



12 October 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. 26 for the period 1-30 September 1987 on Task Orders No. 001, 002, 003, 005, and 006, 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: R. Ballard, Engineering Branch  
Office of the Director, NMSS  
E. Wiggins, Division of Contracts  
DWM Document Control Room

Encl.  
rdh/ks

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WM Project: WM-10, 11, 16

PDR w/encl

(Return to WM, 623-SS)

WM Record Files: D-1016

LPDR w/encl

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## ITASCA MONTHLY PROGRESS REPORT

Progress Report No. 26  
NRC Technical Assistance  
for Design Reviews

12 October 1987  
Contract No. NRC-02-85-002

Reporting Period: 1 - 30 September 1987

### 1.0 INTRODUCTION

This progress report summarizes the work performed during September 1987 on NRC Contract No. NRC-02-85-002. During September, work progressed on Task Orders No. 001, 002, 003, 005, and 006.

### 2.0 ACTIVITIES DURING THE REPORTING PERIOD

- A. The final paper, "Evaluation of Rockburst Potential at the Hanford Site" was transmitted on 2 September 1987 (Task Order No. 003) [Note: In last month's progress report, it was mistakenly reported that this report was sent on 10 August.]
- B. On 8 September, authorization was received for the following:
  - (1) to send one engineer to the SRP ESF 60% Design Review meeting held in Houston on 31 August (Task Order No. 001);
  - (2) to send two engineers to the ESF meeting in Houston from 28 September - 2 October (Task Order No. 001); and
  - (3) to review the following documents (Task Order No. 006):
    - (a) "HEFF" User's Manual;
    - (b) "Thermal Logic for Rockbolts in MUDEC"; and
    - (c) "STRES3D" and linking the thermal output to FLAC.

- C. The agenda for the 22-23 September NNWSI meeting in Las Vegas was received from J. Peschal on 10 September (Task Order No. 001).
- D. On 10 September, the trip report for the 31 August meeting in Houston, regarding the ESF Title II 60 Percent Design Review, Salt Repository, was transmitted (Task Order No. 001).
- E. Progress Report No. 25 and Invoice No. 025-87-129 were transmitted on 15 September.
- F. L. Lorig and J. Daemen attended the DOE Briefing on Seismic/Tectonic Strategies of NNWSI from 21-25 September in Las Vegas (Task Order No. 001).
- G. R. Hart and B. Brady attended the SRP ESF 60 Percent Design Review Comment Resolution meeting in Houston, 28 September - 2 October (Task Order No. 001).

### 3.0 RESULTS

#### A. Documents Submitted in September

Final Paper, "Evaluation of Rockburst Potential at the Hanford Site" (Task Order No. 003)

Professional labor was billed previously

#### B. Tasks Completed in September

With the submittal of the Rockburst Potential paper, Task Order No. 003 has been completed.

#### C. Works in Progress

1. analysis of continuum vs discontinuum modeling for BWIP (Task Order No. 005)

Professional Labor	M. Board	92 hours
	D. Russell	45 hours

2. thermomechanical analysis for BWIP (Task Order No. 005)  

Professional Labor	M. Board	31 hours
	D. Russell	16 hours
  
3. mechanical and thermomechanical analysis for SRP (Task Order No. 005)  

Professional Labor	M. Mack	48 hours
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4. Document Review 006-01-41, "Thermal Logic for Rockbolts in MUDEC" (Task Order No. 006)  

Professional Labor	M. Mack	2.5 hours
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5. Document Review 006-01-39, "Summary Review of NNWSI Thermomechanical Analysis Documents" (Task Order No. 006)  

Professional Labor	L. Lorig	7.5 hours
	K. Wahi	64.0 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 the 21-25 September NNWSI Seismic/Tectonic Strategies meeting and the upcoming Sudbury Mine visit have not been received.

