autostrade per l'italia

AUTOSTRADA (A11) : FIRENZE–PISA NORD

AMPLIAMENTO ALLA TERZA CORSIA DEL TRATTO FIRENZE – PISTOIA

PROGETTO DEFINITIVO

IDROLOGIA E IDRAULICA

IMPIANTO DI SOLLEVAMENTO ASSE 0

RELAZIONE DI CALCOLO STRUTTURALE

IL RESPONSABILE PROGETTAZIONE SPECIALISTICA	IL RESPONSABILE INTEGRAZIONE PRESTAZIONI SPECIALISTICHE	IL DIRETTORE TECNICO
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WBS	RIFERIMENTO ELABORATO				DATA:	REVISIONE	
	DIRETTORIO		FILE			n.	data
ID	codice commessa	N.Prog.	unita'	n. progressivo	NOVEMBRE 2010		
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CONSULENZA A CURA DI :	–	IL RESPONSABILE UFFICIO/UNITA'	–

VISTO DEL COORDINATORE GENERALE SPEA	VISTO DEL COMMITTENTE	VISTO DEL CONCEDENTE
DIREZIONE OPERATIVA PROGETTAZIONE ED ESECUZIONE LAVORI ASPI Ing. Alberto Selleri	autostrade per l'italia	

SPEA Ingegneria Europea

SVINCOLO TERMINALE DI PERETOLA

IMPIANTO DI SOLLEVAMENTO ASSE O

RELAZIONE DI CALCOLO

INDICE

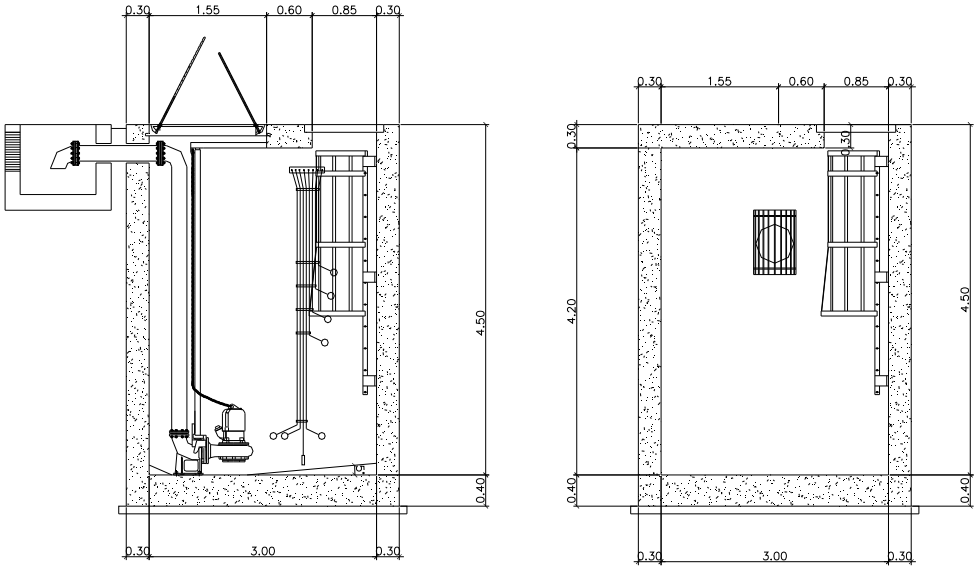
1. GENERALITA'

1.1 OGGETTO E SCOPO DEL LAVORO

Oggetto del presente elaborato è la verifica strutturale della vasca dell'impianto di sollevamento sull'asse O nell'ambito del progetto definitivo dello "Svincolo terminale di Peretola".

1.1.1 Caratteristiche geometriche della struttura

La struttura è realizzata secondo quanto rappresentato nella figura seguente:



1.2 CRITERI DI VERIFICA

Le verifiche (strutturali e geotecniche) vengono eseguite in accordo con il metodo semiprobabilistico agli stati limite, tenendo conto delle vigenti disposizioni normative.

1.3 NORMATIVE DI RIFERIMENTO

Le verifiche sono state eseguite secondo i metodi classici della scienza delle costruzioni e nel rispetto della seguente normativa:

- L. 5 novembre 1971 n. 1086: *Norme per la disciplina delle opere di conglomerato cementizio armato normale e precompresso ed a struttura metallica*.
- Legge n. 64 del 2 febbraio 1974: *Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche*.
- D.M. del 14.01.2008 "*Approvazione delle nuove norme tecniche per le costruzioni" (G.U. n.29 del 04.02.2008);*
- Circolare del 02.02.2009 contenente le istruzioni per le l'applicazione delle *"Nuove norme tecniche per le costruzioni" di cui al D.M. del 14.01.2008 (G.U. n.47 del 26.02.2009).*

1.4 SOFTWARE DI CALCOLO

Per le analisi delle strutture è stato utilizzato il Sap 2000 v.10.0.1 prodotto, distribuito ed assistito da Computers and Structures, Inc.1995 University Ave. Berkeley. Questa procedura è sviluppata in ambiente Windows, permette l'analisi elastica lineare e non di strutture tridimensionali con nodi a sei gradi di libertà utilizzando un solutore ad elementi finiti. Gli elementi considerati sono frame (trave) e shell (piastra), con eventuali svincoli interni o rotazione attorno al proprio asse. I carichi possono essere applicati sia ai nodi, come forze o coppie concentrate, sia sulle travi, come forze distribuite, trapezie, concentrate, come coppie e come distorsioni termiche, sia alle piastre. A supporto del programma è fornito un ampio manuale d'uso contenente fra l'altro una vasta serie di test di validazione sia su esempi classici di Scienza delle Costruzioni, sia su strutture particolarmente impegnative e reperibili nella bibliografia specializzata.

Tale programma fornisce in output, oltre a tutte le caratteristiche geometriche e di carico delle strutture, i risultati relativi alle sollecitazioni indotte nelle sezioni degli elementi presenti.

Per le verifiche delle sezioni si adotta il programma: "PROGRAMMI PER IL CALCOLO DELLE SEZIONI IN C.A. AGLI STATI LIMITE – Geostru .

2. MATERIALI

Calcestruzzo per sottofondi (magrone)

- Resistenza caratteristica Rck ≥ 15 MPa

Calcestruzzo per strutture in elevazione C28/35

- Resistenza caratteristica Rck ≥ 35 MPa
- Rapporto acqua/cemento a/c ≤ 0.55
- Classe di consistenza S4
- Classe di consistenza XC3

- Resistenze caratteristiche e valori di calcolo

R_{ck}	35.00	N/mm^2	Resistenza caratteristica cubica a compressione
f_{ck}	29.05	N/mm^2	Resistenza caratteristica cilindrica a compressione
f_{cd}	16.46	N/mm^2	Resistenza di calcolo a compressione
f_{ctm}	2.83	N/mm^2	Resistenza media a trazione semplice (assiale)
f_{ctk}	1.98	N/mm^2	Resistenza caratteristica a trazione
f_{ctd}	1.32	N/mm^2	Resistenza di calcolo a trazione
f_{bk}	2.98	N/mm^2	Tensione tangenziale caratteristica di aderenza acciaio-cls
f_{bd}	1.98	N/mm^2	Tensione tangenziale di calcolo aderenza acciaio-cls
E	32588	N/mm^2	Modulo elastico

Acciaio per getti in c.a.:

Barre ad aderenza migliorata B450C.

	B450C		
$f_{t\,nom}$	540	N/mm^2	Tensione caratteristica di rottura
$f_{y\,nom}$	450	N/mm^2	Tensione caratteristica di snervamento
f_{yd}	391.3	N/mm^2	Tensione di calcolo con g = 1.15
E	210000	N/mm^2	Modulo elastico

3. CARATTERIZZAZIONE GEOTECNICA E STRATIGRAFICA

La stratigrafia di riferimento adottata sono state ricavate, con richiamo alle indicazioni contenute negli elaborati di progetto di riferimento [vedi relazione geotecnica generale], con richiamo alle indagini geotecniche eseguite in corrispondenza dell'opera, sintetizzate nella seguente tabella seguente:

sigla sondaggio/ prove in sito	campagna di indagine	progressiva (km)	quota p.c. (m s.l.m.)	lunghezza (m)	strumentazione TIPO
SV4	INTEGRATIVE	-	+38,794	40	sondaggio
SV5	INTEGRATIVE	-	+38,721	40	sondaggio
SV5bis	INTEGRATIVE	-	+38,547	20	sondaggio
SV6	INTEGRATIVE	-	+38,798	35	sondaggio
SV7	INTEGRATIVE	-	+38,561	35	sondaggio
S1	NOV. 1998	-	-	36	sondaggio
S2	NOV. 1998	-	-	35	sondaggio
S4	NOV. 1998	-	-	35	sondaggio
P29	NOV. 1998	-	-	15	CPT
P32	NOV. 1998	-	-	15	CPT

Le indagini geotecniche di riferimento sono riportate nella planimetria con ubicazione indagini e nel profilo geotecnico di caratterizzazione stratigrafica.

Dall'osservazione del profilo stratigrafico longitudinale, in corrispondenza dell'opera è stata riscontrata la presenza delle seguenti formazioni:

- Strato 1:limoso sabbioso;
- Strato 2: sabbia e ghiaia
- Strato 3: limo argilloso

L'analisi dei dati a disposizione conduce alle successioni stratigrafiche di progetto riportate nelle seguenti tabelle, sviluppate sino alle profondità di interesse progettuale.

Quota assoluta di riferimento: piano campagna + 37,20 m. s l.m.			
quota assoluta da p.c. [m. s l.m.]	profondità da p.c. [m]	spessore strato [m]	sigla
+37,2 ÷ +13,2	0 ÷ 24,0	24,0	Strato 1
+13,2 ÷ +9,2	24,0 ÷ 28,0	4,0	Strato 2
+9,2 ÷ +4,2	28,0 ÷ 33,0	5,0	Strato 3

Caratterizzazione geotecnica dei materiali Strato1

γ_t (kN/m^3)	19,0
φ' (°)	24
c'(KPa)	-
C_u (kPa)	80 (costante)

4. MODELLO DI CALCOLO

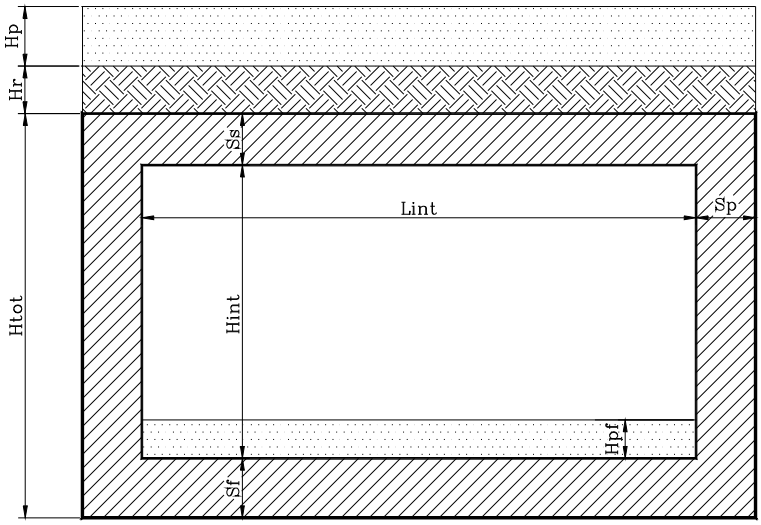
Il modello di calcolo attraverso il quale viene schematizzata la struttura è quello di struttura tridimensionale vincolata con molle elastiche. Si utilizzano elementi piastra dotati di rigidezza sia membranale che flessionale.

Il modello tridimensionale permette di simulare adeguatamente il comportamento dello scatolare.

Sono adottati elementi piastra con i seguenti spessori strutturali:

FONDAZIONE	sp. 40 cm
PIEDRITTI	sp. 30 cm
SOLETTA SUPERIORE	sp. 30 cm

4.1 GEOMETRIA



- spessore pavimentazione stradale superiore Hp = 0.00 m
- larghezza/lunghezza totale del tombino Ltot = 3.60 m
- larghezza/lunghezza utile del tombino Lint = 3.00 m
- larghezza interasse La = 3.30 m
- spessore della soletta superiore Ss = 0.30 m
- spessore del terreno di riempimento Hr = 0.00 m
- spessore piedritti Sp = 0.30 m
- spessore fondazione Sf = 0.40 m
- altezza libera del tombino Hint = 4.20 m
- altezza totale del tombino Htot = 4.90 m

K = 10000 kN/m^3 coefficiente di sottofondo assegnato come valore di molla alle aree di base.

5. ANALISI DEI CARICHI

5.1 PESO PROPRIO E PERMANENTI PORTATI G_1, G_2

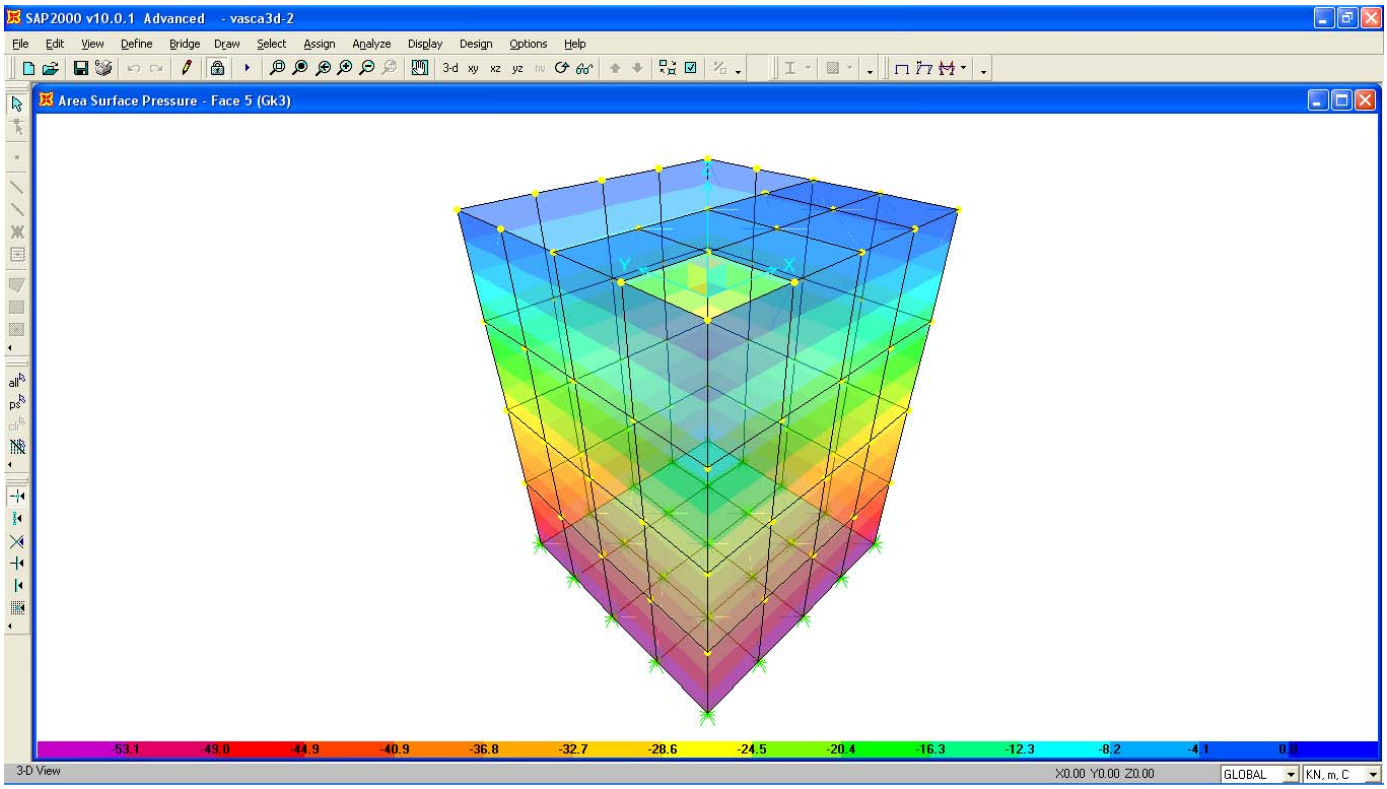
Soletta superiore	- Peso proprio	7.50 kN/m
	- Totale	**7.50 kN/m**
	- Peso pacchetto stradale	0.00 kN/m
	- Peso terreno ricoprimento	0.00 kN/m
	- Totale	**0.00 kN/m**
Soletta inferiore	- Peso proprio	10.00 kN/m
	- Peso manto di finitura	0.00 kN/m
	- Totale	**10.00 kN/m**
Piedritti	- Peso proprio	7.50 kN/m
	- Totale	**7.50 kN/m**

5.2 SPINTA DELLE TERRE G_3

Per il rinterro si prevede un terreno avente angolo di attrito φ = 24° ed un peso di volume γ = 19 kN/mc, il coefficiente di spinta viene calcolato, considerando l'elevata rigidezza dello scatolare, utilizzando la formula Ko=1-sinφ', per cui si ottiene un valore di Ko= 0.593. Le spinte in asse soletta superiore ed asse soletta inferiore valgono:

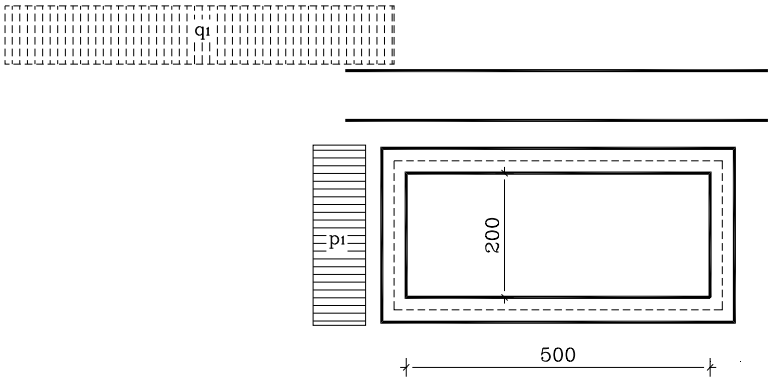
p_{ss}= K_o * (H_r+H_p+ S_s/2)* □ = 0.593 * (0.30/2) * 19 = 1.69 kN/m

p_{is}= p_{ss} + K_o * □* (S_s/2 + H_{int} + S_f/2) = 1.69+0.593*19*(0.30/2+4.20+0.40/2) = 53.00 kN/m



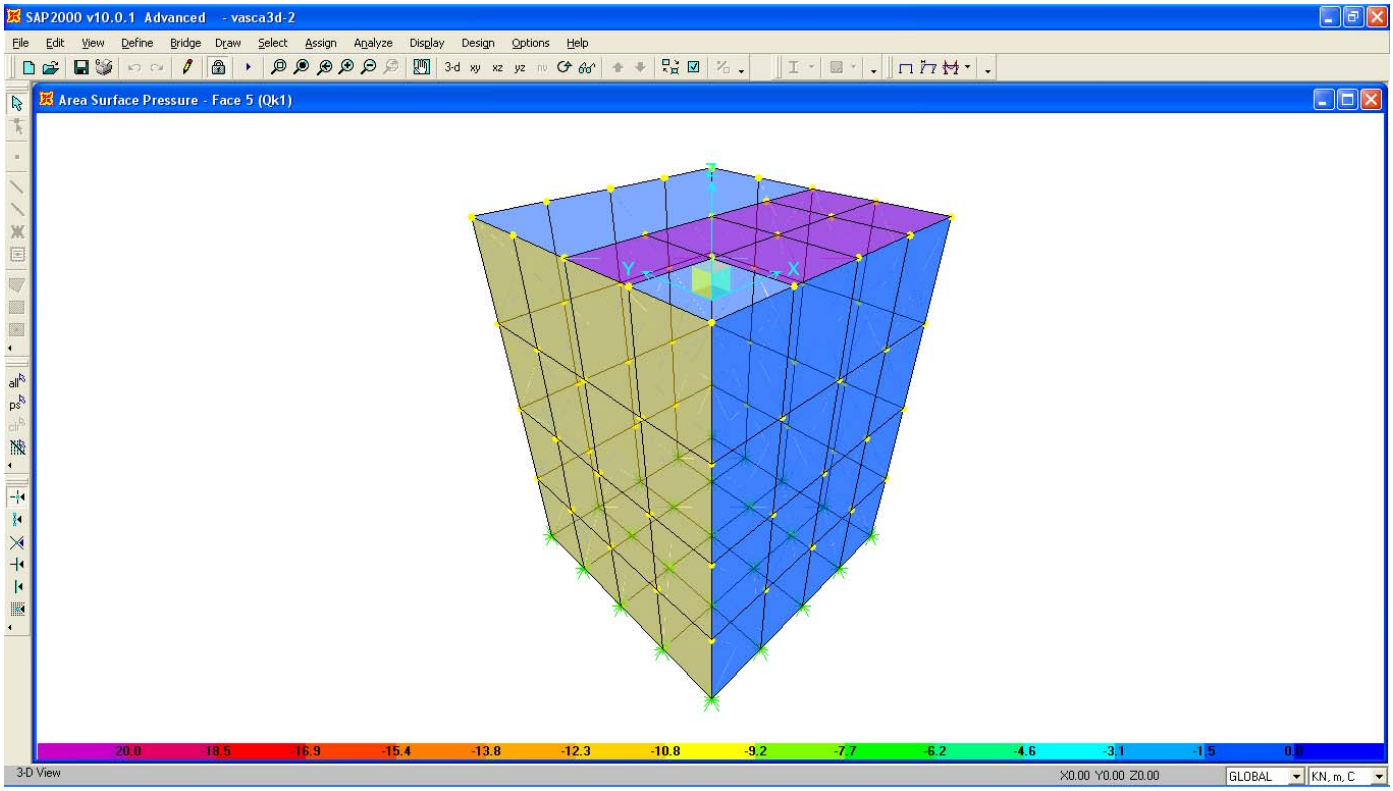
5.3 SOVRACCARICO ACCIDENTALE: Q1

Si adotta un sovraccarico stradale rappresentato da 20 kN/m^2 per cui si ha:



q_1 = **20** kN/m^2 (applicato sulla soletta superiore)

p_1 = **20 * 0.593 = 11.9** kN/m^2



SISMA: Q6

La normativa DM 14 gennaio 2008 prevede la determinazione dell'azione sismica in funzione della posizione geografica del sito individuata dalla longitudine e latitudine

Note le coordinate è necessario determinare i parametri caratterizzanti l'azione sismica mediante interpolazione dei punti del reticolo di riferimento maggiormente vicini. Tale operazione è stata eseguita mediante il programma Spettri-NTC v.1.0.3 distribuito dal Ministero delle Infrastrutture. In definitiva si ottiene:

Parametri indipendenti

STATO LIMITE	SLV
a_g	0.131 g
F_o	2.413
T_C^*	0.302 s
S_S	1.500
C_C	1.559
S_T	1.000
q	1.000

Parametri dipendenti

S	1.500
η	1.000
T_B	0.157 s
T_C	0.471 s
T_D	2.125 s

L'accelerazione massima di progetto, valutata in conformità alla normativa vigente vale:

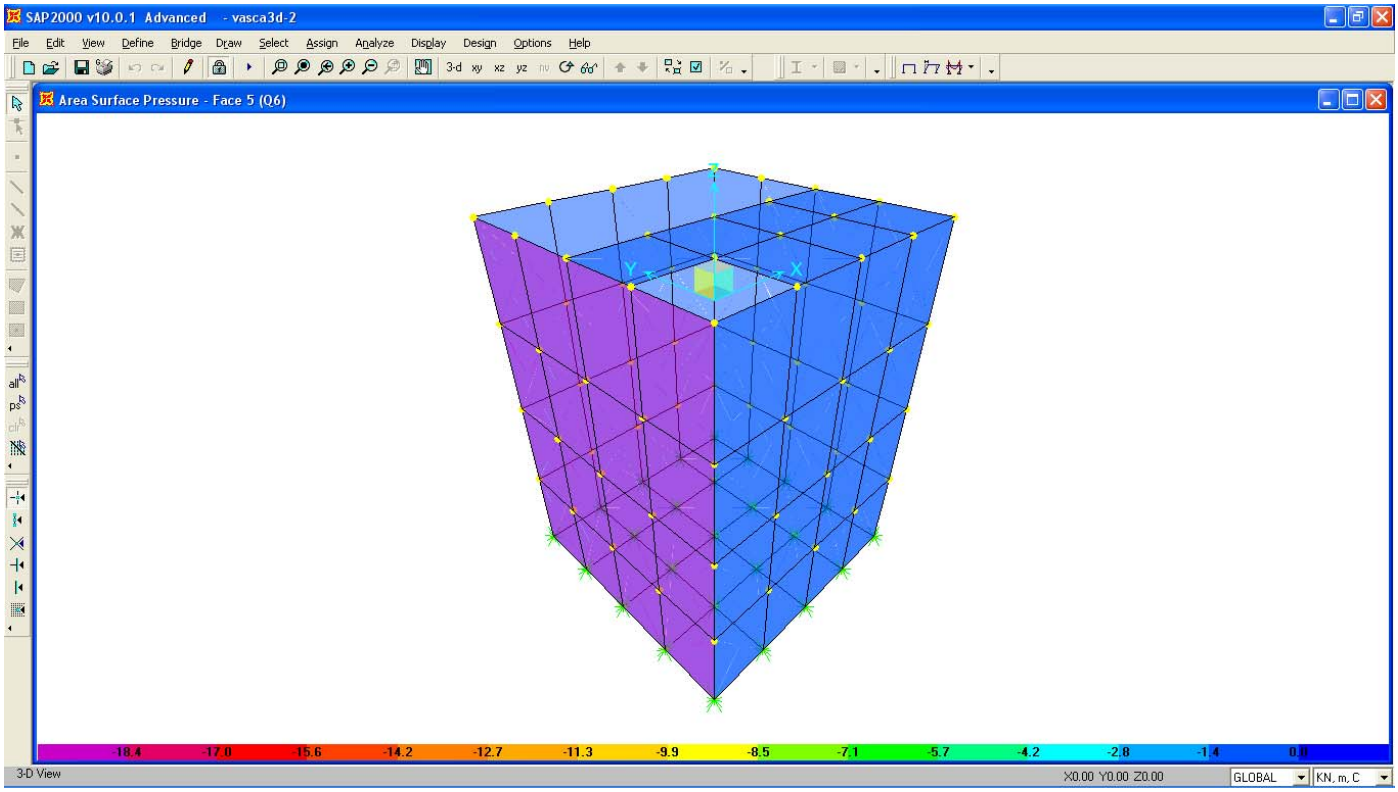
$$a_{max} = S \cdot a_g = 0.197g$$

Si definisce: $\alpha = a_{max} / g = 0.197$

Tale accelerazione sarà da da applicare con il Metodo pseudo-statico di Wood data la configurazione dell'opera (scatolare interrato).

