

Incremental Loading Consolidation

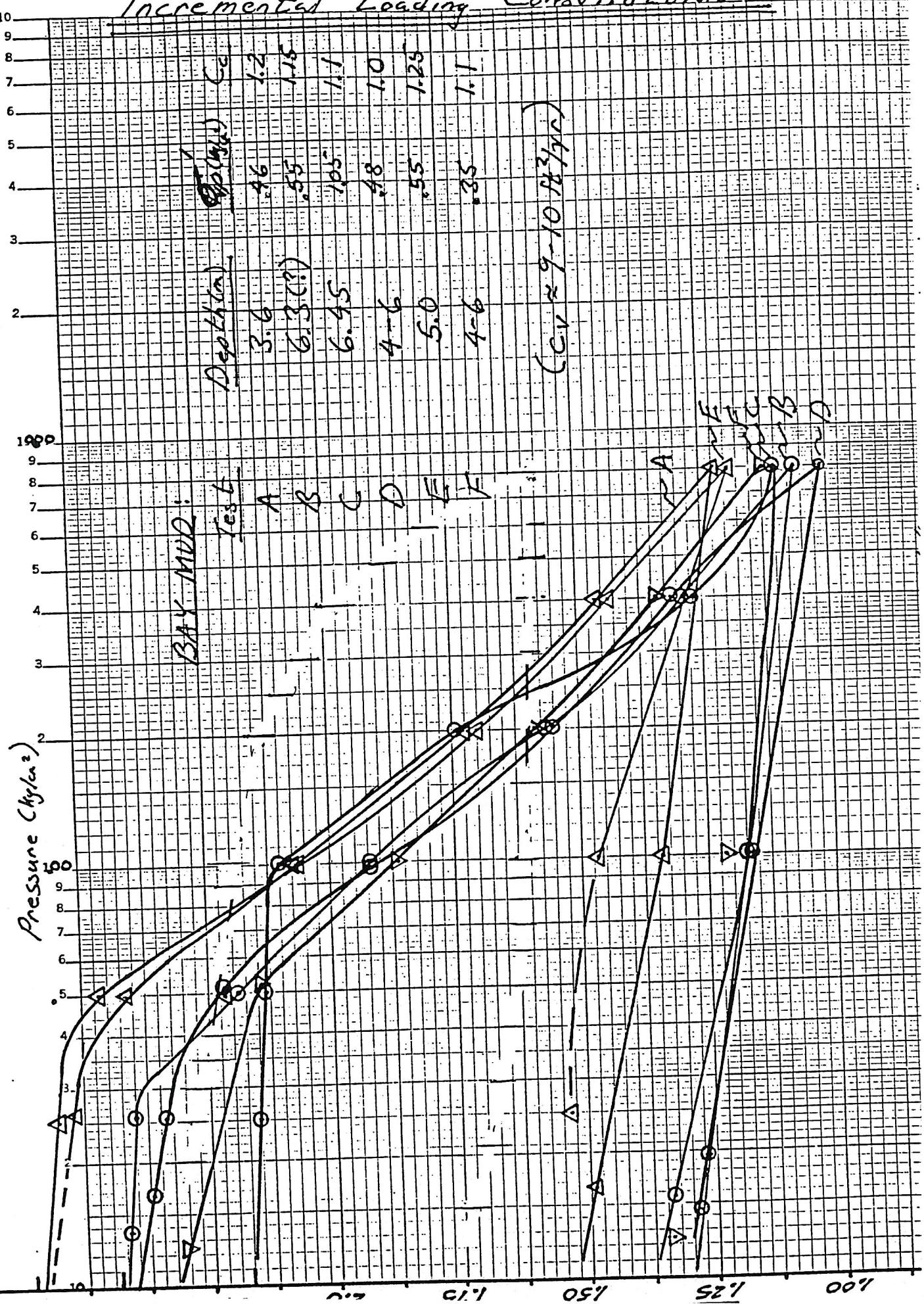


TABLE 10
EFFECTIVE STRESS FRICTION ANGLE - BAY MUD

| Researcher | Test Type | ϕ' | ϵ_f |
|----------------------------|--|---------|--------------|
| Seed et al. (1964) | AC-U $\sigma_{rc}' = .5 \sigma_{AC}'$ | 33°-35° | ~5% |
| Duncan (1965) | VPS | 38° | ~5% |
| | HPS | 35° | ~10% |
| | AC-U $\sigma_{rc}' = .54 \sigma_{AC}'$ | 34.3° | ~6% |
| | AC-U $\sigma_{AC}' = .65 \sigma_{rc}'$ | 34.5° | ~13% |
| | IC-U | | 10-12% |
| Lacerda (1976) | C-D | 31° | ~30% |
| Berkeley (CE 273) 1977 | ICU | 34.5° | 8% |
| Denby (1978) | AC-U $\sigma_{rc}' = .7 \sigma_{AC}'$ | 29.5° | 4% |
| Berkeley (CE 270L) 1978 | IC-U | 32.4° | 10% |

- Note: 1) ϕ' measured at maximum deviator stress
 2) σ_{rc}' = effective radial stress at the end of consolidation
 3) σ_{AC}' = effective axial stress at the end of consolidation
 4) ϵ_f = axial strain at maximum deviator stress

TABLE 11. SUMMARY OF RESULTS OF CONSOLIDATED UNDRAINED TRIAXIAL TESTS ON UNDISTURBED SAN FRANCISCO BAY MUD

| Sample | Depth (feet) | Initial w/c (percent) | σ'_{ac} (kg/cm ²) | σ'_{rc} (kg/cm ²) | $\left(\frac{\sigma'}{\sigma'_r}\right)_r$ | Consol. w/c (percent) | $\left(\frac{\Delta v}{v}\right)_c$ | ϵ_{ac} | $\Delta(\sigma_a - \sigma_r)_f$ (kg/cm ²) | Δu_f (kg/cm ²) |
