PROJECT FACT SHEET

CONTRACT TITLE: Characterization of Naturally Occurring Radioactivity in Fossil Fuel Equipment and Wastes

DATE REVIEWED: 07/27/1994 **DATE REVISED:** 07/27/1994

OBJECTIVE: To determine and characterize concentrations of important naturally occurring radioactive materials (NORM) in oil and gas industry wastes and equipment throughout the United States. The study will concentrate on "problem areas" identified during previous external gamma surveys. The project is being funded jointly between DOE and oil and gas industry associations (API and GRI).

ID NUMBER: 5AC304

B & R CODE: AC1505100

CONTRACT PERFORMANCE PERIOD:
10/01/1991 to 04/30/1995
PROGRAM: Environmental Research
RESEARCH AREA: NORM

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Idaho Falls, ID

SCHEDULED MILESTONES:

Task 1 - Complete Sampling and Analysis Plan.	Completed	07/93
Task 2 - Field Test Sampling and Analysis Plan.	Completed	08/93
Task 3 - Collect samples from oil and gas industry and begin analysis.	Ongoing to	10/94
Task 4 - Conduct radon analysis.		06/94
Task 5 - Health Physics Society NORM Standards Working Group		09/94
Task 6 - Complete data analysis and final report		04/95

FUNDING (1000'S)	DOE	OTHER	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	120	162	0	**282**
FISCAL YR 1994	0	0	0	**0**
FUTURE FUNDS	0	0	0	**0**
TOTAL EST'D FUNDS	**120**	**162**	**0**	**282**

PROJECT DESCRIPTION: The project covers a series of six tasks: (1) A NORM issue paper will be prepared that will review the available literature on the extent of NORM in oil and gas field operations and summarize the possible constraints proposed regulations may have on domestic oil and gas operations. (2) A detailed Sampling and Analysis Plan describing the work to be done will be prepared. It will describe the level of knowledge at the start of the program; the information that must be collected; detailed descriptions of what work will be done, how and why the work will be done, who is responsible for conducting the sample collection and analysis; and the expected form and content of the final report. (3) Sampling and analysis will include mineral scale from production tubing; waste from heater treaters, separators, and other production equipment; and waste pit materials and potentially contaminated soil. Radon release rates from production tubing contaminated with scale will be measured. (5) Author S. Rood, Principal Investigator, will participate in the Health Physics Society NORM Standards Working Group, which will be developing standards to provide guidance regarding health risks associated with NORM and to provide the public, regulatory agencies, and private industry with guidelines and standards regarding health risks and acceptable concentrations of NORM to facilitate rational decisions regarding possession, use, transfer, and disposal. (6) The data will be analyzed and a final report prepared describing the NORM Characterization Program. Papers and presentations will be prepared for industry group and professional society meetings summarizing the results of the NORM program.

PRESENT STATUS: The NORM issue paper was completed and issued in June 1992 (Naturally Occurring Radioactive Materials (NORM) In Oil and Gas Industry Equipment and Wastes - A Literature Review, by Gregory J. White, U.S. Department of Energy, Bartlesville Oklahoma, DOE/ID/01570-T158). The Sampling and Analysis (S&A) Plan has been developed, reviewed, and approved th the industry associations participating member companies and successfully field tested in October 1994. Completion of Task 3, collection and analysis of samples from the oil and gas industry is dependent on cooperation of API member companies in the sample collection process. Phase 1 of Task 4, measurement of flux from pipes, has been completed. Phase 2 of Task 4, measurement of radium in the pipes measured in Phase 1, will be conducted in April 1994.

ACCOMPLISHMENTS: (1) Completion of the NORM issue paper. (2) Completion and testing of the Sampling and Analysis Plan. Successful completion of the program will provide data needed to make factually based decisions for the regulation and disposal of NORM. Phase 1 of the radon analysis has been completed and Phase 2 will be conducted in April 1994.

BACKGROUND: To date very few oil or gas production companies have collected NORM samples for laboratory determination of activity concentration for the various radionuclides present. State and federal regulatory agencies have made it increasingly clear that data of this type will ultimately be required for the evaluation and approval of disposal alternatives proposed for NORM. To help in the assessment of the potential environmental and health significance of NORM, it is necessary to collect and evaluate data on radionuclide concentrations in oil and gas field equipment and wastes. Information is needed on the appropriate means of handling, storing, and disposal of materials contaminated with NORM.