OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
SOFTWARE USER REQUEST

QA: QA

Complete Only Applicable Items

Page: 1 of:

1. Software Activity Number:	2. Software Name and Version:	3. Software Tracking Number:
LBNL-1999-141	TOUGHREACT V2.2	10154-2.2-00

4. Organizational and geographical location where software will be used:

NW/ESD, Lawrence Berkeley National Laboratory, Berkeley, CA

5. Central Processing Unit (CPU) Number(s) (property tag number(s) or CPU serial number(s):

6332537

6. State the intended use of the software in the new environment:

Use TOUGHREACT V2.2 for analysis and modeling of nonisothermal multiphase flow, transport, and mineral-water reactions under kinetic and/or equilibrium conditions on workstations with Unix.

CD, diskette, or FTP methods may be used to transfer files.

6b.

☒ Distribute Software to a Single Computer

6c.

☒ Server Access
- ☒ Single Access
  - ☒ Read
  - ☐ Write
- ☐ Multiple (Global) Access
  - ☐ Read
  - ☐ Write

7. List of users who are qualified to use the software and will have access to the CPU(s):

Eric Sonnenthal, Nick Spycher, Tianfu Xu, Jianchun Liu ~~and Marianne Guerin~~ P. Craig Per for R. Hedegaard 9/13/00

PRELIMINARY DRAFT
INFORMATION ONLY

8a. Responsible Manager Name:	8b. Responsible Manager Org.:	8c. Date
G. S. Bodvarsson	NW/ESD/LBNL	5/4/00
8d. Responsible Manager Telephone Number:	**8e. Responsible Manager Facsimile Number:**	
510-486-4789	510-486-6115	

9a. Software Configuration Secretariat Name:	9b. Date:
Jeff Mason	9/13/00

10. ☐ Installation/Reinstallation Successful. Software operating as expected.

Installer Name: Randy Hedegaard Initials: RFH Date: 10/25/00

SCM CD Copy #1, UNIX OS/DEC & SUN Platform, SMN 10154-MED-2.2-00

TRW Environmental Safety Systems Inc.

1180 Town Center Drive
Las Vegas, NV 89144
702.295.5400

September 11, 2000

Randy Hedegaard
Lawrence Berkeley National Laboratory
1 Cyclotron Rd.
M/S-90-1116
Berkeley, CA 94720

Subject: Installation of TOUGHREACT V2.2, STN10154-2.2-00
SCM Software Status: Qualified

Dear Randy,

The User Request provided to SCM authorizes the enclosed media, TOUGHREACT V2.2, STN10154-2.2-00 to be installed on CPU # 6332537, with a SUN platform. The authorized users are: Eric Sonnenthal, Nick Spycher, Tianfu Xu, Jianchun Liu.

Upon completing the installation of Las Vegas SCM controlled software, please return the media, the completed User Request form, and the items on the checklist below to SCM. The required documentation along with the software should be returned no later than 9/18/00 to:

Betty Hodgson
Software Manager
1180 Town Center Drive
Las Vegas, Nevada 89144

A Software Configuration Management representative, a Responsible Manager, or the individual requesting the software will be responsible for overseeing the installation and return of SCM controlled software, along with the required documents. Copies of the controlled media may not be created without prior approval from Las Vegas SCM.

The only authorized installation is as indicated above. Any changes to this request require coordination with the SCS.

CHECKLIST FOR INSTALLATION:

- ☑ Installer must complete Block 10 of the User Request Form
- ☑ The SCM representative or the installer is responsible for initialing and dating the appropriate spaces in block 10 of the User Request form
- ☑ The software directory listing must contain file size and dates. The installed software code may by in one of the following formats:
  - a) electronic format
  - b) 3½" diskette
  - c) CD-ROM

Should you have any questions or concerns about this process please contact Betty Hodgson at (702) 295-5547.

