicinity of the anode increases, increasing bearing load and shear strength.

Work to be Performed: Conduct experiments with samples to verify degree of and optimal treatment.

PROJECT STATUS:

Current Work: Conducted an in-depth analysis of data obtained from recent Gulf of Mexico and North Sea sediments to assess the viability of this technique to strengthen offshore structures. Shear strength increases of between 50% and 100% are realistic; effectiveness is dependent on anode material and the mineralogy of the soil to be strengthened. Testing of soil samples are essential prior to any full scale operation; this testing should ascertain optimum treatment and expected results.

Scheduled Milestones:

Test North Sea sediments for electrokinetic behavior	Cmplt
Test Gulf of Mexico sediments for similar behavior	Cmplt
Conduct additional laboratory testing as required	

Accomplishments: Testing has indicated the viability of electro-osmosis to consolidate brine saturated sediments to increase bearing and shear strength of formations of off-shore structures and conductor casings.