

WM DOCKET CONTROL
CENTER



13 October 1986

David Tiktinsky - SS623
U.S. Nuclear Regulatory Commission
Division of Waste Management
Washington, D.C. 20555

"NRC Technical Assistance
for Design Reviews"
Contract No. NRC-02-85-002
FIN D1016

Dear David:

Enclosed is Progress Report No. 14 for the period 1-30 September 1986 on Task Orders No. 001, 002, and 003, Contract NRC-02-85-002. Also enclosed is the summary sheet for the September voucher. Please call me if you have any questions.

Sincerely,


Roger D. Hart
Program Manager

cc: J. Greeves, Engineering Branch
Office of the Director, NMSS
E. Wiggins, Division of Contracts
DWM Document Control Room

Encl.
rdh/ks

8610290177 861013
PDR WMRES EECITAS
D-1016 PDR

WM-RES
WM Record File
D1016
Itasca

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

Distribution:
x Tiktinsky Joan-ticket
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(Return to WM, 623-SS) See

ITASCA MONTHLY PROGRESS REPORT

Progress Report No. 14
NRC Technical Assistance
for Design Reviews

13 October 1986
Contract No. NRC-02-85-002

Reporting Period: 1 - 30 September 1986

1. INTRODUCTION

This progress report summarizes the work performed during September 1986 on NRC Contract No. NRC-02-85-002. Task Order No. 001 work consisted of document reviews and attendance at an Appendix 7 SRPO Site Visit to Columbus, Ohio. For Task Order No. 002, work continued on the development of thermomechanical logic for MUDEC, participation in a geomechanical review meeting, and participation in an NNWSI SCP review plan meeting in Silver Spring. Work was begun on Task Order No. 003.

2. ACTIVITIES DURING THE REPORTING PERIOD

- A. On 3 September, Itasca submitted a trip report for the Lucky Friday Mine tour and the Appendix 7 Site Visit to BWIP (held 18-21 August 1986) (Task Order No. 001).
- B. On 3 September, Itasca received authorization to perform the following items:
 - (1) review "Chapter 2 — Geoengineering," Site Characterization Plan for NNWSI (Pink Draft) (Task Order No. 001)
 - (2) review "Salt Generic Test Plan" prepared by Golder Associates; (Task Order No. 001);
 - (3) attend a one-day ACRS meeting on 10 September 1986 (Task Order No. 001) [Note: meeting subsequently postponed];
 - (4) attend an Appendix 7 Visit to BWIP, 18-22 August 1986 (Task Order No. 001);
 - (5) two engineers to attend a meeting on geomechanics, 15-19 September 1986, in Silver Spring (Task Order No. 002); and

ITASCA

- (6) attend a meeting to discuss the point paper on in-situ testing at NNWSI (Task No. 002).
- C. The Itasca trip report for the Draft BWIP In-Situ Test Paper Review Meeting (14 August) was transmitted on 4 September 1986 (Task Order No. 002).
- D. On 10 September, the draft outline of the review plan for the NNWSI SCP was transmitted to D. Gupta (Task Order No. 002).
- E. Progress Report No. 13 (for August 1986) was sent on 12 September.
- F. From 15-17 September, a geomechanics review meeting was held in Silver Spring. This meeting was attended by M. Board (15-16 September) and L. Lorig and J. Daemen (17 September) (Task Order No. 002).
- G. L. Lorig and J. Daemen attended a one-day meeting in Silver Spring on 18 September regarding the SCP review plan for NNWSI (Task Order No. 002).
- H. On 18 September, Itasca received notification from E. Wiggins of an error in our invoice 012-86-079 dated 12 August 1986.
- I. On 18 September, Itasca received authorization to perform the following work:
- (1) review "Status of Open Items - Exploratory Shaft Design and Construction Letter from NRC Dated April 14, 1983, and NNWSI Project/NRC Meeting of August 27-28, 1985," letter from John J. Linehan to Donald L. Vieth (Task No. 001);
 - (2) review available BWIP in-situ test plan related documents (Task No. 001); and
 - (3) attend Appendix 7 visit for SRPO program from 28 September - 3 October in Columbus, Ohio, and Irvine, California (Task No. 001).
- J. On 24 September, Itasca Review No. 001-02-26, "Status of Open Items - Exploratory Shaft Design and Construction Letter from NRC Dated April 14, 1983, and NNWSI Project/NRC Meeting of August 27-28, 1985," letter from John J. Linehan to Donald L. Vieth, was submitted (Task No. 001).
- K. On 29 September, Itasca transmitted a copy of its subcontract with GRAM, Inc. to M. Little.