$\Delta Pd = 0.197 \times 19.0 \times H^2 = 90.0$ kN/m

Carico applicato sulla parete = $\Delta Pd / H = 18.40$ kN/m^2


SAP2000 v10.0.1 Advanced - vasca3d-2
File Edit View Define Bridge Draw Select Assign Analyze Display Design Options Help
Area Surface Pressure - Face 5 (Q6)
-18.4 -17.0 -15.6 -14.2 -12.7 -11.3 -9.9 -8.5 -7.1 -5.7 -4.2 -2.8 -1.4 0.0
3-D View
X0.00 Y0.00 Z0.00
GLOBAL
KN, m, C

6. COMBINAZIONI DI CALCOLO

Si utilizzano i seguenti coefficienti di combinazione come da norma:

	G_{k1}	G_{k2}	G_{k3}	Q_{k1}	Q_{k6}
Coeff. SLU (A1+M1)	1.35	1.35	1.35	1.5	0
Coeff. SLU (Sisma)	1	1	1	0.2	1
Coeff. SLE	1	1	1	0.6	0

Dove:

Gk1 = pesi propri degli elementi

Gk2 = sovraccarichi permanenti

Gk3 = spinte delle terre

Qk1 = sovraccarico accidentale

Qk6 = sisma

Tabella 6.2.II – *Coefficienti parziali per i parametri geotecnici del terreno*

PARAMETRO	GRANDEZZA ALLA QUALE APPLICARE IL COEFFICIENTE PARZIALE	COEFFICIENTE PARZIALE γ_M	(M1)	(M2)
Tangente dell'angolo di resistenza al taglio	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
Coesione efficace	c'_k	$\gamma_{c'}$	1,0	1,25
Resistenza non drenata	c_{uk}	γ_{cu}	1,0	1,4
Peso dell'unità di volume	γ	γ_γ	1,0	1,0

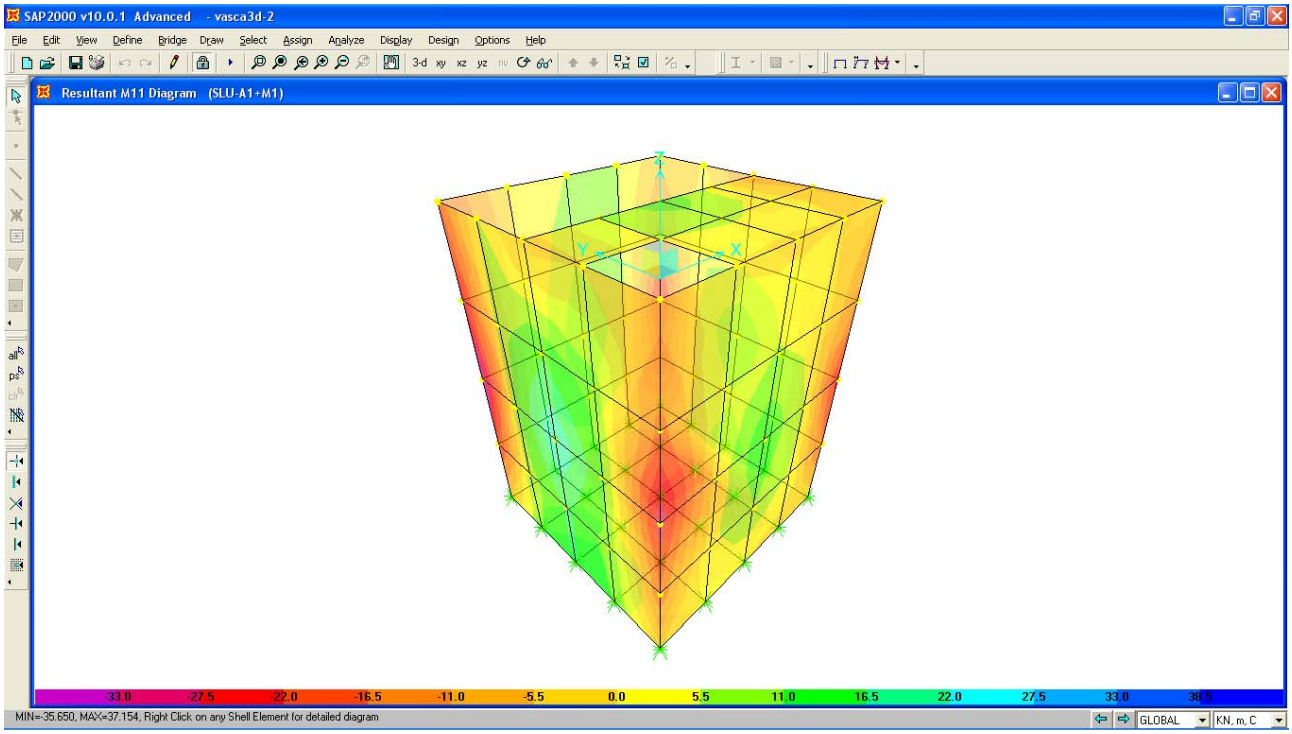
Tabella 5.1.V – *Coefficienti parziali di sicurezza per le combinazioni di carico agli SLU*

		Coefficiente	EQU[1]	A1 STR	A2 GEO
Carichi permanenti	favorevoli sfavorevoli	γ_{G1}	0,90 1,10	1,00 1,35	1,00 1,00
Carichi permanenti non strutturali[2]	favorevoli sfavorevoli	γ_{G2}	0,00 1,50	0,00 1,50	0,00 1,30
Carichi variabili da traffico	favorevoli sfavorevoli	γ_Q	0,00 1,35	0,00 1,35	0,00 1,15
Carichi variabili	favorevoli sfavorevoli	γ_{Qi}	0,00 1,50	0,00 1,50	0,00 1,30
Distorsioni e presollecitazioni di progetto	favorevoli sfavorevoli	$\gamma_{\varepsilon 1}$	0,90 1,00[3]	1,00 1,00[4]	1,00 1,00
Ritiro e viscosità, Variazioni termiche, Cedimenti vincolari	favorevoli sfavorevoli	$\gamma_{\varepsilon 2}$, $\gamma_{\varepsilon 3}$, $\gamma_{\varepsilon 4}$	0,00 1,20	0,00 1,20	0,00 1,00

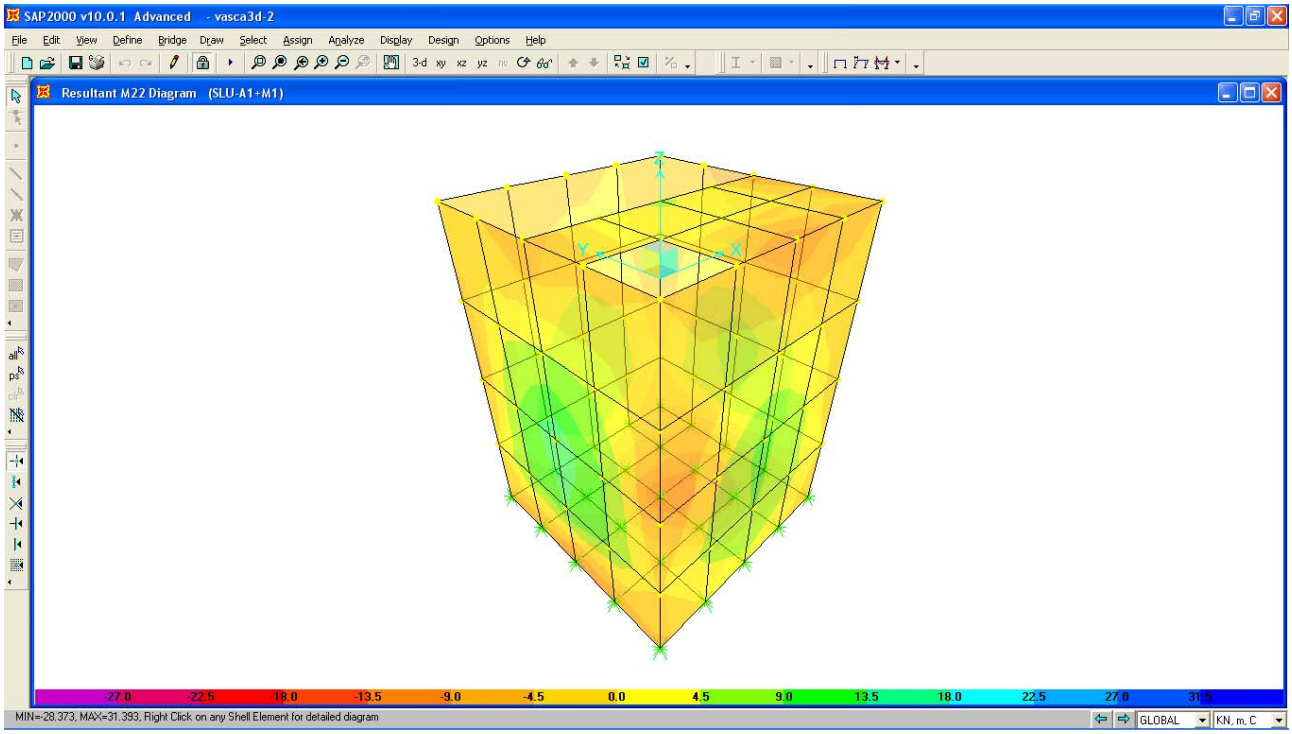
[1] Equilibrio che non coinvolga i parametri di deformabilità e resistenza del terreno; altrimenti si applicano i valori di GEO.
[2] Nel caso in cui i carichi permanenti non strutturali (ad es. carichi permanenti portati) siano compiutamente definiti si potranno adottare gli stessi coefficienti validi per le azioni permanenti.
[3] 1,30 per instabilità in strutture con precompressione esterna
[4] 1,20 per effetti locali

7. SOLLECITAZIONI RISULTANTI

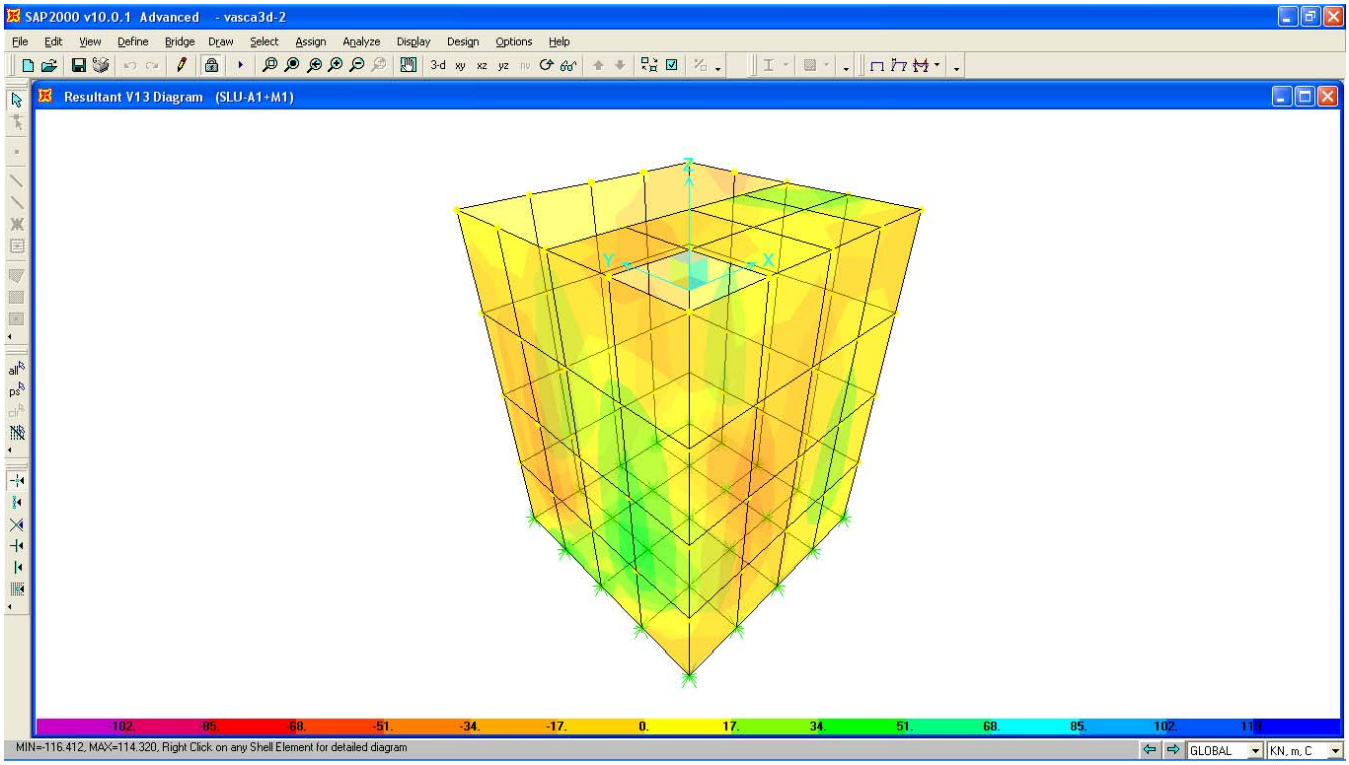
Nelle figure seguenti si riportano i risultati:



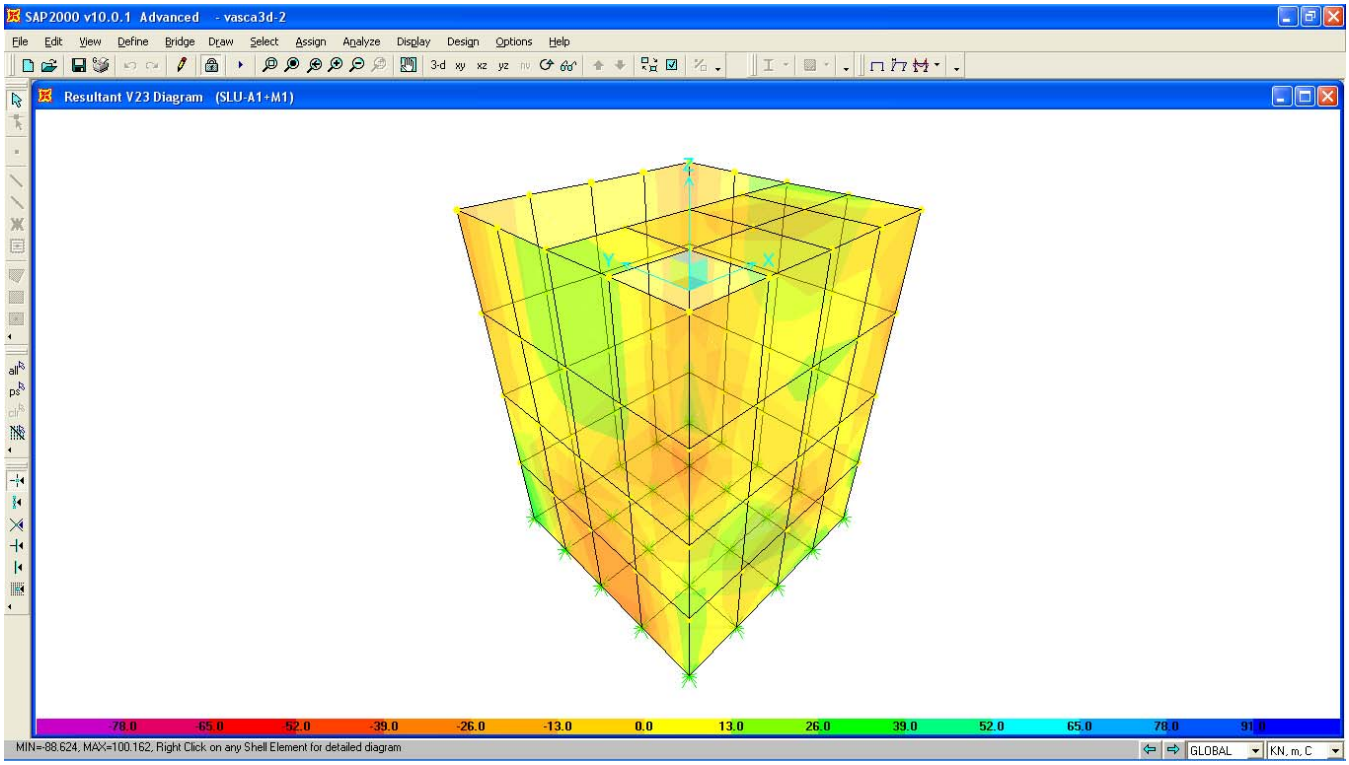
Momento flettente M11-SLU (A1+M1)



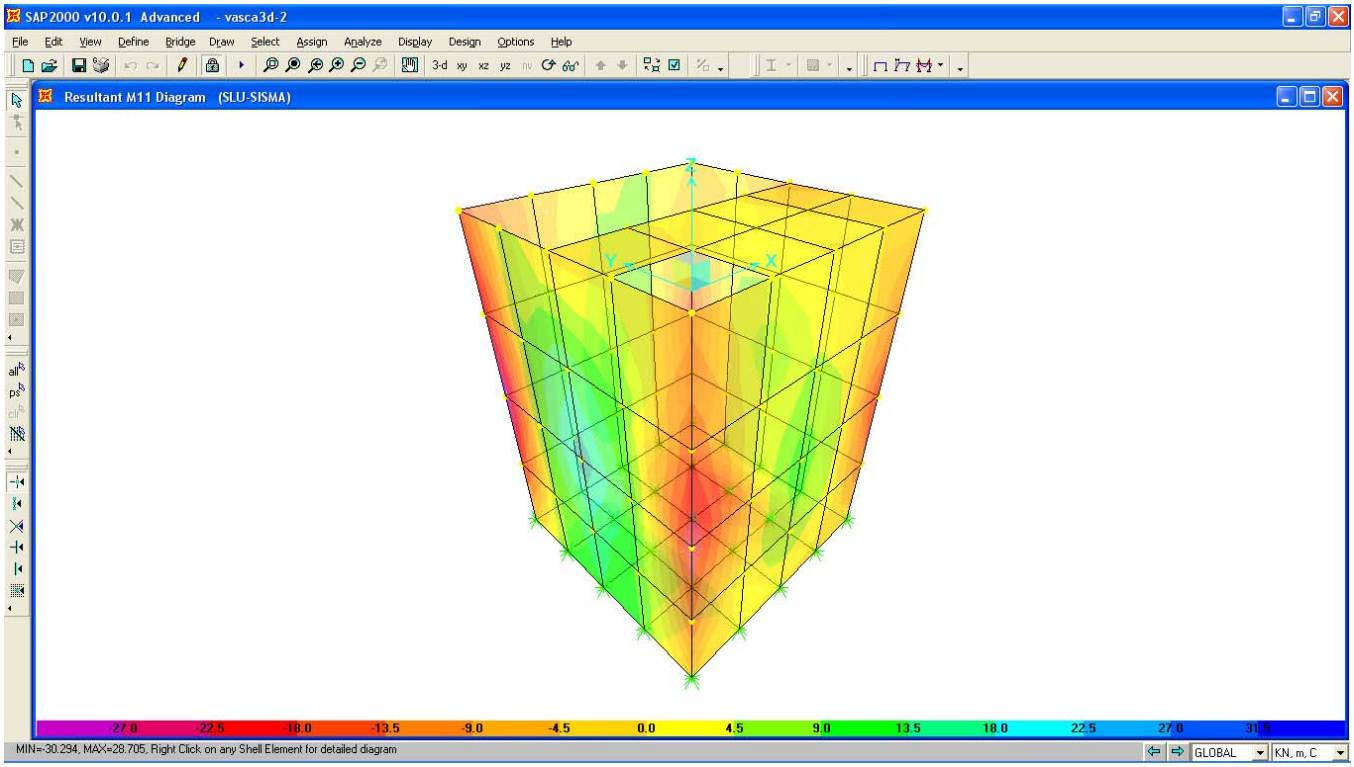
Momento flettente M22-SLU (A1+M1)



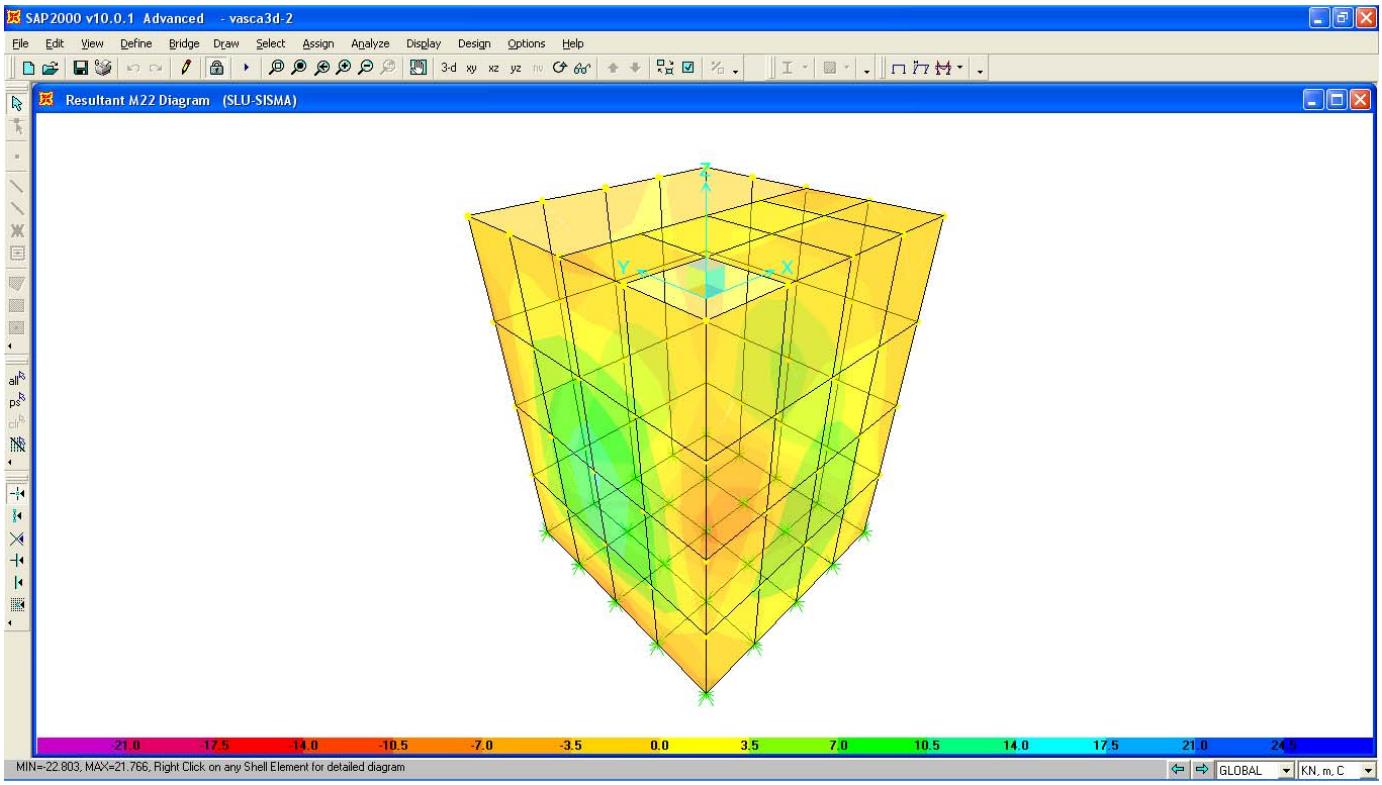
Taglio V13-SLU (A1+M1)