6.0 ACTIVITIES PLANNED FOR THE NEXT REPORTING PERIOD

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

1. continuum versus discontinuum modeling for BWIP (Task Order No. 005)
2. sensitivity analysis for key joint parameters for BWIP (Task Order No. 005)
3. thermomechanical analysis for SRP (Task Order No. 005)
4. thermomechanical analysis for BWIP (Task Order No. 005)
5. "Site Technical Position on In-Situ Testing at NNWSI" (pending receipt of final NRC comments) (Task Order No. 002)
6. "Site Technical Position on In-Situ Testing at SRP" (Task Order No. 002)
7. Document Review No. 006-01-39, "Summary Review of NNWSI Thermomechanical Analysis Documents" (Task Order No. 006)
8. Document Review No. 006-01-41, "Thermal Logic for Rockbolts in MUDEC" (Task Order No. 006)
9. Document Review NO. 006-01-42, "STRES3D and Link to Thermal Output of FLAC" (Task Order No. 006)

B. Planned Trips

M. Board will lead a three-day trip, 19-21 October 1987, with D. Tiktinsky and J. Buckley, to the Falconbridge Mines in Sudbury, Ontario (Task Order No. 001).

7.0 MEETINGS/TRIPS DURING THE REPORTING PERIOD

- A. L. Lorig and J. Daemen attended the DOE Briefing on Seismic/Tectonic Strategies at NNWSI in Las Vegas, 21-25 September (Task Order No. 001).

Professional Labor	J. Daemen	24 hours*
	L. Lorig	42 hours

- B. R. Hart and B. Brady attended the 60 Percent Design Review Comment Resolution Meeting in Houston, 28 September - 2 October (Task Order No. 001).

Professional Labor	B. Brady	32 hours
	R. Hart	33 hours

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\*estimated (not included in current billing)

8.0 SCHEDULE AND COST PROJECTION

The billing summary for the September invoice is attached. Also included are a labor hour summary by task and a summary of the expenditures versus budgets for each task and task order. Because of the large number of on-going tasks, these budget and labor summaries will be updated monthly but only submitted quarterly, or when significant changes occur. Task Order No. 003 was completed in September, with expenditures approximately \$5,488 under budget. All task orders remain well within allotted budgets.

Respectfully submitted,



Roger D. Hart  
Program Manager

12 October 1987

attach.  
rdh/ks

Oct-87  
 TASK ORDER 001  
 TASK 4

TASK LABOR SUMMARY

TECHNICAL MEETINGS

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	62	42	20
ADMIN MGR	76	103.5	-27.5
PRIN. INVEST.	588	33	555
SR. ENGINEER	1108	688	420
SR REVIEW	0	56	-56
QA	32	17	15
SECRETARIAL	148	140.5	7.5
	-----	-----	-----
TOTAL ITASCA	2014	1080	934
CONSULTANT			
	-----		
J. DAEMEN	588	344	244
I. FARMER	104	61	43
K. WAHI	0	109	-109
R. RAJARAM	0	30	-30
Y. KIM	0	80	-80
	-----	-----	-----
TOTAL CONSULT	692	624	68
SUBCONTRACTOR-NWC			
	-----		
PRIN. INVEST.	588	147	441
CLERICAL	44	28	16
	-----	-----	-----
TOTAL SUBCONT	632	175	457
	=====	=====	=====
TASK TOTAL	3338	1879	1459
	=====	=====	=====
TASK ORDER TOT	6545	4568.5	1976.5

Oct-87  
 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	13	59
ADMIN MGR	96	61.5	34.5
SR. ENGINEER	872	721	151
SR REVIEW	12	19	-7
QA	48	15.5	32.5
SECRETARIAL	126	129.5	-3.5
	-----	-----	-----
TOTAL ITASCA	1226	959.5	266.5
CONSULTANT			
	-----	-----	-----
J. DAEMEN	72	82	-10
I. FARMER	40	0	40
K. WAHI	72	0	72
	-----	-----	-----
TOTAL CONSULT	184	82	102
SUBCONTRACTOR-NWC			
	-----	-----	-----
PRIN. INVEST.	72	37	35
ASST. PROF.	0	4	-4
CLERICAL	8	18	-10
	-----	-----	-----
TOTAL SUBCONT	80	59	21
	=====	=====	=====
TASK TOTAL	1490	1100.5	389.5
	=====	=====	=====
TASK ORDER TOT	2824	2784.5	39.5

