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SOFTWARE RELEASE NOTICE

1. SRN Number: GHGC-SRN-234		
2. Project Title: Unsaturated and Saturated Flow Under Isothermal Conditions (USFIC)		Project No. 20.01402.861
3. SRN Title: Groundwater Modeling System (GMS) V.3.0		
4. Originator/Requestor: W. Illman		Date: 12/29/2000
5. Summary of Actions <input checked="" type="checkbox"/> Release of new software - Executable Only <input type="checkbox"/> Release of modified software: <input type="checkbox"/> Enhancements made <input type="checkbox"/> Corrections made <input type="checkbox"/> Change of access software <input checked="" type="checkbox"/> Software Retirement <i>ERP 1/24/03</i>		
6. Persons Authorized Access		
Name	Read Only/Read-Write	Addition/Change/Delete
Walter Illman	RO/RW	Addition
7. Element Manager Approval: <i>[Signature]</i> For F. Reaney		Date: 1/2/2001
8. Remarks: GMS V.3.0 executable obtained from EMS-1.		

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SOFTWARE SUMMARY FORM

01. Summary Date: 12/13/2000	02. Summary prepared by (Name and phone): Walter Illman (210) 522-6085 <i>WI</i>	03. Summary Action: Upgrade	
04. Software Date:	05. Short Title: Groundwater Modeling System GMS V.3.0	<i>NEW</i>	
06. Software Title: Groundwater Modeling System			07. Internal Software
08. Software Type: <input type="checkbox"/> Automated Data System <input checked="" type="checkbox"/> Computer Program <input type="checkbox"/> Subroutine/Module	09. Processing Mode: <input checked="" type="checkbox"/> Interactive <input type="checkbox"/> Batch <input type="checkbox"/> Combination	10. Application Area: a. General: <input checked="" type="checkbox"/> Scientific/Engineering <input type="checkbox"/> Auxiliary Analyses <input type="checkbox"/> Total System PA <input type="checkbox"/> Subsystem PA <input type="checkbox"/> Other b. Specific:	
11. Submitting Organization and Address: CNWRA/SwRI 6220 Culebra Road San Antonio, TX 78228		12. Technical Contact(s) and Phone: Walter Illman (210) 522-6085 David Farrell (210) 522-5208	
13. Software Application: Software served as a Pre-And Post-Processor for a number of groundwater/solute transport codes (MODFOLW, FEMWATER, MT3D, RT3D, MODPATH...). 2D and 3D Finite Element and Finite Difference mesh can be generated by the software. Contour and vector plots can also be provided.			
14. Computer Platform: PC	15. Computer Operating System: Window NT 4.0	16. Programming Language(s): N/A	17. Number of Source Program Statements: N/A
18. Computer Memory Requirements: 32 Mb	19. Tape Drives: N/A	20. Disk Units: <i>N/A / CD</i> <i>62</i> <i>12/29/2000</i>	21. Graphics: N/A
22. Other Operational Requirements: No special operational requirements are necessary.			
23. Software Availability: <input type="checkbox"/> Available <input type="checkbox"/> Limited <input checked="" type="checkbox"/> In-House ONLY		24. Documentation Availability: <input checked="" type="checkbox"/> Available <input type="checkbox"/> Preliminary <input type="checkbox"/> In-House ONLY	
25. Software Developer: <u>EMS-I, 1881 West 820, North #2, Provo, Utah 84601</u> Date: <u>12/29/2000</u>			

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**CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES
DESIGN VERIFICATION REPORT FOR CNWRA SOFTWARE**

ACQUIRED CODE - NOT TO BE MODIFIED¹

Software Title/Name: Groundwater Modeling Systems
Version: 3.0
Demonstration workstation: "Bullwinkle" is Bldg 189, Rm. A210
Operating System: Windows NT Version 4
Developer: EMS-1, Provo, UTAH

1. Output: TOP-018, Section 5.5.4

Software designed so that individual runs are uniquely identified by Date, Time, Name of software and version?

