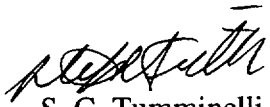




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Appendix SN-2 to Calculation PGE-009-CALC-003

Originator:  S. C. Tumminelli
Date: May 25, 2001
Reissued: November 30, 2001

Appendix SN-2

Maximum Rock Vertical Stresses

This Appendix presents vertical (Y) stresses for the rock for all 19 load cases analyzed for the soft rock, hard rock and very hard rock models. The input file is provided followed by the two output files, one for the soft and one for the hard rock analyses. This is then followed by the input and output files for the very hard rock analyses.

Appendix Contents

ANSYS input file for rock stresses for soft and hard rock models	sheet 2
ANSYS output file for the soft rock model	sheet 19
ANSYS output file for the hard rock model	sheet 39
ANSYS input file for rock stresses for the very hard rock model	sheet 59
ANSYS output file for the very hard rock model	sheet 68



Below is the ANSYS input file that scans the database for the maximum rock vertical (Y) stresses. Element type 2 is the rock. This file processes data for both the soft rock and hard rock analyses. Two output files are created.

```
/COM
/OUTPUT,rocksoftystress.out
/COM
/COM      ROCK STRESS DATA SORTED AND PRINTED BY LOAD STEP
/COM
/COM
/COM      THIS ROUTINE SORTS AND PRINTS ROCK STRESS DATA Sy BY LOAD STEP
/COM
/COM
/COM      SOFT ROCK RESULTS
/COM
/file,dcslabs2
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,2
NELEM
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET,3
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM

```



Appendix SN-2 to Calculation PGE-009-CALC-003

NSORT, S, Y, 1, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

SET, 5

ESEL, TYPE, 2

NELEM

/COM

/COM =====

/COM =====

/COM =====

NSORT, S, Y, 0, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

/COM =====

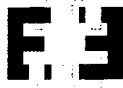
/COM =====

/COM =====

/COM =====

/COM =====

/COM =====



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 8 =====
/COM
SET,8
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 9 =====
/COM
SET,9
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 10 =====
/COM
SET,10
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM
SET,12
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET, 13
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET, 14
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET,15
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 16 =====
/COM
SET,16
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 17 =====
/COM
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

SET, 17
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 18 =====
/COM
SET, 18
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 19 =====
/COM
SET, 19
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM

```

Appendix SN-2 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/com
/com HARD ROCK RESULTS
/COM
/OUTPUT,rockhardystress.out
/file,dcslabh2
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,2
NELEM

```



**ENERCON
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Appendix SN-2 to Calculation PGE-009-CALC-003

```

/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET, 3
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET, 4
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====
/COM
SET,5
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET,6
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 7 =====
/COM
SET,7
ESEL,TYPE,2
```




**ENERCON
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Appendix SN-2 to Calculation PGE-009-CALC-003

```

NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 8 =====
/COM
SET,8
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 9 =====
/COM
SET,9
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====

```



```
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 10 =====
/COM
SET,10
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM
SET,12
```



```
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET, 13
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET, 14
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET,15
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 16 =====
/COM
SET,16
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 17 =====
/COM
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

SET, 17
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 18 =====
/COM
SET, 18
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 19 =====
/COM
SET, 19
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT

```



```
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM
/COM =====
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/OUTPUT
/EXIT
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

Below is the ANSYS output file for the maximum rock vertical (Y) stresses for the soft rock analyses.

ROCK STRESS DATA SORTED AND PRINTED BY LOAD STEP

THIS ROUTINE SORTS AND PRINTS ROCK STRESS DATA S_y BY LOAD STEP

SOFT ROCK RESULTS

CURRENT JOBNAME REDEFINED AS dcslabs2

RESUME ANSYS DATA FROM FILE NAME=dcslabs2.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock

ANALYSIS TYPE = STATIC (STEADY-STATE)

NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 33177

17051 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 17051

259 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 259

250 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 396

181 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 295

70 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 70

11 COMPONENTS CURRENTLY DEFINED

MAXIMUM LINEAR PROPERTY NUMBER = 5

MAXIMUM REAL CONSTANT SET NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

MAXIMUM CONSTRAINT EQUATION NUMBER = 4620

NUMBER OF SPECIFIED CONSTRAINTS = 2193

NUMBER OF NODAL LOADS = 2160

INITIAL JOBNAME = dcslabs2

CURRENT JOBNAME = dcslabs2

PRINT HEADER

DO NOT PRINT SUBTITLE(S)

DO NOT PRINT LOAD STEP ID

DO NOT PRINT NOTE LINE(S)

PRINT COLUMN HEADER LABELS

DO NOT PRINT REPORT TOTALS

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 5.7 *****

ANSYS/Structural U

00150104 VERSION=INTEL NT 17:37:44 MAY 17, 2001 CP= 2.433

Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock

***** ANSYS RESULTS INTERPRETATION (POST1) *****



Appendix SN-2 to Calculation PGE-009-CALC-003

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE POST1

*** NOTE *** CP= 2.433 TIME= 17:37:44
Reading results into the database (SET command) will update the current displacement and force boundary conditions in the database with the values from the results file for that load set. Note that any subsequent solutions will use these values unless action is taken to either SAVE the current values or not overwrite them (/EXIT,NOSAVE).

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

=====

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 4
TIME/FREQUENCY= 1.0000
TITLE= Pad, Gravity, 20 Casks, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	1.6976	0.17891	0.65512	-0.35397	-0.66666E-07	0.13120E-06
7931	1.6975	0.17887	0.65507	0.35399	-0.66877E-07	-0.13308E-06

NODE SORT REMOVED

=====



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-6.8830	-15.723	-7.4702	0.47588E-05	0.38007E-05	-0.26194E-08
7555	-6.7654	-15.504	-7.3094	0.39701E-05	-0.37045	0.62273E-07

NODE SORT REMOVED

=====

=====

=====

===== SET 2 =====

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17
TIME/FREQUENCY= 2.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips North (Z), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	7.0985	6.7353	13.602	0.11838E-06	0.51861	-0.17383E-05
8124	6.9984	6.6462	13.418	-0.23606E-01	0.51478	-0.44074

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15684	-9.8833	-18.249	-17.074	-3.2298	12.044	3.3823
7740	-9.8833	-18.249	-17.074	3.2298	12.044	-3.3823

NODE SORT REMOVED

=====

=====

=====

===== SET 3 =====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 26
TIME/FREQUENCY= 3.0000
TITLE= Pad, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	6.2414	5.9006	11.982	-0.12486E-01	0.46333	1.7388
8123	6.1693	5.8161	11.864	-0.34062E-01	0.45280	1.4136

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



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Appendix SN-2 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-13.093	-21.719	-8.7339	6.4594	7.3858	-1.6220
7740	-15.521	-21.512	-19.060	7.0024	12.554	-4.0968

NODE SORT REMOVED

```
=====
=====
=====
===== SET 4 =====
```

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 30
TIME/FREQUENCY= 4.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

```
=====
===== MAXIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	5.5262	5.2308	10.628	-0.36878E-02	0.42297	2.2904
16067	5.5495	5.2182	10.681	-0.26908E-01	0.41565	2.1045