- L. Roger Hart attended an Appendix 7 SRPO site visit to Columbus, Ohio, and Irvine, California, from 29 September to 3 October (Task Order No. 001).
- M. The Itasca trip report for the 17-18 September meeting to review rock mechanics principals and discuss the outline for the NNWSI SCP review plan was submitted on 30 September (Task Order No. 002).

3.0 RESULTS

A. Document Reviews Completed in September:

"Status of Open Items - Exploratory Shaft Design and Construction Letter from NRC Dated April 14, 1983, and NNWSI Project/NRC Meeting of August 27-28, 1985," letter from John J. Linehan to Donald L. Vieth

Professional Labor: L. Lorig 4 hours

B. Document Reviews On-going in September:

"Chapter 2 — Geoengineering," Site Characterization Plan for NNWSI (Pink Draft)

Professional Labor: J. Daemen 16 hours
L. Lorig 22 hours

"Evaluation of Damaged Rock Zone Around Repository Openings," Rockwell Hanford Operations Computational Brief No. 573 (March 13, 1986)

Professional Labor: M. Board 3 hours

"Geoengineering Design Parameters Workshop (Proceedings of a Workshop Held in Rapid City, South Dakota, June 25, 1985) by C. M. St. John and Kunsoo Kim (SD-BWI-TI-299)

Professional Labor: M. Board 24 hours

C. Other Works in Progress

- (1) verification of thermal analysis capabilities in MUDEC
(Task No. 002)

Professional Labor:	R. Hart	2 hours
	M. Mack	80 hours

- (2) site technical position on in-situ testing at NNWSI (Task No. 002)

Professional Labor:	L. Lorig	24.5 hours
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- (3) identification and prioritization of major underground system design components for NNWSI (Task No. 003)

Professional Labor:	L. Lorig	1 hour
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4.0 QUALITY ASSURANCE

Correspondence, document review logs, and trip logs were monitored and updated. NNWSI documents were received and catalogued.

5.0 DIFFICULTIES

No specific difficulties were experienced during this reporting period.

6.0 ACTIVITIES PLANNED FOR THE NEXT REPORTING PERIOD

- A. The following document reviews (Task Order No. 001) will be completed and submitted:

- (1) "Salt Generic Test Plan" (Golder Associates);
- (2) "Evaluation of Damaged Rock Zone Around Repository Openings," Rockwell Hanford Operations Computational Brief No. 573 (March 13, 1986);
- (3) "Geoengineering Design Parameters Workshop (Proceedings of a Workshop Held in Rapid City, South Dakota, June 25, 1985) by C. M. St. John and Kunsoo Kim (SD-BWI-TI-299);
- (4) "A Preliminary Assessment of Water Inflow into Proposed Excavations . . . " by Barker (SD-BWI-TI-274);
and

- (5) "Determination of an Upper Limit for Bentonite as a Backfill Component . . ." by Palmer et al (RHO-BW ST-47).

B. Work will continue on preparations of the following papers:

- (1) in-situ testing at BWIP point paper (Task No. 002);
- (2) rockburst potential at BWIP point paper (Task No. 003);
- (3) in-situ testing at NNWSI point paper (Task Order No. 002); and
- (4) identification and prioritization of major underground system design components for NNWSI (Task Order No. 003).

C. The testing of thermal logic in MUDEC is to be completed. The thermal version of FLAC with documentation will be transmitted (Task Order No. 002).

D. The final thermomechanical point paper is to be submitted pending receipt of comments from NRC (Task Order No. 002).

7.0 MEETINGS/TRIPS DURING THE REPORTING PERIOD

A. From 15-17 September, a geomechanics review meeting was held in Silver Spring (trip report mailed on 30 September). Labor, including preparation and travel time, was

M. Board	51 hours
J. Daemen	24 hours
R. Hart	2 hours
L. Lorig	34 hours

B. On 18 September, L. Lorig and J. Daemen participated in a meeting in Silver Spring to discuss the draft plan for the SCP review of NNWSI.

J. Daemen	16 hours
L. Lorig	11 hours

- C. R. Hart attended an Appendix 7 SRPO site visit to Columbus, Ohio (29-30 September), and Irvine California (1-3 October).