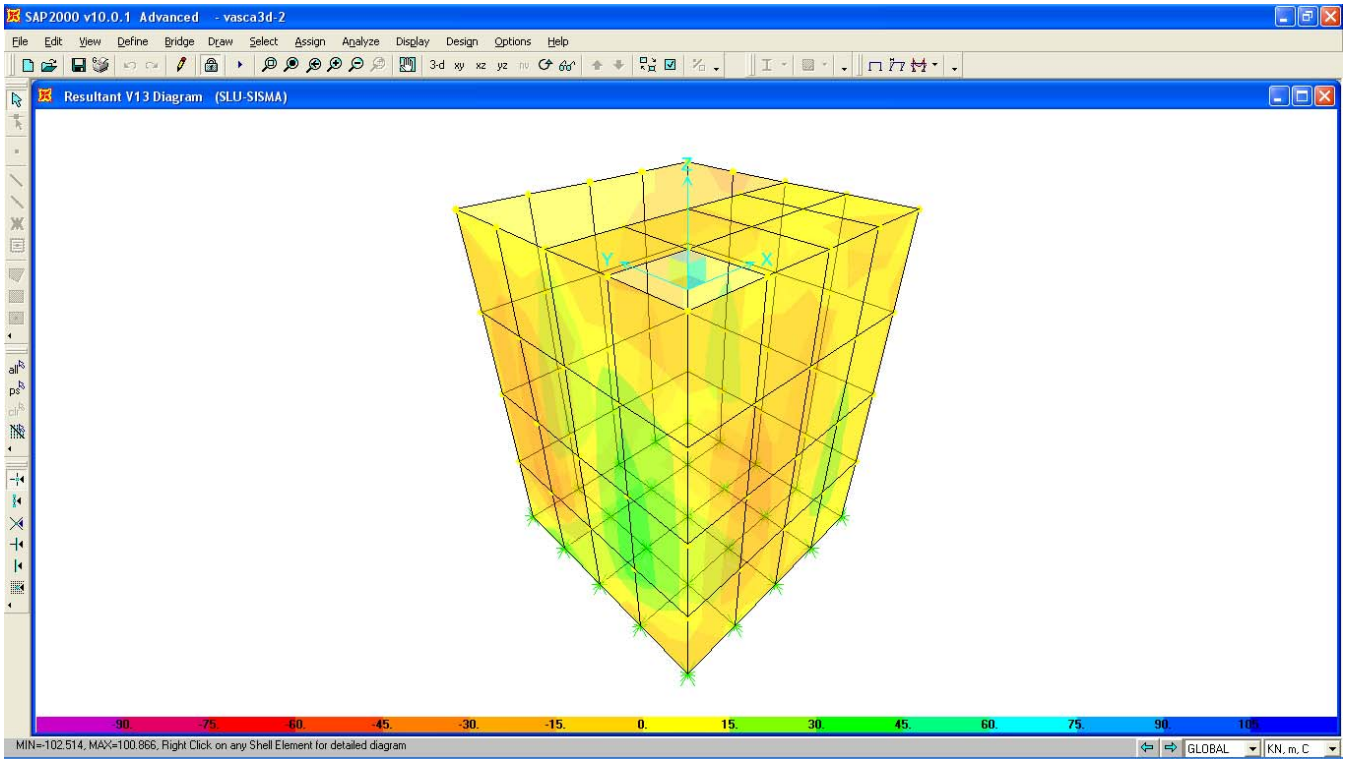
Taglio V23-SLU (A1+M1)



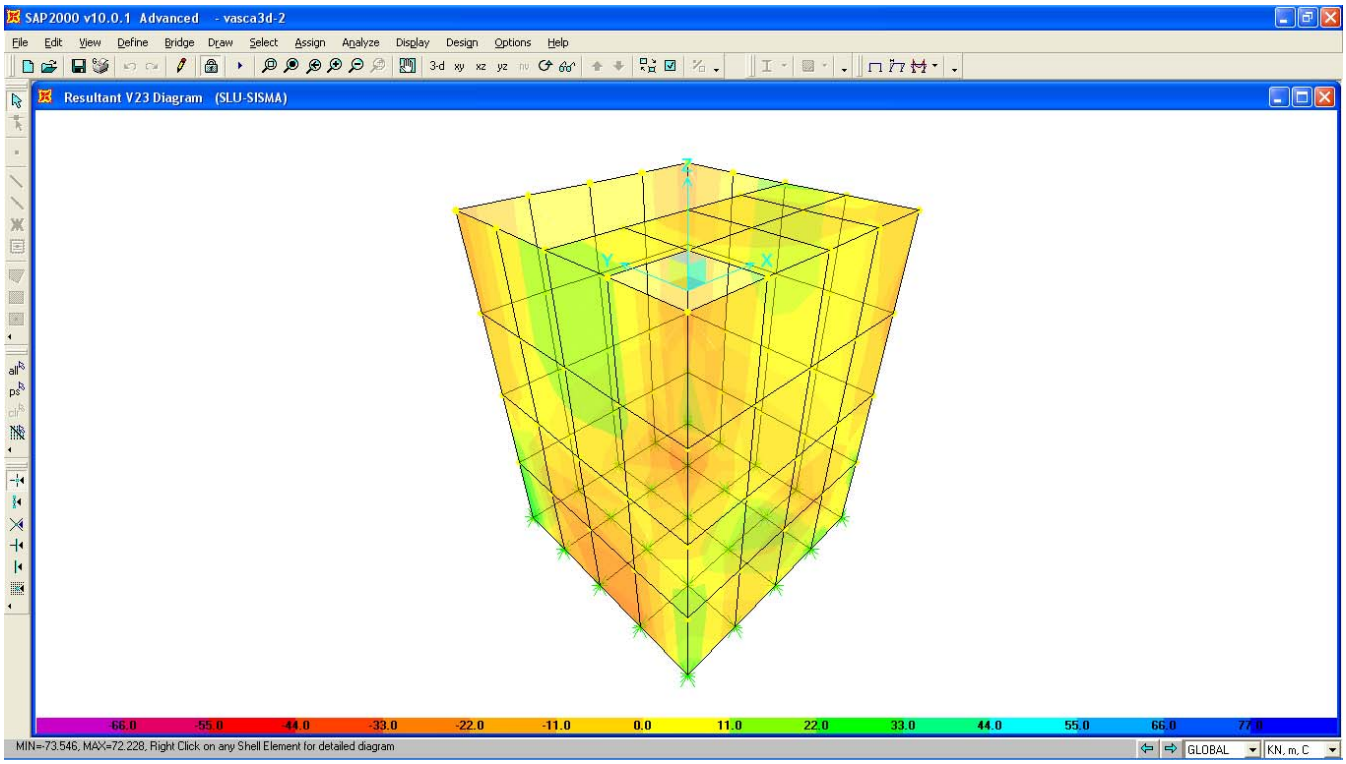
Momento flettente M11-SLU (sisma)



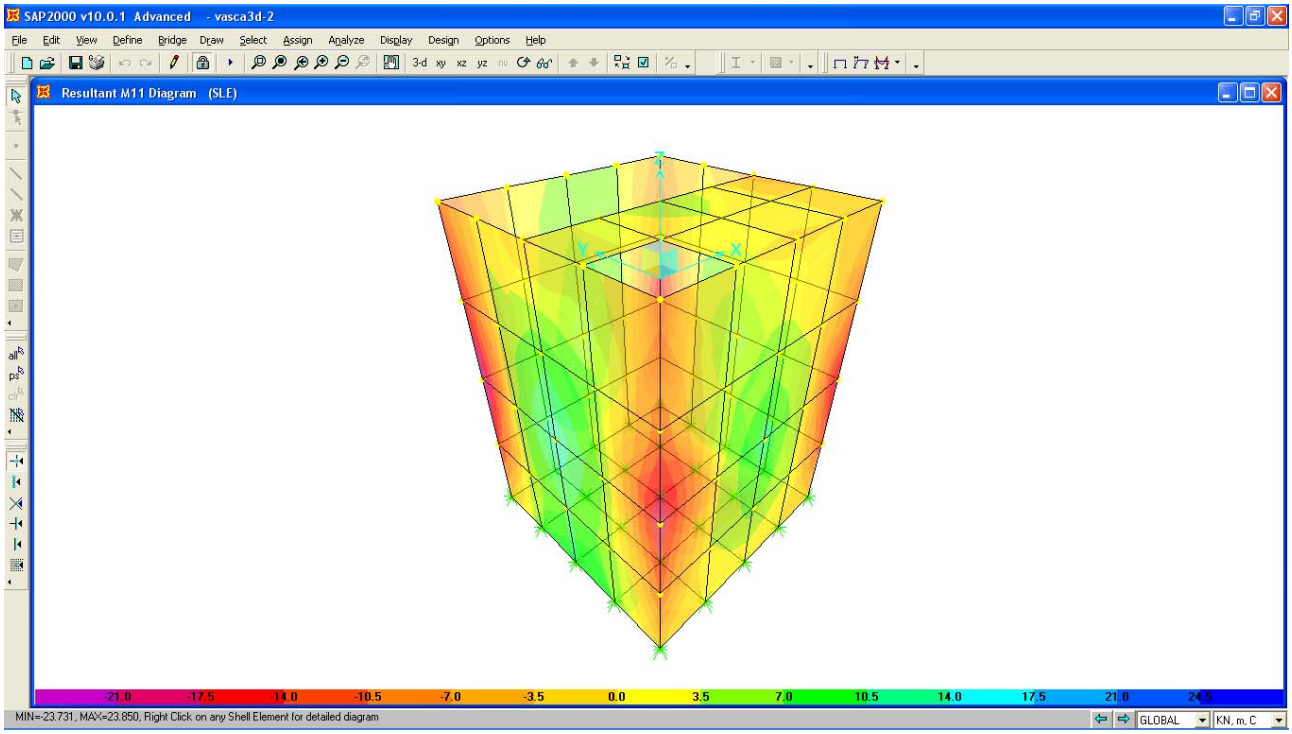
Momento flettente M22-SLU (sisma)



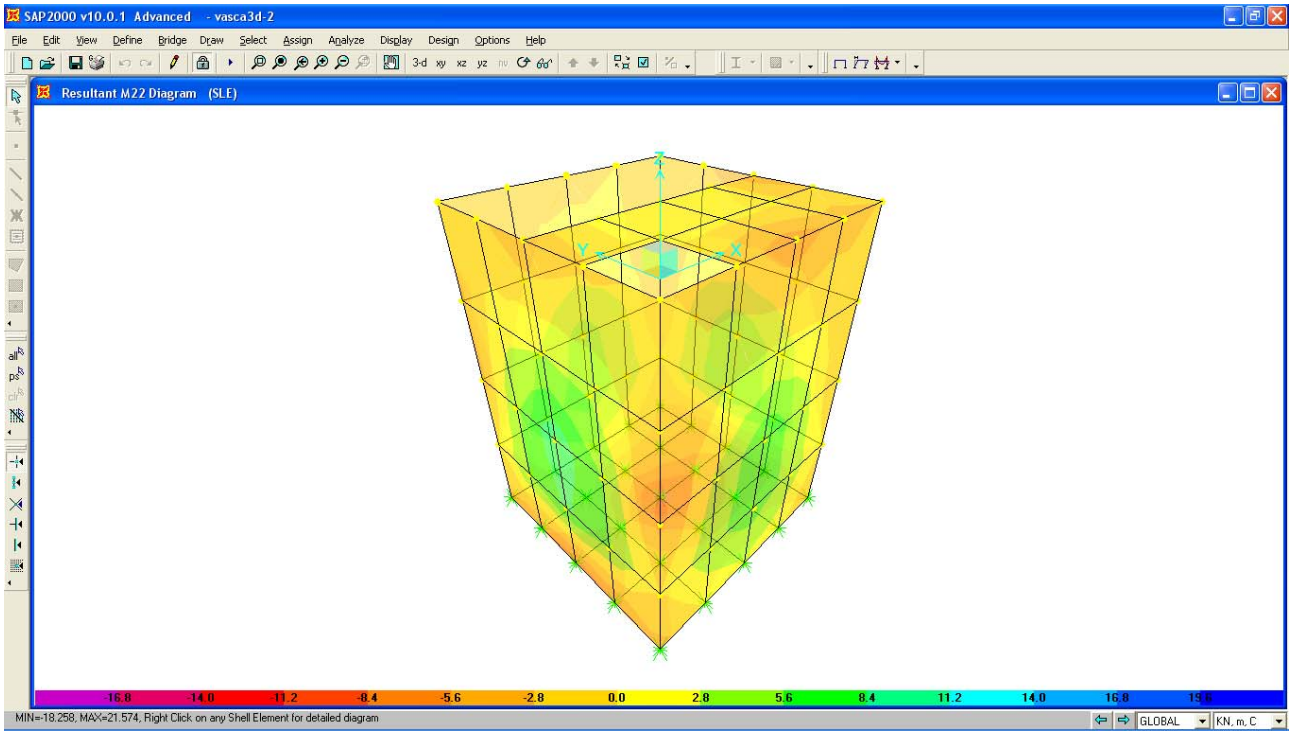
Taglio V13-SLU (sisma)



Taglio V23-SLU (sisma)



Momento flettente M11-SLE



Momento flettente M22-SLE

8. VERIFICHE DI RESISTENZA SCATOLARE

8.1 VERIFICHE PARETI E SOLETTA SUPERIORE

DATI GENERALI SEZIONE IN C.A.
NOME SEZIONE: sez30

```
  Descrizione Sezione:
  Metodo di calcolo resistenza:              Stati Limite Ultimi
  Normativa di riferimento:                             N.T.C.
  Tipologia sezione:                        Sezione predefinita
  Forma della sezione:                             Rettangolare
  Percorso sollecitazione:               A Sforzo Norm. costante
  Condizioni Ambientali:                        Poco aggressive
  Riferimento Sforzi assegnati:    Assi x,y principali d'inerzia
  Riferimento alla sismicità:                  Zona non sismica
  Posizione sezione nell'asta:                  In zona critica
```

CARATTERISTICHE DI RESISTENZA DEI MATERIALI IMPIEGATI

```
  CONGLOMERATO -   Classe: C28/35
                   Resis. compr. di calcolo fcd :     158.60 daN/cm²
                   Resis. compr. ridotta    fcd':      79.30 daN/cm²
                   Def.unit. max resistenza ec2 :     0.0020
                   Def.unit. ultima         ecu :     0.0035
                   Diagramma tensione-deformaz. :     Parabola-Rettangolo
                   Modulo Elastico Normale  Ec  :     323080 daN/cm²
                   Coeff. di Poisson            :       0.20
                   Resis. media a trazione  fctm:      27.60 daN/cm²
                        Coeff. Omogen. S.L.E.   :       15.0
          Combinazioni Rare in Esercizio
                                    Sc Limite :     168.00 daN/cm²
                               Apert.Fess.Limite :      Non prevista

  ACCIAIO      -   Tipo: B450C
                   Resist. caratt. snervam.  fyk:     4500.0 daN/cm²
                   Resist. caratt. rottura   ftk:     4500.0 daN/cm²
                   Resist. snerv. di calcolo fyd:     3913.0 daN/cm²
                   Resist. ultima di calcolo ftd:     3913.0 daN/cm²
                   Deform. ultima di calcolo Epu:      0.068
                   Modulo Elastico          Ef  :    2000000 daN/cm²
                   Diagramma tensione-deformaz. :     Bilineare finito
                   Coeff. Aderenza   ist. ß1*ß2 :       1.00 daN/cm²
                   Coeff. Aderenza  diff. ß1*ß2 :       0.50 daN/cm²
                        Comb.Rare     Sf Limite :     3600.0 daN/cm²
```

CARATTERISTICHE GEOMETRICHE ED ARMATURE SEZIONE

```
        Base:        100.0 cm
        Altezza:      30.0 cm
        Barre inferiori                          :         2Ø16 + 3Ø16 (10.1 cm²)
        Barre superiori                          :         2Ø16 + 3Ø16 (10.1 cm²)
        Copriferro barre inf.(dal baric. barre) :   5.0 cm
        Copriferro barre sup.(dal baric. barre) :   5.0 cm
```

ST.LIM.ULTIMI - SFORZI PER OGNI COMBINAZIONE ASSEGNATA

```
      N            Sforzo normale [daN] applicato nel baricentro (posit. se di compress.)
      Mx           Coppia concentrata in daNm applicata all'asse x baric. della sezione
                   con verso positivo se tale da comprimere il lembo sup. della sezione
      Vy           Taglio [daN] in direzione parallela all'asse y baric. della sezione
```

N.Comb.	N	Mx	Vy	MT
1	0	3900	0	0
2	0	10	12000	0

COMB. RARE (S.L.E.) - SFORZI PER OGNI COMBINAZIONE ASSEGNATA

N Sforzo normale [daN] applicato nel baricentro (positivo se di compress.)
Mx Coppia concentrata in daNm applicata all'asse x baricenrico della sezione con verso positivo se tale da comprimere il lembo superiore della sezione
My Coppia concentrata in daNm applicata all'asse y baricentrico della sezione con verso positivo se tale da comprimere il lembo destro della sezione

N.Comb.	N	Mx
1	0	2500

RISULTATI DEL CALCOLO

Copriferro netto minimo barre longitudinali: 4.2 cm
Interferro netto minimo barre longitudinali: 18.4 cm
Copriferro netto minimo staffe: 3.4 cm

METODO AGLI STATI LIMITE ULTIMI - RISULTATI PRESSO-TENSO FLESSIONE

Ver S = combinazione verificata / N = combin. non verificata
N Sforzo normale assegnato [in daN] (positivo se di compressione)
Mx Momento flettente assegnato [in daNm] riferito all'asse x baricentrico
N ult Sforzo normale ultimo [in daN] nella sezione (positivo se di compress.)
Mx ult Momento flettente ultimo [in daNm] riferito all'asse x baricentrico
Mis.Sic. Misura sicurezza = rapporto vettoriale tra (N ult,Mx ult) e (N,Mx)
Verifica positiva se tale rapporto risulta >=1.000
Yneutro Ordinata [in cm] dell'asse neutro a rottura nel sistema di rif. X,Y,O sez.
x/d Rapp. di duttilità a rottura misurato in presenza di sola flessione (travi)
C.Rid. Coeff. di riduz. momenti per sola flessione in travi continue
Area efficace barre inf. (per presenza di torsione)= 10.1 cm²
Area efficace barre sup. (per presenza di torsione)= 10.1 cm²

N.Comb.	Ver	N	Mx	N ult	Mx ult	Mis.Sic.	Yneutro	x/d	C.Rid.
1	S	0	3900	21	9615	2.465	25.8	0.17	0.70
2	S	0	10	21	9615	961.529	25.8	0.17	0.70

METODO AGLI STATI LIMITE ULTIMI - DEFORMAZIONI UNITARIE ALLO STATO ULTIMO

ec max Deform. unit. massima del conglomerato a compressione
ec 3/7 Deform. unit. del conglomerato nella fibra a 3/7 dell'altezza efficace
Yc max Ordinata in cm della fibra corrisp. a ec max (sistema rif. X,Y,O sez.)
ef min Deform. unit. minima nell'acciaio (negativa se di trazione)
Yf min Ordinata in cm della barra corrisp. a ef min (sistema rif. X,Y,O sez.)
ef max Deform. unit. massima nell'acciaio (positiva se di compressione)
Yf max Ordinata in cm della barra corrisp. a ef max (sistema rif. X,Y,O sez.)

N.Comb.	ec max	ec 3/7	Yc max	ef min	Yf min	ef max	Yf max
1	0.00350	-0.00730	30.0	-0.00070	25.0	-0.01750	5.0
2	0.00350	-0.00730	30.0	-0.00070	25.0	-0.01750	5.0

ARMATURE A TAGLIO E/O TORSIONE DI INVILUPPO PER TUTTE LE COMBINAZIONI ASSEGNATE

Diametro staffe: 8 mm
Passo staffe: 13.3 cm [Passo massimo di normativa = 13.4 cm]
N.Bracci staffe: 4
Area staffe/m : 15.1 cm²/m [Area Staffe Minima normativa = 15.0 cm²/m]

METODO AGLI STATI LIMITE ULTIMI - VERIFICHE A TAGLIO

Ver S = comb.verificata a taglio-tors./ N = comb. non verificata
Vsdu Taglio agente [daN] uguale al taglio Vy di comb. (sollecit. retta)
Vrd Taglio resistente [daN] in assenza di staffe
Vcd Taglio compressione resistente [daN] lato conglomerato
Vwd Taglio trazione resistente [daN] assorbito dalle staffe
bw Larghezza minima [cm] sezione misurata parallelam. all'asse neutro
Teta Angolo [gradi sessadec.] di inclinazione dei puntoni di conglomerato

Acw Coefficiente maggiorativo della resistenza a taglio per compressione
Afst Area staffe/metro strettamente necessaria per taglio e torsione [cm²/m]

N.Comb.	Ver	Vsdu	Vrd	Vcd	Vwd	bw	Teta	Acw	Afst
1	S	0	12738	89214	13310	100.0	45.00	1.000	0.0
2	S	12000	12738	61527	33274	100.0	21.80	1.000	5.5

COMBINAZIONI RARE IN ESERCIZIO - VERIFICA MASSIME TENSIONI NORMALI

Ver S = combinazione verificata / N = combin. non verificata
Sc max Massima tensione di compress.(+) nel conglom. in fase fessurata ([daN/cm²]
Yc max Ordinata in cm della fibra corrisp. a Sc max (sistema rif. X,Y,O)
Sc min Minima tensione di compress.(+) nel conglom. in fase fessurata ([daN/cm²]
Yc min Ordinata in cm della fibra corrisp. a Sc min (sistema rif. X,Y,O)
Sf min Minima tensione di trazione (-) nell'acciaio [daN/cm²]
Yf min Ordinata in cm della barra corrisp. a Sf min (sistema rif. X,Y,O)
Dw Eff. Spessore di conglomerato [cm] in zona tesa considerata aderente alle barre
Ac eff. Area di congl. [cm²] in zona tesa aderente alle barre (verifica fess.)
Af eff. Area Barre tese di acciaio [cm²] ricadente nell'area efficace(verifica fess.)
D barre Distanza media in cm tra le barre tese efficaci (verifica fess.)

N.Comb.	Ver	Sc max	Yc max	Sc min	Yc min	Sf min	Yf min	Dw Eff.	Ac eff.	Af eff.	Dbarre
1	S	28.6	30.0	0.0	30.0	-1111	25.0	16.2	1152	10.1	22.4

COMBINAZIONI RARE IN ESERCIZIO - VERIFICA APERTURA FESSURE

Ver S = combinazione verificata / N = combin. non verificata
ScImax Massima tensione nel conglomerato nello STATO I non fessurato [daN/cm²]
ScI_min Minima tensione nel conglomerato nello STATO I non fessurato [daN/cm²]
Sc Eff Tensione al limite dello spessore efficace nello STATO I [daN/cm²]
K3 Coeff. di normativa = 0,25 (Scmin + ScEff)/(2 Scmin)
Beta12 Prodotto dei Coeff. di aderenza Beta1*Beta2
Eps Deformazione unitaria media tra le fessure
Srm Distanza media in mm tra le fessure
Ap.fess. Apertura delle fessure in mm = 1,7*Eps*Srm

N.Comb.	Ver	ScImax	ScImin	Sc Eff	K3	Beta12	Eps	Srm	Ap.Fess.
1	S	14.7	-14.7	0.0	0.125	1.0	0.000222	220	0.083

8.2 VERIFICHE FONDAZIONE

DATI GENERALI SEZIONE IN C.A.
NOME SEZIONE: sez40

```
  Descrizione Sezione:
  Metodo di calcolo resistenza:              Stati Limite Ultimi
  Normativa di riferimento:                             N.T.C.
  Tipologia sezione:                        Sezione predefinita
  Forma della sezione:                             Rettangolare
  Percorso sollecitazione:               A Sforzo Norm. costante
  Condizioni Ambientali:                          Poco aggressive
  Riferimento Sforzi assegnati:    Assi x,y principali d'inerzia
  Riferimento alla sismicità:                  Zona non sismica
  Posizione sezione nell'asta:                  In zona critica
```

CARATTERISTICHE DI RESISTENZA DEI MATERIALI IMPIEGATI

```
  CONGLOMERATO -   Classe: C28/35
                   Resis. compr. di calcolo fcd :     158.60 daN/cm²
                   Resis. compr. ridotta    fcd':      79.30 daN/cm²
                   Def.unit. max resistenza ec2 :     0.0020
                   Def.unit. ultima         ecu :     0.0035
                   Diagramma tensione-deformaz. :     Parabola-Rettangolo
                   Modulo Elastico Normale  Ec  :     323080 daN/cm²
                   Coeff. di Poisson            :       0.20
                   Resis. media a trazione  fctm:      27.60 daN/cm²
                        Coeff. Omogen. S.L.E.   :       15.0
         Combinazioni Rare in Esercizio
                                   Sc Limite :     168.00 daN/cm²
                              Apert.Fess.Limite :      Non prevista

  ACCIAIO      -   Tipo: B450C
                   Resist. caratt. snervam.  fyk:     4500.0 daN/cm²
                   Resist. caratt. rottura   ftk:     4500.0 daN/cm²
                   Resist. snerv. di calcolo fyd:     3913.0 daN/cm²
                   Resist. ultima di calcolo ftd:     3913.0 daN/cm²
                   Deform. ultima di calcolo Epu:      0.068
                   Modulo Elastico          Ef  :    2000000 daN/cm²
                   Diagramma tensione-deformaz. :     Bilineare finito
                   Coeff. Aderenza   ist. ß1*ß2 :       1.00 daN/cm²
                   Coeff. Aderenza  diff. ß1*ß2 :       0.50 daN/cm²
                        Comb.Rare     Sf Limite :     3600.0 daN/cm²
```

CARATTERISTICHE GEOMETRICHE ED ARMATURE SEZIONE

```
        Base:        100.0 cm
        Altezza:      40.0 cm
        Barre inferiori                          :         2Ø16 + 3Ø16 (10.1 cm²)
        Barre superiori                          :         2Ø16 + 3Ø16 (10.1 cm²)
        Copriferro barre inf.(dal baric. barre) :   5.0 cm
        Copriferro barre sup.(dal baric. barre) :   5.0 cm
```

ST.LIM.ULTIMI - SFORZI PER OGNI COMBINAZIONE ASSEGNATA

```
      N            Sforzo normale [daN] applicato nel baricentro (posit. se di compress.)
      Mx           Coppia concentrata in daNm applicata all'asse x baric. della sezione
                   con verso positivo se tale da comprimere il lembo sup. della sezione
      Vy           Taglio [daN] in direzione parallela all'asse y baric. della sezione
```

N.Comb.	N	Mx	Vy	MT
1	0	2800	0	0
2	0	10	7000	0

COMB. RARE (S.L.E.) - SFORZI PER OGNI COMBINAZIONE ASSEGNATA

```
      N            Sforzo normale [daN] applicato nel baricentro (positivo se di compress.)
      Mx           Coppia concentrata in daNm applicata all'asse x baricenrico della sezione
                   con verso positivo se tale da comprimere il lembo superiore della sezione
      My           Coppia concentrata in daNm applicata all'asse y baricentrico della sezione
                   con verso positivo se tale da comprimere il lembo destro della sezione
```

N.Comb.	N	Mx
1	0	2000

RISULTATI DEL CALCOLO

Copriferro netto minimo barre longitudinali: 4.2 cm
Interferro netto minimo barre longitudinali: 20.9 cm
Copriferro netto minimo staffe: 3.4 cm

METODO AGLI STATI LIMITE ULTIMI - RISULTATI PRESSO-TENSO FLESSIONE

Ver	S = combinazione verificata / N = combin. non verificata
N	Sforzo normale assegnato [in daN] (positivo se di compressione)
Mx	Momento flettente assegnato [in daNm] riferito all'asse x baricentrico
N ult	Sforzo normale ultimo [in daN] nella sezione (positivo se di compress.)
Mx ult	Momento flettente ultimo [in daNm] riferito all'asse x baricentrico
Mis.Sic.	Misura sicurezza = rapporto vettoriale tra (N ult,Mx ult) e (N,Mx)
	Verifica positiva se tale rapporto risulta >=1.000
Yneutro	Ordinata [in cm] dell'asse neutro a rottura nel sistema di rif. X,Y,O sez.
x/d	Rapp. di duttilità a rottura misurato in presenza di sola flessione (travi)
C.Rid.	Coeff. di riduz. momenti per sola flessione in travi continue
	Area efficace barre inf. (per presenza di torsione)= 10.1 cm²
	Area efficace barre sup. (per presenza di torsione)= 10.1 cm²

N.Comb.	Ver	N	Mx	N ult	Mx ult	Mis.Sic.	Yneutro	x/d	C.Rid.
1	S	0	2800	22	13550	4.839	35.8	0.12	0.70
2	S	0	10	22	13550	1355.030	35.8	0.12	0.70

METODO AGLI STATI LIMITE ULTIMI - DEFORMAZIONI UNITARIE ALLO STATO ULTIMO

ec max	Deform. unit. massima del conglomerato a compressione
ec 3/7	Deform. unit. del conglomerato nella fibra a 3/7 dell'altezza efficace
Yc max	Ordinata in cm della fibra corrisp. a ec max (sistema rif. X,Y,O sez.)
ef min	Deform. unit. minima nell'acciaio (negativa se di trazione)
Yf min	Ordinata in cm della barra corrisp. a ef min (sistema rif. X,Y,O sez.)
ef max	Deform. unit. massima nell'acciaio (positiva se di compressione)
Yf max	Ordinata in cm della barra corrisp. a ef max (sistema rif. X,Y,O sez.)