NODE SORT REMOVED

```
=====
===== MINIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-15.539	-24.204	-10.426	7.6632	5.9524	-1.3438



Appendix SN-2 to Calculation PGE-009-CALC-003

7596 -16.014 -24.023 -12.043 7.8679 7.1288 -1.7808

NODE SORT REMOVED

=====
=====
=====
===== SET 5 =====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 34

TIME/FREQUENCY= 5.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	4.7345	4.4439	9.1296	-0.21572E-01	0.36893	2.4686
16036	4.6687	4.4082	8.9441	0.11532E-01	0.37795	2.5242

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-18.007	-26.357	-13.133	8.8171	5.4418	-1.3762
7532	-17.482	-26.183	-11.763	8.6277	4.1758	-0.97371

NODE SORT REMOVED



Appendix SN-2 to Calculation PGE-009-CALC-003

=====
=====
=====
===== SET 6 =====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 42
TIME/FREQUENCY= 6.0000
TITLE= Pad, HE(1), 20 Casks, 515 Kips West (W), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	9.6271	4.8644	5.0617	0.53507E-01	0.63859E-05	-0.59850E-04
15827	9.5428	4.8228	5.0178	0.57153E-01	-0.66498E-02	-0.25583

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-20.466	-29.305	-14.529	9.9695	0.54822E-03	-0.12741E-03
7532	-19.931	-28.740	-13.980	9.6988	-1.3101	0.37891

NODE SORT REMOVED

=====
=====



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=====

SET 7

USE LOAD STEP 7 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 7 SUBSTEP= 1 CUMULATIVE ITERATION= 54
TIME/FREQUENCY= 7.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips North (z), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

MAXIMUM VALUES OF Sy

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.4357	3.2217	6.6219	0.10676E-06	0.23332	-0.84165E-06
8124	3.3849	3.1774	6.5272	-0.11539E-01	0.23278	-0.21224

NODE SORT REMOVED

=====

MINIMUM VALUES OF Sy

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7692	-4.4982	-8.7663	-7.0705	0.13941E-05	5.5098	-0.17830E-07
15671	-4.3889	-8.6225	-6.9563	-0.27991	5.5363	0.95695E-01

NODE SORT REMOVED

=====

SET 8



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Appendix SN-2 to Calculation PGE-009-CALC-003

USE LOAD STEP 8 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 8 SUBSTEP= 1 CUMULATIVE ITERATION= 63

TIME/FREQUENCY= 8.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips West (X), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	4.6638	2.3050	2.4343	0.13708E-01	0.24926E-06	-0.52128E-05
15827	4.6209	2.2847	2.4121	0.16252E-01	-0.32866E-02	-0.11930

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-9.2488	-13.394	-6.6876	4.6412	0.12451E-04	-0.26591E-05
7532	-9.0045	-13.141	-6.4295	4.5132	-0.58639	0.17688

NODE SORT REMOVED

=====

=====

=====

===== SET 9 =====

USE LOAD STEP 9 SUBSTEP 0 FOR LOAD CASE 0



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SET COMMAND GOT LOAD STEP= 9 SUBSTEP= 1 CUMULATIVE ITERATION= 69
TIME/FREQUENCY= 9.0000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips North (Z), Max Dn, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

=====	MAXIMUM VALUES OF Sy	=====
-------	----------------------	-------

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.8598	2.9533	8.0943	0.46659E-06	-0.40414	0.58282E-05
16067	3.7774	2.9001	7.9264	0.10367E-02	-0.36915	0.19681

NODE SORT REMOVED

=====

=====	MINIMUM VALUES OF Sy	=====
-------	----------------------	-------

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-12.640	-28.940	-13.657	0.65219E-04	2.8766	-0.47705E-05
7579	-12.469	-28.509	-13.571	0.69123E-04	3.5825	-0.49956E-05

NODE SORT REMOVED

=====

=====	SET 10	=====
-------	--------	-------

USE LOAD STEP 10 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 10 SUBSTEP= 1 CUMULATIVE ITERATION= 73
TIME/FREQUENCY= 10.000



Appendix SN-2 to Calculation PGE-009-CALC-003

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips West (X), Max Dn, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	6.8867	2.4705	3.2684	-0.47920	-0.13188E-06	-0.52044E-05
15827	6.7872	2.4397	3.2225	-0.45807	-0.42892E-02	-0.14132

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-17.602	-32.049	-15.988	9.4206	-0.16246E-04	0.48566E-05
7595	-16.684	-31.685	-15.593	9.5510	0.58154	-0.19952

NODE SORT REMOVED

=====

=====

=====

===== SET 11 =====

=====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 85
TIME/FREQUENCY= 11.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips North (Z), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1



Appendix SN-2 to Calculation PGE-009-CALC-003

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	6.8558	6.5009	13.142	0.11737E-06	0.49483	-0.16890E-05
8124	6.7589	6.4147	12.963	-0.22858E-01	0.49131	-0.42566

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15684	-9.0958	-16.650	-15.940	-2.9171	11.277	3.1766
7740	-9.0958	-16.650	-15.940	2.9171	11.277	-3.1766

NODE SORT REMOVED

=====

=====

=====

===== SET 12 =====

=====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 94
TIME/FREQUENCY= 12.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.



Appendix SN-2 to Calculation PGE-009-CALC-003

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

MAXIMUM VALUES OF Sy						
----------------------	--	--	--	--	--	--

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	6.0117	5.6796	11.545	-0.12701E-01	0.43667	1.6730
16035	5.8971	5.6046	11.334	0.11338E-01	0.43258	1.9468

NODE SORT REMOVED

=====

MINIMUM VALUES OF Sy						
----------------------	--	--	--	--	--	--

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-12.073	-19.609	-7.9753	6.1253	7.0194	-1.5786
7740	-14.358	-19.537	-17.654	6.5462	11.649	-3.8625

NODE SORT REMOVED

=====

=====

=====

===== SET 13 =====

USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 98
TIME/FREQUENCY= 13.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM



Appendix SN-2 to Calculation PGE-009-CALC-003

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	5.3159	5.0276	10.226	-0.45000E-02	0.39664	2.2035
16067	5.3298	5.0081	10.261	-0.26564E-01	0.38767	2.0229

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-14.304	-21.784	-9.4638	7.2644	5.6615	-1.3059
7596	-14.734	-21.654	-10.918	7.4356	6.7102	-1.6907

NODE SORT REMOVED

=====

=====

=====

===== SET 14 =====

=====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 102

TIME/FREQUENCY= 14.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====



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===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	4.5286	4.2451	8.7346	-0.22190E-01	0.33813	2.3695
16036	4.4794	4.2250	8.5876	0.91400E-02	0.35257	2.4216

NODE SORT REMOVED

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-16.562	-23.714	-11.894	8.3319	5.1241	-1.3042
7532	-16.084	-23.546	-10.658	8.1609	3.9881	-0.93901

NODE SORT REMOVED

===== SET 15 =====

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 110
TIME/FREQUENCY= 15.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips West (X), Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

===== MAXIMUM VALUES OF Sy =====



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SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	9.3727	4.7286	4.9255	0.48767E-01	0.40855E-06	-0.97421E-05
15827	9.2896	4.6877	4.8822	0.52316E-01	-0.66741E-02	-0.24542

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-18.831	-26.321	-13.150	9.4360	0.61094E-04	-0.14323E-04
7532	-18.345	-25.816	-12.659	9.1858	-1.1842	0.35236

NODE SORT REMOVED

=====

=====

=====

===== SET 16 =====

=====

USE LOAD STEP 16 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 16 SUBSTEP= 1 CUMULATIVE ITERATION= 123
TIME/FREQUENCY= 16.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips North (Z), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



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Appendix SN-2 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.1425	2.9851	6.0183	0.16949E-05	0.22608	-0.63359E-05
8124	3.0984	2.9458	5.9372	-0.10495E-01	0.22425	-0.19531

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7740	-3.9583	-7.1690	-7.0877	1.2156	5.0012	-1.4196
15684	-3.9583	-7.1689	-7.0877	-1.2156	5.0012	1.4196

NODE SORT REMOVED

=====

=====

=====

===== SET 17 =====

=====

USE LOAD STEP 17 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 17 SUBSTEP= 1 CUMULATIVE ITERATION= 136
TIME/FREQUENCY= 17.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips West (X), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



Appendix SN-2 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	4.3042	2.1795	2.2648	0.22268E-01	0.19371E-05	-0.20897E-04
15827	4.2665	2.1608	2.2451	0.23728E-01	-0.31197E-02	-0.11150

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-8.1717	-10.947	-5.5318	4.2324	0.16586E-03	-0.39818E-04
7532	-7.9687	-10.742	-5.3360	4.1265	-0.49369	0.15144

NODE SORT REMOVED

=====

=====

=====

===== SET 18 =====

=====

USE LOAD STEP 18 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 18 SUBSTEP= 1 CUMULATIVE ITERATION= 151

TIME/FREQUENCY= 18.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips North (Z), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	2.9420	2.8069	5.6220	0.15908E-05	0.21390	-0.65118E-05
8124	2.9014	2.7706	5.5478	-0.98218E-02	0.21175	-0.18335



NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7740	-3.6552	-6.6333	-6.6041	1.0570	4.5537	-1.3092
15684	-3.6552	-6.6333	-6.6041	-1.0570	4.5537	1.3092

NODE SORT REMOVED

=====

=====

=====

===== SET 19 =====

=====

USE LOAD STEP 19 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 19 SUBSTEP= 1 CUMULATIVE ITERATION= 168
TIME/FREQUENCY= 19.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	3.9150	2.0029	2.0673	0.19029E-01	0.16113E-06	-0.34669E-05
15827	3.8832	1.9867	2.0506	0.20041E-01	-0.27237E-02	-0.10173

NODE SORT REMOVED



Appendix SN-2 to Calculation PGE-009-CALC-003

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-7.4036	-9.4381	-4.8287	3.9096	0.11979E-04	-0.15961E-05
7532	-7.2342	-9.2710	-4.6830	3.8234	-0.41303	0.12701

NODE SORT REMOVED.

=====

=====

=====

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 50.503

*** NOTE *** CP= 50.503 TIME= 17:38:51
A total of 1 warnings and errors written to dcslabs2.err.

HARD ROCK RESULTS

/OUTPUT FILE= rockhardystress.out



Below is the ANSYS output file for the maximum rock vertical (Y) stresses for the hard rock analyses.

CURRENT JOBNAME REDEFINED AS dcslabh2

RESUME ANSYS DATA FROM FILE NAME=dcslabh2.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Hard Rock

ANALYSIS TYPE = STATIC (STEADY-STATE)

NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 33177

17051 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 17051

259 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 259

250 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 396

181 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 295

70 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 70

11 COMPONENTS CURRENTLY DEFINED

MAXIMUM LINEAR PROPERTY NUMBER = 5

MAXIMUM REAL CONSTANT SET NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

MAXIMUM CONSTRAINT EQUATION NUMBER = 4620

NUMBER OF SPECIFIED CONSTRAINTS = 2193

NUMBER OF NODAL LOADS = 2160

INITIAL JOBNAME = dcslabs2

CURRENT JOBNAME = dcslabh2

PRINT HEADER

DO NOT PRINT SUBTITLE(S)

DO NOT PRINT LOAD STEP ID

DO NOT PRINT NOTE LINE(S)

PRINT COLUMN HEADER LABELS

DO NOT PRINT REPORT TOTALS

***** ANSYS RESULTS INTERPRETATION (POST1) *****

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY

ENTER FINISH TO LEAVE POST1

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

=====

=====

=====

===== SET 1 =====

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0



Appendix SN-2 to Calculation PGE-009-CALC-003

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 2
TIME/FREQUENCY= 1.0000
TITLE= Pad, Gravity, 20 Casks, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	2.1146	0.43021	0.88797	-0.27313	-0.52156E-07	-0.17264E-06
7931	2.1145	0.43018	0.88795	0.27314	-0.52104E-07	0.17328E-06

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-9.8582	-16.322	-9.9464	0.31929E-05	0.17674E-05	0.14734E-08
7563	-9.6310	-16.200	-9.5682	0.30499E-05	-0.35979	-0.37162E-06

NODE SORT REMOVED

=====

=====

=====

===== SET 2 =====

=====

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17
TIME/FREQUENCY= 2.0000
TITLE= Pad, HE(1), 20 Casks, 515 Kips North (Z), Hard Rock



Appendix SN-2 to Calculation PGE-009-CALC-003

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	6.0312	5.8233	11.511	0.81313E-07	0.70889E-01	-0.21977E-05
8124	5.9070	5.7041	11.277	-0.21123E-01	0.66280E-01	-0.53059

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-10.297	-20.378	-16.770	0.47511	12.512	-0.66821
15643	-10.297	-20.378	-16.770	-0.47511	12.512	0.66821

NODE SORT REMOVED

=====

=====

===== SET 3 =====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 30
TIME/FREQUENCY= 3.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1



Appendix SN-2 to Calculation PGE-009-CALC-003

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	5.5543	5.3454	10.623	-0.74094E-02	0.11880	1.3767
8123	5.4925	5.2731	10.522	-0.33624E-01	0.11678	0.92935

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-24.540	-25.061	-13.271	7.1415	11.459	-6.8501
7596	-25.099	-24.177	-17.095	6.9533	11.714	-7.5667

NODE SORT REMOVED

=====

=====

=====

===== SET 4 =====

=====

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 36
TIME/FREQUENCY= 4.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.



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Appendix SN-2 to Calculation PGE-009-CALC-003

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	5.1769	4.9607	9.9306	-0.20640E-01	0.15552	1.6283
16035	5.0656	4.8836	9.7166	0.80196E-02	0.13490	1.9626

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-29.759	-27.923	-15.379	8.2738	8.8941	-5.4262
7596	-30.478	-27.711	-18.836	8.2128	9.7128	-6.3685

NODE SORT REMOVED

=====

=====

=====

===== SET 5 =====

=====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 42
TIME/FREQUENCY= 5.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.



Appendix SN-2 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	4.6407	4.4536	8.9393	-0.50805E-02	0.17773	2.1044
16067	4.6346	4.4067	8.9373	-0.36490E-01	0.18456	1.8244

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-34.869	-30.608	-20.255	9.2577	7.3493	-4.8745
7612	-33.874	-30.418	-21.973	8.8418	8.0552	-5.5989

NODE SORT REMOVED

=====

=====

=====

===== SET 6 =====

=====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 54

TIME/FREQUENCY= 6.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips West (W), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	8.0824	4.1017	4.2490	-0.18419	0.55228E-05	-0.51649E-04
15827	7.9920	4.0559	4.2027	-0.17959	-0.56221E-02	-0.31579

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-40.447	-34.281	-22.341	10.623	0.31389E-03	-0.28183E-03
7532	-39.161	-33.911	-21.536	10.281	-1.4182	1.2722

NODE SORT REMOVED

=====

=====

=====

===== SET 7 =====

=====

USE LOAD STEP 7 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 7 SUBSTEP= 1 CUMULATIVE ITERATION= 74

TIME/FREQUENCY= 7.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips North (z), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.1264	2.9809	6.0042	0.17726E-05	0.59439E-01	-0.37499E-05
8124	3.0583	2.9171	5.8757	-0.11277E-01	0.57568E-01	-0.27594

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-4.9831	-9.6032	-7.7630	0.22862	5.6549	-0.28559
15643	-4.9831	-9.6032	-7.7630	-0.22861	5.6549	0.28558

NODE SORT REMOVED

=====

===== SET 8 =====

=====

USE LOAD STEP 8 SUBSTEP 0 FOR LOAD CASE 0

.SET COMMAND GOT LOAD STEP= 8 SUBSTEP= 1 CUMULATIVE ITERATION= 90
TIME/FREQUENCY= 8.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips West (X), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-2 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	4.3066	2.1426	2.2494	-0.60908E-01	0.21688E-05	-0.10986E-05
15827	4.2557	2.1174	2.2232	-0.58538E-01	-0.36071E-02	-0.15752

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-17.525	-15.389	-10.040	4.7790	0.42562E-04	-0.39916E-04
7532	-16.982	-15.241	-9.6969	4.6319	-0.57194	0.51521

NODE SORT REMOVED

=====

=====

===== SET 9 =====

USE LOAD STEP 9 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 9 SUBSTEP= 1 CUMULATIVE ITERATION= 95
TIME/FREQUENCY= 9.0000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips North (Z), Max Dn, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
------	----	----	----	-----	-----	-----



Appendix SN-2 to Calculation PGE-009-CALC-003

8123	4.3128	3.4816	8.8931	0.55350E-06-0.35722	-0.92169E-06
16067	4.2084	3.4031	8.6835	0.85352E-02-0.32945	0.34368

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-18.076	-30.099	-18.254	0.51558E-04	4.5974	-0.28928E-05
7667	-18.013	-29.972	-19.334	0.48831E-04	5.1519	-0.12252E-04

NODE SORT REMOVED

=====

=====

=====

===== SET 10 =====

=====

USE LOAD STEP 10 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 10 SUBSTEP= 1 CUMULATIVE ITERATION= 99
TIME/FREQUENCY= 10.000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips West (X), Max Dn, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	7.6593	2.9564	3.7029	-0.36784	-0.70849E-07-0.20872E-05	
15859	7.5332	2.9096	3.6426	-0.35075	0.64996E-02 0.23087	



Appendix SN-2 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-26.616	-34.131	-21.259	9.2959	0.41587E-05	0.39822E-06
7532	-25.867	-33.881	-20.440	9.0576	-0.62183	0.31497

NODE SORT REMOVED

=====

=====

=====

===== SET 11 =====

=====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 117

TIME/FREQUENCY= 11.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips North (Z), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	5.8835	5.6770	11.233	0.81643E-07	0.75237E-01	-0.21644E-05
8124	5.7614	5.5601	11.003	-0.20823E-01	0.70527E-01	-0.51820

NODE SORT REMOVED

=====



Appendix SN-2 to Calculation PGE-009-CALC-003

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-9.1916	-17.929	-15.544	0.42858	11.870	-0.62965
15643	-9.1916	-17.929	-15.544	-0.42859	11.870	0.62965

NODE SORT REMOVED

===== SET 12 =====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 130

TIME/FREQUENCY= 12.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	5.3870	5.1804	10.307	-0.87111E-02	0.11342	1.3470
8123	5.3159	5.0994	10.187	-0.33449E-01	0.10939	0.91117

NODE SORT REMOVED

===== MINIMUM VALUES OF Sy =====



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-22.440	-22.380	-11.974	6.6613	10.639	-6.4238
7596	-23.033	-21.729	-15.423	6.5437	10.897	-7.0627

NODE SORT REMOVED

=====

=====

=====

===== SET 13 =====

USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 135
TIME/FREQUENCY= 13.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16067	4.9841	4.7711	9.5643	-0.21670E-01	0.14100	1.5869
16035	4.8940	4.7124	9.3901	0.54500E-02	0.12544	1.9102

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-2 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-27.218	-24.928	-13.875	7.7413	8.2928	-5.0915
7596	-27.973	-24.821	-17.038	7.7320	9.0473	-5.9384

NODE SORT REMOVED

=====

=====

=====

===== SET 14 =====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 141
TIME/FREQUENCY= 14.000
TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
16035	4.4381	4.2518	8.5515	-0.77256E-02	0.15780	2.0345
16067	4.4123	4.1887	8.5117	-0.36887E-01	0.15934	1.7688

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



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Appendix SN-2 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-31.992	-27.354	-18.352	8.7108	6.8520	-4.5411
7612	-31.166	-27.200	-19.937	8.3620	7.5075	-5.2043

NODE SORT REMOVED

