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Hydrogeology • Mineral Resources Waste Management • Geological Engineering • Mine Hydrology

November 5, 1987

Contract No. NRC-02-85-008

Fin No. D-1020

Communication No. 155

Mr. Jeff Pohle
Division of Waste Management
Mail Stop 623-SS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

RE: Monthly Report--October 1987

Dear Jeff:

This document constitutes the twenty-fifth monthly (October 1-31, 1987) progress report as required by Contract No. NRC-02-85-008. Williams and Associates, Inc. reviewed several documents this month. We are continuing our efforts on the required list of tasks outlined in the SOW. Details about our efforts on this contract are outlined based on Task and Subtask numbers.

References to task number in this letter are derived from our Communication No. 126.

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PDR WMRES EECREWIL
D-1020 PDR

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WM Project: WM-10, 11, 16

PDR w/encl

(Return to WM, 623-SS)

WM Record File: D-1020

LPDR w/encl

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TASK 1

The following work was conducted under Task 1.

Subtask 1.1

This subtask has been completed.

Subtask 1.2

Williams and Associates, Inc. completed a written review of the following document during the month of October:

1. Spengler, R.W., Byers, F.N., Jr., and Warner, J.B., 1981, Stratigraphy and Structure of Volcanic Rocks in Drill Hole USW-G1, Yucca Mountain, Nye County, Nevada. USGS Open-file Report 81-1349, Denver.

This review was forwarded to the NRC as Communication No. 153.

We have initiated reviews of the following documents: SAND87-0112 by Barr and Miller (1987), LA-11070-MS by Campbell (1987), and SAND83-2593 by Nimick and Williams (1984). Also, we have revisited document USGS-WRI-84-4349 by Czarnecki and Waddell (1984).

Subtask 1.3

Williams and Associates, Inc. is continuing to review the literature pertaining to potential conceptual models for NNWSI.

Williams and Associates, Inc. has initiated an expanded literature review pertaining to our task of evaluating "Groundwater Testing Methodologies Applicable to Unsaturated Fractured Rock." This expanded literature review is being conducted to evaluate the potential use of unproven (prototype) testing methods by the DOE during site characterization at Yucca Mountain.

Subtask 1.4

Williams and Associates, Inc. is continuing our informal review of the Draft SCP for NNWSI, plus associated references.

TASK 2

The following work was conducted under Task 2.

Subtask 2.1

This subtask has been completed.

Subtask 2.2

Williams and Associates, Inc. completed a draft of a brief report describing the two-dimensional cross-sectional model study of the hydraulic gradients indicated by the cluster piezometer sites (DC-19, -20, and -22). This effort has been conducted on a limited basis because of the need to maintain timely responses on higher priority items.

Williams and Associates, Inc. prepared written reviews of five documents during the month of October. These reviews will be forward to the NRC in November.

Subtask 2.3

Williams and Associates, Inc. is continuing to review new literature pertaining to potential conceptual models for BWIP. We will update in six months our existing conceptual models per requirements in the SOW.

Williams and Associates, Inc. is continuing to work on the statistical analysis of off-site and on-site hydrochemical data. The on-site data set from our 1985 report has been retrieved; the on-site data set has been edited. The on-site data set used in the 1985 report has been cross checked with the BWIP chemical data base report (Early, T.O, Mitchell, M.D., and Spice, G.D., May 1986, A Hydrochemical Data Base for the Hanford Site, Washington. SD-BWI-DP-061). Errors in the data base on the computer have been corrected. We have conducted univariate analyses on the combined on-site and off-site data bases. We have concluded that log transformations of most variables are appropriate.

Subtask 2.4

The draft chapter 3 of the Site Characterization Plan (SCP) has been received. We are reviewing this draft chapter for our information. Formal comments have not been requested.

TASK 3

The following work was conducted under Task 3.

Subtask 3.1

This subtask has been completed.