Sincerely,

Patricia Craig
for Betty Hodgson
Software Manager

Encl. – SCM CD Copy #1, SMN 10154-MED-2.2-00

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Post installation directory structure for TOUGHREACT V2.2 for multiple users
in SCM directory on hydra (DOE# 6332537)in directory:
 /usersraid2/SCM/Installed-Codes.dir/TOUGHREACTv2.2/

total 57919
drwxrwxr-x   2 randyh   scm           512 Sep 20 13:20 copy-of-SCM-install-CD.dir
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 executable
-rw-r--r--   1 randyh   ftpusers        0 Nov 14 16:56 out.txt
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 qa_tests
drwxrwxr-x   2 randyh   scm           512 Sep 25 17:37 run_prob1
drwxrwxr-x   2 randyh   scm           512 Sep 25 17:39 run_prob2
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 sample_problems
drwxrwxr-x   2 randyh   scm          1024 Sep 25 17:33 source_code
-rwxrwxr-x   1 randyh   scm      59258880 Sep 25 17:27 treact22.tar

copy-of-SCM-install-CD.dir:
total 13723
-rwxrwxr-x   1 randyh   scm       3686912 May 22 19:07 TOUGHREACTv2.2_01.pdf
-rwxrwxr-x   1 randyh   scm          2134 Apr  5  2000 readme.txt
-rwxrwxr-x   1 randyh   scm      10331656 Mar 31  2000 treact22.tar.gz

executable:
total 1408
-rwxrwxr-x   1 randyh   scm        557056 Mar 14  2000 treactq2.2_dec
-rwxrwxr-x   1 randyh   scm        862480 Mar 14  2000 treactq2.2_sun

qa_tests:
total 2
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 tests_on_dec
drwxrwxr-x  16 randyh   scm           512 Mar 30  2000 tests_on_sun

qa_tests/tests_on_dec:
total 2
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 qa2.2_vs_eos3_v1.4
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 qa_restart2.2

qa_tests/tests_on_dec/qa2.2_vs_eos3_v1.4:
total 31
-rwxrwxr-x   1 randyh   scm          3525 Mar 14  2000 compare.dat
-rwxrwxr-x   1 randyh   scm         25600 Mar 14  2000 compare.xls
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 eos3_v1.4
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 treactq2.2

qa_tests/tests_on_dec/qa2.2_vs_eos3_v1.4/eos3_v1.4:
total 9860
-rwxrwxr-x   1 randyh   scm         12038 Mar  8  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm       8250883 Mar  8  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm          4699 Mar  8  2000 GENER
-rwxrwxr-x   1 randyh   scm        320282 Nov 12  1999 INCON
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 LINEQ
-rwxrwxr-x   1 randyh   scm        753810 Mar  8  2000 MESH
-rwxrwxr-x   1 randyh   scm        276223 Mar  8  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 TABLE
-rwxrwxr-x   1 randyh   scm          2976 Mar  8  2000 VERS
-rwxrwxr-x   1 randyh   scm        409600 Sep 29  1999 t2eos31.exe

qa_tests/tests_on_dec/qa2.2_vs_eos3_v1.4/treactq2.2:
total 9786
-rwxrwxr-x   1 randyh   scm         12037 Mar  8  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm       7947220 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm          4699 Mar  8  2000 GENER
-rwxrwxr-x   1 randyh   scm        320282 Nov 12  1999 INCON
-rwxrwxr-x   1 randyh   scm         13040 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm        753810 Nov  5  1999 MESH
-rwxrwxr-x   1 randyh   scm        343990 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 TABLE
-rwxrwxr-x   1 randyh   scm          3093 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm        557056 Mar 14  2000 treactq2.2

qa_tests/tests_on_dec/qa_restart2.2:
total 14008
-rwxrwxr-x   1 randyh   scm         53288 Oct 26  1999 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm        104794 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm         11951 Feb 16  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm       1369776 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm        235195 Nov  5  1999 GENER
-rwxrwxr-x   1 randyh   scm       4285097 Feb 16  2000 INCHEM
-rwxrwxr-x   1 randyh   scm        343990 Nov 12  1999 INCON
-rwxrwxr-x   1 randyh   scm           632 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm            80 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm        753810 Nov  5  1999 MESH
-rwxrwxr-x   1 randyh   scm        343990 Mar 14  2000 SAVE
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-rwxrwxr-x   1 randyh   scm       4285097 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm        117048 Mar  9  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm        111049 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Feb 16  2000 TABLE
-rwxrwxr-x   1 randyh   scm        497278 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm        163327 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm        883957 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm          8270 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          3571 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm         15219 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm          5795 Mar 14  2000 compare.dat
-rwxrwxr-x   1 randyh   scm          4820 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         22355 Mar  9  2000 thermok05mod.dat
-rwxrwxr-x   1 randyh   scm        557056 Mar 14  2000 treactq2.2