R. Hart 22 hours

(Note: Only the professional time
in September is included here and in
the invoice.)

8.0 SCHEDULE AND COST PROJECTION

The billing summary for the September invoice is attached. Costs are well within the limit authorized for all three task orders.

The verification of thermal capabilities in FLAC and MUDEC (Task 2 of Task Order No. 002) is requiring more professional labor hours than originally estimated. However, it appears that, overall, the task order can be completed within the budgeted hours. The verification of the thermal logic in MUDEC is to be completed in October.

The 29 September meeting to discuss the identification and prioritization of major underground system design components for NNWSI was postponed. Consequently, the Task 2 schedule submitted with the Task Order No. 003 proposal is outdated. A new schedule has yet to be determined.

Respectfully submitted,



Roger D. Hart
Program Manager
13 October 1986

Attach.
rdh/ks

VOUCHERPayor's Name and Address

U.S. Nuclear Regulatory Commission
 Division of Accounting
 Office of the Controller
 ATTENTION: GOV/COM Accounts Section
 Washington, D.C. 20555

Payee's Name and Address

Itasca Consulting Group, Inc.
 P.O. Box 14806
 Minneapolis, Minnesota 55414

Individual to contact:

John J. Markham (612-623-9599)

- (a) Contract Number: NRC-02-85-002
 (b) Title of Project: Technical Assistance
 for Design Reviews of High-Level Waste
 Geologic Repositories
 (c) Voucher Number: 014-86-103
 (d) Date of Voucher: October 10, 1986
 (e) Contract Amount: \$1,312,270.80
 (f) Fixed Fee: \$ 104,981.66

(g) This voucher represents reimburseable costs from September 1 thru September 30, 1986

AMOUNT BILLED

	(k) <u>Current Period</u>	(l) <u>Inception to Date</u>
(h) <u>DIRECT COSTS</u>		
(1) Direct Labor	\$ 5,682.21	\$ 53,350.42
(2) Materials, Supplies and Noncapitalized Equipment	-0-	-0-
(3) Consultants	3,700.96	66,391.41
(4) Travel - Domestic	2,561.00	13,955.96
(5) Subcontract	2,631.39	24,578.83
(6) Other Costs	389.35	3,417.77
TOTAL DIRECT COSTS	\$ 14,964.91	161,694.39
(i) <u>INDIRECT COSTS</u>		
G & A Expense 106% of Cost Element (1)	\$ 6,023.14	\$ 56,551.46
TOTAL DIRECT AND INDIRECT COSTS	20,988.05	218,245.85
	1,679.04	17,459.65
(j) <u>FIXED-FEE EARNED</u>	\$ 22,667.09	235,705.50
(m) <u>TOTAL AMOUNTS CLAIMED</u>	-0-	-0-
(n) <u>ADJUSTMENTS</u>		
	\$ 22,667.09	\$ 235,705.50
(o) <u>GRAND TOTALS</u>		

SUPPORTING INFORMATION

TASK ORDER-001
TASK 2 DOCUMENT REVIEWS
(h) DIRECT COSTS

(1) Direct Labor	Labor Category	Name	Hours Billed	Rate	Total
	Admin. Manager	L. Gaarder	3.0	\$8.25	\$24.75
		J. Markham	4.0	\$24.04	\$96.16
	Sr. Engineer	L. Lorig	26.0	\$19.95	\$518.70
		M. Board	27.0	\$22.02	\$594.54
	Secretarial	K. Sikora	6.0	\$9.28	\$55.68
		L. Gaarder	1.0	\$8.25	\$8.25
	QA	K. Sikora	0.5	\$9.28	\$4.64
Total Direct Labor					\$1,302.72

(3) Consultants Labor	J. Daemen	16.0	\$57.75	\$924.00 *
Total Consultant Labor				\$924.00
Total Consultant Labor & Expenses				\$924.00

(6) Other Costs	Copies	\$87.96 *	
	Telephone	\$29.99 *	
	Postage	\$3.69 *	
	Publications	\$32.95 *	
			\$154.59
TOTAL DIRECT COSTS			\$2,381.31

(i) INDIRECT COSTS	
G & A Expense (1.06 x Direct Labor)	\$1,380.88
TOTAL DIRECT AND INDIRECT COSTS	\$3,762.19
(j) FIXED FEE EARNED	\$300.98
(m) TOTAL AMOUNT CLAIMED	\$4,063.17

* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-001

TASK 4 TECHNICAL MEETINGS

(h) DIRECT COSTS

(1) Direct Labor		Hours			
Labor Category	Name	Billed	Rate		Total
Admin. Manager	L. Gaarder	2.0	\$8.25		\$16.50
	J. Markham	3.0	\$24.04		\$72.12
Sr. Engineer	R. Hart	22.0	\$22.12		\$486.64
Secretarial	K. Sikora	6.0	\$9.28		\$55.68
	L. Gaarder	1.0	\$8.25		\$8.25
QA	K. Sikora	1.0	\$9.28		\$9.28
Total Direct Labor					\$648.47

(4) Travel

Date					
From	To	Traveller	Costs		
9/28/86	10/3/86	R. Hart	1) Airfare	\$774.00	*
	Destination		2) Hotel	\$337.62	*
			3) Meals	\$113.89	*
From	To	Purpose	4) Transportation	\$23.00	*
			5) Phone	\$0.60	*
Mpls, Mn	Columbus	Appendix 7 Visit			
Columbus	Irvine, CA				
				\$1,249.11	

(6) Other Costs

Copies	\$38.30	*
Telephone	\$21.01	*
Postage	\$13.29	*
	\$72.60	

TOTAL DIRECT COSTS

\$1,970.18

(i) INDIRECT COSTS

G & A Expense (1.06 x Direct Labor)	\$687.38
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TOTAL DIRECT AND INDIRECT COSTS

\$2,657.56

(j) FIXED FEE EARNED

\$212.60

(m) TOTAL AMOUNT CLAIMED

\$2,870.16

* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-002

TASK 1 SITE SPECIFIC IN-SITU POINT PAPERS

(h) DIRECT COSTS

(1) Direct Labor		Hours			
Labor Category	Name	Billed	Rate		Total
Admin. Manager	L. Gaarder	2.0	\$8.25		\$16.50
	J. Markham	4.0	\$24.04		\$96.16
Sr. Engineer	L. Lorig	24.5	\$19.95		\$488.78
Secretarial	L. Gaarder	1.0	\$8.25		\$8.25
QA	K. Sikora	0.5	\$9.28		\$4.64
Total Direct Labor					\$614.33

(3) Consultants Labor					
	J. Daemen	16.0	\$57.75		\$924.00 *
Total Consultant Labor					\$924.00

Expenses/Travel

Date					
From	To	Traveller	Costs		
9/15/86	9/16/86	J. Daemen	1) Airfare	\$169.00	*
	Destination		2) Hotel	\$40.65	*
			3) Meals	\$22.28	*
From	To	Purpose	4) Transportation	\$1.55	*
Tucson	Wash D.C.	SCP Review Plan Meeting			
					\$233.48 #
Total Consultant Travel					\$233.48
Total Consultant Labor & Expenses					\$1,157.48

(4) Travel

Date					
From	To	Traveller	Costs		
9/16/86	9/18/86	L. Lorig	1) Airfare	\$194.50	*
	Destination		2) Hotel	\$40.65	*
			3) Meals	\$18.50	*
From	To	Purpose	4) Transportation	\$10.50	*
			5) Phone	\$2.19	*
Mpls, MN	Wash. D.C.	SCP Review Plan Meeting			
					\$266.34 #

SUPPORTING INFORMATION

TASK ORDER-002

TASK 1 SITE SPECIFIC IN-SITU POINT PAPERS

Total Itasca Travel	\$266.34
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(5) Subcontract	
Nuclear Waste Consultants, Inc.	\$2,631.39 *

(6) Other Costs

Copies	\$13.20 *
Telephone	\$1.14 *
Postage	\$24.78 *

\$39.12

TOTAL DIRECT COSTS

\$4,708.66

(i) INDIRECT COSTS

G & A Expense (1.06 x Direct Labor)	\$651.19

TOTAL DIRECT AND INDIRECT COSTS

\$5,359.85

(j) FIXED FEE EARNED

\$428.79

(m) TOTAL AMOUNT CLAIMED

\$5,788.64

* Invoice Attached

Expenses for 9/16 - 9/18 trip by Daemen and Lorig split equally
with Task 2 of Task Order 002

