LIFTING DEVICE

DEVICE NAME: PS4, 20 TON, LIFTING FIXT.

ENGINEERING NOTE NUMBER: 41

APPLICABLE STANDARD: ASME B30.2-1990 OVERHEAD & GANTRY CRANES

RATED LOAD: 20 TON

TEST LOAD: 25 TON

TEST LOAD PERCENT: 125 %

LAST LOAD TEST DATE:

COLOR: YELLOW

STRESS CALCULATIONS:

Done by: E. M. VILLEGAS

Date: 3/25/92

Reviewed by: [illegible signature]

Date: 4/21/92

REMARKS:

IDENTIFICATION:

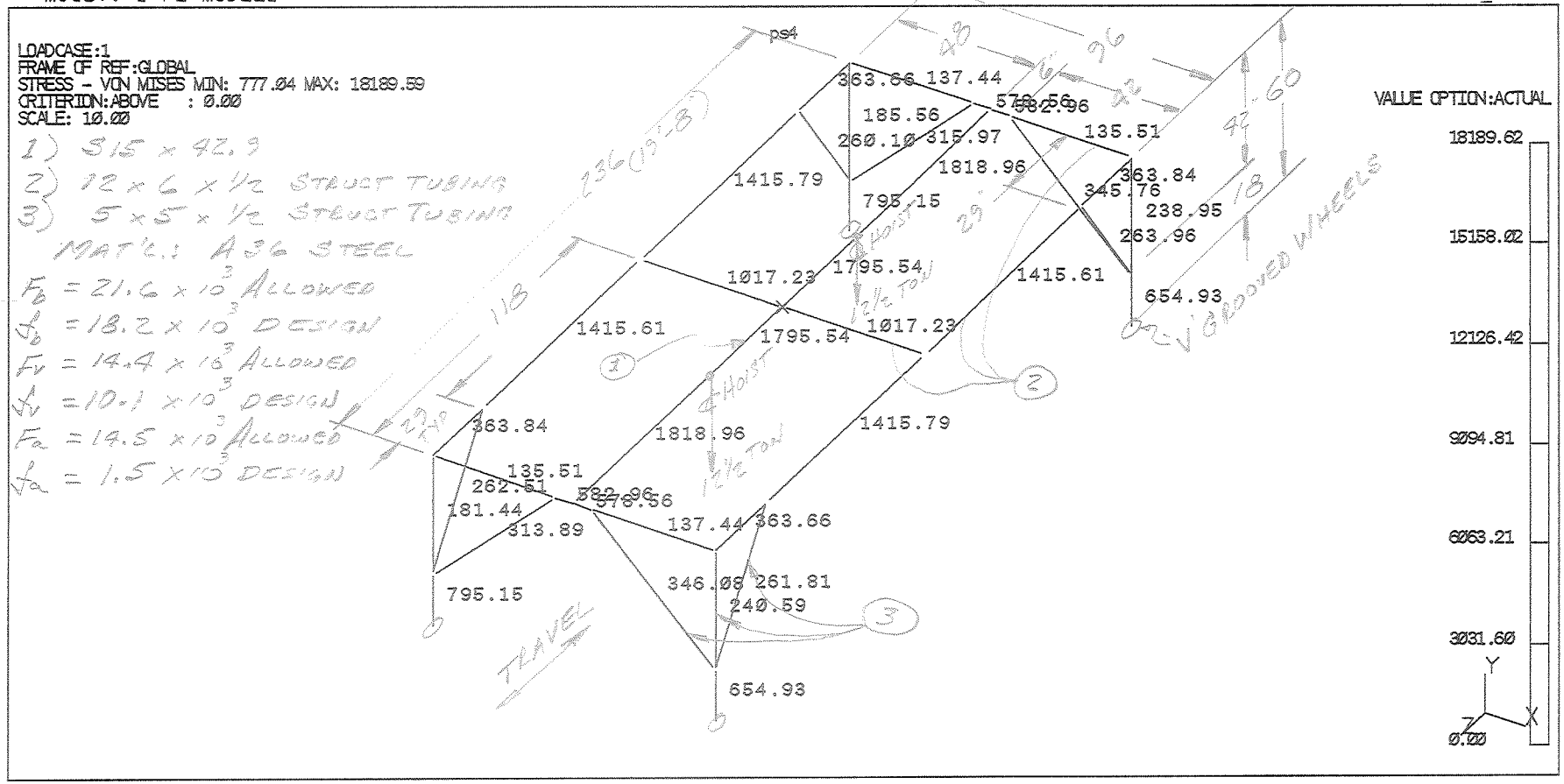
Engineering Note Number & Rated Load Must be Clearly Marked On a Conspicuous Surface.