qa_tests/tests_on_sun:
total 14
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 2phase_flow2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 aqtrans2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 boil100_2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 gas_diffus2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 gas_min_conver
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 gastrans2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 geothermal2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 heat_pipe2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 heat_sat1_2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 heat_unsat1_2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 heat_unsat2_2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 k_thermal2.2
drwxrwxr-x   4 randyh   scm           512 Mar 30  2000 perm-pcap2.2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 reac_rates2.2

qa_tests/tests_on_sun/2phase_flow2.2:
total 2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 no_outer_ring
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 outer_ring

qa_tests/tests_on_sun/2phase_flow2.2/no_outer_ring:
total 368
-rwxrwxr-x   1 randyh   scm          9015 Sep 23  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        179344 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           314 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm         11324 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm        121280 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         16318 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         13957 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Apr 29  1999 TABLE
-rwxrwxr-x   1 randyh   scm          3276 Mar 14  2000 VERS

qa_tests/tests_on_sun/2phase_flow2.2/outer_ring:
total 452
-rwxrwxr-x   1 randyh   scm          9364 Sep 23  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        277895 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           314 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm         22524 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         76080 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         32530 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         27657 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Apr 29  1999 TABLE
-rwxrwxr-x   1 randyh   scm          3276 Mar 14  2000 VERS

qa_tests/tests_on_sun/aqtrans2.2:
total 2477
-rwxrwxr-x   1 randyh   scm          2307 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm          5092 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm        142869 Sep 30  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        906911 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            13 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm           236 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm          2603 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm          7920 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm        162230 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm        137257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm        151497 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1269 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm         45868 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Feb 17  2000 TABLE
-rwxrwxr-x   1 randyh   scm        312642 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm        212520 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm        304630 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm          3809 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          2580 Mar 14  2000 VERS
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-rwxrwxr-x   1 randyh   scm            0 Feb 17  2000 Weighting parameters
-rwxrwxr-x   1 randyh   scm         3393 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm         7579 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm        22216 Nov  5  1999 thermokapps2.05.dat

qa_tests/tests_on_sun/boil100_2.2:
total 1318
-rwxrwxr-x   1 randyh   scm         3743 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm        14964 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm         1828 Nov 18  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm       103509 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm          236 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         2895 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm        15760 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm          268 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm          394 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm         2586 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm         1453 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm         2981 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm            0 May 24  1999 TABLE
-rwxrwxr-x   1 randyh   scm         6562 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm         2975 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         5704 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm        17144 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm         3400 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm            0 Feb 17  2000 Weighting parameters
-rwxrwxr-x   1 randyh   scm       567806 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm       540385 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm        12704 Feb 17  2000 thermok2.dat

qa_tests/tests_on_sun/gas_diffus2.2:
total 3512
-rwxrwxr-x   1 randyh   scm         1868 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm         5095 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm       280478 Mar 10  1999 FLOW.INP
-rwxrwxr-x   1 randyh   scm      1370550 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            0 Mar  1  2000 GENER
-rwxrwxr-x   1 randyh   scm       112124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         4939 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm        33040 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm       162230 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm       137257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm       217510 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm         1311 Mar  9  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm        45868 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm            0 Mar  1  2000 TABLE
-rwxrwxr-x   1 randyh   scm       312642 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm       260579 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm       304630 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm        36077 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm         3212 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm         1520 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm       108544 Mar 14  2000 check_diff.xls
-rwxrwxr-x   1 randyh   scm        44956 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm        22216 Nov  5  1999 thermokapps2.05.dat

qa_tests/tests_on_sun/gas_min_conver:
total 343
-rwxrwxr-x   1 randyh   scm         2741 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm        13865 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm         1370 Sep 22  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm       104555 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm          124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         2092 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm         4000 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm          106 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm          257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm         1338 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm         1434 Mar  2  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm         2934 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm            0 Mar  2  2000 TABLE
-rwxrwxr-x   1 randyh   scm         5110 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm         2613 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         4512 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm         3374 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm         3294 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm       110145 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm        33280 Mar 14  2000 check_conver.xls
-rwxrwxr-x   1 randyh   scm         6749 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm        12704 Feb 17  2000 thermok2.dat
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qa_tests/tests_on_sun/gastrans2.2:
total 3392
-rwxrwxr-x   1 randyh   scm          1868 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm          5095 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm        280478 Mar 10  1999 FLOW.INP
-rwxrwxr-x   1 randyh   scm       1370550 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm             0 May 25  1999 GENER
-rwxrwxr-x   1 randyh   scm        112124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm          4939 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm         33040 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm        162230 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm        137257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm        217510 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1311 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm         45868 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 May 25  1999 TABLE
-rwxrwxr-x   1 randyh   scm        312642 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm        260579 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm        304630 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm         36077 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          3212 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm          1520 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm         44956 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         22216 Nov  5  1999 thermokapps2.05.dat