```
=====
=====
=====
===== SET 15 =====
```

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 153
TIME/FREQUENCY= 15.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips West (X), Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

```
=====
===== MAXIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	8.1531	4.1364	4.2859	-0.15408	0.62009E-05-0.30200E-04	
15827	8.0593	4.0888	4.2375	-0.15012	-0.64391E-02-0.30974	

NODE SORT REMOVED

```
=====
===== MINIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-37.022	-30.547	-20.235	9.9559	0.20130E-03-0.17954E-03	
7532	-35.868	-30.218	-19.509	9.6514	-1.2601	1.1377



Appendix SN-2 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====
=====
=====
===== SET 16 =====

USE LOAD STEP 16 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 16 SUBSTEP= 1 CUMULATIVE ITERATION= 177

TIME/FREQUENCY= 16.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips North (Z), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	2.6945	2.6050	5.1392	0.43418E-06	0.33596E-01	-0.36277E-05
8124	2.6388	2.5515	5.0345	-0.96049E-02	0.31203E-01	-0.23730

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-3.7400	-7.1600	-6.7979	0.17870	5.3135	-0.28510
15643	-3.7400	-7.1600	-6.7979	-0.17870	5.3135	0.28509

NODE SORT REMOVED



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Appendix SN-2 to Calculation PGE-009-CALC-003

```
=====
=====
=====
===== SET 17 =====
```

USE LOAD STEP 17 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 17 SUBSTEP= 1 CUMULATIVE ITERATION= 202
TIME/FREQUENCY= 17.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips West (X), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

```
=====
===== MAXIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	3.7747	1.9227	1.9871	-0.67648E-01	0.17773E-05	-0.79385E-05
15827	3.7316	1.9007	1.9647	-0.66064E-01	-0.31308E-02	-0.14052

NODE SORT REMOVED

```
=====
===== MINIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-16.254	-12.641	-8.6181	4.4912	0.54140E-04	-0.47479E-04
7532	-15.763	-12.502	-8.3128	4.3628	-0.53689	0.49042

NODE SORT REMOVED

```
=====
=====
=====
```



Appendix SN-2 to Calculation PGE-009-CALC-003

===== SET 18 =====

USE LOAD STEP 18 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 18 SUBSTEP= 1 CUMULATIVE ITERATION= 227
TIME/FREQUENCY= 18.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips North (Z), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	2.4985	2.4275	4.7532	0.54095E-05	0.30114E-01	-0.33133E-04
8124	2.4476	2.3785	4.6578	-0.89843E-02	0.27428E-01	-0.21963

NODE SORT REMOVED

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7740	-4.9203	-6.1108	-11.347	1.4412	4.7219	-2.7630
15684	-4.9202	-6.1108	-11.347	-1.4411	4.7219	2.7630

NODE SORT REMOVED

===== SET 19 =====



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Appendix SN-2 to Calculation PGE-009-CALC-003

USE LOAD STEP 19 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 19 SUBSTEP= 1 CUMULATIVE ITERATION= 252
TIME/FREQUENCY= 19.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	3.2656	1.6797	1.7252	-0.77689E-01	0.26492E-05	-0.20837E-04
15827	3.2326	1.6625	1.7080	-0.76209E-01	-0.22554E-02	-0.12153

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-15.269	-10.933	-7.7042	4.2736	0.12822E-03	-0.11054E-03
7532	-14.822	-10.805	-7.4451	4.1574	-0.50055	0.46489

NODE SORT REMOVED

=====

=====

=====

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.



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Appendix SN-2 to Calculation PGE-009-CALC-003

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 99.573

*** NOTE ***

CP= 99.573 TIME= 17:40:02

A total of 1 warnings and errors written to dcslabs2.err.



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Appendix SN-2 to Calculation PGE-009-CALC-003

Below is the ANSYS input file that scans the database for the maximum rock vertical (Y) stresses. Element type 2 is the rock. This file processes data for very hard rock analyses.

```

/COM
/OUTPUT,rockvhardystress.out
/COM
/COM      ROCK STRESS DATA SORTED AND PRINTED BY LOAD STEP
/COM
/COM
/COM
/COM      THIS ROUTINE SORTS AND PRINTS ROCK STRESS DATA Sy BY LOAD STEP
/COM
/COM
/COM      VERY HARD ROCK RESULTS
/COM
/file,dcslabh6
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,2
NELEM
/COM

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET,3
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
```




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Appendix SN-2 to Calculation PGE-009-CALC-003

```

PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====
/COM
SET, 5
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET, 6
ESEL, TYPE, 2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT, S, Y, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 7 =====
/COM
SET, 7
ESEL, TYPE, 2
NELEM

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 8 =====
/COM
SET,8
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 9 =====
/COM
SET,9
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 10 =====
/COM
SET,10
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM
SET,12
ESEL,TYPE,2

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET,13
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET,14
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET,15
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 16 =====
/COM
SET,16
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 17 =====
/COM
SET,17

```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 18 =====
/COM
SET,18
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 19 =====
/COM
SET,19
ESEL,TYPE,2
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
```



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Appendix SN-2 to Calculation PGE-009-CALC-003

```

/COM ===== MINIMUM VALUES OF Sy =====
/COM
NSORT,S,Y,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/OUTPUT
/EXIT

```



Below is the ANSYS output file for the maximum rock vertical (Y) stresses for the very hard rock analyses.

ROCK STRESS DATA SORTED AND PRINTED BY LOAD STEP

THIS ROUTINE SORTS AND PRINTS ROCK STRESS DATA Sy BY LOAD STEP

VERY HARD ROCK RESULTS

CURRENT JOBNAME REDEFINED AS dcslabh6

RESUME ANSYS DATA FROM FILE NAME=dcslabh6.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Very Hard Rock
ANALYSIS TYPE = STATIC (STEADY-STATE)

NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 33177

17051 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 17051

259 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 259

250 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 396

181 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 295

70 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 70

11 COMPONENTS CURRENTLY DEFINED

MAXIMUM LINEAR PROPERTY NUMBER = 5

MAXIMUM REAL CONSTANT SET NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

MAXIMUM CONSTRAINT EQUATION NUMBER = 4620

NUMBER OF SPECIFIED CONSTRAINTS = 2193

NUMBER OF NODAL LOADS = 2160

INITIAL JOBNAME = dcslabh6

CURRENT JOBNAME = dcslabh6

PRINT HEADER

DO NOT PRINT SUBTITLE(S)

DO NOT PRINT LOAD STEP ID

DO NOT PRINT NOTE LINE(S)

PRINT COLUMN HEADER LABELS

DO NOT PRINT REPORT TOTALS

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 5.7 *****

ANSYS/Structural U

00150104

VERSION=INTEL NT

10:40:18 MAY 21, 2001 CP=

3.505

Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Very Hard Rock

***** ANSYS RESULTS INTERPRETATION (POST1) *****



Appendix SN-2 to Calculation PGE-009-CALC-003

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE POST1

*** NOTE *** CP= 3.505 TIME= 10:40:18
Reading results into the database (SET command) will update the current displacement and force boundary conditions in the database with the values from the results file for that load set. Note that any subsequent solutions will use these values unless action is taken to either SAVE the current values or not overwrite them (/EXIT,NOSAVE).

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

=====

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 2
TIME/FREQUENCY= 1.0000
TITLE= Pad, Gravity, 20 Casks, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	4.2695	0.80787	1.2139	-0.68994	-0.77367E-08	-0.14354E-05
7931	4.2694	0.80785	1.2139	0.68992	-0.77166E-08	0.14359E-05

NODE SORT REMOVED

=====



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-8.7013	-16.359	-8.1776	0.33606E-05	0.21471E-05	-0.43729E-09
7563	-8.4614	-16.245	-7.9603	0.32478E-05	-0.32205	-0.77580E-06

NODE SORT REMOVED

=====

=====

=====

===== SET 2 =====

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17
TIME/FREQUENCY= 2.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips North (Z), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.1664	3.1400	10.162	-0.16481E-07	0.52132	-0.23997E-05
8124	3.1003	3.0750	9.9520	-0.13316E-01	0.50725	-0.50335

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-10.166	-23.862	-22.080	0.54404	12.410	-0.91715
15643	-10.166	-23.862	-22.080	-0.54405	12.410	0.91714

NODE SORT REMOVED

=====

=====

=====

===== SET 3 =====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 32

TIME/FREQUENCY= 3.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15489	1.8880	3.8397	4.3535	1.9668	3.5867	1.5437
15516	6.5429	3.8359	7.2786	3.4496	6.1773	4.4833

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-2 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-27.062	-27.608	-10.818	6.7261	11.748	-9.8117
7596	-27.188	-26.599	-14.689	6.5001	11.656	-10.207

NODE SORT REMOVED

=====

=====

=====

===== SET 4 =====

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 39
TIME/FREQUENCY= 4.0000
TITLE= Pad, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

.SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15517	3.2093	4.2077	3.0271	2.9509	3.1546	1.8157
15516	8.7339	4.1004	6.3906	4.1921	5.4782	4.6252

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
------	----	----	----	-----	-----	-----



Appendix SN-2 to Calculation PGE-009-CALC-003

7532	-33.154	-31.127	-12.214	7.6621	9.0065	-7.6553
7596	-33.572	-30.896	-15.883	7.5992	9.6387	-8.5709

NODE SORT REMOVED

=====

=====

=====

===== SET 5 =====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 46
TIME/FREQUENCY= 5.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15517	3.7756	4.2750	2.5472	3.4161	2.7378	1.7333
15539	38.076	4.1426	15.349	7.3774	7.1686	7.7996

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-38.847	-34.420	-16.892	8.5434	7.2845	-6.5477
7612	-37.601	-34.225	-19.057	8.2545	7.8232	-7.3657



Appendix SN-2 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

=====

=====

===== SET 6 =====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 58

TIME/FREQUENCY= 6.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips West (W), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15585	4.7523	3.7791	0.49369	3.8392	-0.13918E-03	0.78510E-05
15581	4.6718	3.7463	0.51130	3.7799	-0.27962	-0.27098

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-45.600	-38.921	-18.572	9.8183	0.12428E-03	-0.16056E-03
7532	-44.199	-38.563	-17.928	9.5254	-1.2637	1.6300

NODE SORT REMOVED

=====



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Appendix SN-2 to Calculation PGE-009-CALC-003

```
=====
=====
===== SET 7 =====
```

USE LOAD STEP 7 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 7 SUBSTEP= 1 CUMULATIVE ITERATION= 80
TIME/FREQUENCY= 7.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips North (z), Max Up, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

```
=====
===== MAXIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	1.7126	1.6629	5.5320	0.15827E-05	0.24507	-0.23918E-04
8124	1.6748	1.6268	5.4119	-0.70162E-02	0.23850	-0.27521

NODE SORT REMOVED

```
=====
===== MINIMUM VALUES OF Sy =====
```

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-4.8865	-11.047	-9.9752	0.25568	5.6352	-0.37591
15643	-4.8865	-11.047	-9.9752	-0.25568	5.6352	0.37589

NODE SORT REMOVED

```
=====
=====
===== SET 8 =====
```



Appendix SN-2 to Calculation PGE-009-CALC-003

```
USE LOAD STEP      8  SUBSTEP      0  FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP=      8  SUBSTEP=      1  CUMULATIVE ITERATION=      99
TIME/FREQUENCY=  8.0000
TITLE= Pad, HE(1), 20 Casks, 206 Kips West (X), Max Up, Very Hard Rock

ESEL  FOR LABEL= TYPE  FROM      2 TO      2 BY      1

      1728  ELEMENTS (OF      15348  DEFINED) SELECTED BY  ESEL  COMMAND.

SELECT      ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

      2261  NODES (OF      17051  DEFINED) SELECTED FROM
      1728  SELECTED ELEMENTS BY NELE COMMAND.

=====
=====          MAXIMUM VALUES OF Sy          =====

SORT ON ITEM=S      COMPONENT=Y      ORDER= 0  KABS= 0  NMAX=      2

SORT COMPLETED FOR      2  VALUES.

PRINT S      NODAL SOLUTION PER NODE

      NODE      SX      SY      SZ      SXY      SYZ      SXZ
      15875      4.1979      1.2597      1.3037      0.79247E-01  0.87327E-07-0.19121E-05
      15859      4.1469      1.2447      1.2881      0.80062E-01  0.26263E-02  0.16970

NODE SORT REMOVED

=====
=====          MINIMUM VALUES OF Sy          =====

SORT ON ITEM=S      COMPONENT=Y      ORDER= 1  KABS= 0  NMAX=      2

SORT COMPLETED FOR      2  VALUES.