|--------|--------------|-----------------------|--------------------------------------|--------------------------------------|--|-----------------------|-------------------------------------|-----------------|---|------------------------------------|
| IC-U-1 | 19 | 87.7 | 0.87 | 1.00 | 0.87 | 67.7 | 0.147 | 0.041 | 0.79 | 0.77 |
| IC-U-2 | 19 | 87.5 | 2.33 | 2.48 | 0.94 | 55.3 | 0.248 | 0.097 | 1.77 | 1.86 |
| IC-U-3 | 19 | 85.6 | 3.81 | 3.98 | 0.96 | 49.0 | 0.297 | 0.123 | 2.81 | 2.96 |

| Sample | Depth (feet) | \bar{A}_f | $(\sigma_1 - \sigma_3)_f$ (kg/cm ²) | $\left(\frac{\sigma'_1}{\sigma'_3}\right)_f$ | ϵ_{af} (%) | Time to Failure (hours) | σ'_{1f} (kg/cm ²) | σ'_{3f} (kg/cm ²) | $\frac{(\sigma_1 - \sigma_3)_f}{2}$ (kg/cm ²) | $\frac{(\sigma'_1 + \sigma'_3)_f}{2}$ (kg/cm ²) |
|--------|--------------|-------------|---|--|---------------------|-------------------------|--------------------------------------|--------------------------------------|---|---|
| IC-U-1 | 19 | 0.98 | 0.66 | 3.87 | 11.3 | 5 | 0.89 | 0.23 | 0.33 | 0.56 |
| IC-U-2 | 19 | 1.05 | 1.62 | 3.58 | 11.0 | 5 | 2.24 | 0.66 | 0.81 | 1.44 |
| IC-U-3 | 19 | 1.05 | 2.64 | 3.56 | 12.6 | 5 | 3.65 | 1.01 | 1.32 | 2.33 |

FROM DUNCAN (1965)