qa_tests/tests_on_sun/geothermal2.2:
total 164
-rwxrwxr-x   1 randyh   scm          5024 Sep 23  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        120803 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm            12 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         10480 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm          8050 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm          6970 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Apr 29  1999 TABLE
-rwxrwxr-x   1 randyh   scm          2708 Mar 14  2000 VERS

qa_tests/tests_on_sun/heat_pipe2.2:
total 274
-rwxrwxr-x   1 randyh   scm          1501 Sep 23  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        169483 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm            12 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         55680 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         18405 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         16697 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm             0 Apr 29  1999 TABLE
-rwxrwxr-x   1 randyh   scm          3281 Mar 14  2000 VERS

qa_tests/tests_on_sun/heat_sat1_2.2:
total 327
-rwxrwxr-x   1 randyh   scm          2527 Sep 22  1998 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm         13464 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          1375 Sep 22  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        101881 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm           124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm          2165 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm          4720 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm           106 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm           257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm          1298 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1414 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          2938 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Feb 17  2000 TABLE
-rwxrwxr-x   1 randyh   scm          4888 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm          2500 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm          4316 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm          4139 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          2662 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm             0 Feb 17  2000 Weighting parameters
-rwxrwxr-x   1 randyh   scm        126933 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm          6726 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         12704 Feb 17  2000 thermok2.dat

qa_tests/tests_on_sun/heat_unsat1_2.2:
total 310
-rwxrwxr-x   1 randyh   scm          2741 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm         13865 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          1370 Sep 22  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm        104555 Mar 14  2000 FLOW.OUT
```

```
-rwxrwxr-x   1 randyh   scm          91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm         124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm        2092 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm        4000 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         106 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm        1338 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm        1425 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm        2934 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm           0 May 24  1999 TABLE
-rwxrwxr-x   1 randyh   scm        5110 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm        2613 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm        4512 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm        3374 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm        3294 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm      110145 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm        6749 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm       12704 Feb 17  2000 thermok2.dat

qa_tests/tests_on_sun/heat_unsat2_2.2:
total 153
-rwxrwxr-x   1 randyh   scm        2749 Feb 17  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm       13865 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm        1295 Sep 22  1998 FLOW.INP
-rwxrwxr-x   1 randyh   scm       47002 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           0 May 24  1999 GENER
-rwxrwxr-x   1 randyh   scm         124 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm        1362 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm           0 May 24  1999 LINEQ
-rwxrwxr-x   1 randyh   scm         106 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         257 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm        1338 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm        1425 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm        2934 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm           0 May 24  1999 TABLE
-rwxrwxr-x   1 randyh   scm        2224 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm        1144 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm        1964 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm        1589 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm        3023 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm       46575 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm        4405 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm       12704 Feb 17  2000 thermok2.dat

qa_tests/tests_on_sun/k_thermal2.2:
total 150
-rwxrwxr-x   1 randyh   scm        1950 Mar  9  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm      112794 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm         457 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm         460 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm        1600 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         592 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         668 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm           0 Feb 18  2000 TABLE
-rwxrwxr-x   1 randyh   scm        2816 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm       18944 Mar 14  2000 check_kth.xls

qa_tests/tests_on_sun/perm-pcap2.2:
total 2
drwxrwxr-x   2 randyh   scm         512 Mar 30  2000 fracture
drwxrwxr-x   2 randyh   scm         512 Mar 30  2000 matrix

qa_tests/tests_on_sun/perm-pcap2.2/fracture:
total 96
-rwxrwxr-x   1 randyh   scm        2052 Apr 15  1999 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm        7420 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm        1450 Feb 18  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm       28442 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm         169 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm           0 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm         778 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm         320 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm         268 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm         394 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm        1183 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm        1407 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm        2927 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm           0 Mar 14  2000 TABLE
-rwxrwxr-x   1 randyh   scm        1082 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm         661 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         734 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm         329 Mar 14  2000 TIME.DAT
```