PRINT S      NODAL SOLUTION PER NODE

      NODE      SX      SY      SZ      SXY      SYZ      SXZ
      7596      -19.518      -17.348      -8.3896      4.4198      0.48134E-05-0.14670E-05
      7532      -18.936      -17.200      -8.1130      4.2986      -0.50305      0.61557

NODE SORT REMOVED

=====
=====          SET 9          =====
```




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Appendix SN-2 to Calculation PGE-009-CALC-003

USE LOAD STEP 9 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 9 SUBSTEP= 1 CUMULATIVE ITERATION= 103
TIME/FREQUENCY= 9.0000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips North (Z), Max Dn, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.3850	2.7435	11.452	0.85350E-06-0.77395		-0.57112E-05
16067	3.3095	2.6852	11.200	0.49979E-02-0.74544		0.54477

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7587	-15.892	-30.182	-15.039	-0.57905E-05	5.2810	0.96832E-07
7667	-15.767	-30.128	-16.957	-0.58586E-05	5.6942	-0.32553E-05

NODE SORT REMOVED

=====

=====

===== SET 10 =====

USE LOAD STEP 10 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 10 SUBSTEP= 1 CUMULATIVE ITERATION= 106



Appendix SN-2 to Calculation PGE-009-CALC-003

TIME/FREQUENCY= 10.000
TITLE= Pad, HE(3), 20 Casks, 171.2 Kips West (X), Max Dn, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15875	10.590	2.5220	3.1328	-0.79804	-0.22240E-06	-0.42849E-05
15859	10.434	2.4863	3.0870	-0.77909	0.51604E-02	0.38943

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-27.000	-36.237	-17.754	8.9623	0.12792E-04	-0.11730E-04
7532	-26.276	-35.990	-17.166	8.7655	-0.53164	-0.60926E-01

NODE SORT REMOVED

=====

=====

===== SET 11 =====

=====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 122

TIME/FREQUENCY= 11.000
TITLE= Pad, LTSP(2), 20 Casks, 440 Kips North (Z), Very Hard Rock



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Appendix SN-2 to Calculation PGE-009-CALC-003

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	3.0858	3.0573	9.9065	-0.13371E-07	0.51357	-0.23478E-05
8124	3.0207	2.9933	9.7000	-0.13098E-01	0.49957	-0.49142

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-9.1158	-21.002	-20.447	0.49786	11.790	-0.86414
15643	-9.1158	-21.002	-20.447	-0.49786	11.790	0.86413

NODE SORT REMOVED

=====

=====

=====

===== SET 12 =====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 136
TIME/FREQUENCY= 12.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.



Appendix SN-2 to Calculation PGE-009-CALC-003

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15483	21.377	3.9607	25.616	5.2879	7.8347	9.7143
15521	2.3846	3.3584	3.9544	2.2530	3.3467	1.8050

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-24.653	-24.613	-9.6800	6.2623	10.835	-9.1011
7596	-24.934	-23.905	-13.203	6.1326	10.823	-9.4912

NODE SORT REMOVED

=====

=====

=====

===== SET 13 =====

=====

USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 142

TIME/FREQUENCY= 13.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.



Appendix SN-2 to Calculation PGE-009-CALC-003

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15517	2.8994	3.6698	2.8313	2.5338	2.8778	1.6479
15516	7.7354	3.6439	5.8187	4.0612	5.3051	4.1679

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7532	-30.241	-27.774	-10.986	7.1797	8.3580	-7.1212
7596	-30.785	-27.671	-14.350	7.1858	8.9662	-7.9631

NODE SORT REMOVED

=====

=====

=====

===== SET 14 =====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 149
TIME/FREQUENCY= 14.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.



Appendix SN-2 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15517	3.3957	3.8280	2.4090	2.9756	2.5176	1.5651
15516	9.2163	3.6772	4.6423	4.5543	4.4057	3.8598

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-35.576	-30.753	-15.311	8.0683	6.7840	-6.0782
7612	-34.565	-30.607	-17.306	7.8417	7.2865	-6.8209

NODE SORT REMOVED

=====

=====

=====

===== SET 15 =====

=====

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 161
TIME/FREQUENCY= 15.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips West (X), Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====



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Appendix SN-2 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15536	11.595	3.3851	1.0174	5.2652	0.38464	0.41045
15580	11.595	3.3849	1.0178	5.2652	-0.38571	-0.41001

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-41.669	-34.675	-16.858	9.2479	0.19823E-03	-0.27637E-03
7532	-40.424	-34.361	-16.275	8.9901	-1.1150	1.4367

NODE SORT REMOVED

=====

=====

=====

===== SET 16 =====

=====

USE LOAD STEP 16 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 16 SUBSTEP= 1 CUMULATIVE ITERATION= 186

TIME/FREQUENCY= 16.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips North (Z), Max Up, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2



Appendix SN-2 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	1.3962	1.3889	4.4770	-0.13317E-07	0.24511	-0.10555E-05
8124	1.3667	1.3597	4.3834	-0.60438E-02	0.23835	-0.22232

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-3.7604	-8.4995	-8.9814	0.21171	5.3009	-0.39738
15643	-3.7604	-8.4995	-8.9814	-0.21172	5.3009	0.39738

NODE SORT REMOVED

=====

=====

===== SET 17 =====

=====

USE LOAD STEP 17 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 17 SUBSTEP= 3 CUMULATIVE ITERATION= 257
TIME/FREQUENCY= 17.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips West (X), Max Up, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



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Appendix SN-2 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15585	1.9941	1.5144	0.24589	1.5769	-0.83078E-04	-0.32225E-04
15537	1.9650	1.5064	0.25109	1.5560	0.96663E-01	0.11024

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7596	-18.311	-14.370	-7.1760	4.1957	0.25007E-04	-0.30417E-04
7532	-17.784	-14.239	-6.9308	4.0874	-0.47299	0.62353

NODE SORT REMOVED

=====

=====

=====

===== SET 18 =====

=====

USE LOAD STEP 18 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 18 SUBSTEP= 3 CUMULATIVE ITERATION= 338

TIME/FREQUENCY= 18.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips North (Z), Max Up, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM

1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8123	1.2618	1.2678	4.0339	0.35989E-06	0.24681	-0.95397E-05



Appendix SN-2 to Calculation PGE-009-CALC-003

8124 1.2353 1.2413 3.9501 -0.56463E-02 0.23988 -0.20035

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7676	-3.2274	-7.2705	-8.2555	0.18367	4.7954	-0.38725
15643	-3.2274	-7.2705	-8.2555	-0.18366	4.7954	0.38724

NODE SORT REMOVED

=====

=====

=====

===== SET 19 =====

=====

USE LOAD STEP 19 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 19 SUBSTEP= 3 CUMULATIVE ITERATION= 412
TIME/FREQUENCY= 19.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Very Hard Rock

ESEL FOR LABEL= TYPE FROM 2 TO 2 BY 1

1728 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2261 NODES (OF 17051 DEFINED) SELECTED FROM
1728 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF Sy =====

=====

SORT ON ITEM=S COMPONENT=Y ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15585	2.1822	1.5897	0.25388	1.8547	0.16795E-04	0.14564E-04
15581	2.1498	1.5765	0.25864	1.8318	-0.11848	-0.11729

NODE SORT REMOVED



Appendix SN-2 to Calculation PGE-009-CALC-003

```
=====
===== MINIMUM VALUES OF Sy =====
=====

SORT ON ITEM=S      COMPONENT=Y      ORDER= 1  KABS= 0  NMAX=      2

SORT COMPLETED FOR      2 VALUES.

PRINT S      NODAL SOLUTION PER NODE

      NODE      SX      SY      SZ      SXY      SYZ      SXZ
      7596      -17.323      -12.473      -6.3636      4.0154      0.83235E-05-0.76864E-05
      7532      -16.836      -12.353      -6.1582      3.9149      -0.44505      0.62518

NODE SORT REMOVED

=====
=====
=====

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 51.554


*** NOTE *** CP= 51.554 TIME= 10:41:30
A total of 2 warnings and errors written to dcslabh6.err.
```



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Sheet 1 of 37

Appendix SN-3 to Calculation PGE-009-CALC-003


Originator: S. C. Tumminelli
Date: May 25, 2001
Revised: November 30, 2001

Appendix SN-3

Max and Min Pad Stresses – 90% Pad Density

This Appendix presents maximum and minimum X and Z stress data for the pad for load cases 1 through 6 and 11 through 15 analyzed for the soft rock model. The input file is provided followed by the output file for the soft model.

Appendix Contents

ANSYS input file for pad X and Z stresses	sheet 2
ANSYS output file for pad X and Z stresses for the soft rock model	sheet 18



Below is the ANSYS input file that scans the databases for the max/min X and Z stresses for the soft and hard rock models. This file creates two output files in one execution.

```
/COM
/OUTPUT,pad9Dsoftstress.out
/COM
/COM      STRESS DATA SORTED AND PRINTED BY LOAD STEP
/COM
/COM
/COM
/COM      THIS ROUTINE SORTS AND PRINTS STRESS DATA BY LOAD STEP
/COM      FIRST SX AND THEN SZ
/COM
/com      SOFT ROCK RESULTS
/COM
/file,dcslabs3
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM =====      SET 1      =====
/COM
SET,1
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM =====      MAXIMUM VALUES OF SX      =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====      MINIMUM VALUES OF SX      =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM =====      MAXIMUM VALUES OF SZ      =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET,3
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====

```



```
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
```



```
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====
/COM
SET,5
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET,6
ESEL,TYPE,1
NELEM
/COM
```



```

/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====

```



Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM
SET,12
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET,13

```

```

ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET, 14
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM

```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET,15
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
EALL
NALL
FINI
/com

```



```
/com  HARD ROCK RESULTS
/COM
/OUTPUT,pad9Dhardstress.out
/file,dcslabh3
resume
/header,on,off,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET, 3
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM

```



Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====

```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM
SET, 5
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET, 6
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S

```


Appendix SN-3 to Calculation PGE-009-CALC-003

```

NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====

```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== SET 12 =====
/COM
SET, 12
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET, 13
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM

```



```
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET,14
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
```



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Appendix SN-3 to Calculation PGE-009-CALC-003

```

/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET, 15
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/OUTPUT
/EXIT

```



Below is the ANSYS output file for pad X and Z stresses for the soft rock analyses.

STRESS DATA SORTED AND PRINTED BY LOAD STEP

THIS ROUTINE SORTS AND PRINTS STRESS DATA BY LOAD STEP
FIRST SX AND THEN SZ

SOFT ROCK RESULTS

CURRENT JOBNAME REDEFINED AS dcslabs3

RESUME ANSYS DATA FROM FILE NAME=dcslabs3.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips West (X), Soft Rock
ANALYSIS TYPE = STATIC (STEADY-STATE)
NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED.	MAX ELEMENT NUMBER =	33177
17051 NODES CURRENTLY SELECTED.	MAX NODE NUMBER =	17051
259 KEYPOINTS CURRENTLY SELECTED.	MAX KEYPOINT NUMBER =	259
250 LINES CURRENTLY SELECTED.	MAX LINE NUMBER =	396
181 AREAS CURRENTLY SELECTED.	MAX AREA NUMBER =	295
70 VOLUMES CURRENTLY SELECTED.	MAX VOL. NUMBER =	70
11 COMPONENTS CURRENTLY DEFINED		

MAXIMUM LINEAR PROPERTY NUMBER	=	5
MAXIMUM REAL CONSTANT SET NUMBER	=	6
ACTIVE COORDINATE SYSTEM	=	0 (CARTESIAN)
MAXIMUM CONSTRAINT EQUATION NUMBER	=	4620
NUMBER OF SPECIFIED CONSTRAINTS	=	2193
NUMBER OF NODAL LOADS	=	2160

INITIAL JOBNAME = dcslabs3
CURRENT JOBNAME = dcslabs3

PRINT HEADER
DO NOT PRINT SUBTITLE(S)
DO NOT PRINT LOAD STEP ID
DO NOT PRINT NOTE LINE(S)
PRINT COLUMN HEADER LABELS
DO NOT PRINT REPORT TOTALS

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 5.7 *****
ANSYS/Structural U
00150104 VERSION=INTEL NT 18:16:16 JUN 25, 2001 CP= 1.262

Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips West (X), Soft Rock



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Appendix SN-3 to Calculation PGE-009-CALC-003

***** ANSYS RESULTS INTERPRETATION (POST1) *****

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE POST1

*** NOTE *** CP= 1.262 TIME= 18:16:16
Reading results into the database (SET command) will update the current displacement and force boundary conditions in the database with the values from the results file for that load set. Note that any subsequent solutions will use these values unless action is taken to either SAVE the current values or not overwrite them (/EXIT,NOSAVE).

