

SOFTWARE RELEASE NOTICE

01. SRN Number: RDCO-SRN-008		
02. Project Title: Universal Distinct Element Code, CNWRA Version 1.1		Project No.
03. SRN Title: UDEC V1.8		
04. Originator/Requester: Thomas J. Ratchford		Date: 12/14/93
05. Summary of Actions ☒ Release of new code admitted to CM System ☐ Release of modified code: ☐ Enhancements made ☐ Corrections made ☒ Change of access code		
06. Persons Authorized Access		
Name	RO/RW	A/C/D
07. Element Manager Approval:		Date:
08. Remarks:		

December 14, 1993

MEMORANDUM

TO: A.H. Chowdhury
FROM: T.J. Ratchford
SUBJECT: Software Release Notice (SRN)

TOP-18 requires the Element Manager to be notified when a software code has been placed under configuration management. The attached Software Release Notice is to advise you of the placement of UDEC under configuration management and to request a listing of persons authorized access to UDEC. Please complete the form for UDEC and return it to me at your conveniences. If there are any questions please feel free to call me at 3083.

Block 06, Persons Authorized Access.

Under "Name":

Persons name and cray User Name.

Under "RO/RW":

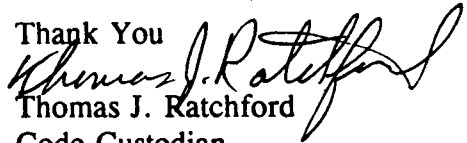
Assign access permission for each person.

RO = Read only access

RW = Read and Write access

Block 07: Element Manager Approval and date.

Thank You


Thomas J. Ratchford
Code Custodian

SOFTWARE SUMMARY FORM

01. Summary Date: 8/11/93	02. Summary prepared by (Name and phone) Mark V. Muller, 522-3222	03. Summary Action: New	
04. Software Date: June 1992	05. Short Title: UDEC, V1.8		
06. Software Title: UDEC - Universal Distinct Element Code, CNWRA version 1.1		07. Internal Software ID: none	
08. Software Type: ☐ Automated Data System ☒ Computer Program ☐ Subroutine/Module	09. Processing Mode: ☐ Interactive ☐ Batch ☒ Combination	10. APPLICATION AREA a. General: ☒ Scientific/Engineering ☐ Bibliographic/Textual ☐ Process Control ☐ Management Business ☐ Computer Systems Support/Utility ☐ Other b. Specific: discontinuum modeling	
11. Submitting Organization and Address: CNWRA		12. Technical Contact(s) and Phone: Mikko Ahola, (210) 522-5799	
13. Narrative: The Universal Distinct Element Code (UDEC) is a two-dimensional numerical program based upon the distinct element method for discontinuum modeling. UDEC simulates the response of discontinuous media (such as a jointed rock mass) subjected to either static or dynamic loading.			
14. Keywords: distinct element method, discontinuum modeling, jointed rock mass, Mohr-Coulomb model, Drucker-Prager model			
15. Computer Model and Manufacturer SUN or IBM-PC compatible	16. Computer Operating System: UNIX (SUN) or DOS/WINDOWS (PC)	17. Programming Language(s): FORTRAN	18. Number of Source Program Statements: 42,000 (estimated)
19. Computer Memory Requirements: 2 Mbytes, minimum	20. Tape Drives: N/A	21. Disk/Drum Units: N/A	22. Terminals: X11 (SUN) or EGA/VGA (PC)
23. Other Operational Requirements More memory will allow models with greater numbers of blocks to be processed; e.g. 8 Mbytes of PC memory allows computation of a 7,500 rigid block model.			
24. Software Availability: ☐ Available ☐ Limited ☒ In-House ONLY ☐ Active ☐ Inactive		25. Documentation Availability: ☐ Available ☐ Inadequate ☒ In-House ONLY	
26. Submission Package Status: CCB Acceptance Criteria: Met ☒ Not Met ☐ Software QA Assessment: Successful ☒ Unsuccessful ☐			
Code Custodian: <u>Mark V. Muller</u>		Date: <u>8/13/93</u>	