```
-rwxrwxr-x   1 randyh   scm          3294 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm         12557 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm          9444 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         10632 Feb 18  2000 thermodum.dat

qa_tests/tests_on_sun/perm-pcap2.2/matrix:
total 96
-rwxrwxr-x   1 randyh   scm          2052 Apr 15  1999 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm          7420 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          1450 Feb 18  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm         28442 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm           169 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm             0 Feb 18  2000 INCON
-rwxrwxr-x   1 randyh   scm           778 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm           320 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm           268 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm           394 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm          1183 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1407 Feb 17  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          2927 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 May 24  1999 TABLE
-rwxrwxr-x   1 randyh   scm          1082 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm           661 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm           734 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm           329 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          3294 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm         12557 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm          9444 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         10632 Feb 18  2000 thermodum.dat

qa_tests/tests_on_sun/reac_rates2.2:
total 143
-rwxrwxr-x   1 randyh   scm          2084 Mar  3  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm          5577 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          1535 Mar  6  2000 FLOW.INP
-rwxrwxr-x   1 randyh   scm         34748 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm             0 Mar  3  2000 GENER
-rwxrwxr-x   1 randyh   scm           236 Mar 14  2000 INCON
-rwxrwxr-x   1 randyh   scm           997 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm           400 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm           268 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm           394 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm           826 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1377 Mar  2  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          2931 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Mar  3  2000 TABLE
-rwxrwxr-x   1 randyh   scm          1672 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm          1040 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm          1489 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm          1280 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          3110 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm         18239 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm         31232 Mar 14  2000 chk_rates.xls
-rwxrwxr-x   1 randyh   scm          3976 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         22216 Nov  5  1999 thermokapps2.05.dat

un_prob1:
otal 2336
rwxrwxr-x   1 randyh   scm          1990 Sep 25 17:37 CHEMICAL.INP
rwxrwxr-x   1 randyh   scm          4735 Sep 25 17:37 CHEMICAL.OUT
rwxrwxr-x   1 randyh   scm          5715 Sep 25 17:37 FLOW.INP
rwxrwxr-x   1 randyh   scm       1065065 Sep 25 17:39 FLOW.OUT
rwxrwxr-x   1 randyh   scm            91 Sep 25 17:37 GENER
rwxrwxr-x   1 randyh   scm             0 Sep 25 17:37 INCON
rwxrwxr-x   1 randyh   scm         52681 Sep 25 17:39 ITER.DAT
rwxrwxr-x   1 randyh   scm        556640 Sep 25 17:39 LINEQ
rwxrwxr-x   1 randyh   scm          5131 Sep 25 17:37 MESH
rwxrwxr-x   1 randyh   scm          4504 Sep 25 17:39 SAVE
rwxrwxr-x   1 randyh   scm          5658 Sep 25 17:39 SAVECHEM
rwxrwxr-x   1 randyh   scm          1261 Sep 25 17:37 SOLUTE.INP
rwxrwxr-x   1 randyh   scm          4201 Sep 25 17:37 SOLUTE.OUT
rwxrwxr-x   1 randyh   scm             0 Sep 25 17:37 TABLE
rwxrwxr-x   1 randyh   scm         10314 Sep 25 17:39 TEC_CONC.DAT
rwxrwxr-x   1 randyh   scm          7092 Sep 25 17:39 TEC_GAS.DAT
rwxrwxr-x   1 randyh   scm         10054 Sep 25 17:39 TEC_MIN.DAT
rwxrwxr-x   1 randyh   scm        261059 Sep 25 17:39 TIME.DAT
rwxrwxr-x   1 randyh   scm          2662 Sep 25 17:39 VERS
rwxrwxr-x   1 randyh   scm          2358 Sep 25 17:37 chdump.dat
rwxrwxr-x   1 randyh   scm        323346 Sep 25 17:39 run_log.dat
rwxrwxr-x   1 randyh   scm         11496 Sep 25 17:37 thermok.dat