N.Comb.	ec max	ec 3/7	Yc max	ef min	Yf min	ef max	Yf max
1	0.00350	-0.01090	40.0	-0.00070	35.0	-0.02590	5.0
2	0.00350	-0.01090	40.0	-0.00070	35.0	-0.02590	5.0

ARMATURE A TAGLIO E/O TORSIONE DI INVILUPPO PER TUTTE LE COMBINAZIONI ASSEGNATE

Diametro staffe:	8 mm	
Passo staffe:	13.3 cm	[Passo massimo di normativa = 13.4 cm]
N.Bracci staffe:	4	
Area staffe/m :	15.1 cm²/m	[Area Staffe Minima normativa = 15.0 cm²/m]

METODO AGLI STATI LIMITE ULTIMI - VERIFICHE A TAGLIO

Ver	S = comb.verificata a taglio-tors./ N = comb. non verificata
Vsdu	Taglio agente [daN] uguale al taglio Vy di comb. (sollecit. retta)
Vrd	Taglio resistente [daN] in assenza di staffe
Vcd	Taglio compressione resistente [daN] lato conglomerato
Vwd	Taglio trazione resistente [daN] assorbito dalle staffe
bw	Larghezza minima [cm] sezione misurata parallelam. all'asse neutro
Teta	Angolo [gradi sessadec.] di inclinazione dei puntoni di conglomerato
Acw	Coefficiente maggiorativo della resistenza a taglio per compressione
Afst	Area staffe/metro strettamente necessaria per taglio e torsione [cm²/m]

N.Comb.	Ver	Vsdu	Vrd	Vcd	Vwd	bw	Teta	Acw	Afst
1	S	0	15083	124899	18634	100.0	45.00	1.000	0.0
2	S	7000	15083	86137	46584	100.0	21.80	1.000	2.3

COMBINAZIONI RARE IN ESERCIZIO - VERIFICA MASSIME TENSIONI NORMALI

Ver	S = combinazione verificata / N = combin. non verificata
Sc max	Massima tensione di compress.(+) nel conglom. in fase fessurata ([daN/cm²]
Yc max	Ordinata in cm della fibra corrisp. a Sc max (sistema rif. X,Y,O)
Sc min	Minima tensione di compress.(+) nel conglom. in fase fessurata ([daN/cm²]
Yc min	Ordinata in cm della fibra corrisp. a Sc min (sistema rif. X,Y,O)
Sf min	Minima tensione di trazione (-) nell'acciaio [daN/cm²]
Yf min	Ordinata in cm della barra corrisp. a Sf min (sistema rif. X,Y,O)
Dw Eff.	Spessore di conglomerato [cm] in zona tesa considerata aderente alle barre
Ac eff.	Area di congl. [cm²] in zona tesa aderente alle barre (verifica fess.)
Af eff.	Area Barre tese di acciaio [cm²] ricadente nell'area efficace(verifica fess.)
D barre	Distanza media in cm tra le barre tese efficaci (verifica fess.)

N.Comb.	Ver	Sc max	Yc max	Sc min	Yc min	Sf min	Yf min	Dw Eff.	Ac eff.	Af eff.	Dbarre
1	S	13.1	40.0	0.0	40.0	-623	35.0	16.2	1581	10.1	22.4

COMBINAZIONI RARE IN ESERCIZIO - VERIFICA APERTURA FESSURE

Ver	S = combinazione verificata / N = combin. non verificata
ScImax	Massima tensione nel conglomerato nello STATO I non fessurato [daN/cm²]
ScI_min	Minima tensione nel conglomerato nello STATO I non fessurato [daN/cm²]
Sc Eff	Tensione al limite dello spessore efficace nello STATO I [daN/cm²]
K3	Coeff. di normativa = 0,25 (Scmin + ScEff)/(2 Scmin)
Beta12	Prodotto dei Coeff. di aderenza Beta1*Beta2
Eps	Deformazione unitaria media tra le fessure
Srm	Distanza media in mm tra le fessure
Ap.fess.	Apertura delle fessure in mm = 1,7*Eps*Srm

N.Comb.	Ver	ScImax	ScImin	Sc Eff	K3	Beta12	Eps	Srm	Ap.Fess.
1	S	6.7	-6.7	-1.3	0.149	1.0	0.000125	279	0.059

9. INPUT – OUTPUT

SAP2000 v10.0.1 10/27/10 12.39.00

Table: Analysis Case Definitions

Case	Type	InitialCond	ModalCase	RunCase
Text	Text	Text	Text	Yes/No
Gk1	LinStatic	Zero		Yes
Gk2	LinStatic	Zero		Yes
Qk1	LinStatic	Zero		Yes
Gk3	LinStatic	Zero		Yes
Q6	LinStatic	Zero		Yes
6	LinStatic	Zero		Yes
7	LinStatic	Zero		Yes
8	LinStatic	Zero		Yes
9	LinStatic	Zero		Yes
10	LinStatic	Zero		Yes
12	LinStatic	Zero		Yes
13	LinStatic	Zero		Yes
14	LinStatic	Zero		Yes
15	LinStatic	Zero		Yes
16	LinStatic	Zero		Yes
17	LinStatic	Zero		Yes

Table: Area Loads - Surface Pressure

Area	LoadCase	Face	Pressure	JtPattern
Text	Text	Text	KN/m2	Text
24	Qk1	5	-20.00	None
27	Qk1	5	-20.00	None
28	Qk1	5	-20.00	None
31	Qk1	5	-20.00	None
32	Qk1	5	-20.00	None
35	Qk1	5	-20.00	None
36	Qk1	5	-20.00	None
39	Gk3	5	-1.00	terreno
40	Gk3	5	-1.00	terreno
41	Gk3	5	-1.00	terreno
42	Gk3	5	-1.00	terreno
43	Gk3	5	-1.00	terreno
44	Gk3	5	-1.00	terreno
45	Gk3	5	-1.00	terreno
46	Gk3	5	-1.00	terreno
47	Gk3	5	-1.00	terreno
48	Gk3	5	-1.00	terreno
49	Gk3	5	-1.00	terreno
50	Gk3	5	-1.00	terreno
51	Gk3	5	-1.00	terreno
52	Gk3	5	-1.00	terreno
53	Gk3	5	-1.00	terreno

54	Gk3	5	-1.00	terreno
55	Qk1	5	-11.30	None
55	Q6	5	-18.40	None
55	Gk3	5	-1.00	terreno
56	Qk1	5	-11.30	None
56	Q6	5	-18.40	None
56	Gk3	5	-1.00	terreno
57	Qk1	5	-11.30	None
57	Q6	5	-18.40	None
57	Gk3	5	-1.00	terreno
58	Qk1	5	-11.30	None
58	Q6	5	-18.40	None
58	Gk3	5	-1.00	terreno
59	Qk1	5	-11.30	None
59	Q6	5	-18.40	None
59	Gk3	5	-1.00	terreno
60	Qk1	5	-11.30	None
60	Q6	5	-18.40	None
60	Gk3	5	-1.00	terreno
61	Qk1	5	-11.30	None
61	Q6	5	-18.40	None
61	Gk3	5	-1.00	terreno
62	Qk1	5	-11.30	None
62	Q6	5	-18.40	None
62	Gk3	5	-1.00	terreno
63	Qk1	5	-11.30	None
63	Q6	5	-18.40	None
63	Gk3	5	-1.00	terreno
64	Qk1	5	-11.30	None
64	Q6	5	-18.40	None
64	Gk3	5	-1.00	terreno
65	Qk1	5	-11.30	None
65	Q6	5	-18.40	None
65	Gk3	5	-1.00	terreno
66	Qk1	5	-11.30	None
66	Q6	5	-18.40	None
66	Gk3	5	-1.00	terreno
67	Qk1	5	-11.30	None
67	Q6	5	-18.40	None
67	Gk3	5	-1.00	terreno
68	Qk1	5	-11.30	None
68	Q6	5	-18.40	None
68	Gk3	5	-1.00	terreno
69	Qk1	5	-11.30	None
69	Q6	5	-18.40	None
69	Gk3	5	-1.00	terreno
70	Qk1	5	-11.30	None
70	Q6	5	-18.40	None
70	Gk3	5	-1.00	terreno
71	Gk3	5	-1.00	terreno
72	Gk3	5	-1.00	terreno
73	Gk3	5	-1.00	terreno
74	Gk3	5	-1.00	terreno
75	Gk3	5	-1.00	terreno
76	Gk3	5	-1.00	terreno

77	Gk3	5	-1.00	terreno
78	Gk3	5	-1.00	terreno
79	Gk3	5	-1.00	terreno
80	Gk3	5	-1.00	terreno
81	Gk3	5	-1.00	terreno
82	Gk3	5	-1.00	terreno
83	Gk3	5	-1.00	terreno
84	Gk3	5	-1.00	terreno
85	Gk3	5	-1.00	terreno
86	Gk3	5	-1.00	terreno
87	Gk3	5	-1.00	terreno
88	Gk3	5	-1.00	terreno
89	Gk3	5	-1.00	terreno
90	Gk3	5	-1.00	terreno
91	Gk3	5	-1.00	terreno
92	Gk3	5	-1.00	terreno
93	Gk3	5	-1.00	terreno
94	Gk3	5	-1.00	terreno
95	Gk3	5	-1.00	terreno
96	Gk3	5	-1.00	terreno
97	Gk3	5	-1.00	terreno
98	Gk3	5	-1.00	terreno
99	Gk3	5	-1.00	terreno
100	Gk3	5	-1.00	terreno
101	Gk3	5	-1.00	terreno
102	Gk3	5	-1.00	terreno

Table: Area Spring Assignments

Area	Face	Dir	Type	Stiffness
Text	Text	Text	Text	KN/m/m2
7	5	1	Linear	10000.00
7	5	2	Linear	10000.00
7	5	3	Linear	10000.00
8	5	1	Linear	10000.00
8	5	2	Linear	10000.00
8	5	3	Linear	10000.00
9	5	1	Linear	10000.00
9	5	2	Linear	10000.00
9	5	3	Linear	10000.00
10	5	1	Linear	10000.00
10	5	2	Linear	10000.00
10	5	3	Linear	10000.00
11	5	1	Linear	10000.00
11	5	2	Linear	10000.00
11	5	3	Linear	10000.00
12	5	1	Linear	10000.00
12	5	2	Linear	10000.00
12	5	3	Linear	10000.00
13	5	1	Linear	10000.00
13	5	2	Linear	10000.00
13	5	3	Linear	10000.00
14	5	1	Linear	10000.00

14	5	2	Linear	10000.00
14	5	3	Linear	10000.00
15	5	1	Linear	10000.00
15	5	2	Linear	10000.00
15	5	3	Linear	10000.00
16	5	1	Linear	10000.00
16	5	2	Linear	10000.00
16	5	3	Linear	10000.00
17	5	1	Linear	10000.00
17	5	2	Linear	10000.00
17	5	3	Linear	10000.00
18	5	1	Linear	10000.00
18	5	2	Linear	10000.00
18	5	3	Linear	10000.00
19	5	1	Linear	10000.00
19	5	2	Linear	10000.00
19	5	3	Linear	10000.00
20	5	1	Linear	10000.00
20	5	2	Linear	10000.00
20	5	3	Linear	10000.00
21	5	1	Linear	10000.00
21	5	2	Linear	10000.00
21	5	3	Linear	10000.00
22	5	1	Linear	10000.00
22	5	2	Linear	10000.00
22	5	3	Linear	10000.00

Table: Combination Definitions

ComboName	ComboType	CaseType	CaseName	ScaleFactor
Text	Text	Text	Text	Unitless
SLU-A1+M1	Linear Add	Linear Static	Gk1	1.350000
SLU-A1+M1		Linear Static	Gk2	1.350000
SLU-A1+M1		Linear Static	Gk3	1.350000
SLU-A1+M1		Linear Static	Qk1	1.500000
SLU-SISMA	Linear Add	Linear Static	Gk1	1.000000
SLU-SISMA		Linear Static	Gk2	1.000000
SLU-SISMA		Linear Static	Gk3	1.000000
SLU-SISMA		Linear Static	Qk1	0.200000
SLU-SISMA		Linear Static	Q6	1.000000
SLE	Linear Add	Linear Static	Gk1	1.000000
SLE		Linear Static	Gk2	1.000000
SLE		Linear Static	Gk3	1.000000
SLE		Linear Static	Qk1	0.600000

Table: Element Forces - Area Shells

Area	AreaElem	ShellType	OutputCase	CaseType	M11	M22	V13	V23
Text	Text	Text	Text	Text	KN-m/m	KN-m/m	KN/m	KN/m
7	1	Shell-Thick	SLU-A1+M1	Combination	6.8350	4.6851	-33.51	-40.46
7	1	Shell-Thick	SLU-A1+M1	Combination	-4.0679	5.5485	-33.51	53.24

7	1 Shell-Thick	SLU-A1+M1 Combination	6.2627	0.1956	60.19	53.24
7	1 Shell-Thick	SLU-A1+M1 Combination	17.3964	-0.5131	60.19	-40.46
7	1 Shell-Thick	SLU-SISMA Combination	4.4592	1.8423	-13.02	-21.74
7	1 Shell-Thick	SLU-SISMA Combination	-0.9221	1.5907	-13.02	17.50
7	1 Shell-Thick	SLU-SISMA Combination	9.8662	3.3273	26.22	17.50
7	1 Shell-Thick	SLU-SISMA Combination	15.3860	3.6017	26.22	-21.74
7	1 Shell-Thick	SLE Combination	4.9266	4.0717	-25.03	-27.79
7	1 Shell-Thick	SLE Combination	-3.0097	5.4361	-25.03	41.69
7	1 Shell-Thick	SLE Combination	2.1272	-0.3670	44.44	41.69
7	1 Shell-Thick	SLE Combination	10.2208	-1.6029	44.44	-27.79
8	2 Shell-Thick	SLU-A1+M1 Combination	27.3232	5.0022	28.51	-10.88
8	2 Shell-Thick	SLU-A1+M1 Combination	-3.8646	-6.3228	28.51	7.82
8	2 Shell-Thick	SLU-A1+M1 Combination	5.8230	-5.0253	47.21	7.82
8	2 Shell-Thick	SLU-A1+M1 Combination	37.1537	6.2337	47.21	-10.88
8	2 Shell-Thick	SLU-SISMA Combination	19.5396	4.3160	11.83	-7.07
8	2 Shell-Thick	SLU-SISMA Combination	5.3246	0.6731	11.83	3.82
8	2 Shell-Thick	SLU-SISMA Combination	14.3969	2.0401	22.71	3.82
8	2 Shell-Thick	SLU-SISMA Combination	28.7052	5.6344	22.71	-7.07
8	2 Shell-Thick	SLE Combination	17.8927	3.4478	20.52	-7.91
8	2 Shell-Thick	SLE Combination	-5.4481	-4.9344	20.52	7.72
8	2 Shell-Thick	SLE Combination	0.4008	-4.8322	36.15	7.72
8	2 Shell-Thick	SLE Combination	23.8501	3.5058	36.15	-7.91
9	3 Shell-Thick	SLU-A1+M1 Combination	35.7585	4.7847	50.98	14.07
9	3 Shell-Thick	SLU-A1+M1 Combination	7.0820	-4.2572	50.98	-18.64
9	3 Shell-Thick	SLU-A1+M1 Combination	-2.3296	-2.3917	18.26	-18.64
9	3 Shell-Thick	SLU-A1+M1 Combination	26.1684	6.6941	18.26	14.07
9	3 Shell-Thick	SLU-SISMA Combination	28.3386	5.0497	23.51	6.99
9	3 Shell-Thick	SLU-SISMA Combination	14.6316	1.9654	23.51	-6.96
9	3 Shell-Thick	SLU-SISMA Combination	5.6011	1.9269	9.56	-6.96
9	3 Shell-Thick	SLU-SISMA Combination	19.1988	5.0631	9.56	6.99
9	3 Shell-Thick	SLE Combination	23.1691	2.8123	37.95	9.49
9	3 Shell-Thick	SLE Combination	1.0191	-4.4526	37.95	-12.91
9	3 Shell-Thick	SLE Combination	-4.6743	-3.0593	15.55	-12.91
9	3 Shell-Thick	SLE Combination	17.3507	4.2383	15.55	9.49
10	4 Shell-Thick	SLU-A1+M1 Combination	16.5259	1.4616	48.96	34.08
10	4 Shell-Thick	SLU-A1+M1 Combination	7.3042	2.7967	48.96	-41.74
10	4 Shell-Thick	SLU-A1+M1 Combination	-2.4058	6.0169	-26.86	-41.74
10	4 Shell-Thick	SLU-A1+M1 Combination	6.6164	4.5693	-26.86	34.08
10	4 Shell-Thick	SLU-SISMA Combination	15.2421	4.0805	22.96	18.44
10	4 Shell-Thick	SLU-SISMA Combination	9.6915	3.5779	22.96	-14.19
10	4 Shell-Thick	SLU-SISMA Combination	-0.5595	1.8287	-9.67	-14.19
10	4 Shell-Thick	SLU-SISMA Combination	4.8657	2.3223	-9.67	18.44
10	4 Shell-Thick	SLE Combination	9.8064	-0.6446	39.01	24.82
10	4 Shell-Thick	SLE Combination	2.6974	0.9608	39.01	-36.14
10	4 Shell-Thick	SLE Combination	-2.1867	5.6912	-21.96	-36.14
10	4 Shell-Thick	SLE Combination	4.7805	3.9768	-21.96	24.82
11	5 Shell-Thick	SLU-A1+M1 Combination	9.9551	20.8478	-21.62	8.48
11	5 Shell-Thick	SLU-A1+M1 Combination	-0.0076	24.9829	-21.62	75.87
11	5 Shell-Thick	SLU-A1+M1 Combination	-11.4066	-9.9740	45.77	75.87
11	5 Shell-Thick	SLU-A1+M1 Combination	-1.4367	-13.8390	45.77	8.48
11	5 Shell-Thick	SLU-SISMA Combination	9.6073	11.2758	-16.65	-9.65
11	5 Shell-Thick	SLU-SISMA Combination	-1.1097	14.2644	-16.65	49.62
11	5 Shell-Thick	SLU-SISMA Combination	-5.1306	-2.3553	42.62	49.62
11	5 Shell-Thick	SLU-SISMA Combination	5.5930	-5.1066	42.62	-9.65
11	5 Shell-Thick	SLE Combination	5.4966	15.3503	-12.52	12.26

11	5 Shell-Thick	SLE Combination	0.9411	18.9857	-12.52	48.33
11	5 Shell-Thick	SLE Combination	-7.4317	-6.1091	23.54	48.33
11	5 Shell-Thick	SLE Combination	-2.8893	-9.5832	23.54	12.26
12	6 Shell-Thick	SLU-A1+M1 Combination	6.9375	-2.0268	24.14	0.17
12	6 Shell-Thick	SLU-A1+M1 Combination	-18.7855	-16.8094	24.14	14.27
12	6 Shell-Thick	SLU-A1+M1 Combination	-24.0738	-22.7723	38.24	14.27
12	6 Shell-Thick	SLU-A1+M1 Combination	1.7024	-7.9849	38.24	0.17
12	6 Shell-Thick	SLU-SISMA Combination	12.6311	3.5800	23.54	-1.36
12	6 Shell-Thick	SLU-SISMA Combination	-11.7583	-8.9903	23.54	10.70
12	6 Shell-Thick	SLU-SISMA Combination	-14.4031	-12.8400	35.60	10.70
12	6 Shell-Thick	SLU-SISMA Combination	10.0425	-0.2763	35.60	-1.36
12	6 Shell-Thick	SLE Combination	1.8265	-1.9200	12.09	2.13
12	6 Shell-Thick	SLE Combination	-11.4556	-10.3126	12.09	10.16
12	6 Shell-Thick	SLE Combination	-15.8977	-15.3890	20.12	10.16
12	6 Shell-Thick	SLE Combination	-2.5893	-6.9897	20.12	2.13
13	7 Shell-Thick	SLU-A1+M1 Combination	1.4829	-8.6877	38.39	-6.78
13	7 Shell-Thick	SLU-A1+M1 Combination	-23.9798	-22.6965	38.39	-21.95
13	7 Shell-Thick	SLU-A1+M1 Combination	-16.5084	-10.8270	23.23	-21.95
13	7 Shell-Thick	SLU-A1+M1 Combination	8.9074	3.1663	23.23	-6.78
13	7 Shell-Thick	SLU-SISMA Combination	10.0296	-0.5751	35.31	-1.15
13	7 Shell-Thick	SLU-SISMA Combination	-14.4553	-12.8667	35.31	-12.53
13	7 Shell-Thick	SLU-SISMA Combination	-11.1932	-7.2209	23.93	-12.53
13	7 Shell-Thick	SLU-SISMA Combination	13.2406	5.0750	23.93	-1.15
13	7 Shell-Thick	SLE Combination	-2.7018	-7.3318	20.21	-5.26
13	7 Shell-Thick	SLE Combination	-15.8402	-15.3217	20.21	-13.88
13	7 Shell-Thick	SLE Combination	-10.3507	-7.4142	11.59	-13.88
13	7 Shell-Thick	SLE Combination	2.7645	0.5635	11.59	-5.26
14	8 Shell-Thick	SLU-A1+M1 Combination	0.7231	-9.2209	43.65	-3.40
14	8 Shell-Thick	SLU-A1+M1 Combination	-9.4972	-4.3054	43.65	-65.94
14	8 Shell-Thick	SLU-A1+M1 Combination	0.1391	24.4537	-18.88	-65.94
14	8 Shell-Thick	SLU-A1+M1 Combination	10.3674	19.2729	-18.88	-3.40
14	8 Shell-Thick	SLU-SISMA Combination	6.3550	-3.9674	42.09	10.45
14	8 Shell-Thick	SLU-SISMA Combination	-4.8619	-0.9499	42.09	-46.57
14	8 Shell-Thick	SLU-SISMA Combination	-1.1918	14.0822	-14.92	-46.57
14	8 Shell-Thick	SLU-SISMA Combination	10.0304	10.8247	-14.92	10.45
14	8 Shell-Thick	SLE Combination	-1.8606	-7.3121	22.51	-9.77
14	8 Shell-Thick	SLE Combination	-6.4941	-3.3806	22.51	-43.55
14	8 Shell-Thick	SLE Combination	1.0142	18.7122	-11.26	-43.55
14	8 Shell-Thick	SLE Combination	5.6663	14.6231	-11.26	-9.77
15	9 Shell-Thick	SLU-A1+M1 Combination	4.9918	31.3931	4.42	56.49
15	9 Shell-Thick	SLU-A1+M1 Combination	0.5788	25.7138	4.42	58.44
15	9 Shell-Thick	SLU-A1+M1 Combination	-19.4218	-21.6952	6.37	58.44
15	9 Shell-Thick	SLU-A1+M1 Combination	-14.9279	-16.0887	6.37	56.49
15	9 Shell-Thick	SLU-SISMA Combination	4.7713	21.7662	-3.14	26.96
15	9 Shell-Thick	SLU-SISMA Combination	-1.5729	16.9315	-3.14	48.72
15	9 Shell-Thick	SLU-SISMA Combination	-15.5585	-14.3114	18.62	48.72
15	9 Shell-Thick	SLU-SISMA Combination	-9.1222	-9.4792	18.62	26.96
15	9 Shell-Thick	SLE Combination	2.9390	21.5744	5.53	40.48
15	9 Shell-Thick	SLE Combination	1.7067	17.3259	5.53	32.47
15	9 Shell-Thick	SLE Combination	-10.1519	-12.7525	-2.48	32.47
15	9 Shell-Thick	SLE Combination	-8.8705	-8.5859	-2.48	40.48
16	10 Shell-Thick	SLU-A1+M1 Combination	-14.3884	-15.0992	5.13	11.29
16	10 Shell-Thick	SLU-A1+M1 Combination	-17.7778	-11.7669	5.13	9.23
16	10 Shell-Thick	SLU-A1+M1 Combination	-27.3076	-20.2407	3.07	9.23
16	10 Shell-Thick	SLU-A1+M1 Combination	-23.9261	-23.5735	3.07	11.29