Subtask 3.2

Williams and Associates, Inc. has completed initial reviews of most of the documents that describe hydrogeologic testing at the WIPP site. We are outlining details on the testing conducted at the WIPP site. We anticipate receiving additional documents that describe hydrogeologic testing conducted at the WIPP site; these additional documents will be reviewed. Written reviews will not be prepared for each document. A topical report will be prepared that covers the hydrogeologic testing described in all the reports. This work is being conducted under our Task #5.

Williams and Associates, Inc. received a copy of each of the test plans prepared by Papadopoulos and Associates, Inc. These reports are entitled "Hydrogeologic Testing Plan for Shallow Hydro Nest Test Wells, Deaf Smith County Site, Texas," and "Hydrogeologic Testing Plan for Exploratory Shaft Monitoring Wells, Deaf Smith County Site, Texas." Our review of these documents is continuing.

Williams and Associates, Inc. is continuing the review of geophysical logs, core photographs, and related material for the J. Friemel #1 well under our Task #2. The information and documents will be returned to Mr. Ross at the completion of this review.

Subtask 3.3

Williams and Associates, Inc. completed the initial requirement under this subtask with the submission of our conceptual model letter report. We updated our evaluation of existing conceptual models as Communication No. 154.

TASK 4

This task has not been initiated. We are accumulating relevant documents during the course of our other activities under Tasks 1, 2, and 3.

TASK 5

Williams and Associates, Inc. has begun Task #3 (described in Communication No. 126) regarding the review of data needs and sources of uncertainty inherent in calculating porosity and effective porosity. We began this task by reviewing the anomalous head differences created during the tracer test conducted in boreholes DC-7/8 at the BWIP site. Reviews of the relevant documents will be forwarded to the NRC in November.

Williams and Associates, Inc. is continuing a review of the procedures available for the determination of vertical and horizontal hydraulic conductivity from field data. This work is being conducted under our Task #4.

Williams and Associates, Inc. continued work on our task entitled "Mathematical Simulation of Unsaturated Flow in Yucca Mountain" during the month of October.

Contractual Problems

No contractual problems have arisen.

Current Expenditures

A breakdown of individual hours and charges is shown on the attached table. Cumulative costs and projected costs are shown on the second table. The attached figure illustrates projected and current cumulative costs.

Sincerely,

Roy E. Williams

INDIVIDUAL HOURS AND CHARGES

	This Month (hours)	Cumulative (hours)	(amount)
Roy Williams	112	2,080	\$107,514.56
Gerry Winter	173.3	3,632.5	85,633.91
Jeff Brown	-	358	12,530
Jim Osiensky	115.5	3,138.7	60,166.85
Dale Ralston	0	331	14,922.60
Kirk Steinhorst	1	118.75	4,443.42
Terry Eckwright	8	129	1,956
John Sharp	0	127.5	5,209
Charles Smith	-	-	-
George Bloomsburg	22	585	24,024.20
Terry Howard	-	-	-
Stanley Miller	9	334	11,969.07
Noel Krothe	-	7.6	380
Richard Parizek	0	67.75	3,387.5
Barbara Williams	37	398	8,029.84
John Riley	31	283	4,621
Tom Lachmar	36	72	1,224
Ken Sprenke	15	23	805

CURRENT AND CUMULATIVE PROJECT COSTS

Task	Current Month	Cumulative to Date FY 86	Cumulative to Date FY 87	Total to Date
1	\$ 9,643	\$ 92,077	\$141,322	\$233,399
2	7,067	76,862	107,015	183,877
3	8,150	86,177	61,221	147,398
4	-----	-----	-----	-----
5	7,244	51,580	143,779	195,359
Total	32,104			

Percentage billed to total funds allocated = 92%.