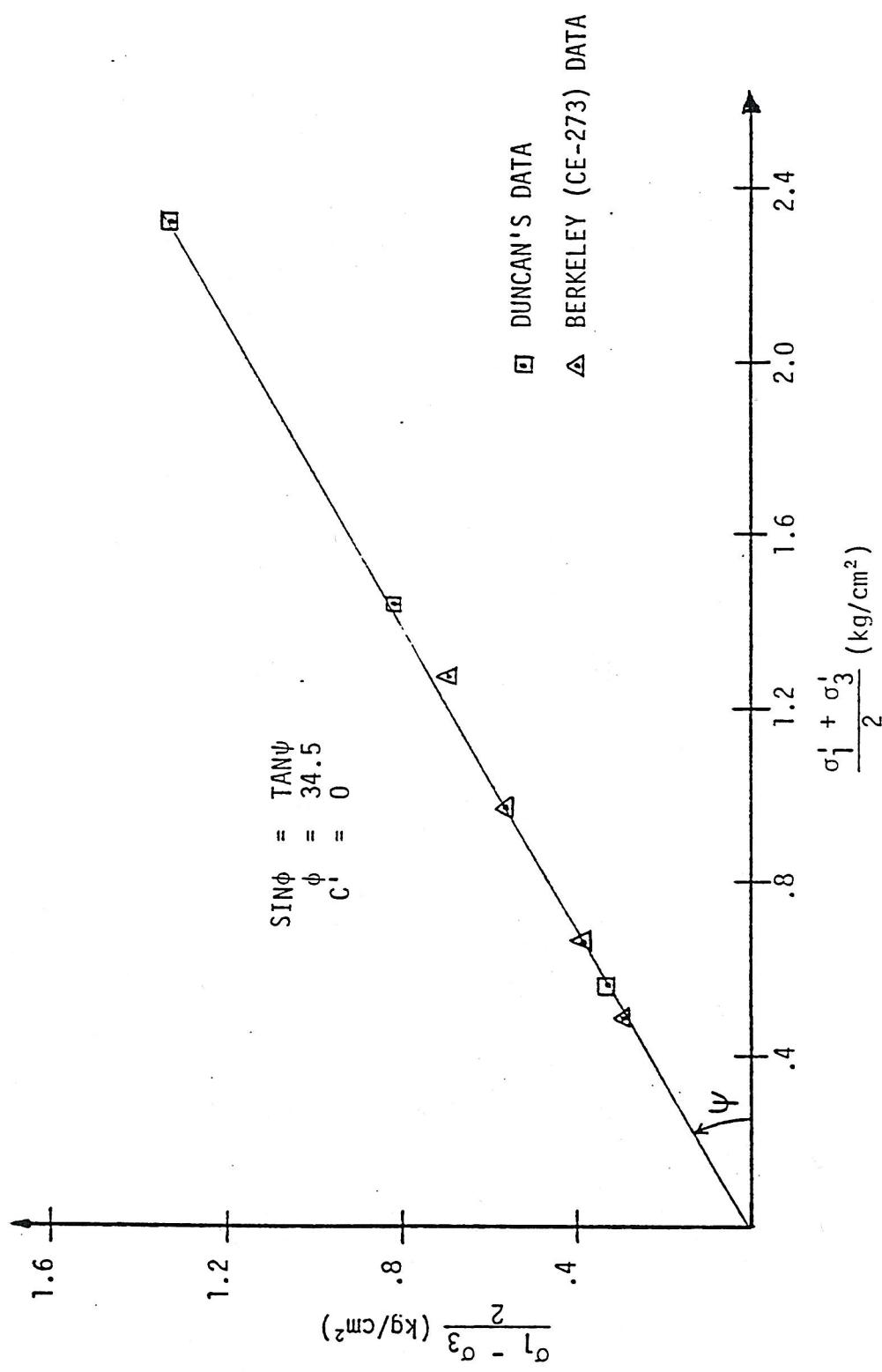