16	10 Shell-Thick	SLU-SISMA Combination	-6.5057	-6.9770	11.00	7.25	
16	10 Shell-Thick	SLU-SISMA Combination	-16.3937	-7.9071	11.00	9.20	
16	10 Shell-Thick	SLU-SISMA Combination	-24.0731	-14.7018	12.95	9.20	
16	10 Shell-Thick	SLU-SISMA Combination	-14.1889	-13.7599	12.95	7.25	
16	10 Shell-Thick	SLE Combination	-9.6906	-9.6226	-0.28	8.95	
16	10 Shell-Thick	SLE Combination	-8.1590	-5.8515	-0.28	5.80	
16	10 Shell-Thick	SLE Combination	-14.2965	-11.9378	-3.44	5.80	
16	10 Shell-Thick	SLE Combination	-15.8362	-15.7138	-3.44	8.95	
17	11 Shell-Thick	SLU-A1+M1 Combination	-23.6057	-23.2520	2.14	-19.69	
17	11 Shell-Thick	SLU-A1+M1 Combination	-27.6671	-20.7575	2.14	-14.12	
17	11 Shell-Thick	SLU-A1+M1 Combination	-16.0248	-6.8067	7.71	-14.12	
17	11 Shell-Thick	SLU-A1+M1 Combination	-11.9555	-9.2861	7.71	-19.69	
17	11 Shell-Thick	SLU-SISMA Combination	-13.9988	-13.5218	12.40	-9.86	
17	11 Shell-Thick	SLU-SISMA Combination	-24.2330	-14.7895	12.40	-9.85	
17	11 Shell-Thick	SLU-SISMA Combination	-16.0091	-6.6520	12.40	-9.85	
17	11 Shell-Thick	SLU-SISMA Combination	-5.7695	-5.3898	12.40	-9.86	
17	11 Shell-Thick	SLE Combination	-15.6851	-15.5451	-3.85	-12.97	
17	11 Shell-Thick	SLE Combination	-14.4673	-12.2050	-3.85	-8.21	
17	11 Shell-Thick	SLE Combination	-7.3125	-3.4663	0.91	-8.21	
17	11 Shell-Thick	SLE Combination	-8.5227	-6.7943	0.91	-12.97	
18	12 Shell-Thick	SLU-A1+M1 Combination	-12.4065	-10.1229	8.67	-47.18	
18	12 Shell-Thick	SLU-A1+M1 Combination	-17.7160	-16.6805	8.67	-51.75	
18	12 Shell-Thick	SLU-A1+M1 Combination	0.1921	24.1363	4.10	-51.75	
18	12 Shell-Thick	SLU-A1+M1 Combination	5.4293	30.7474	4.10	-47.18	
18	12 Shell-Thick	SLU-SISMA Combination	-8.1980	-7.7596	19.34	-24.56	
18	12 Shell-Thick	SLU-SISMA Combination	-15.2613	-12.6856	19.34	-46.24	
18	12 Shell-Thick	SLU-SISMA Combination	-1.9873	16.5483	-2.33	-46.24	
18	12 Shell-Thick	SLU-SISMA Combination	4.9985	21.4627	-2.33	-24.56	
18	12 Shell-Thick	SLE Combination	-7.6802	-5.7329	-1.38	-35.97	
18	12 Shell-Thick	SLE Combination	-9.3145	-10.3248	-1.38	-29.31	
18	12 Shell-Thick	SLE Combination	1.5652	16.5912	5.28	-29.31	
18	12 Shell-Thick	SLE Combination	3.1546	21.2553	5.28	-35.97	
19	13 Shell-Thick	SLU-A1+M1 Combination	-10.0169	11.9477	52.60	100.16	
19	13 Shell-Thick	SLU-A1+M1 Combination	9.0057	10.1197	52.60	-51.57	
19	13 Shell-Thick	SLU-A1+M1 Combination	9.0066	-9.8131	-99.13	-51.57	
19	13 Shell-Thick	SLU-A1+M1 Combination	-10.3847	-8.2408	-99.13	100.16	
19	13 Shell-Thick	SLU-SISMA Combination	-7.7429	9.1367	35.42	72.23	
19	13 Shell-Thick	SLU-SISMA Combination	6.8532	8.1910	35.42	-34.32	
19	13 Shell-Thick	SLU-SISMA Combination	5.1658	-7.3887	-71.13	-34.32	
19	13 Shell-Thick	SLU-SISMA Combination	-9.7273	-6.5844	-71.13	72.23	
19	13 Shell-Thick	SLE Combination	-5.4100	8.0272	32.77	60.69	
19	13 Shell-Thick	SLE Combination	5.8291	6.2717	32.77	-32.33	
19	13 Shell-Thick	SLE Combination	6.8713	-5.3493	-60.25	-32.33	
19	13 Shell-Thick	SLE Combination	-4.5812	-3.7630	-60.25	60.69	
20	14 Shell-Thick	SLU-A1+M1 Combination	-26.3845	-15.8536	-47.12	17.71	
20	14 Shell-Thick	SLU-A1+M1 Combination	26.0425	2.9797	-47.12	-15.29	
20	14 Shell-Thick	SLU-A1+M1 Combination	30.6158	1.9489	-80.12	-15.29	
20	14 Shell-Thick	SLU-A1+M1 Combination	-22.0144	-16.8168	-80.12	17.71	
20	14 Shell-Thick	SLU-SISMA Combination	-21.1007	-10.5678	-33.14	15.36	
20	14 Shell-Thick	SLU-SISMA Combination	17.5842	1.8198	-33.14	-12.27	
20	14 Shell-Thick	SLU-SISMA Combination	20.6103	0.5207	-60.77	-12.27	
20	14 Shell-Thick	SLU-SISMA Combination	-18.2394	-11.8157	-60.77	15.36	
20	14 Shell-Thick	SLE Combination	-14.5382	-8.7796	-28.09	11.72	
20	14 Shell-Thick	SLE Combination	17.4217	2.6345	-28.09	-9.68	
20	14 Shell-Thick	SLE Combination	21.2352	1.7718	-49.49	-9.68	

20	14 Shell-Thick	SLE Combination	-10.8573	-9.5977	-49.49	11.72
21	15 Shell-Thick	SLU-A1+M1 Combination	-20.4531	-15.4029	-84.41	-28.13
21	15 Shell-Thick	SLU-A1+M1 Combination	29.1280	0.9023	-84.41	20.85
21	15 Shell-Thick	SLU-A1+M1 Combination	24.8847	3.9200	-35.42	20.85
21	15 Shell-Thick	SLU-A1+M1 Combination	-24.4722	-12.4079	-35.42	-28.13
21	15 Shell-Thick	SLU-SISMA Combination	-17.6834	-11.1888	-62.08	-18.06
21	15 Shell-Thick	SLU-SISMA Combination	20.1433	0.3385	-62.08	14.69
21	15 Shell-Thick	SLU-SISMA Combination	17.3053	1.7443	-29.34	14.69
21	15 Shell-Thick	SLU-SISMA Combination	-20.3574	-9.8124	-29.34	-18.06
21	15 Shell-Thick	SLE Combination	-10.1131	-8.9529	-51.51	-16.74
21	15 Shell-Thick	SLE Combination	20.5194	1.2694	-51.51	12.25
21	15 Shell-Thick	SLE Combination	16.8742	3.1379	-22.52	12.25
21	15 Shell-Thick	SLE Combination	-13.6153	-7.1081	-22.52	-16.74
22	16 Shell-Thick	SLU-A1+M1 Combination	-8.2041	-4.4856	-87.85	-88.62
22	16 Shell-Thick	SLU-A1+M1 Combination	7.8896	-7.6374	-87.85	48.50
22	16 Shell-Thick	SLU-A1+M1 Combination	7.6638	8.8162	49.28	48.50
22	16 Shell-Thick	SLU-A1+M1 Combination	-8.0860	12.1882	49.28	-88.62
22	16 Shell-Thick	SLU-SISMA Combination	-8.5631	-4.9830	-67.98	-69.03
22	16 Shell-Thick	SLU-SISMA Combination	4.7971	-6.6545	-67.98	34.92
22	16 Shell-Thick	SLU-SISMA Combination	5.9840	7.3589	35.97	34.92
22	16 Shell-Thick	SLU-SISMA Combination	-7.0841	9.1660	35.97	-69.03
22	16 Shell-Thick	SLE Combination	-3.5566	-1.9741	-54.77	-55.10
22	16 Shell-Thick	SLE Combination	6.3482	-4.3327	-54.77	30.69
22	16 Shell-Thick	SLE Combination	5.2074	5.6686	31.02	30.69
22	16 Shell-Thick	SLE Combination	-4.4970	8.1797	31.02	-55.10
24	17 Shell-Thick	SLU-A1+M1 Combination	-22.7058	-3.0412	-33.41	10.76
24	17 Shell-Thick	SLU-A1+M1 Combination	10.8802	4.2503	-33.41	-3.96
24	17 Shell-Thick	SLU-A1+M1 Combination	2.6066	1.4010	-48.12	-3.96
24	17 Shell-Thick	SLU-A1+M1 Combination	-31.1252	-5.8053	-48.12	10.76
24	17 Shell-Thick	SLU-SISMA Combination	-11.0096	-1.7195	-16.16	-0.49
24	17 Shell-Thick	SLU-SISMA Combination	1.3961	0.2597	-16.16	1.78
24	17 Shell-Thick	SLU-SISMA Combination	-1.8219	-0.2751	-13.89	1.78
24	17 Shell-Thick	SLU-SISMA Combination	-14.2288	-2.2436	-13.89	-0.49
24	17 Shell-Thick	SLE Combination	-11.0552	-1.5889	-15.75	5.04
24	17 Shell-Thick	SLE Combination	4.8166	1.7802	-15.75	-1.99
24	17 Shell-Thick	SLE Combination	0.4745	0.4994	-22.78	-1.99
24	17 Shell-Thick	SLE Combination	-15.4665	-2.8294	-22.78	5.04
27	18 Shell-Thick	SLU-A1+M1 Combination	-3.4179	-12.2405	6.05	-15.08
27	18 Shell-Thick	SLU-A1+M1 Combination	-1.3839	-14.5188	6.05	-32.14
27	18 Shell-Thick	SLU-A1+M1 Combination	6.3744	4.9979	-11.01	-32.14
27	18 Shell-Thick	SLU-A1+M1 Combination	4.3159	7.2304	-11.01	-15.08
27	18 Shell-Thick	SLU-SISMA Combination	-0.7709	-1.6089	4.95	1.78
27	18 Shell-Thick	SLU-SISMA Combination	-0.2394	-3.3016	4.95	-9.40
27	18 Shell-Thick	SLU-SISMA Combination	0.6128	-0.1254	-6.23	-9.40
27	18 Shell-Thick	SLU-SISMA Combination	0.0950	1.5076	-6.23	1.78
27	18 Shell-Thick	SLE Combination	-1.7232	-6.4987	2.86	-7.75
27	18 Shell-Thick	SLE Combination	-0.8436	-7.9724	2.86	-15.61
27	18 Shell-Thick	SLE Combination	2.4856	1.6853	-5.00	-15.61
27	18 Shell-Thick	SLE Combination	1.6008	3.1320	-5.00	-7.75
28	19 Shell-Thick	SLU-A1+M1 Combination	1.2159	0.9500	0.73	4.75
28	19 Shell-Thick	SLU-A1+M1 Combination	7.5423	1.6180	0.73	-12.13
28	19 Shell-Thick	SLU-A1+M1 Combination	15.1502	4.6584	-16.15	-12.13
28	19 Shell-Thick	SLU-A1+M1 Combination	8.7480	3.9967	-16.15	4.75
28	19 Shell-Thick	SLU-SISMA Combination	-1.0905	-0.2668	-0.93	1.96
28	19 Shell-Thick	SLU-SISMA Combination	1.6521	0.9183	-0.93	-2.85

28	19 Shell-Thick	SLU-SISMA Combination	2.6716	1.2824	-5.74	-2.85
28	19 Shell-Thick	SLU-SISMA Combination	-0.0933	0.0999	-5.74	1.96
28	19 Shell-Thick	SLE Combination	0.1722	0.2133	0.38	2.08
28	19 Shell-Thick	SLE Combination	3.1234	0.6503	0.38	-5.88
28	19 Shell-Thick	SLE Combination	6.7009	2.2180	-7.58	-5.88
28	19 Shell-Thick	SLE Combination	3.7127	1.7851	-7.58	2.08
31	20 Shell-Thick	SLU-A1+M1 Combination	-1.2684	-14.0418	-9.15	-35.03
31	20 Shell-Thick	SLU-A1+M1 Combination	-4.0305	-11.9489	-9.15	-10.01
31	20 Shell-Thick	SLU-A1+M1 Combination	3.8434	6.6069	15.87	-10.01
31	20 Shell-Thick	SLU-A1+M1 Combination	6.6276	4.5947	15.87	-35.03
31	20 Shell-Thick	SLU-SISMA Combination	-0.3794	-3.7443	-0.24	-6.76
31	20 Shell-Thick	SLU-SISMA Combination	-1.6759	-2.8402	-0.24	-3.15
31	20 Shell-Thick	SLU-SISMA Combination	-0.3163	1.2405	3.37	-3.15
31	20 Shell-Thick	SLU-SISMA Combination	0.9707	0.3609	3.37	-6.76
31	20 Shell-Thick	SLE Combination	-0.8858	-7.7173	-4.73	-17.29
31	20 Shell-Thick	SLE Combination	-2.1120	-6.2172	-4.73	-4.86
31	20 Shell-Thick	SLE Combination	1.3946	2.8998	7.70	-4.86
31	20 Shell-Thick	SLE Combination	2.6223	1.4492	7.70	-17.29
32	21 Shell-Thick	SLU-A1+M1 Combination	7.6139	1.0514	5.07	-8.43
32	21 Shell-Thick	SLU-A1+M1 Combination	0.8549	0.1395	5.07	-2.11
32	21 Shell-Thick	SLU-A1+M1 Combination	9.0349	4.5127	11.38	-2.11
32	21 Shell-Thick	SLU-A1+M1 Combination	15.8627	5.3818	11.38	-8.43
32	21 Shell-Thick	SLU-SISMA Combination	1.1964	0.5991	2.24	-1.40
32	21 Shell-Thick	SLU-SISMA Combination	-0.7850	-0.2124	2.24	-1.04
32	21 Shell-Thick	SLU-SISMA Combination	1.0806	0.8037	2.59	-1.04
32	21 Shell-Thick	SLU-SISMA Combination	3.0855	1.5932	2.59	-1.40
32	21 Shell-Thick	SLE Combination	3.2220	0.3893	2.53	-4.09
32	21 Shell-Thick	SLE Combination	-0.0370	-0.2000	2.53	-1.22
32	21 Shell-Thick	SLE Combination	3.7755	2.0034	5.40	-1.22
32	21 Shell-Thick	SLE Combination	7.0670	2.5719	5.40	-4.09
35	22 Shell-Thick	SLU-A1+M1 Combination	4.5166	-4.5525	-28.30	-46.23
35	22 Shell-Thick	SLU-A1+M1 Combination	-5.3179	-4.0785	-28.30	34.46
35	22 Shell-Thick	SLU-A1+M1 Combination	-8.9963	0.7263	52.39	34.46
35	22 Shell-Thick	SLU-A1+M1 Combination	1.0593	0.3631	52.39	-46.23
35	22 Shell-Thick	SLU-SISMA Combination	1.5836	-1.0021	-4.60	-10.71
35	22 Shell-Thick	SLU-SISMA Combination	-2.4104	-1.6809	-4.60	8.26
35	22 Shell-Thick	SLU-SISMA Combination	-4.6074	-0.6682	14.37	8.26
35	22 Shell-Thick	SLU-SISMA Combination	-0.5352	0.0105	14.37	-10.71
35	22 Shell-Thick	SLE Combination	1.9722	-2.7243	-12.65	-21.90
35	22 Shell-Thick	SLE Combination	-2.9137	-2.3368	-12.65	15.36
35	22 Shell-Thick	SLE Combination	-4.7105	0.3360	24.61	15.36
35	22 Shell-Thick	SLE Combination	0.2770	2.460E-04	24.61	-21.90
36	23 Shell-Thick	SLU-A1+M1 Combination	8.1113	3.5038	11.47	-14.30
36	23 Shell-Thick	SLU-A1+M1 Combination	-15.9812	-2.0787	11.47	21.42
36	23 Shell-Thick	SLU-A1+M1 Combination	-25.7816	-4.9626	47.20	21.42
36	23 Shell-Thick	SLU-A1+M1 Combination	-1.4291	0.5069	47.20	-14.30
36	23 Shell-Thick	SLU-SISMA Combination	1.0443	0.4545	4.87	-2.96
36	23 Shell-Thick	SLU-SISMA Combination	-6.1852	-1.1034	4.87	4.90
36	23 Shell-Thick	SLU-SISMA Combination	-10.5760	-1.8862	12.73	4.90
36	23 Shell-Thick	SLU-SISMA Combination	-3.2742	-0.3683	12.73	-2.96
36	23 Shell-Thick	SLE Combination	3.5148	1.3782	5.74	-6.75
36	23 Shell-Thick	SLE Combination	-7.9911	-1.2559	5.74	9.79
36	23 Shell-Thick	SLE Combination	-13.0442	-2.4838	22.28	9.79
36	23 Shell-Thick	SLE Combination	-1.4171	0.0971	22.28	-6.75
39	24 Shell-Thick	SLU-A1+M1 Combination	-8.9570	-10.4736	54.12	37.61

39	24 Shell-Thick	SLU-A1+M1 Combination	3.2604	-12.5320	54.12	-62.57
39	24 Shell-Thick	SLU-A1+M1 Combination	0.6463	1.8184	-84.01	-62.57
39	24 Shell-Thick	SLU-A1+M1 Combination	-11.8356	3.5855	-84.01	37.61
39	24 Shell-Thick	SLU-SISMA Combination	-6.4096	-6.8909	41.49	30.06
39	24 Shell-Thick	SLU-SISMA Combination	2.7750	-8.3330	41.49	-46.43
39	24 Shell-Thick	SLU-SISMA Combination	0.1289	1.0947	-63.97	-46.43
39	24 Shell-Thick	SLU-SISMA Combination	-9.2678	2.3181	-63.97	30.06
39	24 Shell-Thick	SLE Combination	-6.6978	-7.4766	39.15	27.94
39	24 Shell-Thick	SLE Combination	2.7778	-8.4723	39.15	-45.70
39	24 Shell-Thick	SLE Combination	0.4664	1.7341	-62.37	-45.70
39	24 Shell-Thick	SLE Combination	-9.2373	2.5279	-62.37	27.94
40	25 Shell-Thick	SLU-A1+M1 Combination	-4.8974	-20.3254	21.20	-8.47
40	25 Shell-Thick	SLU-A1+M1 Combination	-2.5181	-23.4257	21.20	-43.36
40	25 Shell-Thick	SLU-A1+M1 Combination	8.5022	6.1441	-26.89	-43.36
40	25 Shell-Thick	SLU-A1+M1 Combination	6.1822	9.0874	-26.89	-8.47
40	25 Shell-Thick	SLU-SISMA Combination	-3.6058	-14.3100	16.16	-5.16
40	25 Shell-Thick	SLU-SISMA Combination	-1.6975	-16.5766	16.16	-31.92
40	25 Shell-Thick	SLU-SISMA Combination	6.6813	4.5845	-20.73	-31.92
40	25 Shell-Thick	SLU-SISMA Combination	4.8135	6.7325	-20.73	-5.16
40	25 Shell-Thick	SLE Combination	-3.6220	-14.2477	15.02	-6.23
40	25 Shell-Thick	SLE Combination	-1.6613	-16.2985	15.02	-31.43
40	25 Shell-Thick	SLE Combination	6.8441	5.1830	-19.72	-31.43
40	25 Shell-Thick	SLE Combination	4.9243	7.1212	-19.72	-6.23
41	26 Shell-Thick	SLU-A1+M1 Combination	-2.6518	-23.4346	-21.49	-43.51
41	26 Shell-Thick	SLU-A1+M1 Combination	-4.9085	-20.0509	-21.49	-8.45
41	26 Shell-Thick	SLU-A1+M1 Combination	6.7835	9.4349	26.85	-8.45
41	26 Shell-Thick	SLU-A1+M1 Combination	8.9578	6.2173	26.85	-43.51
41	26 Shell-Thick	SLU-SISMA Combination	-1.8046	-16.6642	-15.42	-31.34
41	26 Shell-Thick	SLU-SISMA Combination	-3.4793	-14.3450	-15.42	-6.08
41	26 Shell-Thick	SLU-SISMA Combination	5.2551	6.8880	19.41	-6.08
41	26 Shell-Thick	SLU-SISMA Combination	6.8704	4.6885	19.41	-31.34
41	26 Shell-Thick	SLE Combination	-1.6809	-16.2815	-15.25	-31.61
41	26 Shell-Thick	SLE Combination	-3.6634	-14.0993	-15.25	-6.06
41	26 Shell-Thick	SLE Combination	5.1452	7.2746	19.99	-6.06
41	26 Shell-Thick	SLE Combination	7.0796	5.2091	19.99	-31.61
42	27 Shell-Thick	SLU-A1+M1 Combination	3.3801	-12.2634	-53.51	-62.27
42	27 Shell-Thick	SLU-A1+M1 Combination	-8.8975	-10.1490	-53.51	37.14
42	27 Shell-Thick	SLU-A1+M1 Combination	-11.4049	4.0070	83.56	37.14
42	27 Shell-Thick	SLU-A1+M1 Combination	1.1462	2.1776	83.56	-62.27
42	27 Shell-Thick	SLU-SISMA Combination	2.5914	-8.5649	-40.76	-46.17
42	27 Shell-Thick	SLU-SISMA Combination	-6.3303	-6.9867	-40.76	28.79
42	27 Shell-Thick	SLU-SISMA Combination	-8.3053	2.7924	62.59	28.79
42	27 Shell-Thick	SLU-SISMA Combination	0.8111	1.4333	62.59	-46.17
42	27 Shell-Thick	SLE Combination	2.8808	-8.2888	-38.90	-45.58
42	27 Shell-Thick	SLE Combination	-6.7051	-7.3049	-38.90	27.88
42	27 Shell-Thick	SLE Combination	-9.1334	2.6672	62.38	27.88
42	27 Shell-Thick	SLE Combination	0.6885	1.8815	62.38	-45.58
43	28 Shell-Thick	SLU-A1+M1 Combination	-20.7374	-3.0274	-35.36	2.90
43	28 Shell-Thick	SLU-A1+M1 Combination	9.4308	7.8447	-35.36	1.13
43	28 Shell-Thick	SLU-A1+M1 Combination	4.0784	5.5339	-37.80	1.13
43	28 Shell-Thick	SLU-A1+M1 Combination	-26.2017	-5.3040	-37.80	2.90
43	28 Shell-Thick	SLU-SISMA Combination	-16.0425	-2.2252	-26.32	3.08
43	28 Shell-Thick	SLU-SISMA Combination	6.9824	6.0318	-26.32	0.77
43	28 Shell-Thick	SLU-SISMA Combination	3.0478	3.8309	-29.51	0.77
43	28 Shell-Thick	SLU-SISMA Combination	-20.0527	-4.4074	-29.51	3.08

