

WM DOCKET CONTROL CENTER

'87 MAY 26 11:18

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



15 May 1987

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. 21 for the period 1-30 April 1987 on Task Orders No. 001, 002, 003, 004, and 005, Contract NRC-02-85-002. Also enclosed is the summary sheet for the April voucher. Please call me if you have any questions.

Sincerely,

Roger D. Hart  
Program Manager

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

Encl.  
rdh/ks

Wm-RES  
WM Record File  
D1016  
Itasca

WM Project 10, 11, 16  
Docket No. \_\_\_\_\_  
PDR ✓  
XLPDR ✓ (B, N, S)

8709290190 870515  
PDR WMRES EECITAS  
D-1016 PDR

Distribution:  
Tiktinsky Joan-ticket

P.O. Box 14806 • Mir

87237941  
WM Project: WM-10, 11, 16  
PDR w/encl  
(Return to WM, 623-SS)

WM Record File: D1016  
LPDR w/encl

4052

## ITASCA MONTHLY PROGRESS REPORT

Progress Report No. 21  
NRC Technical Assistance  
for Design Reviews

15 May 1987  
Contract No. NRC-02-85-002

Reporting Period: 1 - 30 April 1987

### 1. INTRODUCTION

This progress report summarizes the work performed during April 1987 on NRC Contract No. NRC-02-85-002. During April, work progressed on Task Orders No. 001, 002, 003, 004, and 005.

### 2. ACTIVITIES DURING THE REPORTING PERIOD

- A. On 6 April, Itasca received authorization to perform the following work under Task Order No. 001:
1. to attend the following meetings:
    - a. 11-17 April meeting in Las Vegas to discuss the NNWSI Exploratory Shaft Facility Design;
    - b. 5-7 April SRP Title II Design Review of ESF in Houston;
    - c. 21-24 April SRP Title II Design Review of ESF (comment resolution) in Houston; and
    - d. 5-7 May SRP ESF Design and Construction Meeting in Houston.
  2. to review ten salt documents; and
  3. complete document review of STRES3D.
- B. On 6 and 7 April, R. Hart and J. Daemen attended the 30% Title II Design Review Meeting for SRP Exploratory Shaft Facility in Houston. The trip report for this meeting was submitted on 10 April (Task Order NO. 001).

**ITASCA**

- C. Itasca Document Review No. 001-02-33, "Task V, Engineering Study No. 5, Shaft Optimization" was submitted on 9 April (Task Order No. 001).
- D. J. Daemen and L. Lorig attended the 11-15 April pre-meetings and technical meetings in Las Vegas to discuss proposed changes in the NNWSI ESF program. The trip report was submitted on 28 April (Task Order No. 001).
- E. The Revised Task Order No. 005 Cost Proposal was submitted to M. Little on 13 April.
- F. On 15 April, Itasca Document Review No. 001-02-29, "Task V, Engineering Study No. 9, Underground Repository Layout", was submitted (Task Order No. 001).
- G. Progress Report No. 20 and Invoice No. 020-87-032 were transmitted on 15 April.
- H. On 20 April, Itasca received Contract Modification #4 from E. Wiggins.
- I. J. Daemen and M. Board attended the 22-24 April 30% Title II Design Review Meeting for SRP Exploratory Shaft Facility in Houston. The trip report was submitted on 27 April (Task Order No. 001).
- J. Itasca received Contract Modification #3 from E. Wiggins on 30 April.

### 3.0 RESULTS

#### A. Documents Submitted in April:

- (1) Itasca Document Review No. 001-02-29, " Task V Engineering Study No. 9 — Underground Repository Layout" (SD-BWI-ES-023) [Task Order No. 001]

Professional Labor completed in March

- (2) Itasca Document Review No. 001-02-33, "Task V Engineering Study No. 5 — Shaft Optimization" (SD-BWI-ES-016) [Task Order No. 001]