n_prob2:
```

```
total 6783
-rwxrwxr-x   1 randyh   scm          4397 Sep 25 17:38 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm         12529 Sep 25 17:39 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          9056 Sep 25 17:38 FLOW.INP
-rwxrwxr-x   1 randyh   scm       2599354 Sep 25 18:00 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Sep 25 17:39 GENER
-rwxrwxr-x   1 randyh   scm             0 Sep 25 17:39 INCON
-rwxrwxr-x   1 randyh   scm        128090 Sep 25 18:00 ITER.DAT
-rwxrwxr-x   1 randyh   scm       1382960 Sep 25 18:00 LINEQ
-rwxrwxr-x   1 randyh   scm          8698 Sep 25 17:39 MESH
-rwxrwxr-x   1 randyh   scm          7518 Sep 25 18:00 SAVE
-rwxrwxr-x   1 randyh   scm         45335 Sep 25 18:00 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1376 Sep 25 17:38 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          5242 Sep 25 17:39 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Sep 25 17:39 TABLE
-rwxrwxr-x   1 randyh   scm         34442 Sep 25 18:00 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm         14666 Sep 25 18:00 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         56655 Sep 25 18:00 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm       2203514 Sep 25 18:00 TIME.DAT
-rwxrwxr-x   1 randyh   scm          2662 Sep 25 18:00 VERS
-rwxrwxr-x   1 randyh   scm          5150 Sep 25 17:39 chdump.dat
-rwxrwxr-x   1 randyh   scm        341682 Sep 25 18:00 run_log.dat
-rwxrwxr-x   1 randyh   scm         18657 Sep 25 17:38 thermoktuff.dat

sample_problems:
total 2
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 sample_problem1
drwxrwxr-x   2 randyh   scm           512 Mar 30  2000 sample_problem2

sample_problems/sample_problem1:
total 2336
-rwxrwxr-x   1 randyh   scm          1990 Mar  8  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm          4735 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          5715 Apr 30  1999 FLOW.INP
-rwxrwxr-x   1 randyh   scm       1065019 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 INCON
-rwxrwxr-x   1 randyh   scm         52681 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm        556640 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm          5131 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm          4504 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm          5658 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1261 Mar 31  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          4201 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 TABLE
-rwxrwxr-x   1 randyh   scm         10314 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm          7092 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         10054 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm        261059 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          2662 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm          2358 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm        323346 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         11496 Mar  8  2000 thermok.dat

sample_problems/sample_problem2:
total 6783
-rwxrwxr-x   1 randyh   scm          4397 Mar  8  2000 CHEMICAL.INP
-rwxrwxr-x   1 randyh   scm         12529 Mar 14  2000 CHEMICAL.OUT
-rwxrwxr-x   1 randyh   scm          9056 May 24  1999 FLOW.INP
-rwxrwxr-x   1 randyh   scm       2599308 Mar 14  2000 FLOW.OUT
-rwxrwxr-x   1 randyh   scm            91 Mar 14  2000 GENER
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 INCON
-rwxrwxr-x   1 randyh   scm        128090 Mar 14  2000 ITER.DAT
-rwxrwxr-x   1 randyh   scm       1382960 Mar 14  2000 LINEQ
-rwxrwxr-x   1 randyh   scm          8698 Mar 14  2000 MESH
-rwxrwxr-x   1 randyh   scm          7518 Mar 14  2000 SAVE
-rwxrwxr-x   1 randyh   scm         45335 Mar 14  2000 SAVECHEM
-rwxrwxr-x   1 randyh   scm          1376 Mar 31  2000 SOLUTE.INP
-rwxrwxr-x   1 randyh   scm          5242 Mar 14  2000 SOLUTE.OUT
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 TABLE
-rwxrwxr-x   1 randyh   scm         34442 Mar 14  2000 TEC_CONC.DAT
-rwxrwxr-x   1 randyh   scm         14666 Mar 14  2000 TEC_GAS.DAT
-rwxrwxr-x   1 randyh   scm         56655 Mar 14  2000 TEC_MIN.DAT
-rwxrwxr-x   1 randyh   scm       2203514 Mar 14  2000 TIME.DAT
-rwxrwxr-x   1 randyh   scm          2662 Mar 14  2000 VERS
-rwxrwxr-x   1 randyh   scm             0 Mar  8  2000 Weighting parameters
-rwxrwxr-x   1 randyh   scm          5150 Mar 14  2000 chdump.dat
-rwxrwxr-x   1 randyh   scm        341682 Mar 14  2000 run_log.dat
-rwxrwxr-x   1 randyh   scm         18657 Mar  8  2000 thermoktuff.dat

