

APR 15 1987

D1021 PDR-1
LPDR-Wm-10 (2)
Wm-11 (2)
Wm-16 (2)

426.1/D/021/JP/4/14/87

- 1 -

Mr. Mark J. Logsdon, Project Manager
Nuclear Waste Consultants, Inc.
8341 S. Sangre de Cristo Rd.
Suite 14
Littleton, Colorado 80127

Dear Mr. Logsdon:

I have reviewed your monthly progress report for February dated March 9, 1987. This report describes the status of Nuclear Waste Consultants' technical assistance under Contract No. NRC-02-85-009. Overall progress made to date under this contract is satisfactory.

I am pleased with the planning effort accomplished during our meeting of March 17-19, 1987. Subsequent to that meeting I had the site leads organize their activities in the format presented in enclosures 1 through 3. This should be of help in managing your efforts under Tasks 1, 2 and 3 of the contract. I expect you will have questions with respect to the details of the enclosures. Please feel free to contact individual site leads to further develop planning details.

For your information we have agreed to a target date of May 22 for the first draft of a topical report on sources of uncertainty with respect to GWTT. Dr. Williams has also proposed a target date of mid-June for a detailed outline of the topical report on "reducing" uncertainty with respect to GWTT.

As discussed in our planning meeting, I intend to recommend that the NRC extend your contract by exercising our option for the first of three additional years. I originally conceived the Statement of Work with this in mind so as to make cost negotiations a relatively simple matter. Each task sets out the broad scope of work "for each year of the contract." This allows a consistent level of effort to be applied each year while at the same time retains flexibility for the continual shifts in detailed priorities. This together with the attached site specific project plans and previous expenditure rates should be an ample basis for any future cost negotiations. If this is an inadequate response to Section A4.1 of your monthly progress report do not hesitate to contact me.

Wm-RES
WM Record File
D1021
NWCI

WM Project 10, 11, 16
Docket No. _____

PDR ✓
LPDR ✓ (B, A, S)

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PDR WMRES EECNWC1
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Distribution:

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WM Project: WM-10, 11, 16
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WM Record File: D1021
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APR 15 1987

426.1/D/021/JP/4/14/87

- 2 -

The action taken by this letter is considered to be within the scope of the current contract NRC-02-85-009. No changes to costs or delivery of contracted products are authorized. Please notify me immediately if you believe this letter would result in a change to costs or delivery of contracted products.

Sincerely,

/s/
Jeffrey A. Pohle, Project Officer
Technical Review Branch
Division of High Level Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure:
As stated

ATTACHMENT *1*

NNWSI SITE SPECIFIC PROJECT PLAN

SITE SPECIFIC PROJECT PLAN THROUGH FY 1988

Project: NNWSIP
 Discipline: Geohydrology
 Lead: William Ford
 Page: 1

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
1. ONGOING REVIEW OF DOE PROGRAM			
° Review DOE Documents And Reports	NWC/W&A		on going
-83 Reports Formally Reviewed as of March 30, 1987			
° Evaluate DOE Conceptual Models	NWC/W&A		on going
-Conceptual Model Updates and Alternatives	NWC		4/86
--NNWSIP Conceptual Model Evaluation Report	NWC		9/86
-Update of Conceptual Ground Water Flow Model			
° NRC/DOE Interactions			
-Scheduled Technical Meeting with DOE			
-Appendix 7 Meeting			
2. DEVELOP STAFF CAPABILITY			
° Data Inventory And Management			
-Semiannual Data Inventory Transfer to NRC	NWC/W&A		TBD
° Develop Conceptual Models			
-Conceptual Models of Ground Water Flow	W&A		3/86
--Unsaturated Zone Fracture Flow Models	NWC		12/86
--Analyses of Observed Flow Between Test Wells USW G-1 and USW UZ-1	NWC		11/86
-Theoretical Description of Steady, Downward Flow in Layered Fractured Unsaturated Porous Media	NWC		12/86
-Overview of Recharge Estimates	NWC		5/87
--Effect of Increased Precipitation on Recharge	W&A		TBD
--Effect of Heterogeneity on Unsaturated Flow	TBD		TRD
° Adapt Codes For NRC Use To Investigate Performance Assessment And Data Needs			
-Analysis of Unsaturated Flow and Transport at Yucca Mt. with a Stochastic Model	NWC		5/87
--Synthetic Data Base Study	TBD		TBD
--Geologic Relationship to Correlation Factor	W&A		TBD
--A Two-Dimensional (Vertical) Unsaturated Flow Model of Yucca Mt.	NWC		TRD
--A Two-Dimensional (Vertical) Unsaturated Transport Model	NWC		TRD