Professional Labor completed in March

B. Works in Progress:

- (1) incorporation of creep model into FLAC and MUDEC  
(Task Order No. 004)  
Professional Labor M. Mack 10.5 hours
- (2) documentation of thermal logic in FLAC and MUDEC  
(Task Order No. 002)  
Professional Labor R. Hart 4 hours  
M. Mack 16.5 hours
- (3) identification and prioritization of major under-  
ground system components for NNWSI (Task No.003);  
Professional Labor L. Lorig 23 hours
- (4) Itasca Document Review No. 001-02-30, "U.S. Nuclear  
Regulatory Commission, SCP - Chapter 2 - Geoen-  
gineering"  
Professional Labor M. Board 40 hours
- (5) Itasca Document Review No. 001-02-31, "Task V,  
Engineering Study No. 8, In Situ Instrumentation"  
(SD-BWI-ES-017)  
Professional Labor M. Board 30 hours
- (6) Itasca Document Review No. 001-02-32, "Task V,  
Engineering Study No. 7, Waste Emplacement Op-  
timization" (SD-BWI-ES-108)  
Professional Labor M. Board 16 hours
- (7) Itasca Document Review No. 001-02-34, "Task V,  
Engineering Study No. 6, Tunnel Optimization" (SD-  
BWI-ES-015)  
Professional Labor M. Board 32 hours
- (8) Itasca Document Review No. 001-02-36, "Final Pre-  
liminary Design Report — Permian Basin, Texas"  
(Report ES-225-01)  
Professional Labor M. Board 24 hours

#### 4.0 QUALITY ASSURANCE

Correspondence logs were monitored and BWIP, NNWSI and SRP documents were received and catalogued.

#### 5.0 DIFFICULTIES

No specific difficulties were encountered during this reporting period. However, written authorization for two document reviews has not been received. These documents are:

- (1) Modification of Rock Mass Permeability in the Zone Surrounding a Shaft in Fractured and Welded Tuff" (SAND86-7001); and
- (2) "Final Preliminary Design Report — Permian Basin, Texas" (Report ES-225-01)

#### 6.0 ACTIVITIES PLANNED FOR THE NEXT REPORTING PERIOD

A. Work will continue on preparation of the following tasks:

- (1) BWIP Task V Engineering Study document reviews (Task Order No. 001);
- (2) site technical position on in-situ testing at NNWSI (Task Order No. 002);
- (3) incorporation of creep model into FLAC and MUDEC (Task Order No. 004); and
- (4) documentation of thermal logic in FLAC and MUDEC (Task Order No. 004).

B. Work to Be Completed in Next Reporting Period

1. Itasca Document Review No. 001-02-31, "Task V, Engineering Study No. 8, In Situ Instrumentation" (SD-BWI-ES-017) [Task Order No. 001]
2. Itasca Document Review No. 001-02-35, "Modification of Rock Mass Permeability in the Zone Surrounding a Shaft in Fractured and Welded Tuff" (SAND86-7001) [Task Order No. 001]

C. Planned Trips

1. M. Board and J. Daemen are to attend the 5-7 May SRP ESF Design and Construction Meeting in Houston (Task Order No. 001).

7.0 MEETINGS/TRIPS DURING THE REPORTING PERIOD

- A. L. Lorig and J. Daemen attended the NNWSI Exploratory Shaft Facility Design Meetings in Las Vegas, 11-15 April (Task Order No. 001)

Professional Labor	J. Daemen	40 hours
	L. Lorig	54 hours

- B. R. Hart and J. Daemen attended the SRP ESF Design Review Meeting in Houston, 6-7 April (Task Order No. 001)

Professional Labor	J. Daemen	8 hours
	R. Hart	24 hours

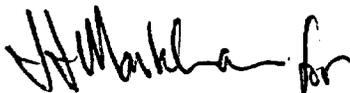
- C. J. Daemen and M. Board attended the 22-24 April SRP ESF Design Review Meeting in Houston (Task Order No. 001)

Professional Labor	M. Board	24 hours
	J. Daemen	8 hours

8.0 SCHEDULE AND COST PROJECTION

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

Respectfully submitted,



Roger D. Hart  
Program Manager  
15 May 1987

Attach.  
rdh/ks

## VOUCHER

Payor'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

(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: 021-87-047  
 (d) Date of Voucher: May 18, 1987  
 (e) Contract Amount: \$1,312,270.80  
 (f) Fixed Fee: \$ 104,981.66

## Individual to contact:

John J. Markham (612-623-9599)

