

PROJECT FACT SHEET

CONTRACT TITLE: Hydrogeochemical and Production Controls of NORM in Oil- and Gas-Field Operations

DATE REVIEWED: 01/28/93

DATE REVISED: 01/13/93

OBJECTIVE: To study the development of a screening methodology to determine where in conjunction with oil and gas operations, NORM wastes are likely or unlikely to exist, both basin wide and on a well-by-well scale.

ID NUMBER: DE-AC22-92MT92011

B & R CODE: AC1510100

CONTRACT PERFORMANCE PERIOD:

05/05/92 to 11/04/93

PROGRAM: Lt Oil

RESEARCH AREA: Environmental

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PROJECT SITE:

Austin, TX

SCHEDULED MILESTONES:

Task 1 (Field Sampling Preparation) - 0-6 months

Task 2 (Field Sampling) - 7-12 months

Task 3 (Data Analysis) - 13-18 months

Total Project Duration - 18 months

FUNDING (1000'S)	DOE	OTHER	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	193	0	0	193
FISCAL YR 1993	0	0	0	0
FUTURE FUNDS	0	0	0	0
TOTAL EST'D FUNDS	193	0	0	193

PROJECT DESCRIPTION: During the first stage of the study, field sites shall be identified and existing data from these sites shall be compiled into computer files. Broad areas of interest for the seven major reservoir types shall be determined using available information on reported radiation levels and reservoir characteristics. Operators shall be contacted for assistance. In addition, some operators shall be requested to respond to a questionnaire regarding the occurrence of scale and sludge. Five operators shall be selected in each of the seven major producing areas for field sampling. Detailed reservoir data from these 35 sites shall be compiled using available records. Scale samples will then be collected from production equipment. Operators of sampled fields shall also be polled for additional information on scale production and occurrence. Other variables to be considered include (a) degree of reservoir-pressure depletion, (b) production of workover, (c) gas-lift operations, and (d) injection of corrosion inhibitors. Data analysis will then take place, including geochemical modeling of water chemistry and comparison of modeling results with measured precipitation products. Statistical techniques, such as factor analysis, shall be used to identify to what degree individual reservoir and production characteristics are related to NORM occurrence. These analyses shall result in techniques that will allow individual operators to evaluate NORM potentials at their sites using the identified parameters. The final product of this study shall be a detailed tabulation of factors that can and that cannot be used to predict the occurrence of NORM in scale. Technical information resulting from this project shall be transferred to interested parties.

PRESENT STATUS: As described in the June 9, 1992 letter from Mr. Doug Ratcliff to Mr. Martin J. Byrnes, personnel changes at the Bureau made it necessary for the contractor to temporarily suspend work on this contract. The contractor intends to resume activities as of December 1, 1992, and submit revised plans to Mr. Byrnes by separate letter.

ACCOMPLISHMENTS: Results of this study will help to determine where NORM wastes are likely or unlikely to exist, both basin-wide and on a well-by-well basis. This information will significantly reduce the number of wells that need to be tested, providing appreciable economic relief to small operators.

BACKGROUND: Scale and sludge formed in oil and gas field equipment contains variable amounts of naturally occurring radioactive materials (NORM), ranging from levels similar to background concentrations to levels found in uranium-mill tailings. High concentrations must be identified because they pose a health threat to those who come into contact with contaminated equipment. Measurement of radiation levels to ensure safe conditions at each well and facility would be a time-consuming and expensive effort, especially for small operators. A screening methodology that allows identification of NORM-forming potentials is needed to assist in identification of potentially dangerous areas.