43	28 Shell-Thick	SLE Combination	-15.8180	-2.3128	-26.33	2.33	
43	28 Shell-Thick	SLE Combination	6.8519	5.5986	-26.33	0.66	
43	28 Shell-Thick	SLE Combination	3.1460	3.8868	-28.64	0.66	
43	28 Shell-Thick	SLE Combination	-19.6092	-3.9998	-28.64	2.33	
44	29 Shell-Thick	SLU-A1+M1 Combination	3.0985	6.5978	-10.31	0.96	
44	29 Shell-Thick	SLU-A1+M1 Combination	12.3880	12.6440	-10.31	-0.43	
44	29 Shell-Thick	SLU-A1+M1 Combination	17.3800	12.3383	-12.23	-0.43	
44	29 Shell-Thick	SLU-A1+M1 Combination	8.0374	6.3061	-12.23	0.96	
44	29 Shell-Thick	SLU-SISMA Combination	2.4510	5.0581	-7.74	1.36	
44	29 Shell-Thick	SLU-SISMA Combination	9.7235	9.6574	-7.74	-0.22	
44	29 Shell-Thick	SLU-SISMA Combination	12.9398	9.0035	-9.92	-0.22	
44	29 Shell-Thick	SLU-SISMA Combination	5.6248	4.4136	-9.92	1.36	
44	29 Shell-Thick	SLE Combination	2.5682	4.7281	-7.68	0.78	
44	29 Shell-Thick	SLE Combination	9.5281	9.2157	-7.68	-0.33	
44	29 Shell-Thick	SLE Combination	13.0332	8.9538	-9.21	-0.33	
44	29 Shell-Thick	SLE Combination	6.0306	4.4775	-9.21	0.78	
45	30 Shell-Thick	SLU-A1+M1 Combination	12.8188	12.6914	10.41	-9.429E-02	
45	30 Shell-Thick	SLU-A1+M1 Combination	3.7111	6.9041	10.41	0.85	
45	30 Shell-Thick	SLU-A1+M1 Combination	7.5800	6.4829	11.71	0.85	
45	30 Shell-Thick	SLU-A1+M1 Combination	16.7501	12.2510	11.71	-9.429E-02	
45	30 Shell-Thick	SLU-SISMA Combination	9.6619	9.5809	7.78	0.34	
45	30 Shell-Thick	SLU-SISMA Combination	3.1088	5.2213	7.78	0.59	
45	30 Shell-Thick	SLU-SISMA Combination	6.2512	4.6958	8.12	0.59	
45	30 Shell-Thick	SLU-SISMA Combination	12.8323	9.0462	8.12	0.34	
45	30 Shell-Thick	SLE Combination	9.8078	9.2679	7.71	-0.30	
45	30 Shell-Thick	SLE Combination	2.7551	4.9062	7.71	0.95	
45	30 Shell-Thick	SLE Combination	5.5846	4.5430	9.43	0.95	
45	30 Shell-Thick	SLE Combination	12.6924	8.8894	9.43	-0.30	
46	31 Shell-Thick	SLU-A1+M1 Combination	9.9476	8.1910	34.76	0.50	
46	31 Shell-Thick	SLU-A1+M1 Combination	-20.4611	-3.2804	34.76	3.54	
46	31 Shell-Thick	SLU-A1+M1 Combination	-25.7430	-5.5702	38.95	3.54	
46	31 Shell-Thick	SLU-A1+M1 Combination	4.7585	5.8790	38.95	0.50	
46	31 Shell-Thick	SLU-SISMA Combination	7.4489	6.0846	25.93	0.63	
46	31 Shell-Thick	SLU-SISMA Combination	-15.0359	-2.3230	25.93	2.53	
46	31 Shell-Thick	SLU-SISMA Combination	-18.3947	-4.1151	28.56	2.53	
46	31 Shell-Thick	SLU-SISMA Combination	4.1461	4.2795	28.56	0.63	
46	31 Shell-Thick	SLE Combination	7.1625	5.8698	25.94	0.23	
46	31 Shell-Thick	SLE Combination	-15.8261	-2.4147	25.94	3.03	
46	31 Shell-Thick	SLE Combination	-19.7528	-4.2564	29.80	3.03	
46	31 Shell-Thick	SLE Combination	3.3201	4.0080	29.80	0.23	
47	32 Shell-Thick	SLU-A1+M1 Combination	-22.5785	-2.1885	-56.37	-18.57	
47	32 Shell-Thick	SLU-A1+M1 Combination	0.8801	4.5435	-56.37	22.31	
47	32 Shell-Thick	SLU-A1+M1 Combination	6.6907	2.3951	-6.879E-03	22.31	
47	32 Shell-Thick	SLU-A1+M1 Combination	-16.4329	-4.3012	-6.879E-03	-18.57	
47	32 Shell-Thick	SLU-SISMA Combination	-17.3919	-1.6875	-42.58	-13.62	
47	32 Shell-Thick	SLU-SISMA Combination	0.8483	3.4180	-42.58	16.34	
47	32 Shell-Thick	SLU-SISMA Combination	4.2382	1.8522	-1.28	16.34	
47	32 Shell-Thick	SLU-SISMA Combination	-13.7662	-3.2236	-1.28	-13.62	
47	32 Shell-Thick	SLE Combination	-17.0406	-1.8426	-41.85	-13.75	
47	32 Shell-Thick	SLE Combination	0.8113	2.8992	-41.85	15.83	
47	32 Shell-Thick	SLE Combination	4.8549	1.7025	-1.07	15.83	
47	32 Shell-Thick	SLE Combination	-12.7631	-3.0104	-1.07	-13.75	
48	33 Shell-Thick	SLU-A1+M1 Combination	9.2498	8.4649	-17.06	2.58	
48	33 Shell-Thick	SLU-A1+M1 Combination	16.4233	11.4574	-17.06	14.80	
48	33 Shell-Thick	SLU-A1+M1 Combination	6.0068	1.5600	-0.22	14.80	

48	33 Shell-Thick	SLU-A1+M1 Combination	-1.0983	-1.4102	-0.22	2.58
48	33 Shell-Thick	SLU-SISMA Combination	6.5783	6.2695	-13.52	1.37
48	33 Shell-Thick	SLU-SISMA Combination	12.2618	8.5252	-13.52	11.04
48	33 Shell-Thick	SLU-SISMA Combination	5.2340	1.4563	-0.18	11.04
48	33 Shell-Thick	SLU-SISMA Combination	-0.3983	-0.7806	-0.18	1.37
48	33 Shell-Thick	SLE Combination	6.8088	5.7295	-12.47	1.51
48	33 Shell-Thick	SLE Combination	12.2545	7.6992	-12.47	10.08
48	33 Shell-Thick	SLE Combination	5.6081	1.0970	-0.65	10.08
48	33 Shell-Thick	SLE Combination	0.2103	-0.8571	-0.65	1.51
49	34 Shell-Thick	SLU-A1+M1 Combination	15.4736	11.1817	18.32	15.55
49	34 Shell-Thick	SLU-A1+M1 Combination	8.7867	7.2033	18.32	0.62
49	34 Shell-Thick	SLU-A1+M1 Combination	1.0646	-1.9901	-2.27	0.62
49	34 Shell-Thick	SLU-A1+M1 Combination	7.6381	1.9720	-2.27	15.55
49	34 Shell-Thick	SLU-SISMA Combination	11.7744	8.3149	13.81	12.03
49	34 Shell-Thick	SLU-SISMA Combination	7.4052	5.9077	13.81	-0.41
49	34 Shell-Thick	SLU-SISMA Combination	1.5713	-0.6984	-3.34	-0.41
49	34 Shell-Thick	SLU-SISMA Combination	5.8524	1.6928	-3.34	12.03
49	34 Shell-Thick	SLE Combination	11.8208	7.5893	13.21	10.28
49	34 Shell-Thick	SLE Combination	6.2894	5.0090	13.21	0.78
49	34 Shell-Thick	SLE Combination	0.9617	-1.2812	0.11	0.78
49	34 Shell-Thick	SLE Combination	6.4313	1.2848	0.11	10.28
50	35 Shell-Thick	SLU-A1+M1 Combination	1.5719	3.4298	55.64	21.08
50	35 Shell-Thick	SLU-A1+M1 Combination	-22.3608	-2.1431	55.64	-17.83
50	35 Shell-Thick	SLU-A1+M1 Combination	-16.5909	-3.9621	1.99	-17.83
50	35 Shell-Thick	SLU-A1+M1 Combination	7.1019	1.5479	1.99	21.08
50	35 Shell-Thick	SLU-SISMA Combination	1.6984	2.8934	42.00	16.04
50	35 Shell-Thick	SLU-SISMA Combination	-15.7109	-1.5486	42.00	-14.52
50	35 Shell-Thick	SLU-SISMA Combination	-11.4363	-2.3952	-0.13	-14.52
50	35 Shell-Thick	SLU-SISMA Combination	5.7494	2.0102	-0.13	16.04
50	35 Shell-Thick	SLE Combination	1.1731	2.4034	41.07	14.68
50	35 Shell-Thick	SLE Combination	-17.4476	-1.8605	41.07	-12.36
50	35 Shell-Thick	SLE Combination	-13.6926	-3.1581	3.80	-12.36
50	35 Shell-Thick	SLE Combination	4.7633	1.0614	3.80	14.68
51	36 Shell-Thick	SLU-A1+M1 Combination	-8.4463	-0.0951	-45.32	-22.42
51	36 Shell-Thick	SLU-A1+M1 Combination	-1.2792	-1.7279	-45.32	30.91
51	36 Shell-Thick	SLU-A1+M1 Combination	2.4314	-6.6287	28.21	30.91
51	36 Shell-Thick	SLU-A1+M1 Combination	-4.5405	-4.8607	28.21	-22.42
51	36 Shell-Thick	SLU-SISMA Combination	-7.7779	-0.6355	-35.93	-19.26
51	36 Shell-Thick	SLU-SISMA Combination	-1.7200	-0.5856	-35.93	22.40
51	36 Shell-Thick	SLU-SISMA Combination	3.0710	-2.4144	21.52	22.40
51	36 Shell-Thick	SLU-SISMA Combination	-2.7776	-2.3795	21.52	-19.26
51	36 Shell-Thick	SLE Combination	-7.1299	-0.6494	-33.75	-17.19
51	36 Shell-Thick	SLE Combination	-0.8355	-0.9444	-33.75	20.89
51	36 Shell-Thick	SLE Combination	2.5306	-3.0892	18.75	20.89
51	36 Shell-Thick	SLE Combination	-3.5757	-2.7155	18.75	-17.19
52	37 Shell-Thick	SLU-A1+M1 Combination	2.3707	2.4648	-17.33	0.51
52	37 Shell-Thick	SLU-A1+M1 Combination	3.2794	1.3931	-17.33	24.12
52	37 Shell-Thick	SLU-A1+M1 Combination	-3.8686	-12.6521	15.22	24.12
52	37 Shell-Thick	SLU-A1+M1 Combination	-4.6992	-11.5175	15.22	0.51
52	37 Shell-Thick	SLU-SISMA Combination	2.8911	3.1948	-16.01	-2.69
52	37 Shell-Thick	SLU-SISMA Combination	3.1244	3.3799	-16.01	20.21
52	37 Shell-Thick	SLU-SISMA Combination	-4.1650	-6.6096	15.57	20.21
52	37 Shell-Thick	SLU-SISMA Combination	-4.2916	-6.7451	15.57	-2.69
52	37 Shell-Thick	SLE Combination	2.4550	2.0138	-11.24	0.69
52	37 Shell-Thick	SLE Combination	4.0561	1.6900	-11.24	14.24

52	37 Shell-Thick	SLE Combination	-1.3187	-6.8227	7.44	14.24
52	37 Shell-Thick	SLE Combination	-2.8615	-6.4677	7.44	0.69
53	38 Shell-Thick	SLU-A1+M1 Combination	2.9871	0.3422	25.31	32.83
53	38 Shell-Thick	SLU-A1+M1 Combination	6.8700	5.4121	25.31	-10.77
53	38 Shell-Thick	SLU-A1+M1 Combination	-2.9859	-7.0689	-34.81	-10.77
53	38 Shell-Thick	SLU-A1+M1 Combination	-6.9538	-12.2766	-34.81	32.83
53	38 Shell-Thick	SLU-SISMA Combination	2.5369	2.6952	19.03	25.19
53	38 Shell-Thick	SLU-SISMA Combination	6.2048	4.8888	19.03	-8.99
53	38 Shell-Thick	SLU-SISMA Combination	-2.9288	-4.2885	-28.09	-8.99
53	38 Shell-Thick	SLU-SISMA Combination	-6.7483	-6.5591	-28.09	25.19
53	38 Shell-Thick	SLE Combination	3.7998	1.0668	16.58	19.26
53	38 Shell-Thick	SLE Combination	4.4827	3.3846	16.58	-6.04
53	38 Shell-Thick	SLE Combination	-1.8011	-4.0995	-18.30	-6.04
53	38 Shell-Thick	SLE Combination	-2.5396	-6.4950	-18.30	19.26
54	39 Shell-Thick	SLU-A1+M1 Combination	0.0741	-0.0618	44.41	25.35
54	39 Shell-Thick	SLU-A1+M1 Combination	-9.2981	-1.0274	44.41	-22.86
54	39 Shell-Thick	SLU-A1+M1 Combination	-4.8945	-2.4022	-22.07	-22.86
54	39 Shell-Thick	SLU-A1+M1 Combination	4.1916	-1.5187	-22.07	25.35
54	39 Shell-Thick	SLU-SISMA Combination	0.0713	0.4309	33.79	19.38
54	39 Shell-Thick	SLU-SISMA Combination	-5.7975	-1.0121	33.79	-19.56
54	39 Shell-Thick	SLU-SISMA Combination	-0.7426	-0.8811	-19.89	-19.56
54	39 Shell-Thick	SLU-SISMA Combination	4.8741	0.5033	-19.89	19.38
54	39 Shell-Thick	SLE Combination	0.0072	-0.0575	32.43	16.32
54	39 Shell-Thick	SLE Combination	-8.7855	-1.2843	32.43	-15.46
54	39 Shell-Thick	SLE Combination	-5.5167	-1.7519	-11.39	-15.46
54	39 Shell-Thick	SLE Combination	3.0795	-0.5763	-11.39	16.32
55	40 Shell-Thick	SLU-A1+M1 Combination	-11.4376	-13.1844	-73.66	51.65
55	40 Shell-Thick	SLU-A1+M1 Combination	-14.6107	5.4335	114.32	51.65
55	40 Shell-Thick	SLU-A1+M1 Combination	2.4160	3.8484	114.32	-84.69
55	40 Shell-Thick	SLU-A1+M1 Combination	5.1319	-15.1304	-73.66	-84.69
55	40 Shell-Thick	SLU-SISMA Combination	-9.4280	-10.2886	-65.36	47.07
55	40 Shell-Thick	SLU-SISMA Combination	-12.6517	4.5856	100.87	47.07
55	40 Shell-Thick	SLU-SISMA Combination	2.2399	3.5747	100.87	-73.48
55	40 Shell-Thick	SLU-SISMA Combination	5.0227	-11.6051	-65.36	-73.48
55	40 Shell-Thick	SLE Combination	-7.6945	-8.5553	-46.99	33.59
55	40 Shell-Thick	SLE Combination	-10.3472	3.2546	74.53	33.59
55	40 Shell-Thick	SLE Combination	1.1815	2.5334	74.53	-54.55
55	40 Shell-Thick	SLE Combination	3.5280	-9.5059	-46.99	-54.55
56	41 Shell-Thick	SLU-A1+M1 Combination	-6.5966	-25.6689	-25.80	-12.72
56	41 Shell-Thick	SLU-A1+M1 Combination	11.2962	13.8173	35.04	-12.72
56	41 Shell-Thick	SLU-A1+M1 Combination	15.0882	11.3044	35.04	-56.85
56	41 Shell-Thick	SLU-A1+M1 Combination	-2.7507	-28.3725	-25.80	-56.85
56	41 Shell-Thick	SLU-SISMA Combination	-5.6934	-20.9247	-21.77	-10.44
56	41 Shell-Thick	SLU-SISMA Combination	10.9606	12.4953	30.63	-10.44
56	41 Shell-Thick	SLU-SISMA Combination	14.6066	10.7748	30.63	-48.44
56	41 Shell-Thick	SLU-SISMA Combination	-2.0175	-22.8034	-21.77	-48.44
56	41 Shell-Thick	SLE Combination	-4.3040	-16.3841	-16.89	-7.89
56	41 Shell-Thick	SLE Combination	6.9769	9.0043	23.03	-7.89
56	41 Shell-Thick	SLE Combination	9.4947	7.2576	23.03	-36.84
56	41 Shell-Thick	SLE Combination	-1.7466	-18.2575	-16.89	-36.84
57	42 Shell-Thick	SLU-A1+M1 Combination	-2.7274	-28.1797	27.59	-58.10
57	42 Shell-Thick	SLU-A1+M1 Combination	15.3776	11.1741	-37.49	-58.10
57	42 Shell-Thick	SLU-A1+M1 Combination	11.3118	14.0314	-37.49	-10.89
57	42 Shell-Thick	SLU-A1+M1 Combination	-6.8417	-25.1218	27.59	-10.89
57	42 Shell-Thick	SLU-SISMA Combination	-1.9542	-22.6614	22.93	-49.24

57	42 Shell-Thick	SLU-SISMA Combination	14.6378	10.6517	-32.33	-49.24
57	42 Shell-Thick	SLU-SISMA Combination	10.7622	12.4941	-32.33	-9.16
57	42 Shell-Thick	SLU-SISMA Combination	-5.8468	-20.6575	22.93	-9.16
57	42 Shell-Thick	SLE Combination	-1.7076	-18.1571	17.65	-37.39
57	42 Shell-Thick	SLE Combination	9.6456	7.1951	-24.20	-37.39
57	42 Shell-Thick	SLE Combination	6.9586	9.1053	-24.20	-7.05
57	42 Shell-Thick	SLE Combination	-4.4300	-16.1164	17.65	-7.05
58	43 Shell-Thick	SLU-A1+M1 Combination	5.6981	-14.1779	74.10	-84.64
58	43 Shell-Thick	SLU-A1+M1 Combination	1.7993	3.6930	-116.41	-84.64
58	43 Shell-Thick	SLU-A1+M1 Combination	-15.9367	5.0796	-116.41	53.54
58	43 Shell-Thick	SLU-A1+M1 Combination	-11.5291	-12.4423	74.10	53.54
58	43 Shell-Thick	SLU-SISMA Combination	5.3658	-11.0520	65.88	-73.55
58	43 Shell-Thick	SLU-SISMA Combination	1.6168	3.3020	-102.51	-73.55
58	43 Shell-Thick	SLU-SISMA Combination	-13.7578	4.1735	-102.51	48.58
58	43 Shell-Thick	SLU-SISMA Combination	-9.5343	-9.8811	65.88	48.58
58	43 Shell-Thick	SLE Combination	3.8031	-9.0442	47.11	-54.48
58	43 Shell-Thick	SLE Combination	0.9449	2.4769	-75.48	-54.48
58	43 Shell-Thick	SLE Combination	-10.9408	3.0895	-75.48	34.43
58	43 Shell-Thick	SLE Combination	-7.7518	-8.2081	47.11	34.43
59	44 Shell-Thick	SLU-A1+M1 Combination	-27.7865	-4.7758	43.38	7.00
59	44 Shell-Thick	SLU-A1+M1 Combination	-32.5303	-5.8618	60.03	7.00
59	44 Shell-Thick	SLU-A1+M1 Combination	10.2891	9.2126	60.03	-5.07
59	44 Shell-Thick	SLU-A1+M1 Combination	14.8444	10.3208	43.38	-5.07
59	44 Shell-Thick	SLU-SISMA Combination	-24.5967	-4.3217	36.11	7.92
59	44 Shell-Thick	SLU-SISMA Combination	-27.7335	-5.0003	56.29	7.92
59	44 Shell-Thick	SLU-SISMA Combination	10.5302	8.3375	56.29	-6.72
59	44 Shell-Thick	SLU-SISMA Combination	13.4931	9.0231	36.11	-6.72
59	44 Shell-Thick	SLE Combination	-18.6554	-3.0064	29.57	4.00
59	44 Shell-Thick	SLE Combination	-22.1653	-4.2261	37.63	4.00
59	44 Shell-Thick	SLE Combination	5.6570	5.3641	37.63	-1.84
59	44 Shell-Thick	SLE Combination	9.0516	6.6034	29.57	-1.84
60	45 Shell-Thick	SLU-A1+M1 Combination	6.6388	8.1243	12.62	-0.15
60	45 Shell-Thick	SLU-A1+M1 Combination	15.3460	10.7794	18.62	-0.15
60	45 Shell-Thick	SLU-A1+M1 Combination	28.2974	18.4174	18.62	-4.50
60	45 Shell-Thick	SLU-A1+M1 Combination	19.5017	15.7779	12.62	-4.50
60	45 Shell-Thick	SLU-SISMA Combination	6.6892	6.9032	10.54	-1.495E-02
60	45 Shell-Thick	SLU-SISMA Combination	14.4601	9.8826	17.70	-1.495E-02
60	45 Shell-Thick	SLU-SISMA Combination	26.1676	16.5336	17.70	-5.21
60	45 Shell-Thick	SLU-SISMA Combination	18.3173	13.5631	10.54	-5.21
60	45 Shell-Thick	SLE Combination	3.9860	5.3453	8.64	0.34
60	45 Shell-Thick	SLE Combination	8.9530	6.2683	11.78	0.34
60	45 Shell-Thick	SLE Combination	17.4185	11.3606	11.78	-1.95
60	45 Shell-Thick	SLE Combination	12.3924	10.4504	8.64	-1.95
61	46 Shell-Thick	SLU-A1+M1 Combination	20.2316	15.9801	-12.69	-5.03
61	46 Shell-Thick	SLU-A1+M1 Combination	27.3111	18.1639	-21.23	-5.03
61	46 Shell-Thick	SLU-A1+M1 Combination	13.2319	10.5681	-21.23	1.17
61	46 Shell-Thick	SLU-A1+M1 Combination	6.2846	8.3599	-12.69	1.17
61	46 Shell-Thick	SLU-SISMA Combination	18.6577	13.6772	-10.57	-5.63
61	46 Shell-Thick	SLU-SISMA Combination	25.5582	16.3657	-19.58	-5.63
61	46 Shell-Thick	SLU-SISMA Combination	13.0476	9.7249	-19.58	0.90
61	46 Shell-Thick	SLU-SISMA Combination	6.2532	7.0229	-10.57	0.90
61	46 Shell-Thick	SLE Combination	12.7641	10.5586	-8.61	-2.27
61	46 Shell-Thick	SLE Combination	16.9425	11.2315	-13.22	-2.27
61	46 Shell-Thick	SLE Combination	7.8831	6.1740	-13.22	1.07
61	46 Shell-Thick	SLE Combination	3.7884	5.4833	-8.61	1.07

62	47	Shell-Thick	SLU-A1+M1 Combination	14.8222	10.9106	-42.64	-6.30
62	47	Shell-Thick	SLU-A1+M1 Combination	8.9041	8.8593	-64.95	-6.30
62	47	Shell-Thick	SLU-A1+M1 Combination	-35.6501	-7.0013	-64.95	9.89
62	47	Shell-Thick	SLU-A1+M1 Combination	-29.5246	-4.9632	-42.64	9.89
62	47	Shell-Thick	SLU-SISMA Combination	13.3723	9.4217	-35.41	-7.71
62	47	Shell-Thick	SLU-SISMA Combination	9.2769	7.9958	-60.13	-7.71
62	47	Shell-Thick	SLU-SISMA Combination	-30.2943	-5.8114	-60.13	10.21
62	47	Shell-Thick	SLU-SISMA Combination	-26.0017	-4.3882	-35.41	10.21
62	47	Shell-Thick	SLE Combination	9.1118	6.9449	-29.13	-2.46
62	47	Shell-Thick	SLE Combination	4.9591	5.1922	-40.15	-2.46
62	47	Shell-Thick	SLE Combination	-23.7308	-4.8241	-40.15	5.53
62	47	Shell-Thick	SLE Combination	-19.4495	-3.0875	-29.13	5.53
63	48	Shell-Thick	SLU-A1+M1 Combination	-29.6232	-3.8375	75.97	-21.89
63	48	Shell-Thick	SLU-A1+M1 Combination	-22.9304	-4.8609	13.05	-21.89
63	48	Shell-Thick	SLU-A1+M1 Combination	13.6851	5.8329	13.05	23.74
63	48	Shell-Thick	SLU-A1+M1 Combination	7.3264	6.9108	75.97	23.74
63	48	Shell-Thick	SLU-SISMA Combination	-25.7798	-3.6003	66.96	-18.39
63	48	Shell-Thick	SLU-SISMA Combination	-21.5694	-3.8090	15.68	-18.39
63	48	Shell-Thick	SLU-SISMA Combination	12.4462	6.2522	15.68	18.80
63	48	Shell-Thick	SLU-SISMA Combination	8.4912	6.5114	66.96	18.80
63	48	Shell-Thick	SLE Combination	-19.9820	-2.5495	49.41	-14.62
63	48	Shell-Thick	SLE Combination	-15.4944	-3.3315	7.16	-14.62
63	48	Shell-Thick	SLE Combination	7.7654	3.0084	7.16	16.02
63	48	Shell-Thick	SLE Combination	3.5016	3.8271	49.41	16.02
64	49	Shell-Thick	SLU-A1+M1 Combination	16.0063	11.1476	22.36	1.73
64	49	Shell-Thick	SLU-A1+M1 Combination	5.8885	1.7726	4.40	1.73
64	49	Shell-Thick	SLU-A1+M1 Combination	16.9019	5.9695	4.40	14.76
64	49	Shell-Thick	SLU-A1+M1 Combination	27.1004	15.3653	22.36	14.76
64	49	Shell-Thick	SLU-SISMA Combination	14.7994	9.8538	19.90	0.50
64	49	Shell-Thick	SLU-SISMA Combination	7.7106	3.2243	5.20	0.50
64	49	Shell-Thick	SLU-SISMA Combination	18.0550	6.7655	5.20	11.17
64	49	Shell-Thick	SLU-SISMA Combination	25.1990	13.4162	19.90	11.17
64	49	Shell-Thick	SLE Combination	9.4918	6.7181	14.64	1.13
64	49	Shell-Thick	SLE Combination	3.0769	0.3777	2.37	1.13
64	49	Shell-Thick	SLE Combination	10.0774	2.8914	2.37	10.03
64	49	Shell-Thick	SLE Combination	16.5469	9.2463	14.64	10.03
65	50	Shell-Thick	SLU-A1+M1 Combination	26.1907	15.1991	-24.59	14.58
65	50	Shell-Thick	SLU-A1+M1 Combination	18.4613	6.2657	-6.01	14.58
65	50	Shell-Thick	SLU-A1+M1 Combination	5.8700	0.3184	-6.01	1.11
65	50	Shell-Thick	SLU-A1+M1 Combination	13.4934	9.2384	-24.59	1.11
65	50	Shell-Thick	SLU-SISMA Combination	24.6316	13.3010	-21.58	11.15
65	50	Shell-Thick	SLU-SISMA Combination	18.9209	6.9403	-6.23	11.15
65	50	Shell-Thick	SLU-SISMA Combination	7.4698	2.0935	-6.23	1.845E-02
65	50	Shell-Thick	SLU-SISMA Combination	13.1041	8.4391	-21.58	1.845E-02
65	50	Shell-Thick	SLE Combination	16.1425	9.1808	-15.70	9.86
65	50	Shell-Thick	SLE Combination	10.7587	3.0123	-3.44	9.86
65	50	Shell-Thick	SLE Combination	2.8807	-0.3322	-3.44	0.97
65	50	Shell-Thick	SLE Combination	8.2031	5.8244	-15.70	0.97
66	51	Shell-Thick	SLU-A1+M1 Combination	6.9569	5.8288	-73.50	19.51
66	51	Shell-Thick	SLU-A1+M1 Combination	12.0511	3.6569	-24.86	19.51
66	51	Shell-Thick	SLU-A1+M1 Combination	-28.5063	-6.3454	-24.86	-15.76
66	51	Shell-Thick	SLU-A1+M1 Combination	-33.7592	-4.2521	-73.50	-15.76
66	51	Shell-Thick	SLU-SISMA Combination	8.2636	5.8321	-63.83	14.38
66	51	Shell-Thick	SLU-SISMA Combination	11.8519	4.6089	-27.08	14.38
66	51	Shell-Thick	SLU-SISMA Combination	-25.6431	-5.2129	-27.08	-12.27