UDEC Software, Version 1.1
Source Code Files
SUN/IBM-PC Version

Directory of B:\

INCLUDE	COM	16599	10-31-89	9:58a
READS	ME	5113	06-17-92	2:40p
BE	FOR	47848	06-08-92	3:34p
BESUB	FOR	1393	01-28-92	4:02p
BOUND	FOR	68240	05-22-92	1:03p
CLB	FOR	39275	04-17-92	7:32p
CLJ7	FOR	36022	06-15-92	4:06p
CLZONE	FOR	55747	06-16-92	3:37p
SVSDOS	FOR	103	06-11-92	12:00p
FF	FOR	14721	09-09-91	8:41p
FLOW	FOR	54142	03-28-92	10:37a
FORD	FOR	23745	05-12-92	2:18p
GEN	FOR	72945	05-28-92	11:38a
GRF020	FOR	21140	06-16-92	2:26p
GRF386	FOR	26845	04-10-92	12:51p
TUNCHK	FOR	40678	06-05-92	5:47p
GRFDUM	FOR	15496	06-16-92	2:26p
GRFSUN	FOR	15277	06-19-92	3:49p
GRFX11	FOR	12287	06-19-92	3:49p
HIST	FOR	34556	06-10-92	10:33a
HPUDEC	FOR	15265	06-05-92	5:44p
INPUT	FOR	104098	06-10-92	10:30a
LIBMAN	FOR	11989	01-20-92	4:32p
MAIN	FOR	82308	06-16-92	3:24p
MATCH	FOR	12138	05-28-92	11:26a
MOVIE	FOR	3503	05-28-92	11:39a
RJOINT	FOR	34617	05-28-92	11:24a
SPERRY	FOR	26006	02-07-92	4:51p
STRPRT	FOR	11417	02-07-92	3:47p
TABLE	FOR	2566	05-28-92	12:03p
TADD	FOR	2017	02-14-90	4:30p
TFLOW	FOR	91	06-11-92	11:51a
THERMAL	FOR	79809	06-01-92	4:07p
UTIL	FOR	11602	05-26-92	12:33p
V386SYS	FOR	7662	06-16-92	9:49a
VONMS	FOR	5476	02-14-90	4:06p
XYCRACK	FOR	12768	12-27-91	4:36p
XYZON	FOR	67431	06-16-92	9:51a
NONDOS	FOR	2454	06-16-92	2:23p
SUNDOS	FOR	2395	06-16-92	2:22p
X11DOS	FOR	2395	06-16-92	2:23p
CABLE	FOR	20848	06-05-92	2:12p
DSIDOS	FOR	1963	06-16-92	3:01p
CYCLE	FOR	78418	06-05-92	5:44p
CLJ	FOR	19043	05-22-92	2:32p
BECOM	INC	427	05-26-92	2:04p
GENCOM	INC	232	11-08-91	12:41p
IGPCOM	INC	969	03-06-91	11:32a
IMPCOM	INC	169	09-23-88	3:07p
MATCOM	INC	334	02-15-90	9:31a
MOVCOM	INC	166	06-07-91	7:27a
PLTCOM	INC	1815	01-16-92	1:54p
UDECOR	INC	9496	06-05-92	10:16a
CABCOM	INC	806	06-03-92	4:16p
USER	INC	984	06-22-92	1:49p
DSISYS	ASM	1899	05-03-91	2:38p

ASYS386	ASM	7230	03-23-92	3:50p
MEM	ASM	1030	06-27-91	7:51a
U386	ASM	13059	03-06-91	11:55a
SUNV	C	3530	06-16-92	2:23p
X11	C	9257	06-16-92	2:23p
MAKEFILE	NGR	907	06-16-92	9:50a
MAKEFILE	SNV	931	06-16-92	9:49a
MAKEFILE	X11	969	06-16-92	9:50a
UDEC387	LNK	416	06-16-92	2:47p
UDECDSI	LNK	326	06-16-92	2:49p
UDECND	LNK	392	06-15-92	3:45p
ASYS386	OBJ	1086	06-11-92	12:00p
MEM	OBJ	215	06-11-92	12:00p
U386	OBJ	1957	06-11-92	12:00p
70 file(s)		1279053 bytes		
		163840 bytes free		