(g) This voucher represents reimburseable costs from April 1 thru April 30, 1987

AMOUNT BILLED

	(k) <u>Current Period</u>	(l) <u>Inception to Date</u>
(h) <u>DIRECT COSTS</u>		
(1) Direct Labor	\$ 8,494.54	\$ 99,295.07
(2) Materials, Supplies and Noncapitalized Equipment	-0-	-0-
(3) Consultants	5,993.41	82,546.33
(4) Travel - Domestic	1,918.12	20,521.21
(5) Subcontract	57.97	31,682.82
(6) Other Costs	357.27	5,551.63
TOTAL DIRECT COSTS	16,821.31	239,597.06
(i) <u>INDIRECT COSTS</u>		
G & A Expense 102% Cost Element (1)	8,664.42	104,665.75
TOTAL DIRECT AND INDIRECT COSTS	25,485.73	344,262.81
(j) <u>FIXED-FEE EARNED</u>	2,038.86	27,541.00
(m) <u>TOTAL AMOUNTS CLAIMED</u>	27,524.59	371,803.81
(n) <u>ADJUSTMENTS</u>	-0-	-0-
(o) <u>GRAND TOTALS</u>	\$ 27,524.59	\$ 371,803.81

SUPPORTING INFORMATION

TASK ORDER-001  
 TASK 2 DOCUMENT REVIEWS

(h) DIRECT COSTS

(1) Direct Labor		Hours		
Labor Category	Name	Billed	Rate	Total
Prog. Manager	R. Hart	1.0	\$24.04	\$24.04
Admin. Manager	L. Gaarder	4.0	\$8.89	\$35.56
	J. Markham	4.0	\$25.96	\$103.84
Sr. Engineer	M. Board	142.0	\$23.56	\$3,345.52
	M. Christianson	3.0	\$21.15	\$63.45
	R. Hart	4.0	\$24.04	\$96.16
	L. Lorig	6.0	\$21.15	\$126.90
Secretarial	R. Kaplan	2.0	\$6.50	\$13.00
	K. Sikora	7.0	\$10.34	\$72.38
	L. Gaarder	2.0	\$8.89	\$17.78
QA	K. Sikora	3.0	\$10.34	\$31.02

Total Direct Labor \$3,929.65

(3) Consultants Labor	K. Wahi	20.0	\$67.30	\$1,346.00
-----------------------	---------	------	---------	------------

Total Consultant Labor \$1,346.00

Total Consultant Labor & Expenses \$1,346.00

(5) Subcontract	Nuclear Waste Consultants, Inc.			\$57.97
-----------------	---------------------------------	--	--	---------

(6) Other Costs	Copies	\$64.63		
	Telephone	\$10.39		
	Documents	\$53.20 *		
		-----		\$128.22

TOTAL DIRECT COSTS \$5,461.84

(i) INDIRECT COSTS				
	G & A Expense (1.02 x Direct Labor)			\$4,008.24

TOTAL DIRECT AND INDIRECT COSTS \$9,470.08

(j) FIXED FEE EARNED				\$757.61
----------------------	--	--	--	----------

(m) TOTAL AMOUNT CLAIMED				\$10,227.69
--------------------------	--	--	--	-------------

\* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-001  
 TASK 4 TECHNICAL MEETINGS

(h) DIRECT COSTS

(1) Direct Labor	Labor Category	Name	Hours Billed	Rate	Total
	Prog. Manager	R. Hart	1.0	\$24.04	\$24.04
	Admin. Manager	L. Gaarder	4.0	\$8.89	\$35.56
		J. Markham	3.0	\$25.96	\$77.88
	Sr. Engineer	M. Board	24.0	\$23.56	\$565.44
		R. Hart	28.0	\$24.04	\$673.12
		L. Lorig	54.0	\$21.15	\$1,142.10
	Secretarial	R. Kaplan	1.5	\$6.50	\$9.75
		K. Sikora	8.0	\$10.34	\$82.72
		L. Gaarder	2.0	\$8.89	\$17.78
	QA	K. Sikora	1.0	\$10.34	\$10.34
<b>Total Direct Labor</b>					<b>\$2,638.73</b>

(3) Consultants Labor	J. Daemen	56.0	\$57.75	\$3,234.00
<b>Total Consultant Labor</b>				<b>\$3,234.00</b>

