

D-1020

LPDR - (6)
WM-10 (2), WM-11a
WM-16 (2)
PDR - (1)

WILLIAMS & ASSOCIATES, INC.

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

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January 7, 1987
Contract No. NRC-02-85-008
Fin No. D-1020
Communication No. 106

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

RE: Monthly Report--December 1986

Dear Jeff:

This document constitutes the fifteenth monthly (December 1-31, 1986) progress report as required by Contract No. NRC-02-85-008. Williams and Associates, Inc. reviewed several documents this month for the Nevada Test Site, for the BWIP site, and for the Palo Duro Basin. These document reviews are in draft and final forms. 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.

Williams and Associates, Inc. attended a BWIP data review in December. The data review was held in Richland, Washington.

WM-RES
WM Record File
D1020
WEA

WM Project 10, 11, 16
Docket No. _____
PDR ✓
LPDR ✓ (B, N, S)

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PDR WMRES EECWILA
D-1020 PDR

Distribution:
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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 written reviews of the following documents during the month of December:

1. Anderson, L.A., 1981, Rock Property Analysis of Core Samples from Calico Hills UE25a-3 Borehole, Nevada Test Site, Nevada. U.S. Geological Survey Open-file Report 81-1337, Denver, 29 p.
2. Anderson, L.A., 1981, Rock Property Analysis of Core Samples from the Yucca Mountain UE25a-1 Borehole, Nevada Test Site, Nevada. U.S. Geological Survey Open-file Report 81-1338, Denver, 36 p.
3. Klavetter, E.A., and Peters, R.R., July 1986, Estimation of Hydrologic Properties of An Unsaturated, Fractured Rock Mass. Nevada Nuclear Waste Storage Investigations Project, Sandia National Laboratories, Albuquerque, NM, SAND84-2642.

Subtask 1.3

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

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. delayed efforts on the two-dimensional cross-sectional model study of the hydraulic gradients indicated by the cluster piezometer sites (DC-19, -20, and -22). This effort was delayed because of the data review, our continuing efforts on the topical reports, and our obligations to complete document reviews. The purpose of this effort is to investigate the relationship of vertical hydraulic conductivity to horizontal hydraulic conductivity. Our efforts should resume in the near future.

The following document reviews were completed this month:

1. Brown, W.R., and Jones, R.L., August 1985, Drilling and Completion Specifications for Wanapum (Type W) and Grande Ronde (Type GR) Multi-Level Piezometer Nest Boreholes. Rockwell-Hanford Operations, Richland, WA, SD-BWI-TC-026.
2. Loo, W.W., and Arnett, R.C., December 1984, Effective Porosity of Basalt: A Technical Basis for Values and Probability Distributions Used in Preliminary Performance Assessments. Rockwell Hanford Operations, Richland, WA, ST-BWI-TI-254.

Williams and Associates, Inc. attended a data review in Richland, Washington, December 1-5, 1986. Representatives from the NRC attended an underground mine tour to observe fracture controlled groundwater flow at the Bunker Hill Mine, Idaho, on December 1, 1986. A brief description of the research activities being conducted at the Bunker Hill Mine was forwarded as Communication No. 104. Other members of the NRC data review team visited the site of the NRC fracture flow research contract near Creston, Washington. A trip report was forwarded as Communication No. 98.

Subtask 2.3

Williams and Associates, Inc. is continuing to review the literature pertaining to potential conceptual models for BWIP. We will continue to evaluate and update existing conceptual models as new data become available.

Williams and Associates, Inc. prepared an outline of proposed activities and an estimated manpower commitment for a proposed statistical analysis of off-site and on-site hydrochemical data. The outline was forwarded as Communication No. 103.

TASK 3

The following work was conducted under Task 3.

Subtask 3.1

This subtask has been completed.

Subtask 3.2

The following document review was forwarded to the NRC under this task this month.

1. Kreitler, C.W., Fisher, R.S., Senger, R.K., Hovorka, S.D., and Dutton, A.R., 1984, Hydrology of An Evaporite Aquitard: Permian Evaporite. Texas Bureau of Economic Geology, Austin, TX, OF-WTWI-1984-52.

Williams and Associates, Inc. is reviewing several documents that describe hydrogeologic testing at the WIPP site. 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. We anticipate receiving specific instructions on this effort in the near future.

Subtask 3.3

Williams and Associates, Inc. completed the initial requirement under this subtask with the submission of our conceptual model letter report. Williams and Associates, Inc. is continuing to review the literature pertaining to potential conceptual models for the Palo Duro Basin. We will continue to evaluate and update existing conceptual models as new data become available.

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. attended a data review held the first week of December in Richland, Washington. Our trip report was forwarded as Communication #98. See Subtask 2.2 for additional details.