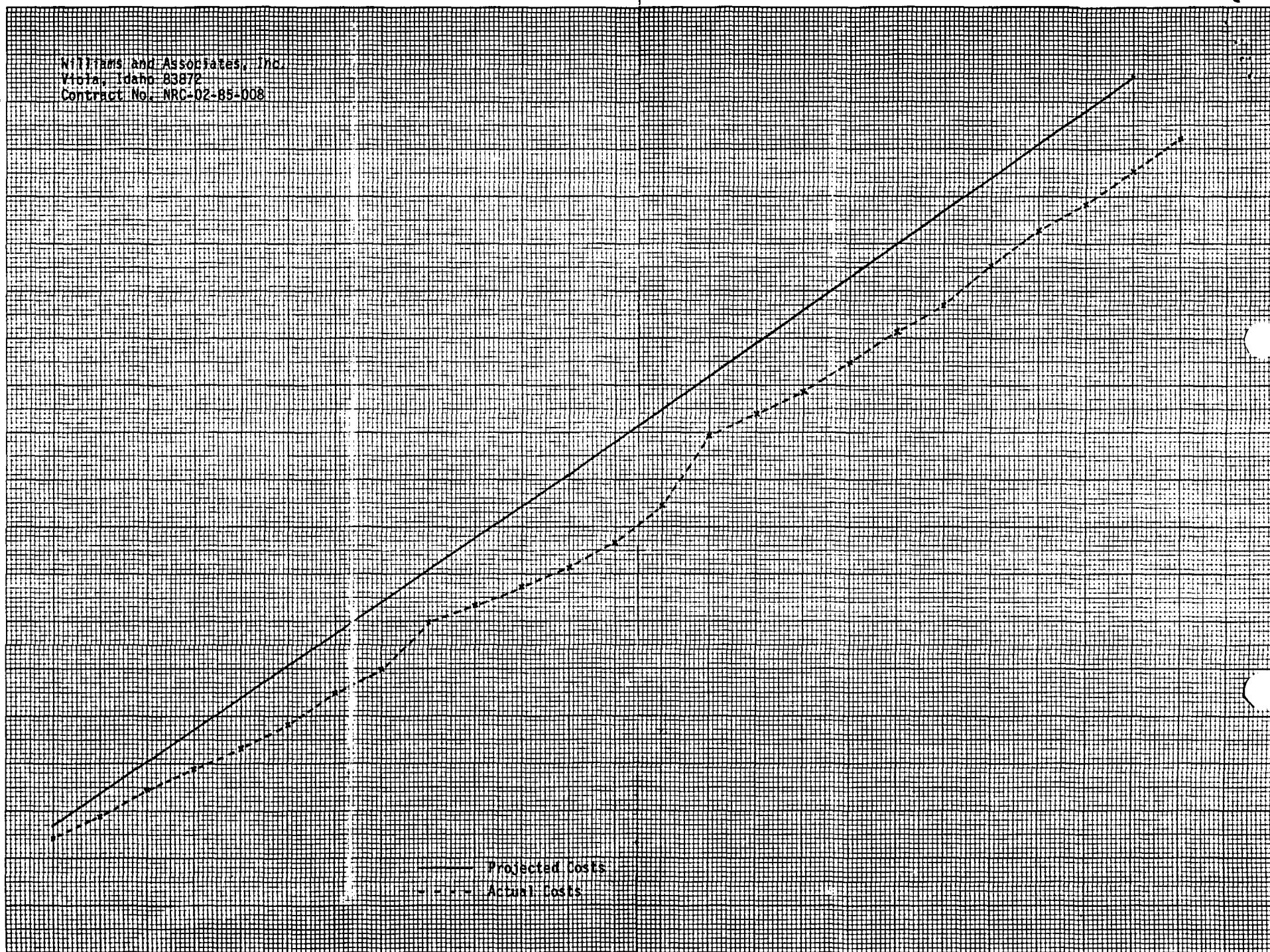
Williams and Associates, Inc.
Vibora, Idaho 83872
Contract No. NRC-02-85-008

Cost in Dollars x 100

800
700
600
500
400
300
200
100
0

— Projected Costs
- - - Actual Costs

20 Squares to the Inch Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1985 1986 1987



WM DOCKET CONTROL
CENTER

'87 NOV 16 P2:09

WM-PRC
WM Record File
D1028
WHA

WM Project 2, 11, 16
Docket No.

POR ✓
XLPOR (A, N, S)

Distribution:

Police

loan - ticket

(Return to WM, 623-SS)

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