SITE SPECIFIC PROJECT PLAN THROUGH FY 1988

Project: NNWSIP
 Discipline: Geohydrology
 Lead: William Ford
 Page: 2

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
of Yucca Mt.			
-A Two Dimensional (Horizontal) Saturated Flow Model of the Yucca Mt. Region	NWC		TBD
-A Two Dimensional (Horizontal) Saturated Transport Model of the Yucca Mt. Region	NWC		TBD
3. IDENTIFY INFORMATION NEEDS			
° Identify Significant Conditions and Processes Via Performance Based Sensitivity Studies			
-Penetration and Resistance of Water in a Single Planer Fracture Affected by Air Flow in the Matrix	NWC		12/86
-Travel Time Calculations, Yucca Mountain, Nevada Mini-Report #2	NWC		12/86
-Estimates of Cumulative Radioactive Flux at Yucca Mt.	NWC		5/86
-Penetration and Resistance of Water in a Single Planer Fracture Affected by Air Flow in the Matrix	NWC		12/86
-Travel Time Calculations, Yucca Mt., Nevada Mini Report #1	NWC		11/86
-Capillary Barrier Effects at Hydrogeologic Unit Interfaces in the Unsaturated Zone at Yucca Mt.	NWC		5/87
-Non-Isothermal Liquid and Vapor Transport Within the Unsaturated Zone at Yucca Mt.	NWC		5/87
-Analysis of Data Available for the Evaluation of Flow and Transport at Yucca Mt.	NWC		5/87
-A Summary of Fracture Distribution and Connectivity: Implications for Yucca Mt.	NWC		5/87
-Significance of Vapor Phase Transport to the Repository	TBD		TBD
-Effect of Repository Heat on Ground Water Flux	TBD		TBD
-Effect of Perched Water Tables on Repository Performance and Data Needs	NWC		TBD
-Hydrologic Information Needed in Support of Waste Package	TBD		TRD
-Effect of Boundary Conditions With Respect to Solute Transport	TBD		TBD
-Scale Effects When Applying Field Data to Models	TBD		TBD

SITE SPECIFIC PROJECT PLAN THROUGH FY 1988

Project: NNWSIP
 Discipline: Geohydrology
 Lead: William Ford
 Page: 3

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
-Evaluate Site Against Ground Water Protection Standards	TBD		TBD
° Evaluate Testing Methodologies			
-The Use of Environmental Tracers for the Estimation of Recharge Infiltration Methodologies	NWC		TBD
-Report on Testing the Unsaturated Zone	NWC/W&A		TBD
° Characterize Data Needs, Testing Methodology, and Instrumentation VS Uncertainty			
4. DEVELOP STAFF REPORTS			
° Develop Data Needs Assessment			
-Hydrogeology Data Needs for NNWSIP	STAFF		TBD
° Develop Report On Testing Methods And Instrumentation			
-Hydrogeologic Testing Methods and Instrumentation For NNWSIP	TBD		TBD

ATTACHMENT 12

SRP SITE SPECIFIC PROJECT PLAN

SITE SPECIFIC PROJECT PLAN THROUGH FY 88

Project: SRP
 Discipline: Hydrology
 Lead: Frederick Ross
 Page: 1

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
1. ONGOING REVIEW OF DOE PROGRAM			
°Review DOE Documents			
-50 Documents Formally Reviewed Todate	NWC/W&A		ONGOING
°Evaluate DOE Conceptual Models			
-Conceptual Model Evaluation Report	NWC/W&A		6/86
-Conceptual Model Evaluation Updates (Semi-annual)	NWC/W&A		ONGOING
°NRC/DOE Interactions	NWC/W&A		TBD
-Meeting On Uncertainty and Hydrologic Testing (SRPO/Texas)	W&A		TBD
2. DEVELOP STAFF CAPABILITY			
°Data Inventory and Management	NWC		
-Semiannual data inventory transfer to NRC	NWC		ONGOING
°Develop Conceptual Models for Ind. Analyses	NWC		
-Conceptual Models of Groundwater Flow	NWC		ONGOING
°Adapt Codes for NRC Use to Investigate Performance Assessments and Data Needs	NWC		
-Fracture Flow Code (TRAFRAP)	NWC		TBD
-Variable Fluid Density Numerical Model Code	NWC		TBD
-Synthetic Data Base Study	TBD		TBD
3. IDENTIFY INFORMATION NEEDS AND TESTING METHODOLOGIES			
°Identify Significant Conditions and Processes Via Performance Based Sensitivity Studies			
-Vertical Groundwater Flow In Salt	NWC		8/86
-Horizontal GW Flow In Salt Interbeds	NWC		8/86
-Horizontal GW Flow In Wolfcamp	NWC		8/86
-Convective GW Flow In HSU B	NWC		8/86
-Changes In Hydrologic Conditions Due to Recharge	NWC		TBD
-Radionuclide Diffusion Within Host Horizon	NWC		TBD
-Importance of Diffusion Within Aquitard	NWC		3/87
-Spatial Variability of Hydraulic Conductivity	NWC		TBD
-Potential for GW Convection Due to Rad. Heating	NWC		3/87
-Interpretation of Noble Gas and Isotope Data	NWC		TBD