Oct-87  
 TASK ORDER 003  
 TASK 1 ROCKBURST POTENTIAL AT BWIP

TASK LABOR SUMMARY

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	8	3	5
ADMIN MGR	16	21	-5
SR. ENGINEER	160	157	3
SR REVIEW	16	14	2
QA	6	0	6
SECRETARIAL	36	55	-19
	-----	-----	-----
TOTAL ITASCA	242	250	-8
SUBCONTRACTOR-NWC			
	-----		
PRIN. INVEST.	40	0	40
SR ENGINEER	24	0	24
CLERICAL	8	0	8
	-----	-----	-----
TOTAL SUBCONT	72	0	72
	=====	=====	=====
TASK TOTAL	314	250	64
	=====	=====	=====
TASK ORDER TOT	516	500	16

Oct-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	7	25
SR. ENGINEER	320	138	182
ASST. ENGINEER	0	45	-45
QA	16	1	15
SECRETARIAL	30	2	28
	-----	-----	-----
	414	195	219

SUBCONTRACTOR-NWC

PRIN. INVEST.	32	0	32
CLERICAL	12	0	12
	-----	-----	-----
TOTAL SUBCONT	44	0	44
	=====	=====	=====
SUBTASK TOTAL	458	195	263

Oct-87

TASK LABOR SUMMARY

TASK 1 ANALYSIS FOR BWIP

SUBTASK 3 THERMAL MECHANICAL ANALYSIS FOR BWIP

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	16	0	16
ADMIN MGR	32	2	30
SR. ENGINEER	320	31	289
ASST. ENGINEER	0	16	-16
QA	16	0	16
SECRETARIAL	30	0.5	29.5
	-----	-----	-----
	414	49.5	364.5
SUBCONTRACTOR-NWC			
PRIN. INVEST.	32	0	32
CLERICAL	12	0	12
	-----	-----	-----
TOTAL SUBCONT	44	0	44
	=====	=====	=====
SUBTASK TOTAL	458	49.5	408.5
	=====	=====	=====
TASK TOTAL	1736	319	1417

Oct-87

TASK LABOR SUMMARY

TASK ORDER 005

TASK 2 ANALYSIS FOR SRP

SUBTASK 1 MECHANICAL & THERMOMECHANICAL ANALYSIS

STAGE 2 INDEPENDENT PARALLEL ANALYSES

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	32	4	28
ADMIN MGR	64	9	55
SR. ENGINEER	240	2	238
ASST ENGINEER	120	126	-6
QA	16	0	16
SECRETARIAL	48	3.5	44.5
	-----	-----	-----
	520	144.5	375.5
CONSULTANT			
-----			
K. WAHI	40	0	40
	-----	-----	-----
	40	0	40
	=====	=====	=====
SUBTASK TOTAL	618	144.5	473.5
	=====	=====	=====
TASK TOTAL	1058	144.5	913.5
	=====	=====	=====
TASK ORDER TOT	2794	463.5	2330.5

Oct-87  
 TASK ORDER 006  
 TASK 1 DOCUMENT REVIEWS

TASK LABOR SUMMARY

LABOR CATEGORY	BUDGETED HRS	TOTAL HRS BILLED	HRS REMAINING
PROGRAM MGR	40	2	38
ADMIN MGR	120	13	107
SR. ENGINEER	648	29.5	618.5
ASST ENGINEER	80	2.5	77.5
SR. REVIEWER	149	0	149
QA	40	1.5	38.5
SECRETARIAL	356	13	343
	-----	-----	-----
	1433	61.5	1371.5

SUBCONTRACTOR-NWC

PRIN. INVEST.	160	0	160
SR ENGINEER	30	0	30
ENGINEER/GEOL	26	0	26
CLERICAL	88	0	88
	-----	-----	-----
TOTAL SUBCONT	304	0	304

