

LIQUEFY2 Version 1.50 (for Windows)

UPGRADE NOTICE

A COMPUTER PROGRAM FOR THE EMPIRICAL ESTIMATION OF EARTHQUAKE-INDUCED LIQUEFACTION TRIGGERING

In January 1996, a workshop was convened by the National Center for Earthquake Engineering Research (NCEER). At that workshop, 22 liquefaction-analysis experts met and developed consensus recommendations to standardize the performance of empirical liquefaction analyses using the familiar Seed and others (1985) procedure. After two years of deliberations, the final recommendations of that committee were published in May 1998 by NCEER. Those new recommendations have modified and revised several of the draft recommendations that were previously released in 1996 (and incorporated in the previous 1.30 Version of LIQUEFY2). To implement the revised recommendations, I have created the new Version 1.50 update of LIQUEFY2.

The recommendations that constitute the new "1997" NCEER SPT procedure are summarized in a paper by Youd and Idriss (1997). Some of the information in that paper is summarized in the LIQUEFY2 Version 1.50 documentation. The new SPT procedure differs from the preliminary (1996) version in several ways: the r_d -factor, the magnitude-

scaling-factors, the k_{σ} factor, the inclusion of my fourth-order polynomial equation for the CRR base curve, a new fines-content adjustment procedure, allowance for rod "stick-up", and new SPT-correction factors. LIQUEFY2 Version 1.50 has been improved so that it now allows the use of different groundwater elevations for the analysis and for the field boring. It also allows the user to estimate the beneficial effects of increased vertical stresses caused by the addition of compacted fill over the top of a liquefiable soil profile. The stress normalization factor also has been standardized at 100 kPa (1.044 tsf), but LIQUEFY2 allows the user to modify that factor, if desired.

Previous versions of LIQUEFY2 were written in BetterBASIC, but the new 1.50 version has been written for Windows 3.1, in Microsoft's Visual BASIC. The program uses Windows compatible printers to generate program output. The program is being released in an interim form to be as timely as possible.

The cost for licensing a compiled, executable **update** copy of the program, with its documentation is only \$89.00. Those companies that have already purchased additional copies of the program for use in branch offices of their company, can purchase **upgrade copies** of the branch office programs for the reduced price of \$65.00. If you do not already have LIQUEFY2, you may **license the program** for \$450.00 (+ tax & shipping). A new copy for a branch office of a company that already has the program is \$175.00 (+ tax & shipping). If you have any questions, please contact us. (Web site address: <http://thomasfblake.com>)

Please make check payable to:

- ___ Upgrades from previous version of LIQUEFY2 \$89.00 each
- ___ New license of LIQUEFY2 (Version 1.50) \$450.00 each
- ___ Branch-office upgrades (if already licensed with v. 1.50) \$65.00 each
- ___ Branch-office new license (if already licensed with v. 1.50) \$175.00 each

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Web site address: thomasfblake.com _____ (Previous serial number for upgrade or branch office copy)

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Amount enclosed: \$ _____ (Be sure to include 7.25% sales tax and \$8.00 shipping)

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SAMPLE INPUT SCREEN

LIQUEFY2 - LIQUEFACTION (NCEER, 1997)
Job/Analysis Name (20 Characters Max)
Job Number (15 Characters Max)

Begin Calculations
Exit
Sample Problem
9842-0000

rod-Factor

 Seed (1985)
 NCEER (1997)

Rod Length Corr.?

 Yes
 No
 Rod Stick Up (ft)

Magnitude Scaling Factor (MSF)

 Idriss (1998) Y / N 20%
 Idriss (1997) Y / N 32%
 Andrus/Stokoe Y / N 50%

Calc. Water Depth (ft)

EQ. Mag. (Mw)

Peak Acc. (g)

Surcharge Fill Loading

Fill Unit Wt. (pcf) Fill Ht. (ft)

Output File

WIN Notepad

Soil Profile Log Name (*.LDW)

New LIQTEST.LDW

Liquefaction Results File (*.LAR)

New LIQTEST.LAR

Update Page From File

Write Table to LDW File

Output File

New LIQTEST.OUT

Boring Water (ft)

	Base	Field N	0/1	Unit Wt.	Fines	D50	SPT Depth
▶	2	20	0	125	48	0.075	1.25
	7	15	1	113	10	0.16	4.75
	12.5	5	0	103	98	0.005	9.75
	16	13	1	110	10	0.142	14.25
	20	16	1	114	7	0.19	18.25
	25	20	1	117	5	0.203	22.25
	31	25	1	115	7	0.195	27.75
	38	10	0	118	60	0.06	34.75
	43	20	1	114	8	0.18	40.75
	47	28	1	116	14	0.105	44.75