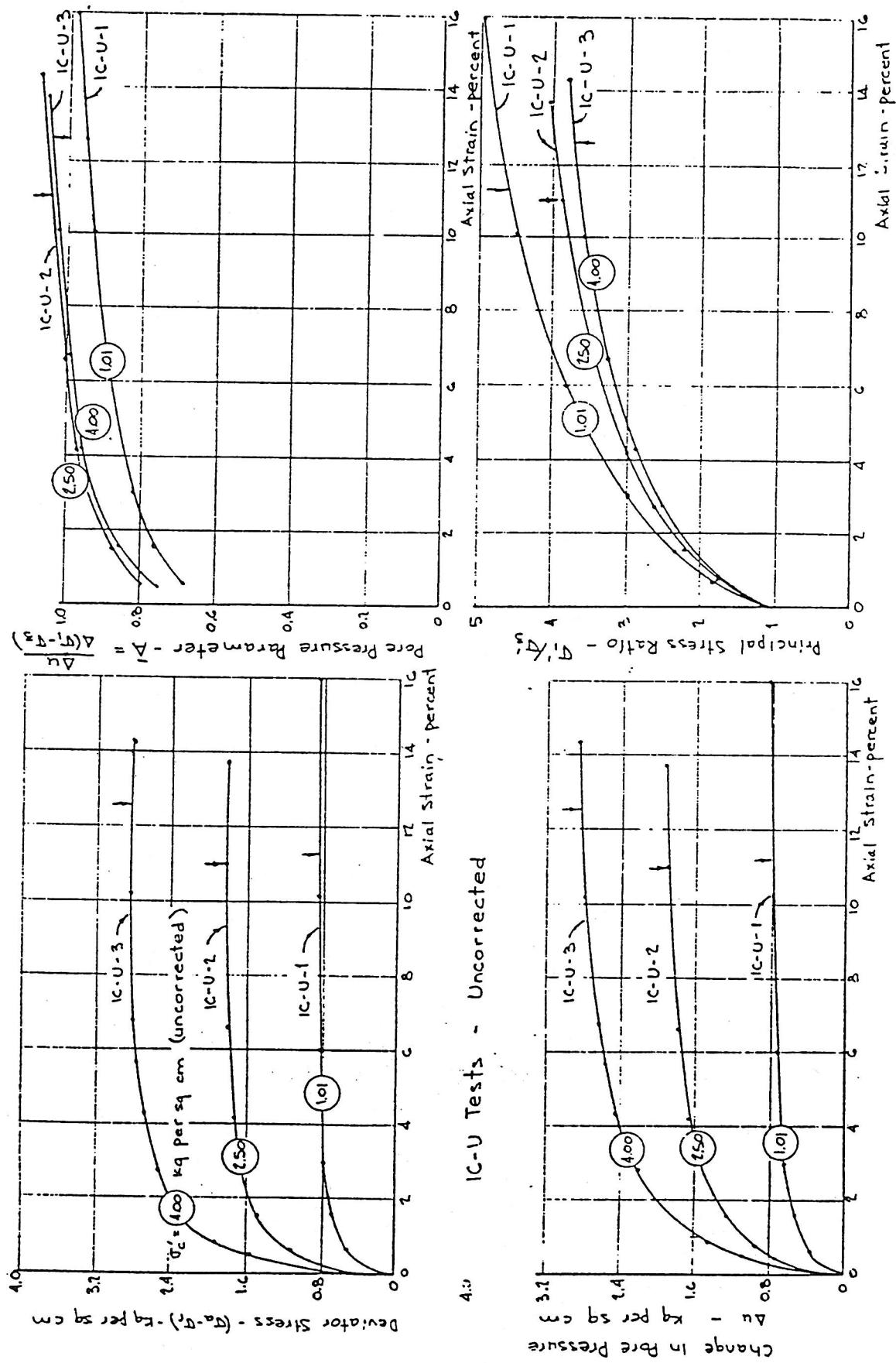