66	51 Shell-Thick	SLU-SISMA Combination	-29.3606	-4.0457	-63.83	-12.27
66	51 Shell-Thick	SLE Combination	3.3208	3.3574	-48.25	14.03
66	51 Shell-Thick	SLE Combination	6.7313	1.9285	-12.97	14.03
66	51 Shell-Thick	SLE Combination	-18.4961	-4.1056	-12.97	-11.56
66	51 Shell-Thick	SLE Combination	-22.0400	-2.7269	-48.25	-11.56
67	52 Shell-Thick	SLU-A1+M1 Combination	-12.8829	-0.1771	71.10	-32.54
67	52 Shell-Thick	SLU-A1+M1 Combination	-9.5833	-5.5225	-31.78	-32.54
67	52 Shell-Thick	SLU-A1+M1 Combination	6.4964	-4.8968	-31.78	42.08
67	52 Shell-Thick	SLU-A1+M1 Combination	3.5308	0.6154	71.10	42.08
67	52 Shell-Thick	SLU-SISMA Combination	-12.6472	-0.4847	68.29	-32.84
67	52 Shell-Thick	SLU-SISMA Combination	-8.1582	-3.6420	-30.09	-32.84
67	52 Shell-Thick	SLU-SISMA Combination	7.4332	-1.3536	-30.09	38.51
67	52 Shell-Thick	SLU-SISMA Combination	3.3265	1.9402	68.29	38.51
67	52 Shell-Thick	SLE Combination	-9.3321	-0.7586	43.14	-19.95
67	52 Shell-Thick	SLE Combination	-6.0272	-2.8684	-17.10	-19.95
67	52 Shell-Thick	SLE Combination	4.6225	-2.0692	-17.10	23.74
67	52 Shell-Thick	SLE Combination	1.5416	0.1279	43.14	23.74
68	53 Shell-Thick	SLU-A1+M1 Combination	9.3228	6.0994	20.77	4.05
68	53 Shell-Thick	SLU-A1+M1 Combination	-1.5891	-10.8395	-9.18	4.05
68	53 Shell-Thick	SLU-A1+M1 Combination	3.1708	-12.0111	-9.18	25.77
68	53 Shell-Thick	SLU-A1+M1 Combination	14.1375	4.9918	20.77	25.77
68	53 Shell-Thick	SLU-SISMA Combination	10.7136	7.3807	19.04	3.66
68	53 Shell-Thick	SLU-SISMA Combination	-1.5012	-7.1035	-6.03	3.66
68	53 Shell-Thick	SLU-SISMA Combination	3.8301	-6.5130	-6.03	21.83
68	53 Shell-Thick	SLU-SISMA Combination	16.1321	8.0097	19.04	21.83
68	53 Shell-Thick	SLE Combination	5.4255	3.4831	13.37	1.07
68	53 Shell-Thick	SLE Combination	-1.3145	-5.8351	-6.29	1.07
68	53 Shell-Thick	SLE Combination	1.5878	-6.3390	-6.29	15.34
68	53 Shell-Thick	SLE Combination	8.3751	3.0172	13.37	15.34
69	54 Shell-Thick	SLU-A1+M1 Combination	13.2568	3.5271	-35.68	36.87
69	54 Shell-Thick	SLU-A1+M1 Combination	4.6474	-10.4273	32.38	36.87
69	54 Shell-Thick	SLU-A1+M1 Combination	3.3130	-6.8076	32.38	-12.49
69	54 Shell-Thick	SLU-A1+M1 Combination	11.8588	6.9788	-35.68	-12.49
69	54 Shell-Thick	SLU-SISMA Combination	14.7412	6.5962	-32.42	31.66
69	54 Shell-Thick	SLU-SISMA Combination	6.6392	-4.8159	27.36	31.66
69	54 Shell-Thick	SLU-SISMA Combination	4.6145	-4.1859	27.36	-11.71
69	54 Shell-Thick	SLU-SISMA Combination	12.5834	7.1070	-32.42	-11.71
69	54 Shell-Thick	SLE Combination	7.9440	2.3300	-20.51	20.50
69	54 Shell-Thick	SLE Combination	2.1580	-5.6240	16.86	20.50
69	54 Shell-Thick	SLE Combination	0.6746	-3.9298	16.86	-6.60
69	54 Shell-Thick	SLE Combination	6.4127	3.9368	-20.51	-6.60
70	55 Shell-Thick	SLU-A1+M1 Combination	5.0329	1.0966	-66.31	27.11
70	55 Shell-Thick	SLU-A1+M1 Combination	8.8731	-1.1785	3.05	27.11
70	55 Shell-Thick	SLU-A1+M1 Combination	-17.1298	-4.6835	3.05	-23.20
70	55 Shell-Thick	SLU-A1+M1 Combination	-21.2325	-2.5071	-66.31	-23.20
70	55 Shell-Thick	SLU-SISMA Combination	6.0440	1.9292	-60.67	22.23
70	55 Shell-Thick	SLU-SISMA Combination	10.6721	0.8955	-1.77	22.23
70	55 Shell-Thick	SLU-SISMA Combination	-15.0107	-3.6416	-1.77	-20.49
70	55 Shell-Thick	SLU-SISMA Combination	-19.8666	-2.6901	-60.67	-20.49
70	55 Shell-Thick	SLE Combination	1.9970	0.3783	-41.16	16.87
70	55 Shell-Thick	SLE Combination	4.9624	-0.3969	3.55	16.87
70	55 Shell-Thick	SLE Combination	-10.4813	-2.6367	3.55	-15.56
70	55 Shell-Thick	SLE Combination	-13.6344	-1.9184	-41.16	-15.56
71	56 Shell-Thick	SLU-A1+M1 Combination	-8.1752	-3.5063	11.01	-18.53
71	56 Shell-Thick	SLU-A1+M1 Combination	-15.3296	-1.8985	-44.07	-18.53

71	56 Shell-Thick	SLU-A1+M1 Combination	-1.5693	-2.0745	-44.07	21.42
71	56 Shell-Thick	SLU-A1+M1 Combination	5.3854	-3.7640	11.01	21.42
71	56 Shell-Thick	SLU-SISMA Combination	-7.0412	-1.2785	2.98	-15.12
71	56 Shell-Thick	SLU-SISMA Combination	-15.4075	-3.0733	-34.39	-15.12
71	56 Shell-Thick	SLU-SISMA Combination	-2.3082	-1.1629	-34.39	11.98
71	56 Shell-Thick	SLU-SISMA Combination	5.8165	0.6153	2.98	11.98
71	56 Shell-Thick	SLE Combination	-5.4780	-2.1720	9.32	-14.44
71	56 Shell-Thick	SLE Combination	-10.1973	-1.3211	-32.63	-14.44
71	56 Shell-Thick	SLE Combination	-0.4813	-0.8966	-32.63	15.98
71	56 Shell-Thick	SLE Combination	4.0691	-1.8036	9.32	15.98
72	57 Shell-Thick	SLU-A1+M1 Combination	-21.9215	-5.6843	-6.90	-17.08
72	57 Shell-Thick	SLU-A1+M1 Combination	-29.4086	-4.0479	-57.99	-17.08
72	57 Shell-Thick	SLU-A1+M1 Combination	-2.4467	1.9345	-57.99	19.98
72	57 Shell-Thick	SLU-A1+M1 Combination	4.7337	0.2667	-6.90	19.98
72	57 Shell-Thick	SLU-SISMA Combination	-19.7951	-4.3539	-8.07	-12.99
72	57 Shell-Thick	SLU-SISMA Combination	-25.7401	-3.9310	-44.95	-12.99
72	57 Shell-Thick	SLU-SISMA Combination	-3.7267	0.1611	-44.95	13.76
72	57 Shell-Thick	SLU-SISMA Combination	1.9987	-0.2850	-8.07	13.76
72	57 Shell-Thick	SLE Combination	-15.0684	-3.7167	-4.65	-12.67
72	57 Shell-Thick	SLE Combination	-19.9512	-2.6012	-42.32	-12.67
72	57 Shell-Thick	SLE Combination	-0.4437	1.8462	-42.32	14.65
72	57 Shell-Thick	SLE Combination	4.2303	0.7013	-4.65	14.65
73	58 Shell-Thick	SLU-A1+M1 Combination	-32.4728	-6.3370	-41.38	3.74
73	58 Shell-Thick	SLU-A1+M1 Combination	-25.2497	-3.4795	-38.05	3.74
73	58 Shell-Thick	SLU-A1+M1 Combination	7.5035	6.0775	-38.05	1.32
73	58 Shell-Thick	SLU-A1+M1 Combination	0.4092	3.1822	-41.38	1.32
73	58 Shell-Thick	SLU-SISMA Combination	-27.8832	-5.7413	-33.60	4.17
73	58 Shell-Thick	SLU-SISMA Combination	-21.1885	-2.7373	-29.41	4.17
73	58 Shell-Thick	SLU-SISMA Combination	4.7977	3.9013	-29.41	1.13
73	58 Shell-Thick	SLU-SISMA Combination	-1.8030	0.8747	-33.60	1.13
73	58 Shell-Thick	SLE Combination	-22.2129	-4.4448	-30.26	2.75
73	58 Shell-Thick	SLE Combination	-17.6481	-2.4826	-27.45	2.75
73	58 Shell-Thick	SLE Combination	6.1489	4.9670	-27.45	0.72
73	58 Shell-Thick	SLE Combination	1.6759	2.9790	-30.26	0.72
74	59 Shell-Thick	SLU-A1+M1 Combination	-16.5222	2.1714	-86.45	38.73
74	59 Shell-Thick	SLU-A1+M1 Combination	-10.2217	-9.3702	48.60	38.73
74	59 Shell-Thick	SLU-A1+M1 Combination	5.2150	-8.6463	48.60	-59.22
74	59 Shell-Thick	SLU-A1+M1 Combination	-0.6838	3.1277	-86.45	-59.22
74	59 Shell-Thick	SLU-SISMA Combination	-14.7436	0.5686	-66.26	30.78
74	59 Shell-Thick	SLU-SISMA Combination	-8.1186	-5.7047	33.98	30.78
74	59 Shell-Thick	SLU-SISMA Combination	5.0251	-3.6643	33.98	-41.93
74	59 Shell-Thick	SLU-SISMA Combination	-1.2163	2.7502	-66.26	-41.93
74	59 Shell-Thick	SLE Combination	-11.1077	1.9570	-63.47	28.49
74	59 Shell-Thick	SLE Combination	-7.2071	-7.0185	37.05	28.49
74	59 Shell-Thick	SLE Combination	3.5645	-6.9295	37.05	-44.42
74	59 Shell-Thick	SLE Combination	-0.0521	2.2245	-63.47	-44.42
75	60 Shell-Thick	SLU-A1+M1 Combination	-3.2937	-8.4274	15.31	-4.27
75	60 Shell-Thick	SLU-A1+M1 Combination	2.3130	1.6296	-20.94	-4.27
75	60 Shell-Thick	SLU-A1+M1 Combination	4.6607	-0.8635	-20.94	22.02
75	60 Shell-Thick	SLU-A1+M1 Combination	-0.9933	-11.0050	15.31	22.02
75	60 Shell-Thick	SLU-SISMA Combination	-3.0260	-3.1442	9.78	-5.49
75	60 Shell-Thick	SLU-SISMA Combination	1.6306	1.6159	-16.96	-5.49
75	60 Shell-Thick	SLU-SISMA Combination	4.6266	1.0688	-16.96	13.90
75	60 Shell-Thick	SLU-SISMA Combination	-0.0864	-3.7458	9.78	13.90
75	60 Shell-Thick	SLE Combination	-1.9987	-5.1379	10.05	-2.63

75	60 Shell-Thick	SLE Combination	2.6638	1.8532	-14.22	-2.63
75	60 Shell-Thick	SLE Combination	4.4055	0.5065	-14.22	14.97
75	60 Shell-Thick	SLE Combination	-0.2910	-6.5404	10.05	14.97
76	61 Shell-Thick	SLU-A1+M1 Combination	-1.3924	-3.0044	-3.23	1.97
76	61 Shell-Thick	SLU-A1+M1 Combination	6.0665	5.6830	-18.87	1.97
76	61 Shell-Thick	SLU-A1+M1 Combination	15.2344	9.1629	-18.87	13.31
76	61 Shell-Thick	SLU-A1+M1 Combination	7.7036	0.4579	-3.23	13.31
76	61 Shell-Thick	SLU-SISMA Combination	-1.2538	-2.4233	-3.73	0.65
76	61 Shell-Thick	SLU-SISMA Combination	3.2877	3.0518	-15.21	0.65
76	61 Shell-Thick	SLU-SISMA Combination	11.1524	5.6814	-15.21	8.97
76	61 Shell-Thick	SLU-SISMA Combination	6.5301	0.2035	-3.73	8.97
76	61 Shell-Thick	SLE Combination	0.0424	-1.6523	-1.99	1.31
76	61 Shell-Thick	SLE Combination	5.4446	4.5399	-13.39	1.31
76	61 Shell-Thick	SLE Combination	11.8235	6.9367	-13.39	9.58
76	61 Shell-Thick	SLE Combination	6.3707	0.7309	-1.99	9.58
77	62 Shell-Thick	SLU-A1+M1 Combination	5.1523	4.1875	-14.95	1.84
77	62 Shell-Thick	SLU-A1+M1 Combination	2.3122	4.9825	-11.82	1.84
77	62 Shell-Thick	SLU-A1+M1 Combination	13.3404	11.9710	-11.82	-0.43
77	62 Shell-Thick	SLU-A1+M1 Combination	16.2488	11.1598	-14.95	-0.43
77	62 Shell-Thick	SLU-SISMA Combination	2.6768	1.8989	-12.78	2.28
77	62 Shell-Thick	SLU-SISMA Combination	1.3238	3.0783	-9.38	2.28
77	62 Shell-Thick	SLU-SISMA Combination	10.4404	8.5644	-9.38	-0.19
77	62 Shell-Thick	SLU-SISMA Combination	11.8698	7.3666	-12.78	-0.19
77	62 Shell-Thick	SLE Combination	4.8055	3.6564	-10.44	1.19
77	62 Shell-Thick	SLE Combination	2.2559	4.1369	-8.34	1.19
77	62 Shell-Thick	SLE Combination	9.9899	8.9663	-8.34	-0.34
77	62 Shell-Thick	SLE Combination	12.5931	8.4721	-10.44	-0.34
78	63 Shell-Thick	SLU-A1+M1 Combination	6.4310	10.7600	-30.71	-4.73
78	63 Shell-Thick	SLU-A1+M1 Combination	-5.2032	-16.9393	23.59	-4.73
78	63 Shell-Thick	SLU-A1+M1 Combination	-2.2186	-21.1658	23.59	-44.11
78	63 Shell-Thick	SLU-A1+M1 Combination	9.3267	6.7187	-30.71	-44.11
78	63 Shell-Thick	SLU-SISMA Combination	4.8629	8.6514	-24.83	-0.83
78	63 Shell-Thick	SLU-SISMA Combination	-3.8241	-10.1195	18.54	-0.83
78	63 Shell-Thick	SLU-SISMA Combination	-1.1869	-13.3505	18.54	-32.29
78	63 Shell-Thick	SLU-SISMA Combination	7.4175	5.5724	-24.83	-32.29
78	63 Shell-Thick	SLE Combination	5.0399	7.7752	-21.44	-4.63
78	63 Shell-Thick	SLE Combination	-3.7670	-12.9282	16.11	-4.63
78	63 Shell-Thick	SLE Combination	-1.5369	-15.4445	16.11	-31.87
78	63 Shell-Thick	SLE Combination	7.2171	5.3838	-21.44	-31.87
79	64 Shell-Thick	SLU-A1+M1 Combination	-0.8481	-11.5620	-7.53	16.78
79	64 Shell-Thick	SLU-A1+M1 Combination	4.8612	-0.2373	11.34	16.78
79	64 Shell-Thick	SLU-A1+M1 Combination	3.2765	2.0892	11.34	3.09
79	64 Shell-Thick	SLU-A1+M1 Combination	-2.4099	-9.1909	-7.53	3.09
79	64 Shell-Thick	SLU-SISMA Combination	0.2438	-4.2282	-3.56	9.04
79	64 Shell-Thick	SLU-SISMA Combination	4.7222	1.6362	7.20	9.04
79	64 Shell-Thick	SLU-SISMA Combination	3.2041	2.2669	7.20	1.24
79	64 Shell-Thick	SLU-SISMA Combination	-1.2477	-3.5770	-3.56	1.24
79	64 Shell-Thick	SLE Combination	-0.2767	-6.8468	-5.52	12.19
79	64 Shell-Thick	SLE Combination	4.5373	0.8421	9.49	12.19
79	64 Shell-Thick	SLE Combination	2.8833	1.9935	9.49	1.30
79	64 Shell-Thick	SLE Combination	-1.9032	-5.6632	-5.52	1.30
80	65 Shell-Thick	SLU-A1+M1 Combination	6.7656	0.2780	-0.14	13.31
80	65 Shell-Thick	SLU-A1+M1 Combination	15.5786	9.2241	14.93	13.31
80	65 Shell-Thick	SLU-A1+M1 Combination	9.4473	6.9985	14.93	2.38
80	65 Shell-Thick	SLU-A1+M1 Combination	0.6734	-1.9196	-0.14	2.38

80	65 Shell-Thick	SLU-SISMA Combination	5.5633	0.0097	-0.23	8.93
80	65 Shell-Thick	SLU-SISMA Combination	11.5073	5.7528	10.50	8.93
80	65 Shell-Thick	SLU-SISMA Combination	7.2452	4.5212	10.50	1.15
80	65 Shell-Thick	SLU-SISMA Combination	1.3429	-1.2070	-0.23	1.15
80	65 Shell-Thick	SLE Combination	5.9039	0.6453	0.54	9.61
80	65 Shell-Thick	SLE Combination	11.9647	6.9572	11.76	9.61
80	65 Shell-Thick	SLE Combination	6.8669	5.1300	11.76	1.47
80	65 Shell-Thick	SLE Combination	0.8457	-1.1649	0.54	1.47
81	66 Shell-Thick	SLU-A1+M1 Combination	16.7668	11.3320	10.05	0.14
81	66 Shell-Thick	SLU-A1+M1 Combination	11.6308	11.5605	9.91	0.14
81	66 Shell-Thick	SLU-A1+M1 Combination	3.4144	6.2549	9.91	0.24
81	66 Shell-Thick	SLU-A1+M1 Combination	8.4906	6.0479	10.05	0.24
81	66 Shell-Thick	SLU-SISMA Combination	12.4374	7.5677	6.88	0.54
81	66 Shell-Thick	SLU-SISMA Combination	8.4754	8.0839	7.15	0.54
81	66 Shell-Thick	SLU-SISMA Combination	2.7095	4.6342	7.15	0.34
81	66 Shell-Thick	SLU-SISMA Combination	6.6026	4.1439	6.88	0.34
81	66 Shell-Thick	SLE Combination	12.8075	8.5440	8.41	-0.10
81	66 Shell-Thick	SLE Combination	9.2678	8.7929	7.54	-0.10
81	66 Shell-Thick	SLE Combination	2.7046	4.6381	7.54	0.53
81	66 Shell-Thick	SLE Combination	6.1963	4.4043	8.41	0.53
82	67 Shell-Thick	SLU-A1+M1 Combination	8.8663	7.2196	22.00	-38.65
82	67 Shell-Thick	SLU-A1+M1 Combination	-1.9465	-21.7043	-14.62	-38.65
82	67 Shell-Thick	SLU-A1+M1 Combination	-4.9996	-19.9883	-14.62	-12.09
82	67 Shell-Thick	SLU-A1+M1 Combination	5.8254	8.8283	22.00	-12.09
82	67 Shell-Thick	SLU-SISMA Combination	6.9376	6.1886	14.54	-25.87
82	67 Shell-Thick	SLU-SISMA Combination	-0.8809	-14.0015	-7.96	-25.87
82	67 Shell-Thick	SLU-SISMA Combination	-3.5968	-13.7615	-7.96	-9.56
82	67 Shell-Thick	SLU-SISMA Combination	4.2149	6.3679	14.54	-9.56
82	67 Shell-Thick	SLE Combination	7.0092	5.5775	17.83	-29.60
82	67 Shell-Thick	SLE Combination	-1.4311	-15.6586	-12.44	-29.60
82	67 Shell-Thick	SLE Combination	-3.6703	-14.1449	-12.44	-7.64
82	67 Shell-Thick	SLE Combination	4.7921	6.9981	17.83	-7.64
83	68 Shell-Thick	SLU-A1+M1 Combination	2.3283	-5.5515	-22.05	26.64
83	68 Shell-Thick	SLU-A1+M1 Combination	-0.0621	-1.2703	41.17	26.64
83	68 Shell-Thick	SLU-A1+M1 Combination	-8.0651	-0.2734	41.17	-19.21
83	68 Shell-Thick	SLU-A1+M1 Combination	-5.4679	-4.4527	-22.05	-19.21
83	68 Shell-Thick	SLU-SISMA Combination	2.5583	-1.0200	-14.21	17.01
83	68 Shell-Thick	SLU-SISMA Combination	-0.1913	-0.2080	30.78	17.01
83	68 Shell-Thick	SLU-SISMA Combination	-7.1528	-1.0546	30.78	-15.62
83	68 Shell-Thick	SLU-SISMA Combination	-4.1694	-1.8257	-14.21	-15.62
83	68 Shell-Thick	SLE Combination	2.4778	-2.7252	-16.33	19.36
83	68 Shell-Thick	SLE Combination	-0.2352	-0.6920	32.22	19.36
83	68 Shell-Thick	SLE Combination	-6.8951	-0.6523	32.22	-15.85
83	68 Shell-Thick	SLE Combination	-3.9892	-2.6197	-16.33	-15.85
84	69 Shell-Thick	SLU-A1+M1 Combination	7.0041	1.5009	-0.32	21.31
84	69 Shell-Thick	SLU-A1+M1 Combination	0.6130	3.0773	54.68	21.31
84	69 Shell-Thick	SLU-A1+M1 Combination	-22.0022	-2.3397	54.68	-18.58
84	69 Shell-Thick	SLU-A1+M1 Combination	-15.2977	-3.8764	-0.32	-18.58
84	69 Shell-Thick	SLU-SISMA Combination	4.7575	1.0279	0.82	14.78
84	69 Shell-Thick	SLU-SISMA Combination	0.2346	1.5671	40.31	14.78
84	69 Shell-Thick	SLU-SISMA Combination	-16.8648	-1.9497	40.31	-13.86
84	69 Shell-Thick	SLU-SISMA Combination	-12.1343	-2.4539	0.82	-13.86
84	69 Shell-Thick	SLE Combination	5.0738	1.2806	0.91	15.52
84	69 Shell-Thick	SLE Combination	0.6662	2.2900	41.30	15.52
84	69 Shell-Thick	SLE Combination	-16.8839	-1.8970	41.30	-13.78