Disk 01 of 02
Created 08/11/93

UDEC Software, Version 1.1
Source Code Files
SUN/IBM-PC Version

Directory of B:\

PACZP	FOR	11454	04-30-92	3:44a
PCONLY	FOR	2755	08-02-91	11:09a
PL1	FOR	71340	06-10-92	2:36p
PL2	FOR	98498	06-10-92	10:47a
PL3	FOR	74622	06-04-92	11:18a
PL4	FOR	30294	06-16-92	9:48a
PLASCAP	FOR	8669	06-15-92	4:04p
PRINT	FOR	129962	06-22-92	12:11p
PSCRIPT	FOR	35036	06-10-92	10:52a
		9 file(s)	462630 bytes	
			991232 bytes free	

Disk 02 of 02
Created 08/11/93

UDEC Software, Version 1.1
Example/Verify/Utility Files
SUN/IBM-PC Version

Directory of B:\

EXAMPLE	<DIR>	08-13-93	3:47p
UTILITY	<DIR>	08-13-93	3:47p
VERIFY	<DIR>	08-13-93	3:48p
3 file(s)		0 bytes	
		714240 bytes free	

Directory of B:\EXAMPLE

.	<DIR>	08-13-93	3:47p
..	<DIR>	08-13-93	3:47p
SEISMIC	DAT	3566 05-29-92	12:41p
STOPE	DAT	1859 05-29-92	12:48p
TUNNEL	DAT	1655 05-29-92	12:52p
DAM	DAT	5489 06-11-92	1:56p
CY1	DAT	1147 05-29-92	1:02p
CY2	DAT	1172 05-29-92	1:03p
GROUT	DAT	1285 06-11-92	2:00p
DRIFT	DAT	6405 06-11-92	2:00p
FILL	DAT	3141 05-29-92	1:15p
UDEC	DAT	1967 04-15-92	10:11a
12 file(s)		27686 bytes	

Directory of B:\UTILITY

.	<DIR>	08-13-93	3:47p
..	<DIR>	08-13-93	3:47p
PLOTTER	BAT	42 05-11-87	3:03p
PRINTER	BAT	37 05-11-87	3:03p
TWEITEK	EXE	133072 03-09-90	12:55p
CFIG386	EXE	41568 02-13-89	10:20a
INSTALL	BAT	59 08-29-91	11:09a
DPRINT	EXE	62331 07-12-88	11:08p
INTERP	EXE	51856 09-05-90	9:18a
INTERP	INI	7 09-05-90	10:05a
ITLBLD	FNT	14776 09-15-86	2:07p
NORMAL	FNT	6566 02-24-87	4:23p
POP	BAT	687 11-08-91	12:32a
PRT	ZIP	23141 08-29-91	11:10a
HP500C	EXE	153565 05-28-92	3:35p
HP	EXE	153495 05-28-92	9:22a
HP	DOC	1974 06-10-92	11:16a
17 file(s)		643176 bytes	

Directory of B:\VERIFY

.	<DIR>	08-13-93	3:48p
..	<DIR>	08-13-93	3:48p
S1C	DAT	777 05-12-92	8:52a
S1B	DAT	2492 06-11-92	9:07a
S1A	DAT	2426 06-11-92	9:06a
S2	DAT	1183 05-12-92	9:05a
S3	DAT	1257 05-12-92	9:24a
S4B	DAT	2734 05-18-92	12:09p
S4A	DAT	2738 05-18-92	12:09p
S5	DAT	3704 05-18-92	12:13p
S6	DAT	2021 05-12-92	10:07a
S7	DAT	663 05-12-92	10:24a
S8	DAT	557 05-08-92	2:21p
S9	DAT	2065 05-18-92	12:20p
D1A	DAT	2132 05-12-92	10:55a
D1B	DAT	2340 05-12-92	10:56a
D1C	DAT	2126 05-12-92	10:56a
D1D	DAT	2536 05-12-92	10:57a
D2A	DAT	775 05-12-92	11:12a
D2B	DAT	773 05-12-92	11:12a
TH1A	DAT	935 06-11-92	10:26a
TH1B	DAT	995 06-11-92	10:26a
TH2A	DAT	545 06-11-92	10:27a
TH2B	DAT	599 06-11-92	10:29a
TH3B	DAT	469 06-11-92	10:29a
TH3A	DAT	428 06-11-92	10:29a
TH4B	DAT	535 06-11-92	10:30a
TH4A	DAT	525 06-11-92	10:30a
TH5A	DAT	3079 06-11-92	10:30a
TH5B	DAT	3258 06-11-92	10:36a
TH6A	DAT	738 06-11-92	10:37a
TH6B	DAT	790 06-11-92	10:37a
F1	DAT	719 06-11-92	10:37a
F2	DAT	704 05-12-92	12:52p
CILVPR	FOR	2533 06-11-92	11:20a
LSJEM	FOR	3207 06-11-92	11:19a
36 file(s)		53358 bytes	
		714240 bytes free	