FIGURE 42 IC-U TRIAXIAL TEST EFFECTIVE STRESS STRENGTH ENVELOPE FOR UNDISTURBED SAN FRANCISCO BAY MUD



VARIATIONS OF DEVIATOR STRESS, PORE WATER PRESSURE, PORE PRESSURE COEFFICIENT A_1 , AND EFFECTIVE PRINCIPAL STRESS RATIO WITH AXIAL STRAIN FOR IC-U TRIAXIAL TESTS ON UNDISTURBED SAN FRANCISCO BAY MUD.

FIGURE 47 IC-U TEST RESULTS

From Duncan (1965)

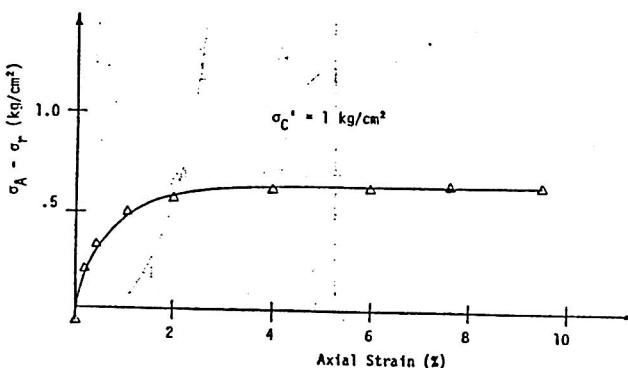


FIGURE 48. TC-U TRIAXIAL TEST ON UNDISTURBED BAY MUD
TEST PERFORMED AT UCB (CE-270L, 1978)

