

PROJECT FACT SHEET

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

ID NUMBER: FEW 5AC304

CONTRACTOR: Idaho Nat'l Eng & Env Lab

B & R CODE: AC1015000/AB0555

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PROJECT SITE

CITY: Idaho Falls

STATE: ID

CITY:

STATE:

CITY:

STATE:

CONTRACT PERFORMANCE PERIOD:

10/01/1991 to 09/30/1998

PROGRAM: Environmental-Oil

RESEARCH AREA: NORM

FUNDING (\$1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	155	162	317
FISCAL YR 1998	120	0	120
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	275	162	437

OBJECTIVE: Characterize NORM contamination at two large DOE petroleum production facilities, Elk Hills and Teapot Dome, and to develop field-oriented survey technologies for assessing NORM contamination that can be transferred to industry.

PROJECT DESCRIPTION:

Work to be performed: Part 1 of this project covered a series of six tasks: (1) A NORM issue paper was prepared that reviewed the available literature on the extent of NORM in oil and gas field operations and summarized the possible constraints proposed regulations may have on domestic oil and gas operations. (2) A detailed Sampling and Analysis Plan describing the national NORM characterization was prepared. (3) Sampling and analysis of mineral scale from production tubing, waste from heater treaters, separators, and other production equipment, and waste pit materials and potentially contaminated soil. (4) Radon release rates from production tubing contaminated with scale was measured from a single site. (5) Author S. Rood, Principal Investigator, participated in the Health Physics Society NORM Standards Working Group, which develops 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. Part 2 involved the characterization of the NPR-3 site in Wyoming for NORM contamination. NPR-C in California was not characterized because this site has implemented a comprehensive, site-wide NORM program. Part 3 involves a series of five tasks: (1) completion of the NPR-3 characterization final report; (2) completion of the Part 1 final report; (3) writing of a sampling and analysis plan for conducting the radon release study; (4) collection and analysis of samples of pipe scale, soil, and other materials for radon release measurements; and (5) writing of the final radon release report.

PROJECT DESCRIPTION (Continued)

Background: This project involves three parts: (1) conduct a national survey of NORM contamination in the petroleum industry; (2) conduct comprehensive NORM surveys at National Petroleum Reserve sites, where necessary; and (3) conduct a study to determine reasonable radon release rates from NORM-contaminated pipe scale, soil, and other materials. To date very few oil or gas production companies have collected NORM samples for laboratory determination of 226Ra and 228Ra. 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. Radon gas release rates will also be determined for production pipe scale and soils contaminated with NORM. This will involve sampling from up to six facilities from three major petroleum-producing regions with the objective of developing reasonable values for radon release from pipe scale and soils. It is expected that these data will show that regulations governing the disposal of NORM contaminated materials based on data from uranium mill tailings are overly conservative when applied to the petroleum industry. This work will be done in cooperation with the American Petroleum Institute and the U.S. Geological Society.

PROJECT STATUS:

Current Work: Tasks 1 through 5 of Part 1 have been completed, although the collection and analysis of samples from the oil and gas industry involved fewer samples than anticipated due to unforeseen problems in obtaining sufficient numbers of samples from the API member companies. The final report for this portion of the project is near completion. The final characterization report for the NPR-3 site is also near completion (Part 2). Tasks 3 through 5 of Part 3 will be conducted during FY-1998.

Scheduled Milestones:**PART 3**

Task 1 - Completion of NPR-3 Characterization Report	04/98
Task 2 - Completion of Part 1 Final Report	04/98
Task 3 - Sampling and Analysis Plan for radon release study	04/98
Task 4 - Collection and analysis of radon release samples	08/98
Task 5 - Final radon release report	09/98

Accomplishments: (1) Completion of the NORM issue paper. (2) Completion and testing of the Sampling and Analysis Plan for Part 1. (3) Completion of the radon flux measurements in pipes and radon emanation coefficient measurements for Part 1. (4) Publication of peer-reviewed paper on radon release. (5) Completion of Sampling and Analysis Plan for NPR-3 NORM characterization. (6) Completion of sampling and analysis of NPR-3 samples for NORM.