84	69 Shell-Thick	SLE Combination	-12.2540	-2.8743	0.91	-13.78	
85	70 Shell-Thick	SLU-A1+M1 Combination	3.9740	5.2686	36.06	1.24	
85	70 Shell-Thick	SLU-A1+M1 Combination	8.6812	7.1842	34.90	1.24	
85	70 Shell-Thick	SLU-A1+M1 Combination	-20.5538	-2.9573	34.90	2.08	
85	70 Shell-Thick	SLU-A1+M1 Combination	-25.4205	-4.8178	36.06	2.08	
85	70 Shell-Thick	SLU-SISMA Combination	2.6499	3.4353	27.30	0.99	
85	70 Shell-Thick	SLU-SISMA Combination	6.2604	5.2625	25.66	0.99	
85	70 Shell-Thick	SLU-SISMA Combination	-15.5582	-2.1165	25.66	2.18	
85	70 Shell-Thick	SLU-SISMA Combination	-19.2968	-3.9014	27.30	2.18	
85	70 Shell-Thick	SLE Combination	3.0643	3.8080	27.96	0.74	
85	70 Shell-Thick	SLE Combination	6.5941	5.3859	26.20	0.74	
85	70 Shell-Thick	SLE Combination	-15.7304	-2.2759	26.20	2.01	
85	70 Shell-Thick	SLE Combination	-19.3633	-3.8211	27.96	2.01	
86	71 Shell-Thick	SLU-A1+M1 Combination	0.7333	2.3733	79.41	-59.57	
86	71 Shell-Thick	SLU-A1+M1 Combination	3.3799	-12.8758	-48.21	-59.57	
86	71 Shell-Thick	SLU-A1+M1 Combination	-9.3568	-11.6458	-48.21	32.99	
86	71 Shell-Thick	SLU-A1+M1 Combination	-12.3056	3.3554	79.41	32.99	
86	71 Shell-Thick	SLU-SISMA Combination	0.5129	1.8649	57.95	-42.44	
86	71 Shell-Thick	SLU-SISMA Combination	2.8496	-8.7097	-33.65	-42.44	
86	71 Shell-Thick	SLU-SISMA Combination	-7.0593	-8.3930	-33.65	23.99	
86	71 Shell-Thick	SLU-SISMA Combination	-9.6625	2.0218	57.95	23.99	
86	71 Shell-Thick	SLE Combination	0.5126	1.9234	60.54	-44.50	
86	71 Shell-Thick	SLE Combination	2.8144	-8.6291	-36.84	-44.50	
86	71 Shell-Thick	SLE Combination	-6.8543	-7.9328	-36.84	26.12	
86	71 Shell-Thick	SLE Combination	-9.3991	2.4351	60.54	26.12	
87	72 Shell-Thick	SLU-A1+M1 Combination	-4.7755	-0.8275	1.88	-15.58	
87	72 Shell-Thick	SLU-A1+M1 Combination	-11.2340	-2.5601	-36.92	-15.58	
87	72 Shell-Thick	SLU-A1+M1 Combination	3.3599	-0.1223	-36.92	12.56	
87	72 Shell-Thick	SLU-A1+M1 Combination	9.5840	1.5871	1.88	12.56	
87	72 Shell-Thick	SLU-SISMA Combination	-0.9810	-0.2257	3.30	-11.83	
87	72 Shell-Thick	SLU-SISMA Combination	-6.6931	-1.7344	-25.67	-11.83	
87	72 Shell-Thick	SLU-SISMA Combination	2.6463	-0.2076	-25.67	9.19	
87	72 Shell-Thick	SLU-SISMA Combination	8.1704	1.2885	3.30	9.19	
87	72 Shell-Thick	SLE Combination	-5.5437	-1.0069	-0.15	-11.25	
87	72 Shell-Thick	SLE Combination	-9.8872	-2.1223	-28.48	-11.25	
87	72 Shell-Thick	SLE Combination	2.0275	-0.0872	-28.48	9.30	
87	72 Shell-Thick	SLE Combination	6.2034	1.0099	-0.15	9.30	
88	73 Shell-Thick	SLU-A1+M1 Combination	-16.0123	-3.4147	-7.57	-15.15	
88	73 Shell-Thick	SLU-A1+M1 Combination	-21.4765	-2.5149	-51.56	-15.15	
88	73 Shell-Thick	SLU-A1+M1 Combination	3.0724	2.4694	-51.56	16.76	
88	73 Shell-Thick	SLU-A1+M1 Combination	8.2984	1.5331	-7.57	16.76	
88	73 Shell-Thick	SLU-SISMA Combination	-10.3094	-1.8212	-2.75	-12.87	
88	73 Shell-Thick	SLU-SISMA Combination	-15.1093	-1.8217	-38.27	-12.87	
88	73 Shell-Thick	SLU-SISMA Combination	1.9314	1.3023	-38.27	12.89	
88	73 Shell-Thick	SLU-SISMA Combination	6.5412	1.2725	-2.75	12.89	
88	73 Shell-Thick	SLE Combination	-13.3941	-2.9251	-7.16	-10.74	
88	73 Shell-Thick	SLE Combination	-17.0420	-2.0216	-39.00	-10.74	
88	73 Shell-Thick	SLE Combination	2.1157	1.9538	-39.00	12.35	
88	73 Shell-Thick	SLE Combination	5.5957	1.0224	-7.16	12.35	
89	74 Shell-Thick	SLU-A1+M1 Combination	-24.0793	-5.0905	-38.26	3.40	
89	74 Shell-Thick	SLU-A1+M1 Combination	-20.3371	-3.1796	-33.55	3.40	
89	74 Shell-Thick	SLU-A1+M1 Combination	9.2565	6.9457	-33.55	-9.657E-03	
89	74 Shell-Thick	SLU-A1+M1 Combination	5.6648	4.9930	-38.26	-9.657E-03	
89	74 Shell-Thick	SLU-SISMA Combination	-17.2710	-3.6008	-26.76	1.84	
89	74 Shell-Thick	SLU-SISMA Combination	-14.7028	-2.2237	-25.08	1.84	

89	74 Shell-Thick	SLU-SISMA Combination	6.6552	5.0627	-25.08	0.62	
89	74 Shell-Thick	SLU-SISMA Combination	4.2061	3.6467	-26.76	0.62	
89	74 Shell-Thick	SLE Combination	-18.9046	-4.0565	-29.73	3.10	
89	74 Shell-Thick	SLE Combination	-15.7869	-2.3649	-25.30	3.10	
89	74 Shell-Thick	SLE Combination	6.8938	5.2321	-25.30	-0.11	
89	74 Shell-Thick	SLE Combination	3.8833	3.5137	-29.73	-0.11	
90	75 Shell-Thick	SLU-A1+M1 Combination	-11.8214	3.6097	-79.16	32.83	
90	75 Shell-Thick	SLU-A1+M1 Combination	-9.2806	-11.3842	47.99	32.83	
90	75 Shell-Thick	SLU-A1+M1 Combination	3.4377	-12.7200	47.99	-59.39	
90	75 Shell-Thick	SLU-A1+M1 Combination	1.2127	2.5155	-79.16	-59.39	
90	75 Shell-Thick	SLU-SISMA Combination	-8.7966	2.4422	-56.76	22.88	
90	75 Shell-Thick	SLU-SISMA Combination	-6.9589	-8.5201	33.10	22.88	
90	75 Shell-Thick	SLU-SISMA Combination	2.6936	-8.9426	33.10	-42.29	
90	75 Shell-Thick	SLU-SISMA Combination	1.1057	2.1808	-56.76	-42.29	
90	75 Shell-Thick	SLE Combination	-9.2629	2.5063	-60.66	26.24	
90	75 Shell-Thick	SLE Combination	-6.8228	-7.7956	36.88	26.24	
90	75 Shell-Thick	SLE Combination	2.8759	-8.5358	36.88	-44.50	
90	75 Shell-Thick	SLE Combination	0.6873	1.9482	-60.66	-44.50	
91	76 Shell-Thick	SLU-A1+M1 Combination	2.8238	-1.2753	1.33	-0.72	
91	76 Shell-Thick	SLU-A1+M1 Combination	7.0216	2.1204	-8.90	-0.72	
91	76 Shell-Thick	SLU-A1+M1 Combination	10.1765	2.5581	-8.90	6.70	
91	76 Shell-Thick	SLU-A1+M1 Combination	5.9198	-0.8448	1.33	6.70	
91	76 Shell-Thick	SLU-SISMA Combination	2.5228	-0.9549	2.67	-0.61	
91	76 Shell-Thick	SLU-SISMA Combination	5.6103	1.4991	-4.98	-0.61	
91	76 Shell-Thick	SLU-SISMA Combination	6.5909	1.7070	-4.98	4.93	
91	76 Shell-Thick	SLU-SISMA Combination	3.4526	-0.7498	2.67	4.93	
91	76 Shell-Thick	SLE Combination	1.4664	-1.0434	-0.33	-0.42	
91	76 Shell-Thick	SLE Combination	4.6679	1.5468	-7.78	-0.42	
91	76 Shell-Thick	SLE Combination	8.0402	2.0015	-7.78	4.98	
91	76 Shell-Thick	SLE Combination	4.8009	-0.5959	-0.33	4.98	
92	77 Shell-Thick	SLU-A1+M1 Combination	5.1155	-0.8951	-0.60	1.00	
92	77 Shell-Thick	SLU-A1+M1 Combination	10.3691	5.7205	-13.88	1.00	
92	77 Shell-Thick	SLU-A1+M1 Combination	16.3741	7.1909	-13.88	10.64	
92	77 Shell-Thick	SLU-A1+M1 Combination	11.0785	0.5533	-0.60	10.64	
92	77 Shell-Thick	SLU-SISMA Combination	4.1011	-0.6854	1.85	-2.855E-02	
92	77 Shell-Thick	SLU-SISMA Combination	8.2187	4.0297	-9.67	-2.855E-02	
92	77 Shell-Thick	SLU-SISMA Combination	11.4691	4.6824	-9.67	8.33	
92	77 Shell-Thick	SLU-SISMA Combination	7.3117	-0.0505	1.85	8.33	
92	77 Shell-Thick	SLE Combination	3.3109	-0.7132	-2.02	1.11	
92	77 Shell-Thick	SLE Combination	7.1404	4.2373	-10.98	1.11	
92	77 Shell-Thick	SLE Combination	12.5235	5.5778	-10.98	7.61	
92	77 Shell-Thick	SLE Combination	8.6673	0.6119	-2.02	7.61	
93	78 Shell-Thick	SLU-A1+M1 Combination	9.7465	5.8249	-9.78	0.16	
93	78 Shell-Thick	SLU-A1+M1 Combination	4.0732	5.8935	-9.54	0.16	
93	78 Shell-Thick	SLU-A1+M1 Combination	12.0237	11.0009	-9.54	-1.895E-02	
93	78 Shell-Thick	SLU-A1+M1 Combination	17.7613	10.9095	-9.78	-1.895E-02	
93	78 Shell-Thick	SLU-SISMA Combination	7.5709	4.2043	-5.32	-0.37	
93	78 Shell-Thick	SLU-SISMA Combination	3.3261	4.5122	-7.11	-0.37	
93	78 Shell-Thick	SLU-SISMA Combination	8.4401	7.9192	-7.11	0.93	
93	78 Shell-Thick	SLU-SISMA Combination	12.7330	7.5887	-5.32	0.93	
93	78 Shell-Thick	SLE Combination	6.7769	4.1811	-8.73	0.69	
93	78 Shell-Thick	SLE Combination	2.9483	4.3543	-7.26	0.69	
93	78 Shell-Thick	SLE Combination	9.5299	8.4414	-7.26	-0.38	
93	78 Shell-Thick	SLE Combination	13.4108	8.2532	-8.73	-0.38	
94	79 Shell-Thick	SLU-A1+M1 Combination	6.4864	8.8956	-21.09	-12.58	

94	79 Shell-Thick	SLU-A1+M1 Combination	-4.9192	-19.7168	13.69	-12.58
94	79 Shell-Thick	SLU-A1+M1 Combination	-1.8481	-21.1246	13.69	-37.80
94	79 Shell-Thick	SLU-A1+M1 Combination	9.5298	7.5957	-21.09	-37.80
94	79 Shell-Thick	SLU-SISMA Combination	4.6491	6.4886	-13.03	-10.63
94	79 Shell-Thick	SLU-SISMA Combination	-3.4823	-13.7768	6.83	-10.63
94	79 Shell-Thick	SLU-SISMA Combination	-0.9212	-13.9437	6.83	-25.04
94	79 Shell-Thick	SLU-SISMA Combination	7.2045	6.3796	-13.03	-25.04
94	79 Shell-Thick	SLE Combination	5.1022	7.0129	-17.60	-7.76
94	79 Shell-Thick	SLE Combination	-3.6640	-14.0255	12.10	-7.76
94	79 Shell-Thick	SLE Combination	-1.3779	-15.4184	12.10	-29.30
94	79 Shell-Thick	SLE Combination	7.3620	5.7130	-17.60	-29.30
95	80 Shell-Thick	SLU-A1+M1 Combination	5.5675	-0.9007	6.11	6.80
95	80 Shell-Thick	SLU-A1+M1 Combination	10.5501	2.6182	16.35	6.80
95	80 Shell-Thick	SLU-A1+M1 Combination	1.2563	1.2879	16.35	-0.63
95	80 Shell-Thick	SLU-A1+M1 Combination	-3.6959	-2.2134	6.11	-0.63
95	80 Shell-Thick	SLU-SISMA Combination	3.0527	-0.8090	6.08	5.09
95	80 Shell-Thick	SLU-SISMA Combination	7.0237	1.7728	13.87	5.09
95	80 Shell-Thick	SLU-SISMA Combination	-1.2293	0.5034	13.87	-0.56
95	80 Shell-Thick	SLU-SISMA Combination	-5.1811	-2.0636	6.08	-0.56
95	80 Shell-Thick	SLE Combination	4.6560	-0.6189	3.35	5.01
95	80 Shell-Thick	SLE Combination	8.1935	2.0262	10.78	5.01
95	80 Shell-Thick	SLE Combination	2.3440	1.2084	10.78	-0.38
95	80 Shell-Thick	SLE Combination	-1.1672	-1.4254	3.35	-0.38
96	81 Shell-Thick	SLU-A1+M1 Combination	11.0947	0.3790	10.03	9.04
96	81 Shell-Thick	SLU-A1+M1 Combination	16.4685	7.3873	17.98	9.04
96	81 Shell-Thick	SLU-A1+M1 Combination	4.8856	4.6501	17.98	3.27
96	81 Shell-Thick	SLU-A1+M1 Combination	-0.4627	-2.3451	10.03	3.27
96	81 Shell-Thick	SLU-SISMA Combination	7.3405	-0.2511	9.27	6.49
96	81 Shell-Thick	SLU-SISMA Combination	11.5901	4.9131	14.66	6.49
96	81 Shell-Thick	SLU-SISMA Combination	1.6905	2.7297	14.66	2.58
96	81 Shell-Thick	SLU-SISMA Combination	-2.5370	-2.4274	9.27	2.58
96	81 Shell-Thick	SLE Combination	8.6745	0.5427	5.82	6.95
96	81 Shell-Thick	SLE Combination	12.5569	5.6552	12.62	6.95
96	81 Shell-Thick	SLE Combination	4.9284	3.8078	12.62	2.02
96	81 Shell-Thick	SLE Combination	1.0660	-1.2929	5.82	2.02
97	82 Shell-Thick	SLU-A1+M1 Combination	17.0108	10.5586	18.56	-1.82
97	82 Shell-Thick	SLU-A1+M1 Combination	14.0955	11.6161	10.99	-1.82
97	82 Shell-Thick	SLU-A1+M1 Combination	1.9401	4.5254	10.99	3.67
97	82 Shell-Thick	SLU-A1+M1 Combination	4.7449	3.4870	18.56	3.67
97	82 Shell-Thick	SLU-SISMA Combination	11.8600	7.1732	15.82	-1.23
97	82 Shell-Thick	SLU-SISMA Combination	10.8931	8.6507	8.88	-1.23
97	82 Shell-Thick	SLU-SISMA Combination	0.7404	2.8572	8.88	3.81
97	82 Shell-Thick	SLU-SISMA Combination	1.6062	1.3971	15.82	3.81
97	82 Shell-Thick	SLE Combination	13.1006	8.1101	12.28	-1.12
97	82 Shell-Thick	SLE Combination	10.3635	8.6892	7.82	-1.12
97	82 Shell-Thick	SLE Combination	2.0966	3.8072	7.82	2.12
97	82 Shell-Thick	SLE Combination	4.7624	3.2417	12.28	2.12
98	83 Shell-Thick	SLU-A1+M1 Combination	9.8177	6.8778	32.21	-44.28
98	83 Shell-Thick	SLU-A1+M1 Combination	-1.9592	-20.3713	-24.10	-44.28
98	83 Shell-Thick	SLU-A1+M1 Combination	-5.3498	-16.3774	-24.10	-3.44
98	83 Shell-Thick	SLU-A1+M1 Combination	6.5024	10.6860	32.21	-3.44
98	83 Shell-Thick	SLU-SISMA Combination	7.5198	5.5254	26.39	-32.84
98	83 Shell-Thick	SLU-SISMA Combination	-1.0463	-13.0514	-19.34	-32.84
98	83 Shell-Thick	SLU-SISMA Combination	-3.9893	-9.8145	-19.34	0.33
98	83 Shell-Thick	SLU-SISMA Combination	4.6394	8.6109	26.39	0.33

98	83 Shell-Thick	SLE Combination	7.4811	5.4194	22.02	-31.85
98	83 Shell-Thick	SLE Combination	-1.4228	-15.1099	-16.22	-31.85
98	83 Shell-Thick	SLE Combination	-3.8398	-12.6772	-16.22	-4.12
98	83 Shell-Thick	SLE Combination	5.1092	7.7282	22.02	-4.12
99	84 Shell-Thick	SLU-A1+M1 Combination	3.0386	0.6777	5.41	12.96
99	84 Shell-Thick	SLU-A1+M1 Combination	-2.4079	-0.9892	45.22	12.96
99	84 Shell-Thick	SLU-A1+M1 Combination	-23.4468	-4.6241	45.22	-15.91
99	84 Shell-Thick	SLU-A1+M1 Combination	-17.7628	-2.9324	5.41	-15.91
99	84 Shell-Thick	SLU-SISMA Combination	0.5464	0.2481	5.20	9.71
99	84 Shell-Thick	SLU-SISMA Combination	-4.2051	-1.2580	35.63	9.71
99	84 Shell-Thick	SLU-SISMA Combination	-21.1693	-4.2244	35.63	-12.37
99	84 Shell-Thick	SLU-SISMA Combination	-16.2228	-2.7042	5.20	-12.37
99	84 Shell-Thick	SLE Combination	3.5572	0.6370	3.11	9.46
99	84 Shell-Thick	SLE Combination	-0.3033	-0.4386	31.82	9.46
99	84 Shell-Thick	SLE Combination	-14.8192	-2.9643	31.82	-11.36
99	84 Shell-Thick	SLE Combination	-10.7900	-1.8699	3.11	-11.36
100	85 Shell-Thick	SLU-A1+M1 Combination	2.1345	-0.3438	17.10	16.27
100	85 Shell-Thick	SLU-A1+M1 Combination	-1.6995	1.8513	56.70	16.27
100	85 Shell-Thick	SLU-A1+M1 Combination	-32.2996	-4.4249	56.70	-12.45
100	85 Shell-Thick	SLU-A1+M1 Combination	-28.2527	-6.5866	17.10	-12.45
100	85 Shell-Thick	SLU-SISMA Combination	-0.7438	-0.9540	13.96	12.37
100	85 Shell-Thick	SLU-SISMA Combination	-3.8324	0.5103	44.55	12.37
100	85 Shell-Thick	SLU-SISMA Combination	-28.0921	-4.1316	44.55	-9.82
100	85 Shell-Thick	SLU-SISMA Combination	-24.8389	-5.5701	13.96	-9.82
100	85 Shell-Thick	SLE Combination	3.1045	0.2689	11.01	12.15
100	85 Shell-Thick	SLE Combination	0.1987	1.7077	41.07	12.15
100	85 Shell-Thick	SLE Combination	-21.3938	-2.7790	41.07	-9.65
100	85 Shell-Thick	SLE Combination	-18.3309	-4.1909	11.01	-9.65
101	86 Shell-Thick	SLU-A1+M1 Combination	-0.0427	2.1120	46.48	-7.324E-02
101	86 Shell-Thick	SLU-A1+M1 Combination	7.4066	6.0362	36.80	-7.324E-02
101	86 Shell-Thick	SLU-A1+M1 Combination	-26.9259	-3.6316	36.80	6.95
101	86 Shell-Thick	SLU-A1+M1 Combination	-34.5249	-7.5282	46.48	6.95
101	86 Shell-Thick	SLU-SISMA Combination	-2.6570	0.1779	36.64	0.53
101	86 Shell-Thick	SLU-SISMA Combination	4.4348	3.9627	28.95	0.53
101	86 Shell-Thick	SLU-SISMA Combination	-22.6055	-2.7773	28.95	6.11
101	86 Shell-Thick	SLU-SISMA Combination	-29.8157	-6.5404	36.64	6.11
101	86 Shell-Thick	SLE Combination	1.5861	2.3544	33.05	-0.14
101	86 Shell-Thick	SLE Combination	6.1444	4.8688	26.58	-0.14
101	86 Shell-Thick	SLE Combination	-18.4400	-2.5515	26.58	4.54
101	86 Shell-Thick	SLE Combination	-23.1051	-5.0450	33.05	4.54
102	87 Shell-Thick	SLU-A1+M1 Combination	-1.3480	2.7573	88.40	-59.10
102	87 Shell-Thick	SLU-A1+M1 Combination	5.6928	-7.8103	-49.22	-59.10
102	87 Shell-Thick	SLU-A1+M1 Combination	-10.2647	-8.6547	-49.22	40.72
102	87 Shell-Thick	SLU-A1+M1 Combination	-17.7621	1.6934	88.40	40.72
102	87 Shell-Thick	SLU-SISMA Combination	-1.9669	2.4633	67.83	-41.97
102	87 Shell-Thick	SLU-SISMA Combination	5.3680	-3.1167	-34.55	-41.97
102	87 Shell-Thick	SLU-SISMA Combination	-8.1704	-5.3099	-34.55	32.28
102	87 Shell-Thick	SLU-SISMA Combination	-15.9212	0.1347	67.83	32.28
102	87 Shell-Thick	SLE Combination	-0.3479	2.0381	64.34	-44.35
102	87 Shell-Thick	SLE Combination	3.7889	-6.5527	-37.34	-44.35
102	87 Shell-Thick	SLE Combination	-7.2108	-6.6819	-37.34	29.40
102	87 Shell-Thick	SLE Combination	-11.6563	1.7362	64.34	29.40

Table: Joint Pattern Assignments

Joint	Pattern	Value
Text	Text	Unitless
2	terreno	53.110000
7	terreno	53.110000
9	terreno	0.000000
14	terreno	0.000000
1	terreno	53.110000
3	terreno	53.110000
4	terreno	0.000000
5	terreno	0.000000
6	terreno	53.110000
10	terreno	53.110000
12	terreno	53.110000
15	terreno	53.110000
16	terreno	53.110000
17	terreno	53.110000
21	terreno	53.110000
22	terreno	53.110000
26	terreno	53.110000
27	terreno	53.110000
28	terreno	53.110000
29	terreno	53.110000
30	terreno	0.000000
32	terreno	0.000000
34	terreno	0.000000
36	terreno	0.000000
37	terreno	0.000000
38	terreno	0.000000
42	terreno	0.000000
43	terreno	0.000000
47	terreno	0.000000
48	terreno	0.000000
49	terreno	0.000000
50	terreno	0.000000
51	terreno	40.256250
52	terreno	40.256250
53	terreno	40.256250
54	terreno	40.256250
55	terreno	40.256250
56	terreno	27.402500
57	terreno	27.402500
58	terreno	27.402500
59	terreno	27.402500
60	terreno	27.402500
61	terreno	14.548750
62	terreno	14.548750
63	terreno	14.548750
64	terreno	14.548750
65	terreno	14.548750
66	terreno	40.256250
67	terreno	40.256250
68	terreno	40.256250
69	terreno	40.256250

70	terreno	40.256250
71	terreno	27.402500
72	terreno	27.402500
73	terreno	27.402500
74	terreno	27.402500
75	terreno	27.402500
76	terreno	14.548750
77	terreno	14.548750
78	terreno	14.548750
79	terreno	14.548750
80	terreno	14.548750
81	terreno	14.548750
82	terreno	27.402500
83	terreno	40.256250
84	terreno	14.548750
85	terreno	27.402500
86	terreno	40.256250
87	terreno	14.548750
88	terreno	27.402500
89	terreno	40.256250
90	terreno	14.548750
91	terreno	27.402500
92	terreno	40.256250
93	terreno	14.548750
94	terreno	27.402500
95	terreno	40.256250
96	terreno	14.548750
97	terreno	27.402500
98	terreno	40.256250

Table: Joint Restraint Assignments

Joint	U1	U2	U3	R1	R2	R3
Text	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
1	Yes	Yes	No	No	No	No
2	Yes	Yes	No	No	No	No
3	Yes	Yes	No	No	No	No
6	Yes	Yes	No	No	No	No
7	Yes	Yes	No	No	No	No
8	Yes	Yes	No	No	No	No
10	Yes	Yes	No	No	No	No
11	Yes	Yes	No	No	No	No
12	Yes	Yes	No	No	No	No
13	Yes	Yes	No	No	No	No
15	Yes	Yes	No	No	No	No
16	Yes	Yes	No	No	No	No
17	Yes	Yes	No	No	No	No
18	Yes	Yes	No	No	No	No
19	Yes	Yes	No	No	No	No
20	Yes	Yes	No	No	No	No
21	Yes	Yes	No	No	No	No
22	Yes	Yes	No	No	No	No
23	Yes	Yes	No	No	No	No

24	Yes	Yes	No	No	No	No
25	Yes	Yes	No	No	No	No
26	Yes	Yes	No	No	No	No
27	Yes	Yes	No	No	No	No
28	Yes	Yes	No	No	No	No
29	Yes	Yes	No	No	No	No

Table: Load Case Definitions

LoadCase	DesignType	SelfWtMult	AutoLoad
Text	Text	Unitless	Text
Gk1	DEAD	1.000000	
Gk2	DEAD	0.000000	
Qk1	DEAD	0.000000	
Q6	DEAD	0.000000	
Gk3	DEAD	0.000000	