CONSULTANT

J. DAEMEN	200	1	199
V. RAJARAM	80	0	80
K. WAHI	80	64	16
	-----	-----	-----
TOTAL CONSULT	360	65	295

	=====	=====	=====
TASK TOTAL	2097	126.5	1970.5

	=====	=====	=====
TASK ORDER TOT	3521	126.5	3394.5

Oct-87

NRC TASK BUDGETS  
NRC-02-85-002

TASK ORDER NO. 1

TASK 4 TECHNICAL MEETINGS

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
17 SEP 85	\$2,618.63	\$2,618.63	\$266,162.25	\$263,543.62	1.0%
11 OCT 85	\$4,311.03	\$6,929.66	\$266,162.25	\$259,232.59	2.6%
12 NOV 85	\$605.49	\$7,535.15	\$266,162.25	\$258,627.10	2.8%
16 DEC 85	\$4,285.63	\$11,820.78	\$266,162.25	\$254,341.47	4.4%
14 JAN 86	\$8,566.13	\$20,386.91	\$266,162.25	\$245,775.34	7.7%
18 FEB 86	\$7,422.36	\$27,809.27	\$266,162.25	\$238,352.98	10.4%
13 MAR 86	\$4,268.58	\$32,077.85	\$266,162.25	\$234,084.40	12.1%
08 APR 86	\$8,763.60	\$40,841.45	\$266,162.25	\$225,320.80	15.3%
09 MAY 86	\$10,571.40	\$51,412.85	\$266,162.25	\$214,749.40	19.3%
10 JUN 86	\$645.43	\$52,058.28	\$266,162.25	\$214,103.97	19.6%
15 JUL 86	\$23,150.10	\$75,208.38	\$266,162.25	\$190,953.87	28.3%
12 AUG 86	\$7,322.64	\$82,531.02	\$266,162.25	\$183,631.23	31.0%
10 SEP 86	\$7,087.09	\$89,618.11	\$266,162.25	\$176,544.14	33.7%
10 OCT 86	\$2,870.16	\$92,488.27	\$266,162.25	\$173,673.98	34.7%
14 NOV 86	\$1,783.40	\$94,271.67	\$266,162.25	\$171,890.58	35.4%
14 JAN 87	\$1,911.39	\$96,183.06	\$266,162.25	\$169,979.19	36.1%
17 MAR 87	\$7,308.61	\$103,491.67	\$266,162.25	\$162,670.58	38.9%
07 APR 87	\$3,906.52	\$107,398.19	\$266,162.25	\$158,764.06	40.4%
18 MAY 87	\$12,962.10	\$120,360.29	\$266,162.25	\$145,801.96	45.2%
10 JUN 87	\$6,151.03	\$126,511.32	\$266,162.25	\$139,650.93	47.5%
11 AUG 87	\$2,006.94	\$128,518.26	\$266,162.25	\$137,643.99	48.3%
14 SEP 87	\$1,499.30	\$130,017.56	\$266,162.25	\$136,144.69	48.8%
10 OCT 87	\$9,960.56	\$139,978.12	\$266,162.25	\$126,184.13	52.6%
-----					
\$139,978.12					

TASK ORDER 1 TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
\$270,510.19	\$414,754.68	\$144,244.49	65.2%

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NRC TASK BUDGETS  
NRC-02-85-002

TASK ORDER NO. 2  
TASK 1 SITE SPECIFIC IN-SITU TESTING POINT PAPERS

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
09 MAY 86	\$4,136.36	\$4,136.36	\$80,791.49	\$76,655.13	5.1%
10 JUN 86	\$8,789.36	\$12,925.72	\$80,791.49	\$67,865.77	16.0%
15 JUL 86	\$3,529.06	\$16,454.78	\$80,791.49	\$64,336.71	20.4%
12 AUG 86	\$4,830.43	\$21,285.21	\$80,791.49	\$59,506.28	26.3%
10 SEP 86	\$5,160.25	\$26,445.46	\$80,791.49	\$54,346.03	32.7%
10 OCT 86	\$5,788.64	\$32,234.10	\$80,791.49	\$48,557.39	39.9%
14 NOV 86	\$3,416.02	\$35,650.12	\$80,791.49	\$45,141.37	44.1%
16 DEC 86	\$1,779.08	\$37,429.20	\$80,791.49	\$43,362.29	46.3%
14 JAN 87	\$2,792.75	\$40,221.95	\$80,791.49	\$40,569.54	49.8%
17 FEB 87	\$848.52	\$41,070.47	\$80,791.49	\$39,721.02	50.8%
17 MAR 87	\$4,264.35	\$45,334.82	\$80,791.49	\$35,456.67	56.1%
07 APR 87	\$2,754.14	\$48,088.96	\$80,791.49	\$32,702.53	59.5%
10 JUN 87	\$2,238.40	\$50,327.36	\$80,791.49	\$30,464.13	62.3%
10 JUL 87	\$1,180.58	\$51,507.94	\$80,791.49	\$29,283.55	63.8%
11 AUG 87	\$2,986.11	\$54,494.05	\$80,791.49	\$26,297.44	67.5%
14 SEP 87	\$1,537.53	\$56,031.58	\$80,791.49	\$24,759.91	69.4%
10 OCT 87	\$354.32	\$56,385.90	\$80,791.49	\$24,405.59	69.8%
	-----				
	\$56,385.90				