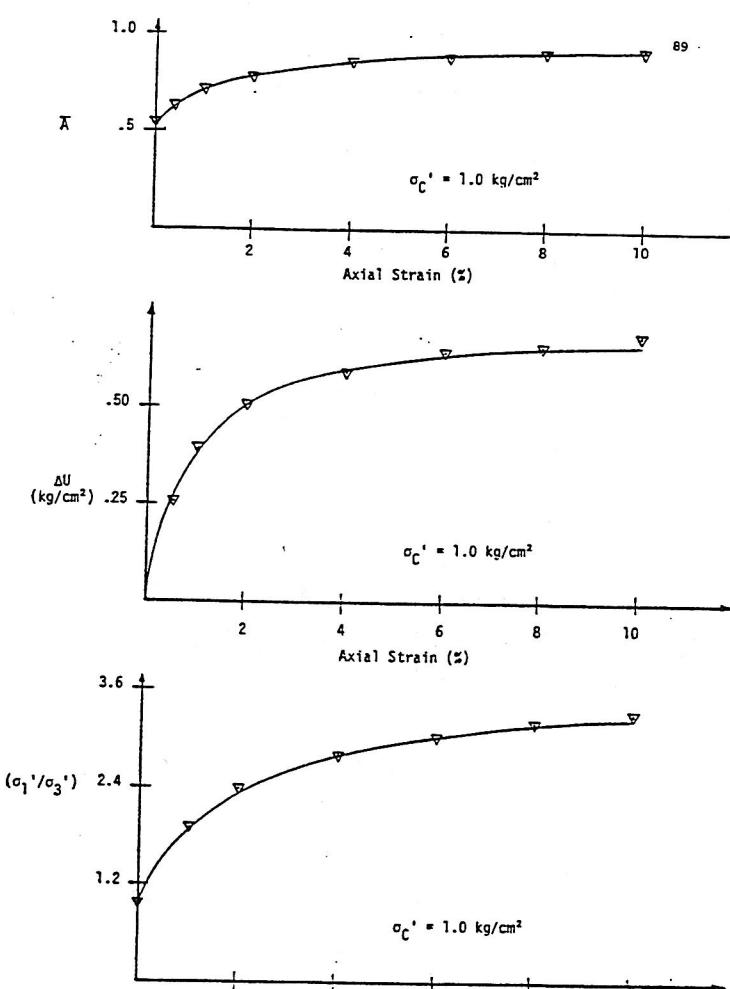


FIGURE 49. FURTHER RESULTS FROM THE TC-U TRIAXIAL TEST PRESENTED IN FIGURE 48

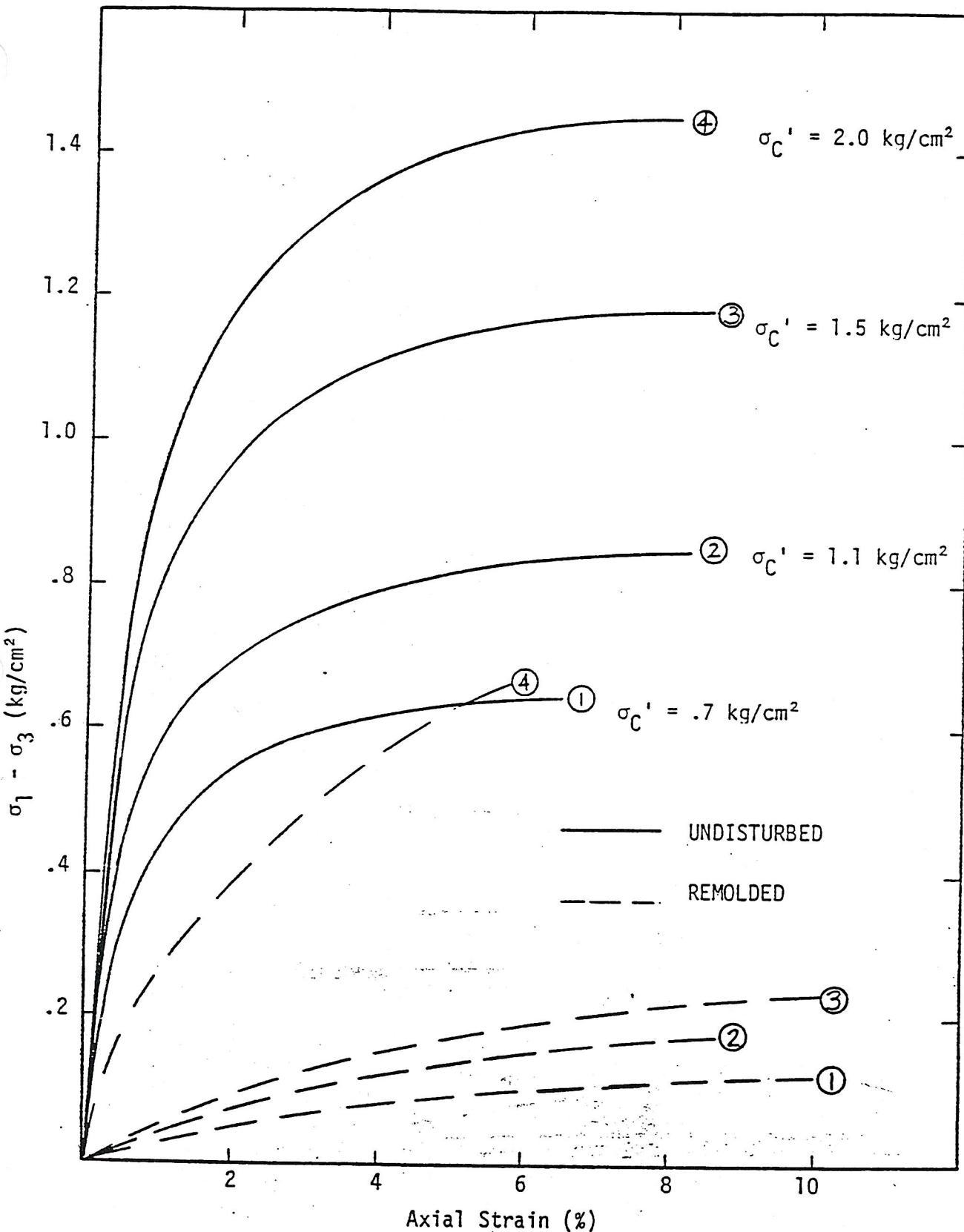


FIGURE 51 RESULTS OF IC-U TRIAXIAL TESTS ON UNDISTURBED AND REMOLDED BAY MUD. PERFORMED AT UCB (CE-273, 1977)