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 Williams
Roy E. Williams

INDIVIDUAL HOURS AND CHARGES

	This Month (hours)	Cumulative (hours)	Cumulative (amount)
Roy Williams	72	1,000	\$ 50,520
Gerry Winter	173.3	2,599.5	49,886.52
Jeff Brown	-	358	12,530
Jim Osiensky	116	1,740	32,346.6
Dale Ralston	41	283	12,705
Kirk Steinhorst	27.55	70.5	2,686.67
Terry Eckwright	0	109	1,641
John Sharp	0	77	3,088
Charles Smith	-	-	-
George Bloomsburg	9	345	13,898
Terry Howard	-	-	-
Stanley Miller	9	266	9,453.50
Noel Krothe	-	7.6	380
Richard Parizek	0	25.5	1,275
Barbara Williams	5	155.5	2,995.35
John Riley	19.5	62.5	1,000

CURRENT AND CUMULATIVE PROJECT COSTS

Task	Current Month	Cumulative to Date		Total to Date**
		FY 86	FY 87**	
1	\$ 7,088	\$ 92,077	\$34,187	\$126,264
2	10,463	76,862	26,616	103,478
3	4,050	86,177	16,113	102,290
4	-----	-----	-----	-----
5	12,151	51,580	62,150	113,730
Total	33,752			

Percentage billed to total funds allocated = 54%**.

** Cumulative totals are adjusted to reflect payment for modified G&A rate in FY87.

** Received notification of authorization for total allocated funds of \$825,241 after submission of billing for December; this percentage reflects new total allocation.

Williams and Associates, Inc.
 Viola, Idaho 83872
 Contract No. WRC-D2-85-008

800

700

600

500

400

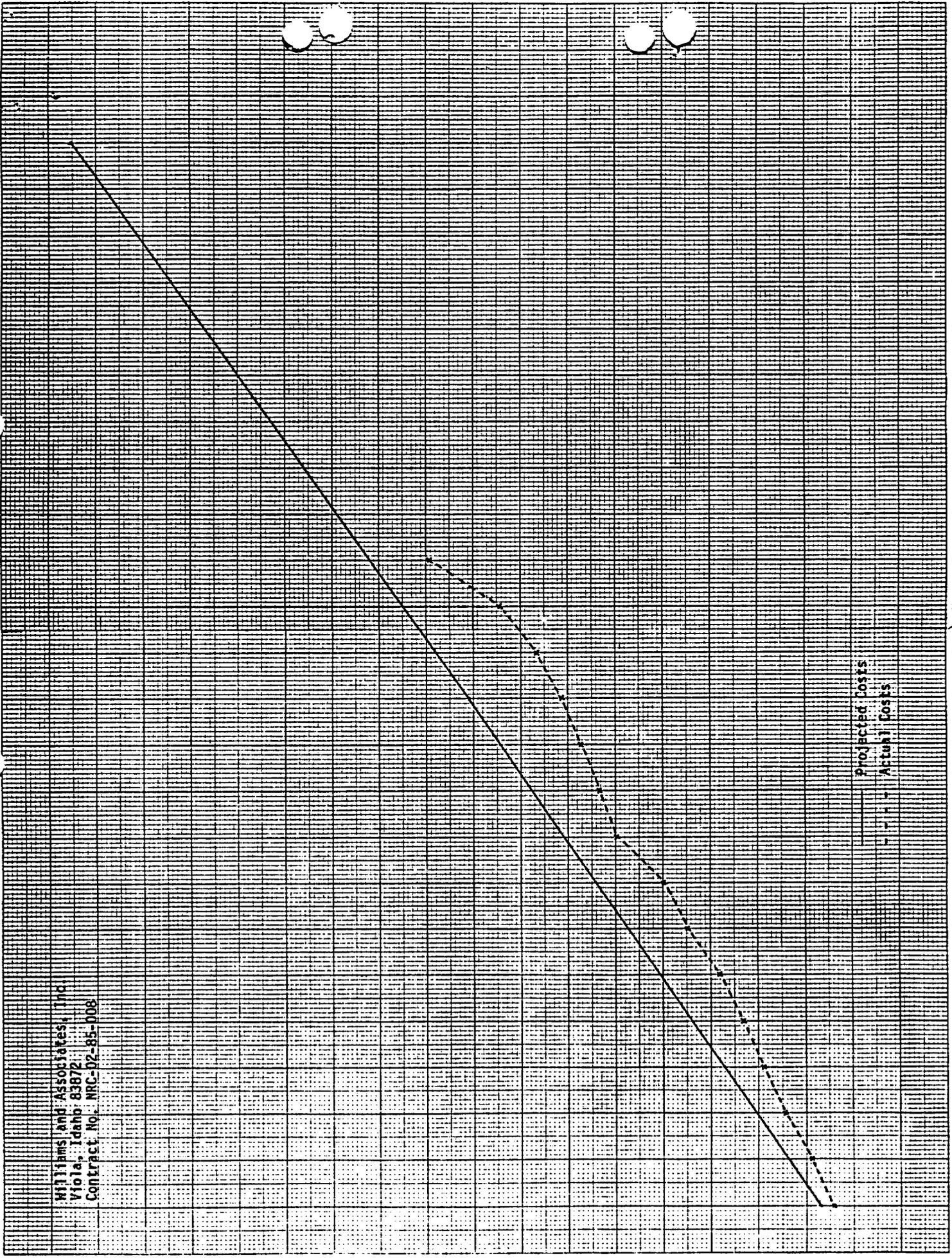
300

200

100

0

Cost in Dollars x 100



Projected Costs
 Actual Costs

Oct 1985 Nov 1985 Dec 1985 Jan 1986 Feb 1986 Mar 1986 Apr 1986 May 1986 Jun 1986 Jul 1986 Aug 1986 Sep 1986 Oct 1986 Nov 1986 Dec 1986 Jan 1987 Feb 1987 Mar 1987 Apr 1987 May 1987 Jun 1987 Jul 1987 Aug 1987 Sep 1987