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

=====

=====

=====

===== SET 1 =====

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 4
TIME/FREQUENCY= 1.0000
TITLE= Pad, 0.9D, Gravity, 20 Casks, Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13416	31.461	1.0589	8.9171	-0.83784E-02	-0.86826	-0.54429
5392	31.461	1.0589	8.9171	0.83757E-02	-0.86826	0.54429



Appendix SN-3 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5606	-60.006	-95.065	-20.250	29.324	0.91088	2.1635
13630	-60.006	-95.066	-20.250	-29.324	0.91088	-2.1635

NODE SORT REMOVED

=====
===== MAXIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8294	20.885	-5.1102	22.630	-0.57606	-0.88103	2.3480
270	20.885	-5.1104	22.630	0.57609	-0.88107	-2.3480

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
246	-44.903	-5.8092	-53.275	0.12720	-8.3373	2.7639
8270	-44.902	-5.8092	-53.275	-0.12716	-8.3373	-2.7638

=====
===== SET 2 =====



Appendix SN-3 to Calculation PGE-009-CALC-003

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17
TIME/FREQUENCY= 2.0000

TITLE= Pad, 0.9D, HE(1), 20 Casks, 515 Kips North (Z), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6613	45.718	155.55	-100.57	0.73488	-27.526	-8.8457
14637	45.718	155.55	-100.57	-0.73488	-27.526	8.8457

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-105.58	-225.25	-80.225	0.31671	-21.707	-5.8639
11085	-105.58	-225.25	-80.225	-0.31671	-21.707	5.8638

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====



Appendix SN-3 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-5.3650	-65.756	254.16	17.206	118.91	-103.85
15443	-5.3650	-65.756	254.16	-17.206	118.91	103.85

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-84.498	-214.83	-391.51	60.062	247.96	-166.76
15363	-84.498	-214.83	-391.51	-60.063	247.96	166.76

=====

=====

===== SET 3 =====

=====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 26
TIME/FREQUENCY= 3.0000

TITLE= Pad, 0.9D, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2



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Appendix SN-3 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	140.69	-37.743	9.6313	21.065	123.08	115.05
13512	139.12	10.891	20.879	10.740	15.570	109.56

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-261.73	-328.91	-397.60	161.76	271.51	-213.40
5603	-237.91	-161.95	-34.160	87.657	137.12	-117.29

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	113.69	-91.076	220.48	25.472	105.14	134.76
7439	-155.76	-10.261	213.71	69.844	103.40	-26.998

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

Appendix SN-3 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-261.73	-328.91	-397.60	161.76	271.51	-213.40
7351	-125.44	24.475	-313.51	105.28	-15.922	-129.75

```
=====
=====
=====
===== SET 4 =====
```

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 31
TIME/FREQUENCY= 4.0000

TITLE= Pad, 0.9D, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

```
=====
===== MAXIMUM VALUES OF SX =====
```

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	184.93	-49.855	5.4696	25.669	91.930	99.857
13512	184.07	15.727	19.983	15.752	9.5538	93.436

NODE SORT REMOVED

```
=====
===== MINIMUM VALUES OF SX =====
```

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
------	----	----	----	-----	-----	-----



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Appendix SN-3 to Calculation PGE-009-CALC-003

7349	-310.61	-336.30	-368.01	187.03	255.20	-216.08
5603	-294.50	-188.80	-35.822	104.28	112.53	-101.42

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	148.54	-93.839	196.18	38.351	94.734	135.88
15446	113.05	5.1392	188.41	40.828	-2.2761	94.187

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-310.61	-336.30	-368.01	187.03	255.20	-216.08
7351	-156.59	32.966	-278.16	127.67	-20.997	-138.33

=====

=====

=====

===== SET 5 =====

=====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 36
TIME/FREQUENCY= 5.0000

TITLE= Pad, 0.9D, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

Appendix SN-3 to Calculation PGE-009-CALC-003

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15364	225.00	-33.010	-74.061	8.4959	56.853	30.205
15363	221.41	-21.340	-130.22	89.056	64.429	-10.889

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-347.55	-318.01	-320.22	200.80	225.82	-210.53
5603	-339.75	-211.69	-36.438	117.65	82.823	-80.933

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	179.12	-93.517	166.06	50.244	81.306	132.24
15446	137.93	10.923	157.78	52.363	-3.6548	95.139

NODE SORT REMOVED

=====



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Appendix SN-3 to Calculation PGE-009-CALC-003

===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-347.55	-318.01	-320.22	200.80	225.82	-210.53
7351	-184.73	24.397	-232.78	145.42	-22.391	-141.45

=====

=====

=====

===== SET 6 =====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 45
TIME/FREQUENCY= 6.0000

TITLE= Pad, 0.9D, HE(1), 20 Casks, 515 Kips West (W), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	247.47	24.346	-6.3114	24.549	-3.8260	-0.31128
13511	247.47	24.346	-6.3175	24.549	3.8137	0.30163

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====



Appendix SN-3 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5606	-392.54	-247.24	-35.848	133.81	10.388	10.528
5603	-392.54	-247.24	-35.848	133.81	-10.383	-10.530

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6962	-17.016	7.3555	60.499	-5.1904	9.1934	6.8109
3989	-17.019	7.3553	60.498	-5.1911	-9.1936	-6.8115

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-374.07	-197.41	-131.06	194.25	100.96	-155.46
7439	-374.09	-197.42	-131.05	194.26	-100.95	155.46

=====

=====

=====

===== SET 11 =====

=====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0



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Appendix SN-3 to Calculation PGE-009-CALC-003

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 70
TIME/FREQUENCY= 11.000

TITLE= Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips North (Z), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7365	41.924	-16.037	-4.6812	2.8440	32.303	-7.4407
15379	41.924	-16.037	-4.6813	-2.8440	32.303	7.4407

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-93.612	-196.24	-67.358	0.27518	-17.808	-5.4201
11085	-93.612	-196.24	-67.358	-0.27517	-17.808	5.4201

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-3 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-5.6443	-63.358	244.75	16.761	114.81	-99.989
15443	-5.6442	-63.358	244.75	-16.761	114.81	99.989

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-77.037	-194.51	-365.96	54.533	230.68	-155.72
15363	-77.037	-194.51	-365.96	-54.533	230.68	155.72

=====

=====

=====

===== SET 12 =====

=====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 79

TIME/FREQUENCY= 12.000

TITLE= Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



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Appendix SN-3 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	131.48	-35.182	4.3389	19.866	117.23	107.05
14342	130.58	-35.342	60.936	19.728	117.14	112.98

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-244.24	-300.39	-369.52	150.34	251.39	-199.26
5603	-221.14	-144.97	-30.741	80.349	127.40	-109.63

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	111.50	-88.445	212.39	25.935	100.56	130.65
15446	83.240	-0.44199	205.77	28.802	-1.0516	87.129

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-244.24	-300.39	-369.52	150.34	251.39	-199.26
7351	-117.69	22.601	-292.17	98.334	-14.806	-121.51



Appendix SN-3 to Calculation PGE-009-CALC-003

=====
=====
=====
===== SET 13 =====

USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 83
TIME/FREQUENCY= 13.000

TITLE= Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	175.50	-47.350	1.5820	24.567	89.294	92.981
13512	175.18	14.466	14.994	15.737	10.649	87.139

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-289.90	-306.67	-341.05	173.85	235.57	-201.58
5603	-273.42	-168.05	-32.198	95.295	104.57	-94.646



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Appendix SN-3 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	146.01	-91.239	188.11	39.000	89.813	131.95
15446	110.21	5.3852	180.78	41.482	-2.3287	92.179

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-289.90	-306.67	-341.05	173.85	235.57	-201.58
7351	-146.86	29.893	-258.58	119.29	-19.397	-129.54

=====

=====

=====

===== SET 14 =====

=====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 87

TIME/FREQUENCY= 14.000

TITLE= Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.



Appendix SN-3 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15364	213.20	-31.635	-73.584	8.3348	56.876	27.848
15363	209.86	-20.346	-126.77	85.437	63.554	-10.835

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-324.24	-289.62	-295.94	186.68	207.83	-196.22
5603	-315.29	-187.81	-32.796	107.32	77.154	-75.424

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	175.91	-90.808	157.73	50.938	75.975	128.34
15446	134.11	11.112	149.90	53.068	-3.6362	93.412

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====



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Appendix SN-3 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-324.24	-289.62	-295.94	186.68	207.83	-196.22
7351	-172.97	21.855	-215.75	135.82	-20.654	-132.43

=====

=====

=====

===== SET 15 =====

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 95
TIME/FREQUENCY= 15.000

TITLE= Pad, 0.9D, LTSP(2), 20 Casks, 440 Kips West (X), Soft Rock

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	239.81	22.553	-3.3622	24.735	-3.4247	-0.33467
13511	239.80	22.553	-3.3559	24.733	3.4113	0.35070

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

Appendix SN-3 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5603	-364.62	-218.48	-32.505	121.79	-9.1768	-9.6857
5606	-364.61	-218.48	-32.505	121.78	9.1899	9.6762

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6962	-16.189	6.9027	55.043	-4.0588	8.2055	6.7615
3989	-16.191	6.9023	55.039	-4.0595	-8.2060	-6.7603

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-348.74	-178.35	-118.90	180.57	91.247	-144.46
7439	-348.76	-178.36	-118.88	180.58	-91.238	144.46

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 35.551



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Appendix SN-3 to Calculation PGE-009-CALC-003

*** NOTE ***

CP= 35.551 TIME= 18:17:05


A total of 1 warnings and errors written to dcslabs3.err.

HARD ROCK RESULTS

/OUTPUT FILE= pad9Dhardstress.out



Appendix SN-4 to Calculation PGE-009-CALC-003

Originator: 
Date: May 25, 2001
Reissued: November 30, 2001

Appendix SN-4**BC Study - Maximum and Minimum Pad X and Z Stresses**

This Appendix presents maximum and minimum stress data for the pad for all 19 load cases analyzed for the soft rock and hard rock models for the boundary condition study presented in Appendix MD-3. The data is for the stresses in the X and Z directions. The input file is provided followed by the two output files for the soft and hard rock models.

Appendix Contents

ANSYS input file for pad stresses for soft and hard rock models	sheet 2
ANSYS output file for the soft rock model	sheet 29
ANSYS output file for the hard rock model	sheet 61



Below is the ANSYS input file that scans the databases for the max/min X and Z stresses for the soft and hard rock models. This file creates two output files in one execution.

```
/COM
/OUTPUT,padbcsoftstress.out
/COM
/COM      STRESS DATA SORTED AND PRINTED BY LOAD STEP
/COM
/COM
/COM
/COM      THIS ROUTINE SORTS AND PRINTS STRESS DATA BY LOAD STEP
/COM      FIRST SX AND THEN SZ - Boundary Evaluation Analyses
/COM
/com  SOFT ROCK RESULTS
/COM
/file,dcslabs4
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET,3
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
```



```
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====
/COM
SET,5
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET,6
ESEL,TYPE,1
NELEM
/COM
```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 7 =====
/COM
SET,7
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
```



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Appendix SN-4 to Calculation PGE-009-CALC-003

```

NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 8 =====
/COM
SET,8
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 9 =====
/COM
SET,9
ESEL,TYPE,1

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 10 =====
/COM
SET,10
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
```




Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM

```



```
SET, 12
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET, 13
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
```



Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET,14
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====

```

Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM ===== SET 15 =====
/COM
SET, 15
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 16 =====
/COM
SET, 16
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```

PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 17 =====
/COM
SET,17
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====

```

Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM =====
/COM =====
/COM ===== SET 18 =====
/COM
SET, 18
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 19 =====
/COM
SET, 19
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====

```



**ENERCON
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Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/com
/com HARD ROCK RESULTS
/COM
/OUTPUT,padbchardstress.out
/file,dcslabh4
resume
/header,on,off,off,off,on,off
/post1
/COM
EALL
NALL
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 1 =====
/COM
SET,1
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 2 =====
/COM
SET,2
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
```




Appendix SN-4 to Calculation PGE-009-CALC-003

```

NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 3 =====
/COM
SET,3
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 4 =====
/COM
SET,4
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S

```

Appendix SN-4 to Calculation PGE-009-CALC-003

```

NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 5 =====
/COM
SET,5
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 6 =====
/COM
SET,6
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 7 =====
/COM
SET,7
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
```



NSORT, S, X, 0, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM ===== MINIMUM VALUES OF SX =====

/COM

NSORT, S, X, 1, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM ===== MAXIMUM VALUES OF SZ =====

/COM

NSORT, S, Z, 0, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM ===== MINIMUM VALUES OF SZ =====

/COM

NSORT, S, Z, 1, 0, 2, SEL

PRNSOL, S

/COM

/COM =====

/COM =====

/COM =====

/COM ===== SET 8 =====

/COM

SET, 8

ESEL, TYPE, 1

NELEM

/COM

/COM =====

/COM ===== MAXIMUM VALUES OF SX =====

/COM

NSORT, S, X, 0, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM ===== MINIMUM VALUES OF SX =====

/COM

NSORT, S, X, 1, 0, 2, SEL

PRNSOL, S

NUSORT

/COM

/COM =====

/COM ===== MAXIMUM VALUES OF SZ =====

/COM

NSORT, S, Z, 0, 0, 2, SEL

PRNSOL, S

NUSORT



**ENERCON
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Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 9 =====
/COM
SET, 9
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 10 =====
/COM
SET, 10
ESEL, TYPE, 1
NELEM
/COM
/COM =====

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 11 =====
/COM
SET,11
ESEL,TYPE,1
NELEM
/COM
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
```



Appendix SN-4 to Calculation PGE-009-CALC-003

```

PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 12 =====
/COM
SET,12
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 13 =====
/COM
SET,13
ESEL,TYPE,1
NELEM

```



```
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 14 =====
/COM
SET,14
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
```




**ENERCON
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Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 15 =====
/COM
SET,15
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 16 =====
/COM
SET,16

```



```
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT, S, Z, 1, 0, 2, SEL
PRNSOL, S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 17 =====
/COM
SET, 17
ESEL, TYPE, 1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT, S, X, 0, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT, S, X, 1, 0, 2, SEL
PRNSOL, S
NUSORT
/COM
```



**ENERCON
SERVICES, INC.**

Appendix SN-4 to Calculation PGE-009-CALC-003

```

/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 18 =====
/COM
SET,18
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM ===== SET 19 =====

```



Appendix SN-4 to Calculation PGE-009-CALC-003

```
/COM
SET,19
ESEL,TYPE,1
NELEM
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SX =====
/COM
NSORT,S,X,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SX =====
/COM
NSORT,S,X,1,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MAXIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,0,0,2,SEL
PRNSOL,S
NUSORT
/COM
/COM =====
/COM ===== MINIMUM VALUES OF SZ =====
/COM
NSORT,S,Z,1,0,2,SEL
PRNSOL,S
/COM
/COM =====
/COM =====
/COM =====
/COM
EALL
NALL
FINI
/OUTPUT
/EXIT
```



Appendix SN-4 to Calculation PGE-009-CALC-003

Below is the ANSYS output file for pad stresses for the soft rock analyses.