Expenses/Travel

From	To	Traveller	Costs	
4/5/87	4/6/87	J. Daemen	1) Airfare	\$278.00 *
	Destination		2) Hotel	\$60.00 *
			3) Meals	\$33.00
			4) Taxis	\$21.00 *
Tucson	Houston	Salt Design Review Mtg		\$392.00

From	To	Traveller	Costs	
4/11/87	4/15/87	J. Daemen	1) Airfare	\$138.00 *
	Destination		2) Hotel	\$192.60 *
			3) Meals	\$132.00
			4) Transportation	\$145.81 *
			5) Parking	\$1.00
Tucson	Las Vegas	NNWSI Shaft Facility		\$609.41

SUPPORTING INFORMATION

TASK ORDER-001  
 TASK 4 TECHNICAL MEETINGS

Date		Traveller	Costs	
From	To			
4/21/87	4/22/87	J. Daemen	1) Airfare	\$298.00 *
	Destination		2) Hotel	\$60.00 *
			3) Meals	\$33.00
			4) Transportation	\$21.00 *
From	To	Purpose		
son	Houston	ESTF Design Review		
				-----
				\$412.00
Total Consultant Travel				\$1,413.41
Total Consultant Labor & Expenses				\$4,647.41

(4) Travel

Date		Traveller	Costs	
From	To			
4/5/87	4/7/87	R. Hart	1) Airfare	\$291.00 *
	Destination		2) Hotel	\$120.00 *
			3) Meals	\$66.00
			4) Transportation	\$51.00
From	To	Purpose		
Mpls MN	Houston	Salt Design Review Mtg		
				-----
				\$528.00

Date		Traveller	Costs	
From	To			
4/11/87	4/15/87	L. Lorig	1) Airfare	\$343.42 *
	Destination		2) Hotel	\$261.60 *
			3) Meals	\$132.00
			4) Transportation	\$22.10
From	To	Purpose		
Mpls MN	Las Vegas	NNWSI ES Meeting		
				-----
				\$759.12

Date		Traveller	Costs	
From	To			
4/21/87	4/24/87	M. Board	1) Airfare	\$324.00 *
	Destination		2) Hotel	\$180.00 *

SUPPORTING INFORMATION

TASK ORDER-001  
 TASK 4 TECHNICAL MEETINGS

	-----		
From	To	Purpose	
-----	---	-----	
Mpls MN	Houston	Title II Design Review	
			3) Meals \$99.00
			4) Transportation \$28.00
			-----
			\$631.00
Total Itasca Travel			\$1,918.12
(6) Other Costs			
		Copies	\$64.63
		Telephone	\$16.44
		Postage	\$25.11
			-----
			\$106.18
TOTAL DIRECT COSTS			----- \$9,310.44
(i) INDIRECT COSTS			
			-----
G & A Expense (1.02 x Direct Labor)			\$2,691.50
			-----
TOTAL DIRECT AND INDIRECT COSTS			\$12,001.94
(j) FIXED FEE EARNED			
			\$960.16
			-----
(m) TOTAL AMOUNT CLAIMED			\$12,962.10
			=====

\* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-002  
 TASK 2 THERMOMECHANICAL ANALYSIS

(h) DIRECT COSTS

(1) Direct Labor		Hours		
Labor Category	Name	Billed	Rate	Total
Prog. Manager	R. Hart	1.0	\$24.04	\$24.04
Admin. Manager	L. Gaarder	4.0	\$8.89	\$35.56
	J. Markham	5.0	\$25.96	\$129.80
Sr. Engineer	R. Hart	4.0	\$24.04	\$96.16
Asst. Engineer	M. Mack	16.5	\$12.50	\$206.25
Secretarial	K. Sikora	6.0	\$10.34	\$62.04
	S. Cassatt	10.5	\$13.25	\$139.13
	L. Gaarder	2.0	\$8.89	\$17.78
QA	K. Sikora	1.0	\$10.34	\$10.34
Total Direct Labor				\$721.10

(6) Other Costs

Copies	\$64.63	
Telephone	\$15.07	
Publications	\$28.95 *	
	-----	\$108.65
TOTAL DIRECT COSTS		\$829.75