SITE SPECIFIC PROJECT PLAN THROUGH FY 88

Project: SRP
 Discipline: Hydrology
 Lead: Frederick Ross
 Page: 2

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
-Effects of Point-Source Dissolution on GW Flow	NWC		TBD
-Fluid Density Effects On Head Measurements	NWC		TBD
-Significance of Anisotropy Due to Fractures	NWC		TBD
-Sensitivity of GWTT Predictions to Boundary Conds.	NWC		TBD
-Evaluate Site Against GW Protection Standards	NWC		TBD
-Hydrologic Information Needed to Support Waste Package	TBD		TBD
-Scale Effects When Applying Field Data to Numerical Models	W&A		TBD
°Collate List of Significant Concerns/Issues	NONE		11/86
°Evaluate Testing Plans and Procedures	W&A		TBD
-Topical Report On Applicability of WIPP Testing	W&A		TBD
-Evaluate Geophysical Logs (Statigraphic Picks) for J. Friemel	W&A		TBD
-Review of Shallow Hydronests Test Plans	W&A		TBD
-Review of Deep Hydronests Test Plans	W&A		TBD
-Review of ESF Monitor Well Test Plans	W&A		TBD
°Characterize Data Needs, Testing and Instrumentation In Terms of Uncertainty			
-Characterize Areas of Uncertainty	NWC/W&A		TBD
-Evaluate Methods to Quantify and Reduce Uncertainty	NWC/W&A		TBD
-Evaluate Methods to Express Uncertainty	NWC/W&A		TBD
4. DEVELOP STAFF REPORTS ON DATA NEEDS AND TESTING			
°Develop Data Needs Assessment	NONE		TBD
-Hydrology Data Needs for SRP	NONE		TBD
°Develop Report On Testing Methods and Instrumentation	NONE		TBD
-Hydrologic Testing Methods and Instrumentation for SRP	NONE		TBD

ATTACHMENT / 3

BWIP SITE SPECIFIC PROJECT PLAN

SITE SPECIFIC PROJECT PLAN THROUGH FY 88

Project: BWIP
 Discipline: Hydrology
 Lead: Neil Coleman
 Page: 1

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
1. ONGOING REVIEW OF DOE PROGRAM			
°Review of DOE Documents			
- Documents Formally Reviewed As of April 1, 1987	: NWC/W&A/SNL :		: Ongoing :
°Evaluate DOE Conceptual Models			
-Conceptual Model Evaluations	: NWC/W&A/SNL :		
-Conceptual Model Evaluation Updates (Semi-Annual)	: NWC/W&A :		: Ongoing :
°NRC/DOE Interactions	: NWC/W&A/SNL :		: TBD :
-Technical Meetings With DOE	: NWC/W&A/SNL :		: TBD :
2. DEVELOP STAFF CAPABILITY			
°Data Inventory and Management			
-Semiannual data inventory transfer to NRC	: NWC :		: Ongoing :
°Develop Conceptual Models for Independent Analyses			
-Conceptual Models of Groundwater Flow	: NWC :		: Ongoing :
°Adapt Codes for NRC Use to Investigate Performance Assessments and Data Needs			
-Variable Fluid Density Numerical Model Code	: NWC/SNL :		: TBD :
-Synthetic Data Base Study	: TBD :		: TBD :
-A One-Dimensional Numerical Model for Analysis of Steady-State,	: NWC :		: 12/86 :
3. IDENTIFY INFORMATION NEEDS AND TESTING METHODOLOGIES			
°Identify Significant Conditions and Processes Via Performance-Based Sensitivity Studies			
-Analysis of Flow Interior Heterogeneity: Ground Water Travel Time	: NWC :		: 6/86 :
-Numerical Modeling Assessment of BWIP	: SNL :		: 9/87 :
-Analysis of Flow Interior Heterogeneity: Cumulative Flux	: NWC :		: 6/86 :
-Evaluation of Residual Thermal Effects	: NWC :		: 6/86 :
-Relationship of Hydrodynamic Dispersion to Compliance with Overall EPA Release Standards	: NWC :		: 6/86 :
-Analysis of Drilling Response at the Hanford Site	: NWC :		: 6/86 :
-Use of Hydraulic Head for Evaluating Groundwater Flow in a	: NWC :		: 12/86 :