STRESS DATA SORTED AND PRINTED BY LOAD STEP

THIS ROUTINE SORTS AND PRINTS STRESS DATA BY LOAD STEP
FIRST SX AND THEN SZ - Boundary Evaluation Analyses

SOFT ROCK RESULTS

CURRENT JOBNAME REDEFINED AS dcslabs4

RESUME ANSYS DATA FROM FILE NAME=dcslabs4.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock (Ux,Uz)
ANALYSIS TYPE = STATIC (STEADY-STATE)

NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 33177

17051 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 17051

259 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 259

250 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 396

181 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 295

70 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 70

12 COMPONENTS CURRENTLY DEFINED

MAXIMUM LINEAR PROPERTY NUMBER = 5

MAXIMUM REAL CONSTANT SET NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

MAXIMUM CONSTRAINT EQUATION NUMBER = 4620

NUMBER OF SPECIFIED CONSTRAINTS = 1785

NUMBER OF NODAL LOADS = 2160

CURRENT LOAD CASE = 0 OF 0

LOAD SET = 19

SUBSTEP = 1

TIME/FREQ = 19.000

INITIAL JOBNAME = dcslabs4

CURRENT JOBNAME = dcslabs4

PRINT HEADER

DO NOT PRINT SUBTITLE(S)

DO NOT PRINT LOAD STEP ID

DO NOT PRINT NOTE LINE(S)

PRINT COLUMN HEADER LABELS

DO NOT PRINT REPORT TOTALS

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 5.7 *****

ANSYS/Structural U

00150104

VERSION=INTEL NT

12:15:26 MAY 18, 2001 CP=

5.668



Appendix SN-4 to Calculation PGE-009-CALC-003

Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock (Ux,Uz)

***** ANSYS RESULTS INTERPRETATION (POST1) *****

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE POST1

*** NOTE *** CP= 5.668 TIME= 12:15:26
Reading results into the database (SET command) will update the current displacement and force boundary conditions in the database with the values from the results file for that load set. Note that any subsequent solutions will use these values unless action is taken to either SAVE the current values or not overwrite them (/EXIT,NOSAVE).

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

=====

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 4
TIME/FREQUENCY= 1.0000

TITLE= Pad, Gravity, 20 Casks, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13416	33.071	1.0598	9.6661	-0.16902E-01-0.86930		-0.53947
5392	33.071	1.0598	9.6661	0.16899E-01-0.86930		0.53947

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
1677	-59.721	-6.5781	-37.893	-9.3367	1.6482	2.1992
1678	-59.721	-6.5781	-37.893	-9.3367	-1.6482	-2.1992

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8294	22.069	-5.4535	23.697	-0.58738	-1.0306	2.3955
270	22.069	-5.4537	23.697	0.58741	-1.0306	-2.3956

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
246	-46.239	-5.8911	-53.721	0.11702	-8.3704	2.7603
8270	-46.239	-5.8911	-53.721	-0.11699	-8.3704	-2.7603

=====

Appendix SN-4 to Calculation PGE-009-CALC-003

=====

=====

===== SET 2 =====

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17

TIME/FREQUENCY= 2.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips North (Z), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6613	44.443	155.49	-100.63	0.79354	-27.084	-9.3054
14637	44.443	155.49	-100.63	-0.79354	-27.084	9.3054

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-106.42	-225.37	-71.119	0.32148	-20.760	-5.8368
11085	-106.42	-225.37	-71.119	-0.32147	-20.760	5.8368

NODE SORT REMOVED



Appendix SN-4 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-5.6042	-70.719	269.43	17.829	127.66	-112.57
15443	-5.6042	-70.719	269.43	-17.829	127.66	112.57

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-87.008	-222.93	-394.88	64.776	254.25	-174.39
15363	-87.008	-222.93	-394.88	-64.776	254.25	174.39

=====

=====

===== SET 3 =====

=====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 26

TIME/FREQUENCY= 3.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	145.34	-38.898	6.2949	21.920	130.77	119.98
13512	143.70	11.178	17.011	11.388	17.532	114.48

NODE SORT REMOVED

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-268.85	-335.86	-399.10	169.06	276.54	-222.91
5603	-237.22	-162.90	-32.911	88.051	142.42	-122.07

NODE SORT REMOVED

===== MAXIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	121.91	-98.108	233.37	28.706	112.59	146.47
15446	91.658	-0.19901	225.74	31.873	-1.6095	97.547

NODE SORT REMOVED

===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-268.85	-335.86	-399.10	169.06	276.54	-222.91
7351	-129.13	25.279	-311.78	110.90	-17.980	-136.78

=====

=====

=====

===== SET 4 =====

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 30
TIME/FREQUENCY= 4.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	192.33	-51.797	2.0434	26.930	99.153	104.31
13512	191.61	16.301	16.513	16.792	11.435	97.845

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-4 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-318.59	-341.88	-368.11	194.30	259.28	-225.39
5603	-293.75	-189.76	-34.294	104.65	116.79	-105.33

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ. =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	159.61	-101.07	206.80	42.855	100.93	147.67
15446	121.35	6.1510	198.53	45.548	-3.0039	102.73

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-318.59	-341.88	-368.11	194.30	259.28	-225.39
7351	-161.17	32.224	-275.66	133.64	-22.790	-145.34

=====

=====

=====

===== SET 5 =====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 35

TIME/FREQUENCY= 5.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1



Appendix SN-4 to Calculation PGE-009-CALC-003

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15364	233.70	-34.353	-76.831	9.0810	60.021	31.284
15363	230.15	-22.594	-134.70	92.540	68.051	-10.722

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-356.11	-323.29	-319.36	208.17	229.16	-219.36
5603	-339.20	-213.06	-34.876	118.13	86.154	-83.904

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	192.52	-100.48	173.67	55.807	85.803	143.29
15446	147.87	12.391	165.03	58.076	-4.4058	103.57

Appendix SN-4 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-356.11	-323.29	-319.36	208.17	229.16	-219.36
7351	-189.74	23.533	-229.62	151.50	-24.105	-148.24

=====

=====

===== SET 6 =====

=====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 43

TIME/FREQUENCY= 6.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips West (W), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	260.16	25.261	-6.9703	26.373	-3.9165	-0.34108
13511	260.15	25.261	-6.9611	26.371	3.8948	0.36615



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Appendix SN-4 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5603	-392.39	-248.86	-34.262	134.29	-10.987	-10.299
5606	-392.39	-248.86	-34.263	134.29	11.007	10.284

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6962	-16.643	7.4897	62.376	-5.1075	9.5308	7.0624
3989	-16.647	7.4890	62.369	-5.1086	-9.5317	-7.0610

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-381.98	-200.52	-127.32	200.25	101.29	-161.04
7439	-382.02	-200.54	-127.30	200.27	-101.28	161.04

=====

=====

=====

===== SET 7 =====

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

USE LOAD STEP 7 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 7 SUBSTEP= 1 CUMULATIVE ITERATION= 55
TIME/FREQUENCY= 7.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips North (z), Max Up, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15379	19.026	-11.032	-1.9859	-2.4690	16.131	4.3008
7365	19.026	-11.032	-1.9859	2.4692	16.131	-4.3008

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-43.990	-93.280	-4.2440	0.17645E-01	-9.4154	-2.9276
11085	-43.982	-93.276	-4.2762	-0.15374E-01	-9.4107	2.9286

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-4.4618	-33.708	128.91	9.3536	62.367	-53.743
15443	-4.4611	-33.707	128.91	-9.3527	62.365	53.742

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-40.762	-103.77	-174.70	30.317	113.22	-77.672
15363	-40.762	-103.77	-174.70	-30.316	113.22	77.672

=====

=====

=====

===== SET 8 =====

=====

USE LOAD STEP 8 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 8 SUBSTEP= 1 CUMULATIVE ITERATION= 64
TIME/FREQUENCY= 8.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips West (X), Max Up, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15447	120.56	-7.4824	16.242	4.1519	10.433	26.248
15364	120.56	-7.4788	16.254	4.1524	-10.431	-26.243

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5606	-174.01	-111.79	-16.235	59.982	4.5632	4.6120
5603	-174.01	-111.79	-16.235	59.982	-4.5634	-4.6116

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3989	-4.9699	3.5107	28.122	-1.8918	-4.1041	-3.8160
6962	-4.9700	3.5107	28.122	-1.8917	4.1041	3.8160

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-168.29	-93.311	-57.022	89.285	-45.245	71.297
7349	-168.29	-93.309	-57.022	89.284	45.245	-71.297

=====

=====

=====

===== SET 9 =====

USE LOAD STEP 9 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 9 SUBSTEP= 1 CUMULATIVE ITERATION= 70
 TIME/FREQUENCY= 9.0000
 TITLE= Pad, HE(3), 20 Casks, 171.2 Kips North (Z), Max Dn, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
 9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13530	62.254	11.174	21.572	-1.7038	-0.75586	-3.3027
5506	62.246	11.178	21.573	1.7066	-0.74981	3.3052

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
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Appendix SN-4 to Calculation PGE-009-CALC-003

1678	-114.09	-11.943	-64.070	-17.045	-0.15372	7.2461
9702	-114.09	-11.943	-64.070	17.045	-0.15372	-7.2458

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	-26.632	5.6032	87.301	-11.204	58.321	21.250
7439	-26.635	5.6055	87.301	11.203	58.322	-21.250

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-73.088	-135.69	-197.29	48.574	126.66	-100.38
15363	-73.086	-135.68	-197.29	-48.573	126.66	100.38

=====

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===== SET 10 =====

USE LOAD STEP 10 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 10 SUBSTEP= 1 CUMULATIVE ITERATION= 73

TIME/FREQUENCY= 10.000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips West (X), Max Dn, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.



Appendix SN-4 to Calculation PGE-009-CALC-003

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	84.229	0.43268	-16.663	41.414	-4.8553	15.648
15363	84.222	0.26644	-16.697	41.367	4.8758	-15.645

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5606	-235.79	-244.58	-42.888	96.567	6.0049	7.1456
5603	-235.79	-244.58	-42.887	96.566	-6.0065	-7.1441

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3989	35.958	2.9759	60.261	0.55912	-5.7984	-14.967
6962	35.957	2.9758	60.260	0.55892	5.7984	14.967

NODE SORT REMOVED

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8270	-89.840	-12.133	-105.83	3.2269	-17.851	-2.0126
11120	-89.845	-12.132	-105.82	3.2255	17.852	2.0105

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=====

===== SET 11 =====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 85

TIME/FREQUENCY= 11.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips North (Z), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7365	42.500	-17.219	-4.6174	4.4703	32.634	-8.4556
15379	42.500	-17.219	-4.6174	-4.4703	32.634	8.4556

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

Appendix SN-4 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-93.590	-196.48	-59.606	0.12838	-17.459	-5.7627
11085	-93.590	-196.48	-59.606	-0.12837	-17.459	5.7627

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-5.5303	-68.326	259.90	17.247	123.36	-108.63
15443	-5.5302	-68.326	259.90	-17.247	123.36	108.63

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-79.673	-202.82	-372.15	59.116	238.31	-164.04
15363	-79.673	-202.82	-372.15	-59.116	238.31	164.04

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===== SET 12 =====

=====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0



Appendix SN-4 to Calculation PGE-009-CALC-003

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 94
TIME/FREQUENCY= 12.000
TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	137.20	-36.608	1.8789	20.985	125.18	112.64
14342	136.77	-36.847	58.355	20.907	126.57	119.44

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-252.62	-308.55	-373.79	158.15	257.94	-209.62
5603	-222.08	-146.31	-29.728	81.170	133.69	-115.09

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

Appendix SN-4 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	119.82	-95.414	225.05	29.195	107.79	142.21
15446	89.527	0.74435E-01	217.85	32.309	-1.6737	95.140

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-252.62	-308.55	-373.79	158.15	257.94	-209.62
7351	-122.04	23.486	-292.92	104.26	-16.843	-128.95

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=====

===== SET 13 =====

=====

USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 98

TIME/FREQUENCY= 13.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13630	183.53	-49.496	-0.31737	25.896	95.996	97.899
13512	183.18	15.071	13.064	16.810	12.197	91.899

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-299.64	-313.68	-343.87	181.91	241.16	-211.87
5603	-274.95	-169.40	-30.972	96.212	109.76	-99.216

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	156.84	-98.328	198.65	43.374	95.882	143.48
15446	118.29	6.3426	190.84	46.047	-3.0064	100.55

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-299.64	-313.68	-343.87	181.91	241.16	-211.87
7351	-152.38	29.360	-258.38	125.80	-21.225	-137.10



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=====
===== SET 14 =====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 102
TIME/FREQUENCY= 14.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15364	222.95	-33.129	-76.548	8.8960	60.166	29.073
15363	219.67	-21.329	-131.62	89.492	67.284	-10.744

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-334.93	-296.29	-297.42	195.04	212.46	-206.02
5603	-317.34	-189.47	-31.546	108.38	81.160	-78.933

NODE SORT REMOVED



Appendix SN-4 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15443	189.22	-97.677	165.34	56.417	80.374	139.18
15446	143.96	12.544	157.15	58.688	-4.3520	101.71

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-334.93	-296.29	-297.42	195.04	212.46	-206.02
7351	-179.18	21.135	-214.51	142.63	-22.416	-139.84

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=====

===== SET 15 =====

=====

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 110
TIME/FREQUENCY= 15.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips West (X), Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.