SUPPORTING INFORMATION

TASK ORDER-002

TASK 2 THERMOMECHANICAL ANALYSIS

(h) DIRECT COSTS

(1) Direct Labor

Labor Category	Name	Hours Billed	Rate	Total
Prog. Manager	R. Hart	2.0	\$22.12	\$44.24
Admin. Manager	L. Gaarder	3.0	\$8.25	\$24.75
	J. Markham	5.0	\$24.04	\$120.20
Sr. Engineer	L. Lorig	34.0	\$19.95	\$678.30
	M. Board	51.0	\$22.02	\$1,123.02
Asst. Engineer	M. Mack	80.0	\$12.00	\$960.00
Secretarial	K. Sikora	8.5	\$9.28	\$78.88
	L. Gaarder	2.0	\$8.25	\$16.50
QA	K. Sikora	2.0	\$9.28	\$18.56

Total Direct Labor

\$3,064.45

(3) Consultants

Labor

J. Daemen	24.0	\$57.75	\$1,386.00 *
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Total Consultant Labor

\$1,386.00

Expenses/Travel

Date

From	To	Traveller	Costs	
9/17/86	9/18/86	J. Daemen	1) Airfare	\$169.00 *
	Destination		2) Hotel	\$40.65 *
			3) Meals	\$22.28 *
From	To	Purpose	4) Transportation	\$1.55 *
Tucson	Wash. D.C.	Rock Mechanics Review Meeting		

\$233.48 #

Total Consultant Travel

\$233.48

Total Consultant Labor & Expenses

\$1,619.48

(4) Travel

Date

From	To	Traveller	Costs	
9/16/86	9/18/86	L. Lorig	1) Airfare	\$194.50 *
	Destination		2) Hotel	\$40.65 *
			3) Meals	\$18.50 *
From	To	Purpose	4) Transportation	\$10.50 *
			5) Phone	\$2.19 *

SUPPORTING INFORMATION

TASK ORDER-002

TASK 2 THERMOMECHANICAL ANALYSIS

Mpls MN Wash D.C.

Rock Mechanics
Review Meeting

\$266.34 #

Date		Traveller	Costs	
From	To			
9/14/86	9/17/86	M. Board	1) Airfare	\$349.00 *
Destination			2) Hotel	\$198.00 *
			3) Meals	\$47.23 *
From	To	Purpose	4) Transportation	\$174.18 *
--	--	-----	5) Phone	\$10.80 *

\$779.21

Total Itasca Travel \$1,045.55

(5) Subcontract
Nuclear Waste Consultants, Inc.

(6) Other Costs

Copies	\$38.40 *
Telephone	\$36.57 *
Postage	\$45.04 *

\$120.01

TOTAL DIRECT COSTS

\$5,849.49

(i) INDIRECT COSTS

G & A Expense (1.06 x Direct Labor) \$3,248.32

TOTAL DIRECT AND INDIRECT COSTS \$9,097.81

(j) FIXED FEE EARNED \$727.82

(m) TOTAL AMOUNT CLAIMED \$9,825.63

* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-003

TASK 2 UNDERGROUND DESIGN COMPONENTS FOR NNWSI

(h) DIRECT COSTS

(1) Direct Labor		Hours		
Labor Category	Name	Billed	Rate	Total
Admin. Manager	L. Gaarder	1.0	\$8.25	\$8.25
	J. Markham	1.0	\$24.04	\$24.04
Sr. Engineer	L. Lorig	1.0	\$19.95	\$19.95

Total Direct Labor				\$52.24

(3) Consultants	
Total Consultant Labor & Expenses	\$0.00

(5) Subcontract	
Nuclear Waste Consultants, Inc.	\$0.00

(6) Other Costs	
Telephone	\$3.03 *

	\$3.03

TOTAL DIRECT COSTS	\$55.27
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(i) INDIRECT COSTS

G & A Expense (1.06 x Direct Labor)	\$55.37

TOTAL DIRECT AND INDIRECT COSTS	\$110.64
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(j) FIXED FEE EARNED	\$8.85

(m) TOTAL AMOUNT CLAIMED	\$119.49
=====	=====

Oct-86
TASK ORDER 001
TASK 2

TASK LABOR SUMMARY

REVIEW OF DOCUMENTS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	96	33	63
ADMIN MGR	120	85	35
SR. ENGINEER	980	550.5	429.5
ASST. ENGINEER	300	0	300
SR. REVIEWER	48	0	48
QA	48	16.5	31.5
SECRETARIAL	200	231.5	-31.5
	-----	-----	-----
TOTAL ITASCA	1792	916.5	875.5
CONSULTANT			