(i) INDIRECT COSTS

G & A Expense (1.02 x Direct Labor) \$735.52

TOTAL DIRECT AND INDIRECT COSTS \$1,565.27

(j) FIXED FEE EARNED \$125.22

(m) TOTAL AMOUNT CLAIMED \$1,690.49

\* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER-003

TASK 2 IDENTIFICATION OF UNDERGROUND SYSTEM DESIGN COMPONENTS

(h) DIRECT COSTS

(1) Direct Labor		Hours		
Labor Category	Name	Billed	Rate	Total
Prog. Manager	R. Hart	1.0	\$24.04	\$24.04
Admin. Manager	L. Gaarder	3.0	\$8.89	\$26.67
	J. Markham	1.0	\$25.96	\$25.96
Sr. Engineer	L. Lorig	23.0	\$21.15	\$486.45
Secretarial	L. Gaarder	2.0	\$8.89	\$17.78
QA	K. Sikora	1.0	\$10.34	\$10.34
Total Direct Labor				\$591.24

TOTAL DIRECT COSTS \$591.24

(i) INDIRECT COSTS

G & A Expense (1.02 x Direct Labor) \$603.06

TOTAL DIRECT AND INDIRECT COSTS \$1,194.30

(j) FIXED FEE EARNED

\$95.54

(k) TOTAL AMOUNT CLAIMED

\$1,289.84

\* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER 004  
 TASK 1 THERMOMECHANICAL MODELING

(h) DIRECT COSTS

(1) Direct Labor		Hours			
Labor Category	Name	Billed	Rate		Total
Admin. Manager	J. Markham	4.0	\$25.96		\$103.84
Sr. Reviewer	P. Cundall	5.0	\$52.50		\$262.50
Asst. Engineer	M. Mack	10.5	\$12.50		\$131.25
Secretarial	K. Sikora	4.0	\$10.34		\$41.36
	L. Gaarder	2.0	\$8.89		\$17.78
QA	K. Sikora	0.5	\$10.34		\$5.17
Total Direct Labor					\$561.90

TOTAL DIRECT COSTS \$561.90

(i) INDIRECT COSTS

G & A Expense (1.02 x Direct Labor) \$573.14

TOTAL DIRECT AND INDIRECT COSTS \$1,135.04

(j) FIXED FEE EARNED

\$90.80

(k) TOTAL AMOUNT CLAIMED

\$1,225.84

\* Invoice Attached

SUPPORTING INFORMATION

TASK ORDER 005  
 TASK 1 ANALYSIS FOR BWIP

(h) DIRECT COSTS

(1) Direct Labor		Hours			
Labor Category	Name	Billed	Rate		Total
<hr/>					
Admin. Manager	J. Markham	2.0	\$25.96		\$51.92
					<hr/>
Total Direct Labor					\$51.92

(6) Other Costs	Telephone	\$14.22			
					<hr/>
					\$14.22
					<hr/>
TOTAL DIRECT COSTS					\$66.14

(i) INDIRECT COSTS

G & A Expense (1.02 x Direct Labor)	\$52.96
	<hr/>

TOTAL DIRECT AND INDIRECT COSTS	\$119.10
---------------------------------	----------

(j) FIXED FEE EARNED	\$9.53
	<hr/>

(k) TOTAL AMOUNT CLAIMED	\$128.63
=====	=====

May-87  
 TASK ORDER 001  
 TASK 2

TASK LABOR SUMMARY

REVIEW OF DOCUMENTS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	96	41	55
ADMIN MGR	120	118.5	1.5
SR. ENGINEER	980	1001.5	-21.5
ASST. ENGINEER	300	3	297
SR. REVIEWER	48	0	48
QA	48	21	27
SECRETARIAL	200	330.5	-130.5
<b>TOTAL ITASCA</b>	<b>1792</b>	<b>1515.5</b>	<b>276.5</b>
<b>CONSULTANT</b>			
J. DAEMEN	168	172	-4
I. FARMER	88	80	8
ASST. ENGINEER	208	0	208
R. BARNES	0	20	-20
K. WAHI	0	94	-94
R. RAJARAM	0	50	-50
<b>TOTAL CONSULT</b>	<b>464</b>	<b>416</b>	<b>48</b>
<b>SUBCONTRACTOR-NWC</b>			
PRIN. INVEST.	256	115	141
SR ENGINEER	144	0	144
ENGINEER/GEOL	208	31.5	176.5
DRAFTING	0	2	-2
CLERICAL	100	78	22
<b>TOTAL SUBCONT</b>	<b>708</b>	<b>226.5</b>	<b>481.5</b>
<b>TOTAL TASK</b>	<b>2964</b>	<b>2158</b>	<b>806</b>