Yes: ☒ No: ☐ N/A: ☐

Date and time of run: _____

Name and version: GMS V. 3.0

[Notes: Acquired code that is not to be modified is accepted as is.]

2. Medium and Header Documentation: TOP-018, Section 5.5.6

The physical labeling of software medium (tapes, disks, etc.) contain required information?

Yes: ☒ No: ☐ N/A: ☐

Program Name: GMS

Module/Name/Title: GMS. 3.0

Module Revision: 3.0

File Type (ASCII, OBJ, EXE): EXE, TXT

Recording Date: 1/2/01

Operating System of Supporting Hardware: NT - PC

Notes: [Acquired code that is not to be modified may not have all above elements.]

¹ See TOP-018, Table 1 for criteria.

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**DESIGN VERIFICATION REPORT FOR CNWRA SOFTWARE
ACQUIRED CODE - NOT TO BE MODIFIED**

3. User's Manual: TOP-018, Section 5.5.5

- a) Is there a Users' Manual for the software?

Yes: ☒ No: ☐ N/A: ☐

User's Manual Version and Date: GMS V. 3.0. Nov 17, 1999

Notes: Available at EMSI.com web site.

- b) Are there basic instructions for the use of the software?

Yes: ☒ No: ☐ N/A: ☐

Location of Instruction: User's Manual - in W. Illman's Office.

Notes:

4. Acceptance Testing: TOP-018, Section 5.6

- a) Has installation testing been conducted for each intended computer platform and operating system?

Yes: ☒ No: ☐ N/A: ☐

Platform(s): Windows NT - on computer in Rm A210

Operating System(s): Windows NT

Location of Test Results: In GMS V 3.0. folder in QA Records Room

Notes:

5. Configuration Control: TOP-018, Section 5.7

- a) Is the Software Summary Form completed and signed?

Yes: ☒ No: ☐ N/A: ☐

Software Summary Form Approval Date: 12/29/2000 - NOTE - Developer is EMS-1, NOT CNWRA STAFF.

Notes:

- b) Is a software technical description prepared, documenting the essential mathematical and numerical basis?

Yes: ☒ No: ☐ N/A: ☐

Location Technical Description: on CD -

Notes:

- c) Is the source code available (or, is the executable code available in the case of (acquired/commercial codes)?

Yes: ☒ No: ☐ N/A: ☐

Location of Source Code: Executable only available.

Notes:

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**DESIGN VERIFICATION REPORT FOR CNWRA SOFTWARE
ACQUIRED CODE - NOT TO BE MODIFIED**

6. Configuration Control, continued: TOP-018, Section 5.7

Have all the script/make files and executable files been submitted to the Software Custodian?

Yes: ☒ No: ☐ N/A: ☐

Location of Script/Make Files: only Executable will be kept in QA Records.

Notes:

7. Software Release: TOP-018, Section 5.9

Upon acceptance of the software as verified above, has a Software release Notice, Form TOP-6 been issued?

Yes: ☒ No: ☐ N/A: ☐

Version number on software (1.0 for 1st issue): GMS Version 3.0

Version number on SRN: 3.0

Notes: G-HG C-SRN-234 R2 6/28/02

8. Software Validation: TOP-018, Section 5.10

a) Has a Software Validation Test Plan (SVTP) been prepared for the range of application of the software?

Yes: ☒ No: ☒ N/A: ☐

Version/Date of SVTP: Mod flow 96 R2 6/28/02

Date reviewed and approved via QAP-002: June 20, 2002

Notes:

b) Has a Software Validation Test Report (SVTR) been prepared that documents the results of the validation cases, interpretation of the results, and determination if the software has been validated?