J. DAEMEN	168	172	-4
I. FARMER	88	80	8
ASST. ENGINEER	208	0	208
R. BARNES	0	20	-20
K. WAHI	0	74	-74
R. RAJARAM	0	50	-50
	-----	-----	-----
TOTAL CONSULT	464	396	68
SUBCONTRACTOR-NWC			

PRIN. INVEST.	256	68	188
SR ENGINEER	144	0	144
ENGINEER/GEOL	208	31	177
DRAFTING	0	2	-2
CLERICAL	100	35	65
	-----	-----	-----
TOTAL SUBCONT	708	136	572
	=====	=====	=====
TOTAL TASK	2964	1448.5	1515.5

Oct-86
 TASK ORDER 001
 TASK 4

TASK LABOR SUMMARY

TECHNICAL MEETINGS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	62	37	25
ADMIN MGR	76	74.5	1.5
PRIN. INVEST.	588	33	555
SR. ENGINEER	1108	338	770
SR REVIEW	0	24	-24
QA	32	12.5	19.5
SECRETARIAL	148	89.5	58.5
	-----	-----	-----
TOTAL ITASCA	2014	608.5	1405.5
CONSULTANT			

J. DAEMEN	588	152	436
I. FARMER	104	61	43
K. WAHI	0	109	-109
R. RAJARAM	0	30	-30
Y. KIM	0	80	-80
	-----	-----	-----
TOTAL CONSULT	692	432	260
SUBCONTRACTOR-NWC			

PRIN. INVEST.	588	147	441
CLERICAL	44	28	16
	-----	-----	-----
TOTAL SUBCONT	632	175	457
	=====	=====	=====
TASK TOTAL	3338	1215.5	2122.5
	=====	=====	=====
TASK ORDER TOT	6545	2688.5	3856.5

Oct-86
TASK ORDER 002
TASK 1

TASK LABOR SUMMARY

SITE SPECIFIC IN-SITU TESTING POINT PAPERS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	72	11	61
ADMIN MGR	96	30.5	65.5
SR. ENGINEER	872	422	450
SR REVIEW	12	12	0
QA	48	5	43
SECRETARIAL	126	57	69
	-----	-----	-----
TOTAL ITASCA	1226	537.5	688.5
CONSULTANT			

J. DAEMEN	72	16	56
I. FARMER	40	0	40
K. WAHI	72	0	72
	-----	-----	-----
TOTAL CONSULT	184	16	168
SUBCONTRACTOR-NWC			

PRIN. INVEST.	72	37	35
ASST. PROF.	0	4	-4
CLERICAL	8	18	-10
	-----	-----	-----
TOTAL SUBCONT	80	59	21
	=====	=====	=====
TASK TOTAL	1306	596.5	709.5

Oct-86
TASK ORDER 002
TASK 2

TASK LABOR SUMMARY

THERMOMECHANICAL ANALYSES

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	54	12	42
ADMIN MGR	72	29.5	42.5
SR. ENGINEER	592	347	245
ASST. ENGINEER	320	353	-33
SR REVIEW	88	0	88
QA	16	6.5	9.5
SECRETARIAL	112	165.5	-53.5
	-----	-----	-----
TOTAL ITASCA	1254	913.5	340.5
CONSULTANT			

J. DAEMEN	0	24	-24
K. WAHI	80	85	-5
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TOTAL CONSULT	80	85	-5
	=====	=====	=====
TASK TOTAL	1334	998.5	335.5

Oct-86
TASK ORDER 003

TASK LABOR SUMMARY

TASK 2 IDENTIFICATION AND PRIORITIZATION OF MAJOR
UNDERGROUND SYSTEM DESIGN COMPONENTS FOR NNWSI

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	6		6
ADMIN MGR	12	2	10
SR. ENGINEER	80	1	79
QA	4		4
SECRETARIAL	20		20
	-----	-----	-----
TOTAL ITASCA	122	3	119
CONSULTANT			

J. DAEMEN	80		80
	-----	-----	-----
	80	0	80
	=====	=====	=====
TASK TOTAL	202	3	199
	=====	=====	=====
TASK ORDER TOT	516	3	513