PS4, 20 TON, MAGNET LIFTING FIXTURE

SDRC I-DEAS V: FE_Modeling_&_Analysis 25-MAR-92 14:23:40

Database: ps4
View : No stored View
Task: Post Processing
Model: 1-FE MODEL1

Units : IN
Display : No stored Option
Model Bin: 1-MAIN
Associated Workset: 1-WORKING_SET1

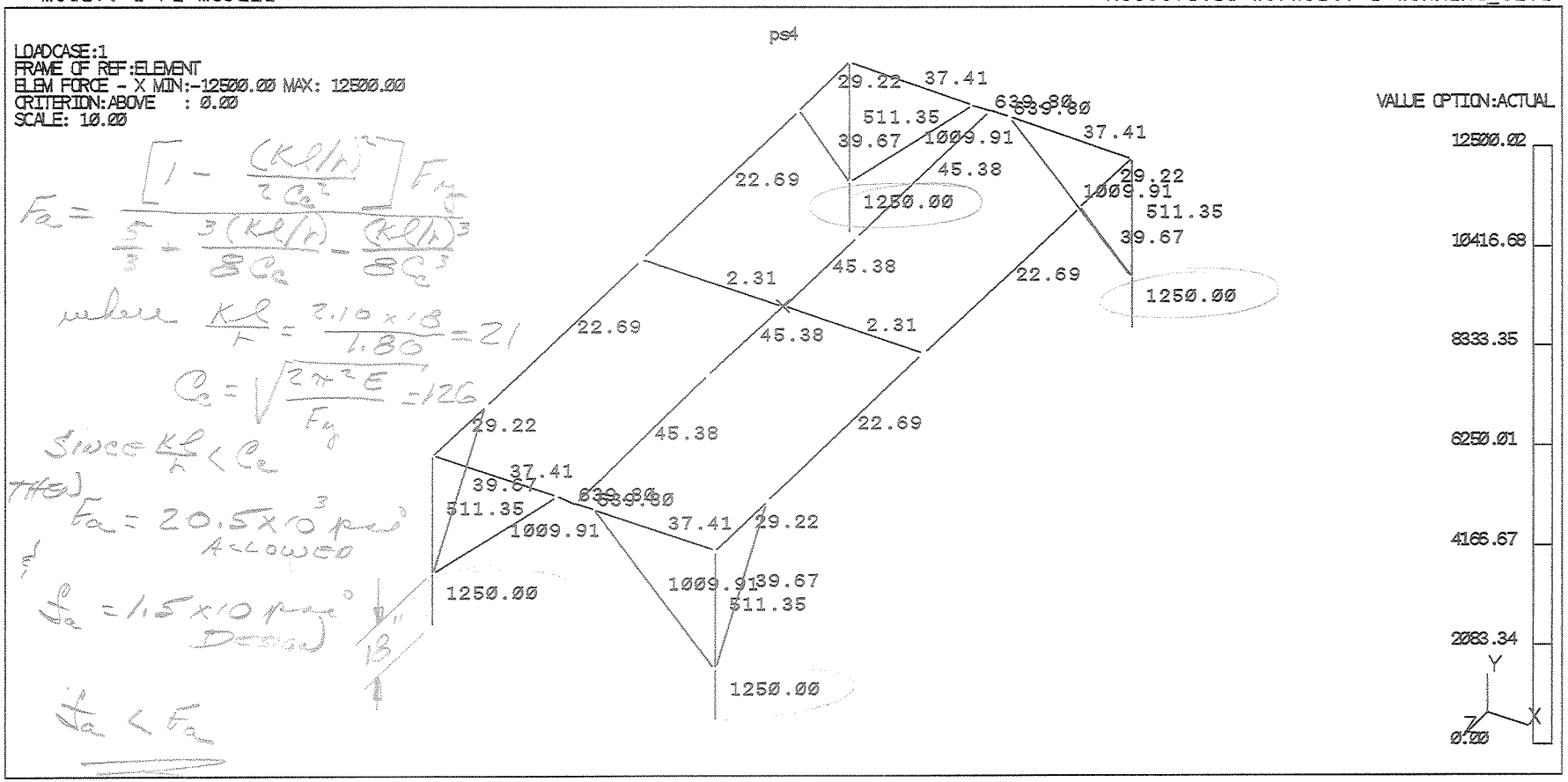


Pg #2

SDRC I-DEAS V: FE_Modeling_&_Analysis 20-MAR-92 14:33:25

Database: ps4
View : No stored View
Task: Post Processing
Model: 1-FE MODEL1

Units : IN
Display : No stored Option
Model Bin: 1-MAIN
Associated Workset: 1-WORKING_SET1



$$F_a = \frac{\left[1 - \frac{(Kl/r)^2}{2C_c^2}\right] F_y}{\frac{5}{3} + \frac{3(Kl/r)}{8C_c} - \frac{(Kl/r)^3}{8C_c^3}}$$