source_code:
total 2946
```

```
-rwxrwxr-x   1 randyh    scm          1759 Oct 11  1999 chempar22.inc
-rwxrwxr-x   1 randyh    scm          3585 Sep 30  1999 common22.inc
-rwxrwxr-x   1 randyh    scm          4622 Oct 15  1999 couple_k22.f
-rwxrwxr-x   1 randyh    scm         71234 Mar  9  2000 eos3_22.f
-rwxrwxr-x   1 randyh    scm        122272 Sep 25 17:31 eos3_22.o
-rwxrwxr-x   1 randyh    scm          1020 Oct 14  1999 flowpar22.inc
-rwxrwxr-x   1 randyh    scm          1061 Mar  9  2000 gasdiffus.f
-rwxrwxr-x   1 randyh    scm          1152 Sep 25 17:33 gasdiffus.o
-rwxrwxr-x   1 randyh    scm         84347 Mar 13  2000 geochem22.f
-rwxrwxr-x   1 randyh    scm        167892 Sep 25 17:33 geochem22.o
-rwxrwxr-x   1 randyh    scm         43783 Mar 14  2000 inichm22.f
-rwxrwxr-x   1 randyh    scm         87380 Sep 25 17:33 inichm22.o
-rwxrwxr-x   1 randyh    scm           777 Sep 20  1999 intp1.f
-rwxrwxr-x   1 randyh    scm          1240 Sep 25 17:33 intp1.o
-rwxrwxr-x   1 randyh    scm          1127 Mar  9  2000 kthermfac.f
-rwxrwxr-x   1 randyh    scm          1404 Sep 25 17:33 kthermfac.o
-rwxrwxr-x   1 randyh    scm        115401 Sep 15  1999 ma28.f
-rwxrwxr-x   1 randyh    scm         68684 Sep 25 17:32 ma28.o
-rwxrwxr-x   1 randyh    scm           369 Sep 25 17:31 makefile
-rwxrwxr-x   1 randyh    scm           486 Oct 18  1999 makefile_dec
-rwxrwxr-x   1 randyh    scm           369 Mar  9  2000 makefile_sun
-rwxrwxr-x   1 randyh    scm         42829 Sep 15  1999 meshm.f
-rwxrwxr-x   1 randyh    scm         43417 Sep 15  1999 meshm22.f
-rwxrwxr-x   1 randyh    scm        130604 Sep 25 17:32 meshm22.o
-rwxrwxr-x   1 randyh    scm         22572 Sep 17  1999 newton22.f
-rwxrwxr-x   1 randyh    scm         25200 Sep 25 17:33 newton22.o
-rwxrwxr-x   1 randyh    scm         16002 Sep 21  1999 pcap_2.2ysw.f
-rwxrwxr-x   1 randyh    scm         15056 Sep 25 17:33 pcap_2.2ysw.o
-rwxrwxr-x   1 randyh    scm           217 Sep 14  1999 perm21.inc
-rwxrwxr-x   1 randyh    scm          3707 Mar 13  2000 propchg.f
-rwxrwxr-x   1 randyh    scm          4148 Sep 25 17:33 propchg.o
-rwxrwxr-x   1 randyh    scm         17592 Sep 24  1999 readsolu22.f
-rwxrwxr-x   1 randyh    scm         46460 Sep 25 17:33 readsolu22.o
-rwxrwxr-x   1 randyh    scm           386 Sep 15  1999 secondsun.f
-rwxrwxr-x   1 randyh    scm          1788 Sep 25 17:33 secondsun.o
-rwxrwxr-x   1 randyh    scm          7498 Sep 24  1999 solver5.f
-rwxrwxr-x   1 randyh    scm         14060 Sep 25 17:33 solver5.o
-rwxrwxr-x   1 randyh    scm         65463 Sep 24  1999 t2cg1qui22.f
-rwxrwxr-x   1 randyh    scm        113284 Sep 25 17:32 t2cg1qui22.o
-rwxrwxr-x   1 randyh    scm         84156 Oct 11  1999 t2fqui22.f
-rwxrwxr-x   1 randyh    scm        179264 Sep 25 17:32 t2fqui22.o
-rwxrwxr-x   1 randyh    scm         21119 Oct  8  1999 thermo22.f
-rwxrwxr-x   1 randyh    scm         59920 Sep 25 17:33 thermo22.o
-rwxrwxr-x   1 randyh    scm        164910 Mar 13  2000 treact22.f
-rwxrwxr-x   1 randyh    scm        163224 Sep 25 17:32 treact22.o
-rwxrwxr-x   1 randyh    scm        873220 Sep 25 17:33 treactq2.2
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