

PROJECT FACT SHEET

CONTRACT TITLE: Environmental Research - Remediation Research for Produced Water and Crude Oil Spills

<p>ID NUMBER: 98-A06 Task 13</p> <p>B & R CODE: AC1015000</p> <p>DOE PROGRAM MANAGER: NAME: William H. Hochheiser PHONE: (202) 586-5614</p> <p>DOE PROJECT MANAGER: NAME: Nancy C. Holt LOCATION: NPPTO PHONE: (918) 699-2059</p> <p>PROJECT SITE CITY: Bartlesville STATE: OK CITY: STATE: CITY: STATE:</p>	<p>CONTRACTOR: BDM-Oklahoma NIPER</p> <p>ADDR: 220 N. Virginia P.O. Box 2565 Bartlesville, OK 74003</p> <p>PRINCIPAL INVESTIGATOR: NAME: Dennis Ripley PHONE: (918) 337-4264 FAX: (918) 337-4365 INTERNET ADDRESS: dripley@bdmok.com</p> <p>CONTRACT PERFORMANCE PERIOD: 11/01/1997 to 10/31/1998</p> <p>PROGRAM: Environmental-Oil RESEARCH AREA: Environmental</p>
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FUNDING (\$1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	0	0	0
FISCAL YR 1998	195	0	195
FUTURE FUNDS	55	0	55
TOTAL EST'D FUNDS	250	0	250

OBJECTIVE: Develop and implement a cost-shared project or suite of projects to improve remediation of soil and groundwater after contamination from crude oil and/or produced water.

PROJECT DESCRIPTION:
Work to be performed: BDM will conduct research in the Prairie to better understand recovery of ecosystems following a spill and evaluate remediation strategies.

PROJECT DESCRIPTION (Continued)

Background: Accidental release of crude oil and produced water during petroleum production operations causes some impact to the environment. In many cases, some type of remediation is prescribed to mitigate the adverse effect of these products in the environment. The ultimate objective of remediation operations is to restore the impacted environment to its original state. The present criteria for impacted site remediation is based on removing contaminants until some target level of contamination is achieved. However, this method does not address long-term impacts of the contamination which may cause changes in land use or changes in the ecosystem. Furthermore, it is not well understood how to determine when the restoration is complete and original conditions have been restored.

The purpose of this project is to investigate the remediation of soil and /or groundwater that has been contaminated by the release of crude oil, produced water, or other fluids related to the production of petroleum. The field research for this project is being conducted in The Tallgrass Prairie Preserve, near Pawhuska, Oklahoma. The Tallgrass Prairie Preserve, owned and operated by the Nature Conservancy, is a living laboratory for the study of dynamic prairie ecosystems. The Preserve contains over 120 producing oil wells and has numerous sites where accidental releases of both crude oil and produced water have occurred over the production history. The current research in the Tallgrass Prairie is designed to better understand the recovery of ecosystems following a spill. Information to be gained in this study is critical to providing a scientific basis for evaluating spill impact to the environment and remediation strategies.

Objectives of this research project are to study long-term effects of oil and brine release on a prairie ecosystem and evaluate new technology to mitigate environmental impact from oil and brine releases. The contaminated soils and groundwaters investigated in this study include both recent and historical sites contaminated with produced water, crude oil, and a combination of produced water and crude oil. Laboratory and field data have been collected to evaluate the performance of remediation options. This data will also serve as the basis for evaluating both the short and long term effects of contamination and the remedial technologies, including a better understanding of the total ecosystem effects. Both active and passive remedial or containment technologies are being evaluated.

PROJECT STATUS:

Current Work: Three recent spill sites in the Prairie are being investigated in this project. Site #1 was impacted by a release of dewatered crude oil in 1992. The site has been remediated and re-vegetated. Monitoring of the site soil microbiology has been initiated and analysis is in progress. Brine and crude oil were released at site #2 in 1995. Soil from the contaminated zone is currently being used in a soil mesocosm study to evaluate the affect of an amended biosurfactant system on rates of crude oil biodegradation by the native soil biota. Site #3 received produced water from a ruptured pipeline in 1995. Microbial ecology of the impacted area is being monitored. A feasibility study to evaluate novel barrier technology is in progress.

Scheduled Milestones:

Quarterly reports as required

Decision point for feasibility of barrier

Accomplishments: Designed physical subsurface model for evaluation of barrier injection.