May-87  
 TASK ORDER 001  
 TASK 4

TASK LABOR SUMMARY

TECHNICAL MEETINGS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	62	38	24
ADMIN MGR	76	86.5	-10.5
PRIN. INVEST.	588	33	555
SR. ENGINEER	1108	558	550
SR REVIEW	0	24	-24
QA	32	14	18
SECRETARIAL	148	117.5	30.5
<b>TOTAL ITASCA</b>	<b>2014</b>	<b>871</b>	<b>1143</b>
<b>CONSULTANT</b>			
J. DAEMEN	588	296	292
I. FARMER	104	61	43
K. WAHI	0	109	-109
R. RAJARAM	0	30	-30
Y. KIM	0	80	-80
<b>TOTAL CONSULT</b>	<b>692</b>	<b>576</b>	<b>116</b>
<b>SUBCONTRACTOR-NWC</b>			
PRIN. INVEST.	588	147	441
CLERICAL	44	28	16
<b>TOTAL SUBCONT</b>	<b>632</b>	<b>175</b>	<b>457</b>
<b>TASK TOTAL</b>	<b>3338</b>	<b>1622</b>	<b>1716</b>
<b>TASK ORDER TOT</b>	<b>6545</b>	<b>3804.5</b>	<b>2740.5</b>

May-87  
TASK ORDER 002  
TASK 2

TASK LABOR SUMMARY

THERMOMECHANICAL ANALYSES

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	54	23	31
ADMIN MGR	72	64	8
SR. ENGINEER	592	453	139
ASST. ENGINEER	320	611.5	-291.5
SR REVIEW	88	0	88
QA	16	9	7
SECRETARIAL	112	246	-134
TOTAL ITASCA	1254	1406.5	-152.5
CONSULTANT			
J. DAEMEN	0	31	-31
K. WAHI	80	85	-5
TOTAL CONSULT	80	116	-36
TASK TOTAL	1334	1522.5	-188.5
TASK ORDER TOT	2824	2435	389

May-87

TASK LABOR SUMMARY

TASK ORDER 003

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	3	3
ADMIN MGR	12	16	-4
SR. ENGINEER	80	100	-20
QA	4	5	-1
SECRETARIAL	20	31.5	-11.5
	-----	-----	-----
TOTAL ITASCA	122	155.5	-33.5
CONSULTANT			
-----			
J. DAEMEN	80	18.5	61.5
	-----	-----	-----
	80	18.5	61.5
	=====	=====	=====
TASK TOTAL	202	174	28
	=====	=====	=====
TASK ORDER TOT	516	373	143

May-87  
TASK ORDER 004

TASK LABOR SUMMARY

TASK 1 THERMOMECHANICAL MODELING FOR SRP, BWIP AND NNWSI

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	20	0	20
ADMIN MGR	20	15	5
SR. ENGINEER	40	14	26
ASST ENGINEER	120	180	-60
ASSOC./REVIEWER	120	109	11
QA	8	1.5	6.5
SECRETARIAL	12	15.5	-3.5
	-----	-----	-----
TOTAL ITASCA	340	335	5
	=====	=====	=====
TASK TOTAL	340	335	5
	=====	=====	=====
TASK ORDER TOT	340	335	5

May-87  
TASK ORDER 005

TASK LABOR SUMMARY

TASK 1 ANALYSIS FOR BWIP  
SUBTASK 1 CONTINUUM & DISCONTINUUM MODELING

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	16	2	14
ADMIN MGR	32		32
SR. ENGINEER	320		320
QA	16		16
SECRETARIAL	30		30
	-----	-----	-----
	414	2	412
SUBCONTRACTOR-NWC			
-----			
PRIN. INVEST.	32		32
CLERICAL	12		12
	-----	-----	-----
TOTAL SUBCONT	44	0	44
=====			
SUBTASK TOTAL	458	2	456