SITE SPECIFIC PROJECT PLAN THROUGH FY 88

Project: BWIP
 Discipline: Hydrology
 Lead: Neil Coleman
 Page: 2

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
Variable Density System: Simple Analytical Evaluation	:	:	:
Studies of Variable-Density Groundwater Flow	:	:	:
-Evaluate Site Against Ground Water Protection Standards	TBD	:	TBD
-Analysis of Drilling Response at the Hanford Site: Analysis	NWC	:	12/86
-BWIP Groundwater Levels: Will Further Stabilization Significantly Reduce Uncertainty?	NWC	:	12/86
-Effects of Geothermal Heat and Salinity on Pre-Emplacement Heads:	NWC	:	5/87
-Effect of Repository Heat on Groundwater Flux	NWC	:	5/87
°Evaluate Testing Methodologies	:	:	:
-Lumped Parameters	NWC	:	5/87
-Tracer Test Evaluation	NWC	:	5/87
-Hydrochemical Distinctness of Groundwaters in the Vicinity of the BWIP Site	W&A	:	6/87
-Validity of the Expert Systems Approach in the Development of a Conceptual Hydrogeologic Model	NWC	:	8/87
-Investigating the Sensitivity of Predicted Groundwater Travel Times to the Distribution of Effective Porosity and the Distribution of Transmissivity	W&A	:	9/87
-Evaluation of Testing Methodologies in Low Hydraulic Conductivity Materials	W&A	:	11/87
-Verification of Large-Scale Hydraulic Stress Test Analyses and Interpretations	W&A	:	6/88
-Evaluation of Isotopic Age Determinations in Groundwaters of the Hanford Site: Inferences about Groundwater Travel Time	W&A	:	3/88
-Simulation of Hydrogeologic Response to Testing	W&A	:	8/88
-Evaluation of Groundwater Model Geometry	W&A	:	1/88
-Potential Applications of Bayesian Methods in Assessing Hydrogeologic Data	W&A/NWC	:	2/88
-Review of Well Integrity Testing at Hanford: Methods & Results	W&A	:	10/87
-Data Needs in the Assessment of Regional Groundwater Flow Patterns in the Pasco Basin	W&A	:	6/87
°Characterize Data Needs, Testing and Instrumentation in Terms of Uncertainty	:	:	:

SITE SPECIFIC PROJECT PLAN THROUGH FY 88

Project: BWIP
 Discipline: Hydrology
 Lead: Neil Coleman
 Page: 3

Objective/Activity (°)/Product (-)	Support	Support Cost	Target Date
4. DEVELOP STAFF REPORTS ON DATA NEEDS AND TESTING	:	:	:
°Develop Data Needs For BWIP	:	:	:
-Hydrology Data Needs for BWIP	STAFF	:	TBD
°Develop Report on Testing Methods and Instrumentation	:	:	:
-Hydrologic Testing Methods and Instrumentation For BWIP	TBD	:	TBD
	:	:	:
	:	:	:
	:	:	:
	:	:	:

APR 15 1987

426.1/D/021/JP/4/14/87

- 3 -

OFFICIAL CONCURRENCE AND DISTRIBUTION RECORD

LETTER TO: Mr. Mark J. Logsdon, Project Manager
 Nuclear Waste Consultants, Inc.
 8341 S. Sangre de Cristo Rd.
 Suite 14
 Littleton, Colorado 80127

FROM: Jeffrey A. Pohle, Project Officer
 Technical Review Branch
 Division of High-Level Waste Management
 Office of Nuclear Material Safety
 and Safeguards

SUBJECT: STATUS OF NUCLEAR WASTE CONSULTANTS' TECHNICAL ASSISTANCE
 UNDER CONTRACT NO. NRC-02-85-009

DATE:

HLWM TICKET NO: WM87-133

DISTRIBUTION

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CONCURRENCES

ORGANIZATION/CONCUREE	INITIALS	DATE CONCURRED
HLTR/JPohle		87/04/15

(Mailed by the WMDCC)
 4/15/87 2:40
 Date / Time