Appendix SN-4 to Calculation PGE-009-CALC-003

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	252.92	23.491	-2.9286	26.569	-3.5009	-0.38831
13511	252.92	23.491	-2.9275	26.569	3.4986	0.39198

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5606	-367.43	-220.19	-31.182	122.86	9.7588	9.5277
5603	-367.43	-220.19	-31.182	122.86	-9.7557	-9.5300

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6962	-16.150	7.0886	56.978	-3.9207	8.5390	7.0243
3989	-16.151	7.0885	56.977	-3.9209	-8.5390	-7.0246

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-359.39	-182.59	-116.04	187.89	92.067	-150.85
7439	-359.40	-182.59	-116.03	187.89	-92.065	150.85

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===== SET 16 =====

USE LOAD STEP 16 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 16 SUBSTEP= 1 CUMULATIVE ITERATION= 123

TIME/FREQUENCY= 16.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips North (Z), Max Up, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15379	19.620	-6.3770	-2.1807	-1.8165	14.235	3.6649
7365	19.620	-6.3770	-2.1807	1.8166	14.235	-3.6650

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-38.928	-78.821	-28.511	0.73686E-01	-6.7698	-2.4718
11085	-38.926	-78.835	-28.505	-0.75282E-01	-6.7722	2.4560

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-2.3555	-31.446	119.19	7.8301	56.560	-49.909
15443	-2.3602	-31.445	119.18	-7.8309	56.558	49.909

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-34.334	-87.557	-168.24	25.486	106.98	-73.783
15363	-34.334	-87.556	-168.24	-25.485	106.98	73.782

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=====

===== SET 17 =====

=====

USE LOAD STEP 17 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 17 SUBSTEP= 1 CUMULATIVE ITERATION= 136
TIME/FREQUENCY= 17.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips West (X), Max Up, Soft Rock (Ux;Uz)



Appendix SN-4 to Calculation PGE-009-CALC-003

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	116.94	10.478	0.12691E-01	12.685	-1.4992	-0.18998
13511	116.94	10.478	0.16049E-01	12.685	1.4931	0.20002

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5603	-164.63	-89.824	-13.169	53.016	-4.0445	-4.1934
5606	-164.63	-89.823	-13.170	53.015	4.0520	4.1876

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6962	-8.2884	3.2612	24.272	-1.2896	3.6013	3.1336



3989 -8.2896 3.2609 24.269 -1.2900 -3.6016 -3.1335

NODE SORT REMOVED

=====
===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-162.98	-80.042	-50.077	85.054	39.890	-67.696
7439	-162.99	-80.045	-50.068	85.058	-39.885	67.694

=====
===== SET 18 =====

USE LOAD STEP 18 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 18 SUBSTEP= 1 CUMULATIVE ITERATION= 151
TIME/FREQUENCY= 18.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips North (Z), Max Up, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====
===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
15379	18.629	-5.6794	-2.0691	-1.6469	13.091	3.2072
7365	18.629	-5.6794	-2.0691	1.6469	13.091	-3.2072

Appendix SN-4 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-33.644	-65.164	-31.967	0.10639	-6.1600	-2.1306
11085	-33.638	-65.165	-31.960	-0.10865	-6.1604	2.1233

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-1.5498	-29.840	111.98	7.1192	53.202	-47.261
15443	-1.5538	-29.839	111.97	-7.1201	53.201	47.260

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-31.170	-81.864	-158.42	23.475	100.47	-68.903
15363	-31.170	-81.864	-158.42	-23.475	100.47	68.903

=====

=====

=====

===== SET 19 =====

=====



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Appendix SN-4 to Calculation PGE-009-CALC-003

USE LOAD STEP 19 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 19 SUBSTEP= 1 CUMULATIVE ITERATION= 168
TIME/FREQUENCY= 19.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Soft Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

MAXIMUM VALUES OF SX

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13512	107.84	9.9097	-1.2771	11.778	-1.3931	-0.13639
13511	107.84	9.9097	-1.2772	11.777	1.3926	0.13636

NODE SORT REMOVED

=====

MINIMUM VALUES OF SX

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7439	-157.12	-79.811	-46.132	82.782	-37.680	63.981
7349	-157.12	-79.811	-46.133	82.782	37.681	-63.982

NODE SORT REMOVED

=====

MAXIMUM VALUES OF SZ



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5622	-0.28750	4.8751	22.253	1.0284	-3.4851	-0.19993
5619	-0.28748	4.8752	22.253	1.0284	3.4852	0.19991

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7349	-157.12	-79.811	-46.133	82.782	37.681	-63.982
7439	-157.12	-79.811	-46.132	82.782	-37.680	63.981

=====

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=====

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 65.054

*** NOTE *** CP= 65.054 TIME= 12:16:46
A total of 1 warnings and errors written to dcslabs4.err.

HARD ROCK RESULTS

/OUTPUT FILE= padbchardstress.out



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Appendix SN-4 to Calculation PGE-009-CALC-003

Below is the ANSYS output file for pad stresses for the hard rock analyses.

CURRENT JOBNAME REDEFINED AS dcslabh4

RESUME ANSYS DATA FROM FILE NAME=dcslabh4.db

*** ANSYS GLOBAL STATUS ***

TITLE = Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Hard Rock (Ux,Uz)
ANALYSIS TYPE = STATIC (STEADY-STATE)

NUMBER OF ELEMENT TYPES = 6

15348 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 33177

14 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 17051

259 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 259

0 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 396

181 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 295

70 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 70

12 COMPONENTS CURRENTLY DEFINED

MAXIMUM LINEAR PROPERTY NUMBER = 5

MAXIMUM REAL CONSTANT SET NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

MAXIMUM CONSTRAINT EQUATION NUMBER = 4620

NUMBER OF SPECIFIED CONSTRAINTS = 1785

NUMBER OF NODAL LOADS = 2160

INITIAL JOBNAME = dcslabs4

CURRENT JOBNAME = dcslabh4

PRINT HEADER

DO NOT PRINT SUBTITLE(S)

DO NOT PRINT LOAD STEP ID

DO NOT PRINT NOTE LINE(S)

PRINT COLUMN HEADER LABELS

DO NOT PRINT REPORT TOTALS

***** ANSYS RESULTS INTERPRETATION (POST1) *****

ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY

ENTER FINISH TO LEAVE POST1

15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

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=====
===== SET 1 =====
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Appendix SN-4 to Calculation PGE-009-CALC-003

USE LOAD STEP 1 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 1 CUMULATIVE ITERATION= 2
TIME/FREQUENCY= 1.0000

TITLE= Pad, Gravity, 20 Casks, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

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MAXIMUM VALUES OF SX

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Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5189	-11.168	-45.658	9.2776	0.54483	2.5898	0.55154E-01
13213	-11.168	-45.658	9.2776	-0.54483	2.5898	-0.55154E-01

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8270	-11.431	-6.3983	-18.525	0.42263E-02	-8.3326	-0.51567
246	-11.431	-6.3983	-18.525	-0.42266E-02	-8.3326	0.51567

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===== SET 2 =====

=====

USE LOAD STEP 2 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 2 SUBSTEP= 1 CUMULATIVE ITERATION= 17

TIME/FREQUENCY= 2.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips North (Z), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



Appendix SN-4 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6613	51.302	157.21	-66.515	0.53611	-25.956	-2.4615
14637	51.302	157.21	-66.515	-0.53611	-25.956	2.4615

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11085	-79.357	-225.80	-26.741	-0.69893E-01	-21.422	1.5479
3061	-79.357	-225.80	-26.741	0.69894E-01	-21.422	-1.5479

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
4551	19.839	22.789	75.567	0.58276	64.106	-7.8259
12575	19.839	22.789	75.567	-0.58276	64.106	7.8259

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14700	-42.415	-30.737	-195.71	-0.81781	81.517	8.4243

Appendix SN-4 to Calculation PGE-009-CALC-003

6676 -42.415 -30.737 -195.71 0.81781 81.517 -8.4243

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===== SET 3 =====

USE LOAD STEP 3 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 3 SUBSTEP= 1 CUMULATIVE ITERATION= 30
TIME/FREQUENCY= 3.0000
TITLE= Pad, HE(1), 20 Casks, 515 Kips N 32.93 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6626	70.139	-174.88	-72.816	-19.655	22.783	-16.802
5914	69.779	-175.27	-48.947	-19.804	20.712	-6.3081

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-132.04	-13.207	-56.730	38.089	5.5578	-50.903
14705	-126.42	-13.477	-50.004	34.805	-2.0997	-42.092

Appendix SN-4 to Calculation PGE-009-CALC-003

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5263	21.055	18.808	70.966	7.5106	53.077	14.218
4551	21.644	18.794	67.696	7.3380	52.870	14.074

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11120	-79.934	-26.428	-167.70	7.0785	69.534	-43.823
14700	-81.014	-26.009	-167.12	1.2626	66.078	-34.822

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===== SET 4 =====

=====

USE LOAD STEP 4 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 4 SUBSTEP= 1 CUMULATIVE ITERATION= 36

TIME/FREQUENCY= 4.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 45 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM



9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	81.003	-203.26	-53.144	-22.079	14.812	0.29604
4490	80.956	-203.10	-57.790	-22.145	14.880	-0.28959

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-177.21	-17.802	-57.098	49.533	1.2080	-45.320
13992	-170.75	-24.256	-92.569	62.775	14.377	-48.339

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5908	-42.692	-14.481	62.745	22.291	9.8032	2.3045
5196	-42.633	-14.437	62.619	22.075	9.4249	2.9146

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11120	-94.800	-22.786	-137.59	9.6219	59.551	-51.300
14700	-93.742	-22.299	-137.27	1.3985	56.150	-38.149

=====

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===== SET 5 =====

USE LOAD STEP 5 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 5 SUBSTEP= 1 CUMULATIVE ITERATION= 42

TIME/FREQUENCY= 5.0000

TITLE= Pad, HE(1), 20 Casks, 515 Kips N 57.07 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	89.189	-224.23	-55.217	-23.212	8.8550	6.1429
4490	89.128	-224.07	-59.431	-23.274	9.0163	5.2413

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====



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Appendix SN-4 to Calculation PGE-009-CALC-003

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-210.54	-21.824	-52.592	59.203	-2.1325	-32.894
13992	-206.20	-26.710	-81.167	69.092	12.879	-36.522

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5908	-44.104	-42.229	59.641	29.309	0.97534	2.3666
5196	-43.939	-42.234	58.031	29.301	0.98912	1.2446

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14700	-102.39	-17.807	-103.50	1.5046	44.363	-36.828
11120	-104.78	-18.314	-101.38	12.029	46.899	-50.356

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=====

===== SET 6 =====

USE LOAD STEP 6 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 6 SUBSTEP= 1 CUMULATIVE ITERATION= 54

TIME/FREQUENCY= 6.0000

Appendix SN-4 to Calculation PGE-009-CALC-003

TITLE= Pad, HE(1), 20 Casks, 515 Kips West (W), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	93.630	-238.62	-51.986	-21.409	-8.4675	20.693
5203	93.630	-238.62	-51.986	-21.409	8.4676	-20.694

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13281	-244.35	-28.146	-52.055	74.374	-8.6190	2.3904
13280	-244.35	-28.146	-52.054	74.374	8.6200	-2.4166

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



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Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14650	-76.058	152.89	51.737	-27.150	11.010	35.856
11783	-76.059	152.89	51.721	-27.151	-11.012	-35.859

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11808	-54.233	-232.45	-76.659	-21.413	9.3562	-46.009
14677	-54.214	-232.45	-76.640	-21.411	-9.3609	46.011

=====

=====

=====

===== SET 7 =====

USE LOAD STEP 7 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 7 SUBSTEP= 1 CUMULATIVE ITERATION= 74
TIME/FREQUENCY= 7.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips North (z), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
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Appendix SN-4 to Calculation PGE-009-CALC-003

6613	19.536	60.251	-23.002	0.22378	-9.2519	-1.3059
14637	19.531	60.251	-22.996	-0.22378	-9.2522	1.3036

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-29.372	-93.444	11.463	-0.28307E-01	-8.6666	-0.83671
11085	-29.368	-93.444	11.455	0.30983E-01	-8.6682	0.83298