Disk 01 of 01
Created 08/11/93

```

/u1/mmv/udec/ver11
gemstone.69 ~/udec/ver11 => ls -F
code/      example/  utility/   verify/
gemstone.70 ~/udec/ver11 => cd example
gemstone.71 ~/udec/ver11/example => ls -F
s.cyl.dat      s.cy2.dat      s.dam.dat      s.drift.dat      s.fill.dat
s.grout.dat     s.seismic.dat  s.stope.dat     s.tunnel.dat      s.udec.dat
gemstone.72 ~/udec/ver11/example => cd ..
gemstone.73 ~/udec/ver11 => cd utility
gemstone.74 ~/udec/ver11/utility => ls -F
s.cfig386.exe  s.dprint.exe   s.hp.doc        s.hp.exe          s.hp500c.exe
s.install.bat  s.interp.exe   s.interp.ini    s.itlbld.fnt      s.normal.fnt
s.plotter.bat  s.pop.bat      s.printer.bat   s.prt.zip         s.tweitek.exe
gemstone.75 ~/udec/ver11/utility => cd ..
gemstone.76 ~/udec/ver11 => cd verify
gemstone.77 ~/udec/ver11/verify => ls -F
s.cilvpr.for   s.d1a.dat      s.d1b.dat      s.d1c.dat         s.d1d.dat
s.d2a.dat      s.d2b.dat      s.f1.dat        s.f2.dat          s.lsjem.for
s.s1a.dat      s.s1b.dat      s.s1c.dat       s.s2.dat          s.s3.dat
s.s4a.dat      s.s4b.dat      s.s5.dat        s.s6.dat          s.s7.dat
s.s8.dat       s.s9.dat       s.th1a.dat      s.th1b.dat        s.th2a.dat
s.th2b.dat     s.th3a.dat     s.th3b.dat      s.th4a.dat        s.th4b.dat
s.th5a.dat     s.th5b.dat     s.th6a.dat      s.th6b.dat
gemstone.78 ~/udec/ver11/verify =>

```

134.20.1.1 09:27:41

```

gemstone.78 ~/udec/ver11/verify => cd ..
gemstone.79 ~/udec/ver11 => cd code
gemstone.80 ~/udec/ver11/code => ls -F
s.asys386.asm  s.asys386.obj  s.be.for        s.becom.inc
s.besub.for    s.bound.for    s.cabcom.inc    s.cable.for
s.clb.for      s.clj.for      s.clj7.for      s.clzone.for
s.cycle.for    s.dsidos.for   s.dsisys.asm    s.ff.for
s.flow.for     s.ford.for     s.gen.for       s.gencom.inc
s.grf020.for   s.grf386.for   s.grfdum.for    s.grfsun.for
s.grfx11.for   s.hist.for     s.hpudec.for    s.igpcom.inc
s.impcom.inc   s.include.com  s.input.for     s.libman.for
s.main.for     s.makefile.ngr s.makefile.snv  s.makefile.x11
s.match.for    s.matcom.inc   s.mem.asm       s.mem.obj
s.movcom.inc   s.movie.for    s.nondos.for    s.paczp.for
s.pconly.for   s.pl1.for      s.pl2.for       s.pl3.for
s.pl4.for      s.plascap.for  s.pltcom.inc    s.print.for
s.pscript.for  s.reads.me     s.rjoint.for    s.sperry.for
s.strprt.for   s.sundos.for   s.sunv.c        s.svsdos.for
s.table.for    s.tadd.for     s.tflow.for     s.thermal.for
s.tunchk.for   s.u386.asm     s.u386.obj      s.udec387.lnk
s.udecdsi.lnk  s.udecnd.lnk   s.udecom.inc    s.user.inc
s.util.for     s.v386sys.for  s.vonms.for     s.x11.c
s.x1ldos.for   s.xycrak.for   s.xyzon.for
gemstone.81 ~/udec/ver11/code =>

```

134.20.1.1 09:27:53



15 February 1994

RECEIVED

FEB 2 1994

C N W R A

Dr. Asad Chowdhury
CNWRA
Southwest Research Institute
P.O. Box 28510
San Antonio, TX 78228-0510

Dear Asad:

In December 1991, CNWRA purchased the source code of UDEC (serial #216-1-51). In accord with our agreement made at that time, CNWRA is entitled to use the source code on multiple computers providing those computers are at the same location (i.e., in adjacent space within the same facility). If the UDEC code is to be used in separate facilities, thereby increasing the potential for repetitive support inquiries from CNWRA, we would insist that multiple copies of the code be purchased.