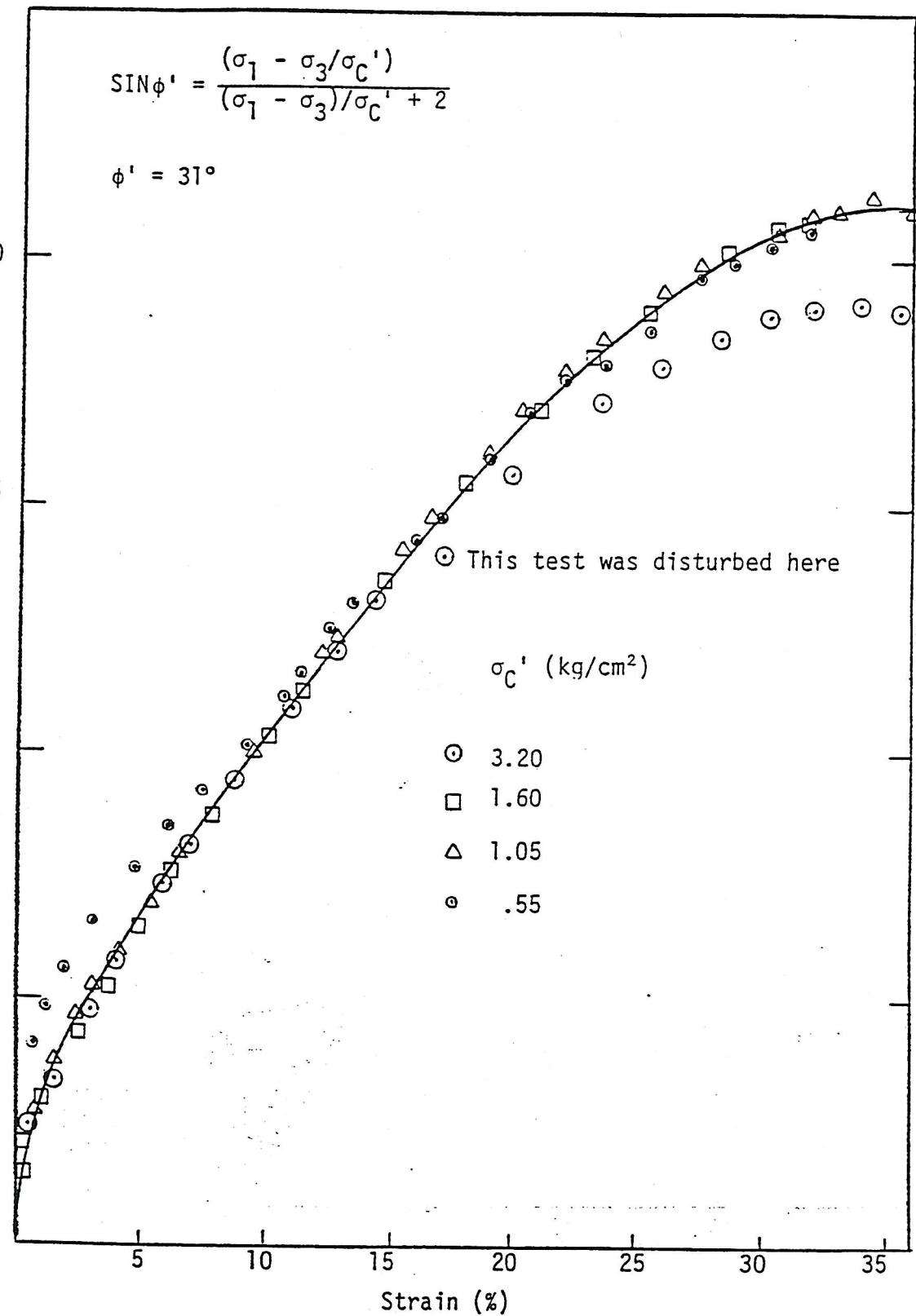


FIGURE 43 NORMALIZED PLOT FROM ISOTROPICALLY CONSOLIDATED DRAINED TRIAXIAL TESTS ON UNDISTURBED BAY MUD

From Lacerda (1977)