TASK ORDER 2 TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
-----	-----	-----	-----
\$119,705.83	\$153,848.31	\$34,142.48	77.8%

Oct-87

NRC TASK BUDGETS  
NRC-02-85-002

TASK ORDER NO. 3  
TASK 1 ROCKBURST POTENTIAL

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
14 NOV 86	\$3,173.81	\$3,173.81	\$17,732.38	\$14,558.57	17.9%
16 DEC 86	\$1,878.84	\$5,052.65	\$17,732.38	\$12,679.73	28.5%
14 JAN 87	\$1,367.63	\$6,420.28	\$17,732.38	\$11,312.10	36.2%
17 FEB 87	\$2,338.49	\$8,758.77	\$17,732.38	\$8,973.61	49.4%
11 AUG 87	\$430.59	\$9,189.36	\$17,732.38	\$8,543.02	51.8%
14 SEP 87	\$2,213.00	\$11,402.36	\$17,732.38	\$6,330.02	64.3%
10 OCT 87	\$494.04	\$11,896.40	\$17,732.38	\$5,835.98	67.1%
	-----				
	\$11,896.40				

TASK ORDER 3 TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
-----	-----	-----	-----
\$24,031.59	\$29,519.35	\$5,487.76	81.4%

Oct-87

NRC TASK BUDGETS  
NRC-02-85-002

TASK ORDER 5  
TASK 1 BWIP MECH & THERMOMECH ANALYSIS

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
18 MAY 87	\$128.63	\$128.63	\$97,736.99	\$97,608.36	0.1%
11 AUG 87	\$4,316.68	\$4,445.31	\$97,736.99	\$93,291.68	4.5%
14 SEP 87	\$1,752.08	\$6,197.39	\$97,736.99	\$91,539.60	6.3%
10 OCT 87	\$9,401.22	\$15,598.61	\$97,736.99	\$82,138.38	16.0%
	\$15,598.61				

TASK 2 SRP MECH AND THERMOMECH ANALYSIS

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
11 AUG 87	\$2,515.22	\$2,515.22	\$53,115.71	\$50,600.49	4.7%
14 SEP 87	\$2,457.48	\$4,972.70	\$53,115.71	\$48,143.01	9.4%
10 OCT 87	\$1,822.27	\$6,794.97	\$53,115.71	\$46,320.74	12.8%
	\$6,794.97				

TASK ORDER 5 TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLETE
\$22,393.58	\$150,852.70	\$128,459.12	14.8%

Oct-87

NRC TASK BUDGETS  
NRC-02-85-002

TASK ORDER 6  
TASK 1 DOCUMENT REVIEWS

DATE	AMT SPENT	TOT AMT SPENT	BUDGET	AMT REMAIN	% COMPLET
14 SEP 87	\$1,679.58	\$1,679.58	\$108,396.18	\$106,716.60	1.5%
10 OCT 87	\$5,671.72	\$7,351.30	\$108,396.18	\$101,044.88	6.8%
	\$7,351.30				

TASK ORDER 6 TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLET
\$7,351.30	\$216,548.11	\$209,196.81	3.4%

PROJECT TOTAL

AMT SPENT	BUDGET	AMT REMAIN	% COMPLET
\$468,545.73	\$990,076.39	\$521,530.66	47.3%

PDR-1  
LPDR-WM-10(2)  
WM-11(2)  
WM-16(2)

WM DOCKET CONTROL  
CENTER

'87 OCT 16 A9:39

WM-225  
WM Record File 1016  
FASCA

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

Distribution:  
x Tiktinsky WM-Docket  
\_\_\_\_\_  
(Return to WM, 623-SS) \_\_\_\_\_

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