Sincerely,

A handwritten signature in dark ink, appearing to read "John J. Markham", with a long horizontal line extending to the right.

John J. Markham
Executive Officer

jjm/vv
REF: 216/814

cc. W. Patrick S. Hsiang
B. Sagar M. Akola
H. Garcia A. Ghosh
B. Mabrito G. Ofoegbu
T. Ratchford - EA

**SOUTHWEST RESEARCH INSTITUTE**

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6220 CULEBRA ROAD / 78238-5166
SAN ANTONIO, TEXAS
512/684-5111 • FAX 512/522-3964

5. DEPARTMENT

PURCHASE ORDER

THIS NUMBER MUST APPEAR
ON ALL CORRESPONDENCE,
INVOICES AND PACKAGES.

TEXAS SALES TAX EXEMPTION

ITEMS PURCHASED HEREIN ARE FOR OUR USE AND ARE EXEMPT
FROM TEXAS SALES AND USE TAX UNDER SECTION 151.310,
TEXAS TAX CODE SALES TAX PERMIT NO. 1-74-1070544.0. TEXAS
SALES TAX EXEMPTION CERTIFICATE-SEE REVERSE SIDE HEREOF.

No. 81558

ITASCA CONSULTING GROUP
1313 FIFTH STREET SE
SUITE 210
MINNEAPOLIS, MN 55414

SHIP
TO:

P.O. DATE

12/18/91

SHIP VIA

BEST WAY

F.O.B. POINT

SHIPPING POINT

TERMS

NET 30

UNLESS OTHERWISE SPECIFIED, SHIP TO ABOVE ADDRESS

DELIVERY IS REQUIRED
AT DESTINATION
NO LATER THAN

12/30/91

ATTN:

ROGER HART

015699 *AP DIRECT*

GOVT. CONTRACT NO.

This is a rated order certified for national defense use, and you are required to follow all the provisions of the Defense Priorities and Allocations System regulation
(15 CFR 350).

ITEM NO.	QUANTITY ORDERED	UNIT	DESCRIPTION	ITEM IDENTIFIER	UNIT PRICE	TOTAL PRICE
A	1	EACH	TWO-DIMENSIONAL DISTINCT ELEMENT CODE UDEEC SOURCE CODE COMPATIBLE WITH SUN WORK STATION		10000.00	10,000.00
B	1	EACH	BARTON BANDIS MODEL AND SUBROUTINES FOR INPUT PARAMETERS CALCULATION FOR BARTON BANDIS MODEL AND CONTINUOUSLY YIELDING MODEL MAIL - DEC 20, 1991 A/P: ROUTE INVOICE TO A H CHOWDHURY *** CONFIRMING ORDER *** VVK PLEASE MAIL INVOICES IN TRIPLICATE TO ACCOUNTS PAYABLE PLEASE SIGN AND RETURN ACCEPTANCE COPY WITHIN 5 DAYS.		2500.00	2,500.00

IF DELIVERY OF COMMODITIES IS UNABLE TO BE COMPLETED BY THE DATE INDICATED ABOVE, PLEASE GIVE REASONS FOR SUCH A DELAY AND PROVIDE SUBSEQUENT DELIVERY DATE.

TO BE USED FOR		DELIVER TO		REQ. NUMBER	BUYER	
UNWRA-EDCO		A CHOWDHURY/A LOPEZ/168. 3RD F		773330	V. FRAQUE	
APPROVED BY		ACCOUNT NO.	AMOUNT	ACCOUNT NO.	AMOUNT	TYPIS
		20-0212-000	12,500.00			19

SEE REVERSE SIDE FOR TERMS AND CONDITIONS HEREIN AND ON REVERSE SIDE HEREOF