where $\frac{Kl}{r} = \frac{2.10 \times 18}{1.80} = 21$

$C_c = \sqrt{\frac{2\pi^2 E}{F_y}} = 126$

Since $\frac{Kl}{r} < C_c$

THEN $F_a = 20.5 \times 10^3$ psi ALLOWED

& $f_a = 1.5 \times 10$ psi DESIGN

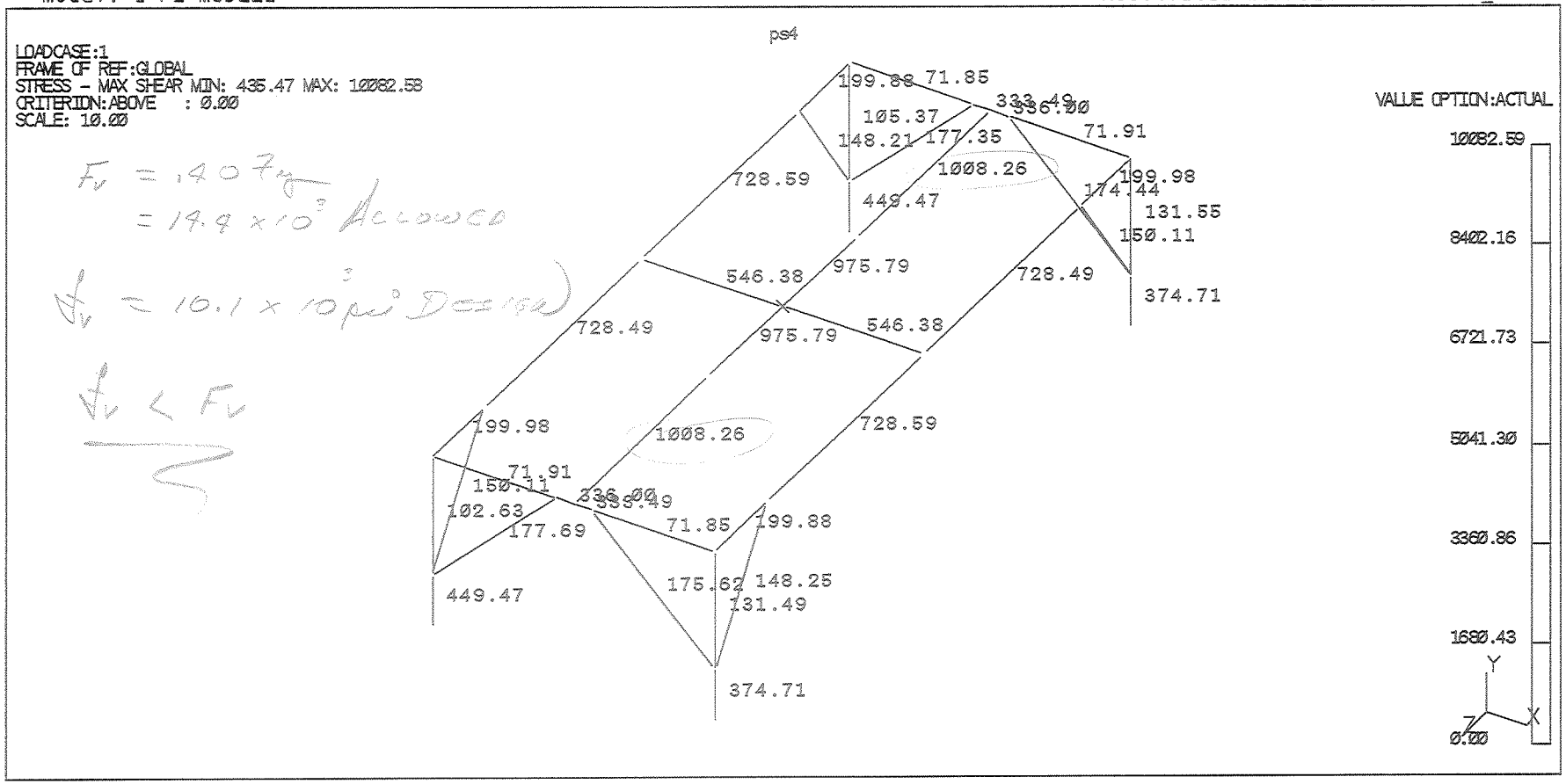
$f_a < F_a$

Pg #3

SDRC I-DEAS V: FE_Modeling_&_Analysis 25-MAR-92 15:54:40

Database: ps4
View : No stored View
Task: Post Processing
Model: 1-FE MODEL1

Units : IN
Display : No stored Option
Model Bin: 1-MAIN
Associated Workset: 1-WORKING_SET1



$F_v = .407 F_y$

$= 14.4 \times 10^3$ Allowed

$f_v = 10.1 \times 10^3$ psi Design

$f_v < F_v$

Pg # 4

From "FNAL::ELAVALLIE"@RDCAEO Tue Apr 21 16:53:36 1992
Received: from rdcea0.fnal.gov by rdmd05.fnal.gov via SMTP (920110.SGI/910805.SGI)
        for villegas id AA18859; Tue, 21 Apr 92 16:53:36 -0500
Date: Tue, 21 Apr 1992 16:51:32 -0500 (CDT)
From: "FNAL::ELAVALLIE"@RDCAEO
Message-Id: <920421165132.202008a0@RDCAEO.FNAL.GOV>
Subject: ID41--PS4,20Ton,Magnet Lifting Fixture
To: VILLEGAS
X-Vmsmail-To: VILLEGAS,KILMER,ELAVALLIE
Status: RO

I have checked the Stress Analysis and concur with its findings, add the missing dates to the cover sheet and I'm happy.

E.J.LaVallie