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5263	6.6529	8.7057	31.409	0.29036	25.201	-3.5719
13287	6.6529	8.7057	31.407	-0.29033	25.201	3.5717

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
8259	-16.304	-13.238	-56.076	0.54439E-02	29.613	0.53943
235	-16.304	-13.238	-56.076	-0.54417E-02	29.613	-0.53946

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Appendix SN-4 to Calculation PGE-009-CALC-003

=====

===== SET 8 =====

=====

USE LOAD STEP 8 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 8 SUBSTEP= 1 CUMULATIVE ITERATION= 90

TIME/FREQUENCY= 8.0000

TITLE= Pad, HE(1), 20 Casks, 206 Kips West (X), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	38.641	-98.725	-21.364	-8.6100	-3.4036	8.4382
5203	38.641	-98.725	-21.364	-8.6100	3.4036	-8.4383

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13281	-86.258	-11.678	-21.027	32.030	-3.5431	0.97519
13280	-86.257	-11.678	-21.027	32.030	3.5436	-0.98162

NODE SORT REMOVED

=====



Appendix SN-4 to Calculation PGE-009-CALC-003

===== MAXIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5228	-14.364	58.419	18.703	-5.8899	-3.1589	-7.2798
5229	-14.364	58.419	18.703	-5.8899	3.1589	7.2795

NODE SORT REMOVED

===== MINIMUM VALUES OF SZ =====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11808	-12.653	-96.231	-31.236	-7.1429	3.6824	-17.376
14677	-12.632	-96.218	-31.210	-7.1463	-3.6851	17.372

===== SET 9 =====

USE LOAD STEP 9 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 9 SUBSTEP= 1 CUMULATIVE ITERATION= 95
TIME/FREQUENCY= 9.0000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips North (Z), Max Dn, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

===== MAXIMUM VALUES OF SX =====



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SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3758	40.286	-126.29	-32.742	-7.8213	9.0039	1.8540
11782	40.285	-126.29	-32.741	7.8208	9.0039	-1.8535

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
1639	-43.072	-161.94	34.201	0.18788E-02	-12.863	-0.79760
9663	-43.072	-161.94	34.201	-0.18984E-02	-12.863	0.79759

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13953	-40.066	-161.54	37.201	-1.0319	-12.720	3.8669
5929	-40.064	-161.54	37.200	1.0315	-12.719	-3.8671

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

Appendix SN-4 to Calculation PGE-009-CALC-003

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
235	-28.426	-21.578	-77.207	-0.31759E-01	42.598	0.52436
8259	-28.426	-21.578	-77.207	0.31737E-01	42.598	-0.52436

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===== SET 10 =====

USE LOAD STEP 10 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 10 SUBSTEP= 1 CUMULATIVE ITERATION= 99
TIME/FREQUENCY= 10.000

TITLE= Pad, HE(3), 20 Casks, 171.2 Kips West (X), Max Dn, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	62.413	-181.67	-32.736	-11.224	-3.1968	12.301
5203	62.413	-181.67	-32.736	-11.224	3.1968	-12.301

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.



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PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13280	-70.913	-21.821	-29.892	41.045	5.6955	-4.5348
13281	-70.913	-21.821	-29.892	41.045	-5.6955	4.5349

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5188	-17.492	-123.96	27.526	7.7771	9.1504	-11.534
5218	-17.492	-123.96	27.526	7.7771	-9.1504	11.534

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11097	37.162	-178.81	-42.584	-12.242	-3.1386	17.365
8232	37.162	-178.81	-42.584	-12.242	3.1386	-17.365

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===== SET 11 =====

USE LOAD STEP 11 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 11 SUBSTEP= 1 CUMULATIVE ITERATION= 117

TIME/FREQUENCY= 11.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips North (Z), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

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9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14637	42.679	130.50	-59.968	-0.51380	-21.757	2.3783
6613	42.678	130.50	-59.971	0.51419	-21.757	-2.3816

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-68.833	-196.86	-20.734	0.54994E-01	-17.653	-1.4274
11085	-68.814	-196.86	-20.713	-0.62923E-01	-17.655	1.4247

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
4551	16.141	19.013	63.009	0.53474	54.151	-7.3208
12575	16.141	19.013	63.009	-0.53474	54.151	7.3208

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NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14700	-36.883	-26.788	-166.07	-0.72446	71.136	7.9379
6676	-36.879	-26.788	-166.06	0.72411	71.137	-7.9356

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===== SET 12 =====

=====

USE LOAD STEP 12 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 12 SUBSTEP= 1 CUMULATIVE ITERATION= 130
TIME/FREQUENCY= 12.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 32.93 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6626	61.690	-154.03	-61.076	-16.917	19.714	-13.721
5202	61.375	-154.19	-42.389	-17.269	17.421	-4.6479

NODE SORT REMOVED



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===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-110.92	-11.856	-45.993	33.880	5.7097	-41.193
14705	-110.78	-11.937	-47.860	30.762	-1.6329	-36.412

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5263	17.374	15.613	59.888	6.6363	44.719	11.732
4551	17.836	15.605	56.607	6.5017	44.543	11.526

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14700	-71.316	-22.614	-147.22	1.2719	57.637	-29.901
11120	-65.433	-23.279	-142.19	6.8166	61.057	-35.877

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=====

===== SET 13 =====

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USE LOAD STEP 13 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 13 SUBSTEP= 1 CUMULATIVE ITERATION= 135
TIME/FREQUENCY= 13.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 45 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

MAXIMUM VALUES OF SX

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	71.093	-178.28	-45.611	-19.003	12.831	0.27275
4490	71.060	-178.14	-49.912	-19.058	12.895	-0.24600

NODE SORT REMOVED

=====

MINIMUM VALUES OF SX

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-150.79	-15.613	-48.425	43.965	1.6708	-37.681
13992	-144.05	-21.269	-77.455	55.568	13.210	-40.110

NODE SORT REMOVED

=====

MAXIMUM VALUES OF SZ

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2



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SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5908	-35.943	-14.091	54.197	19.846	7.8017	1.8671
5196	-35.894	-14.064	53.713	19.692	7.5087	2.1937

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14700	-82.901	-19.430	-121.91	1.4171	48.996	-33.034
11120	-76.542	-20.220	-116.34	9.2994	52.213	-42.206

=====

=====

===== SET 14 =====

=====

USE LOAD STEP 14 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 14 SUBSTEP= 1 CUMULATIVE ITERATION= 141

TIME/FREQUENCY= 14.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips N 57.03 W (Z,X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM

9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2



Appendix SN-4 to Calculation PGE-009-CALC-003

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	78.183	-196.22	-47.350	-19.961	7.6936	5.3227
4490	78.136	-196.08	-51.193	-20.013	7.8369	4.5308

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13993	-180.85	-19.073	-46.276	52.191	-1.6007	-27.343
13992	-176.64	-23.260	-70.180	60.785	11.507	-30.499

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5908	-37.031	-37.815	51.355	25.879	0.24554	1.8807
5196	-36.897	-37.825	49.815	25.890	0.26473	0.84129

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
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14700	-90.889	-15.582	-93.065	1.5331	38.774	-31.974
13988	-96.060	-15.574	-88.115	2.0871	39.991	-35.947

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=====

===== SET 15 =====

USE LOAD STEP 15 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 15 SUBSTEP= 1 CUMULATIVE ITERATION= 153
TIME/FREQUENCY= 15.000

TITLE= Pad, LTSP(2), 20 Casks, 440 Kips West (X), Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	82.104	-208.54	-44.559	-18.421	-7.2583	17.902
5203	82.104	-208.54	-44.559	-18.421	7.2584	-17.903

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13281	-209.84	-24.484	-46.681	65.191	-7.5052	2.1529



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13280 -209.84 -24.484 -46.680 65.191 7.5057 -2.1724

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5228	-30.494	127.14	41.181	-12.481	-6.7357	-15.677
5229	-30.494	127.14	41.181	-12.481	6.7358	15.676

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11808	-45.925	-203.02	-68.023	-17.934	8.0588	-38.124
14677	-45.918	-203.02	-67.975	-17.929	-8.0597	38.121

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=====

===== SET 16 =====

=====

USE LOAD STEP 16 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 16 SUBSTEP= 1 CUMULATIVE ITERATION= 177

TIME/FREQUENCY= 16.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips North (Z), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.



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11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14637	16.750	51.856	-26.346	-0.22839	-8.6608	1.0512
6613	16.749	51.856	-26.347	0.22834	-8.6609	-1.0515

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11085	-28.223	-79.034	-11.116	-0.26730E-01	-6.9579	0.63234
3061	-28.223	-79.034	-11.116	0.26742E-01	-6.9578	-0.63357

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7070	1.7967	-0.86960	24.866	0.94872	11.361	-5.0802
15094	1.7930	-0.85489	24.863	-0.95708	11.369	5.0831

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====



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SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6676	-15.125	-10.715	-70.036	0.31823	28.699	-3.5010
14700	-15.120	-10.717	-70.033	-0.31936	28.699	3.4995

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===== SET 17 =====

USE LOAD STEP 17 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 17 SUBSTEP= 1 CUMULATIVE ITERATION= 201
TIME/FREQUENCY= 17.000

TITLE= Pad, LTSP(2), 20 Casks, 176 Kips West (X), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	33.380	-83.919	-17.563	-7.3354	-2.9092	7.1723
5203	33.380	-83.919	-17.563	-7.3354	2.9093	-7.1727

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

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SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13281	-86.687	-9.8367	-19.444	26.245	-3.0186	0.87537
13280	-86.687	-9.8366	-19.445	26.245	3.0175	-0.88506

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5228	-12.451	50.490	16.501	-4.8444	-2.6933	-6.2464
5229	-12.451	50.490	16.501	-4.8445	2.6934	6.2455

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11808	-20.489	-81.579	-27.855	-7.1468	3.2384	-15.220
14677	-20.483	-81.579	-27.829	-7.1441	-3.2386	15.217

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===== SET 18 =====

USE LOAD STEP 18 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 18 SUBSTEP= 1 CUMULATIVE ITERATION= 226



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SERVICES, INC.**

Appendix SN-4 to Calculation PGE-009-CALC-003

TIME/FREQUENCY= 18.000
TITLE= Pad, LTSP(4), 20 Casks, 156 Kips North (Z), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14637	15.458	50.688	-24.720	-0.19555	-7.9033	0.86984
6613	15.449	50.688	-24.728	0.19597	-7.9040	-0.88026

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
3061	-25.109	-65.282	-14.942	0.60337E-01	-6.4078	-0.58732
11085	-25.080	-65.283	-14.922	-0.61275E-01	-6.4024	0.57421

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
7070	1.1900	-0.74137	23.170	0.93881	9.4631	-5.0196
15094	1.1812	-0.74227	23.152	-0.93573	9.4631	5.0300

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
6676	-12.876	-9.0033	-65.900	0.28647	24.131	-2.9508
14700	-12.850	-9.0035	-65.871	-0.28431	24.136	2.9312

=====

=====

===== SET 19 =====

=====

USE LOAD STEP 19 SUBSTEP 0 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 19 SUBSTEP= 1 CUMULATIVE ITERATION= 251
TIME/FREQUENCY= 19.000

TITLE= Pad, LTSP(4), 20 Casks, 156 Kips West (X), Max Up, Hard Rock (Ux,Uz)

ESEL FOR LABEL= TYPE FROM 1 TO 1 BY 1

9056 ELEMENTS (OF 15348 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

11550 NODES (OF 17051 DEFINED) SELECTED FROM
9056 SELECTED ELEMENTS BY NELE COMMAND.

=====

===== MAXIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE



Appendix SN-4 to Calculation PGE-009-CALC-003

NODE	SX	SY	SZ	SXY	SYZ	SXZ
5202	28.067	-68.891	-14.625	-6.1858	-2.5613	6.0540
5203	28.067	-68.891	-14.625	-6.1857	2.5613	-6.0544

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SX =====

=====

SORT ON ITEM=S COMPONENT=X ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
13280	-80.912	-8.2001	-16.049	21.695	2.5105	-0.65952
13281	-80.912	-8.2000	-16.049	21.695	-2.5100	0.64511

NODE SORT REMOVED

=====

===== MAXIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 0 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
14650	-25.366	49.938	16.442	-8.7409	3.5046	11.715
11783	-25.366	49.938	16.429	-8.7410	-3.5054	-11.717

NODE SORT REMOVED

=====

===== MINIMUM VALUES OF SZ =====

=====

SORT ON ITEM=S COMPONENT=Z ORDER= 1 KABS= 0 NMAX= 2

SORT COMPLETED FOR 2 VALUES.

PRINT S NODAL SOLUTION PER NODE

NODE	SX	SY	SZ	SXY	SYZ	SXZ
11808	-23.540	-66.773	-23.131	-6.4720	2.8113	-15.049
14677	-23.535	-66.774	-23.110	-6.4703	-2.8126	15.050

=====



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15348 ELEMENTS (OF 15348 DEFINED) SELECTED BY EALL COMMAND.

17051 NODES (OF 17051 DEFINED) SELECTED BY NALL COMMAND.

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 124.399

*** NOTE *** CP= 124.399 TIME= 12:18:09
A total of 1 warnings and errors written to dcslabs4.err.