Yes: ☐ No: ☒ N/A: ☐

Version/Date of SVTR: _____

Date reviewed and approved via QAP-002: _____

Notes: Scheduled for 8/15/02 R2 6/28/02

Additional Remarks:

CNWRA Software Developer/Date

CNWRA Software Custodian/Date

NOTE: This "Design Verification Report" was accomplished with Dr. Illman prior to his departure. He is not available to sign this report at this time. It is proposed that GMS Version 3.1 will be utilized for licensing purposes. That code will be put under TOP-018 control shortly. 6/28/2002

MEMORANDUM

TO: Bruce Mabrito

FROM: Walter Illman

Walter Illman 12/13/2000

DATE: December 13, 2000

SUBJECT: Control of Groundwater Modeling Software v. 3.0

The original copy of the upgrade to GMS software v. 2.0 (put in control by David Farrell) has been received and installed by IMS staff on August 10, 2000. A copy of the software has been successfully installed on the NT workstation BULLWINKLE. Existing license is for a sole user and the software requires a hardware lock to launch the program.

Hydrology staff decided that numerical modeling of ground water flow and contaminant transport will be done using this particular software. This is industry standard software for ground water flow and transport modeling, thus it was decided that all hydrology staff should have access to this software. This hardware lock has been sent back to the vendor (EMS-i) for reprogramming. A password (fjnodawdnaorhljfn) for the security string (rgzCgxHUH) has been assigned as a temporary measure by the vendor. Manuals have not been supplied by the vendor but an electronic copy can be obtained at no cost through their internet site (www.ems-i.com).

The software installation was performed on BULLWINKLE. The test involved reproducing the plotting and numerical results of exercises provided in the Tutorials manual downloaded from the internet site. The examples were chosen since these are the modules which are considered most important for the work done by CNWRA staff. As shown in the attached documentation, the results contained in the exercises were reproduced accurately. Hence, the software appears to have been successfully installed.

To date, no problems, have been encountered through the use of the software

Attachments: 1) Software summary form; 2) GMS v 3.0 Release Notes; 3) Chapters 7, 8, and 10 from the Tutorial Manual; and 4) reproduced figures running the MODFLOW, and MT3D models.

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GMS 3.0

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README.TXT

Contents:

- * Getting Started
- * Documentation
- * Subscribing to the GMS Mailing List
- * Technical Support
- * Non-commercial Government Users

GETTING STARTED

INSTALLATION

-Installing from a CD:

When the CD is inserted, a screen should pop-up automatically. Click on the GMS icon to begin the setup program that will guide you through the GMS installation. If the pop-up screen does not appear when you insert the CD, run the program "setup.exe" in the \Gms\Pc directory of the CD.

-Installing from the web:

GMS and its supporting files (tutorial files, models) can be downloaded from the following URL:

<http://www.ems-i.com/gms/downloads.html>

REGISTERING GMS

When you first install GMS, it will be running in Demo mode. All GMS functions will be enabled with the exception of printing and saving. Anyone can run GMS in Demo Mode on any computer and it can be freely distributed. To enable the print and save functions, you need either a password or a hardware lock to run GMS.

-To Obtain A Password:

Select the File|Register command. This brings up the Register dialog, which has a "security string" listed at the top. Send this security string along with your name, company, and phone, and email to EMS-I in one of the following ways:

Email: password@ems-i.com

Web: <http://www.ems-i.com/gms/register.html>

Fax: 801-375-6410

After verifying that you are a licensed user, a password will be emailed to you. When you receive the password, enter it in the appropriate field in the Register dialog and click the Register button. The modules you purchased will become enabled and GMS will run in Normal mode.

-Hardware Lock:

Follow the instructions you received with the hardware lock to install the hardware lock and accompanying drivers. If you did not receive hardware lock instructions, or they have been misplaced, they can be found in the \Utils\Hwlock\Instructions directory on the CD. There are separate files for single user and network hardware locks. These files can be read using your web browser. If you would like to purchase or have questions about hardware locks, please call us at: 801-373-5200.

Documentation

The complete GMS Reference Manual is included on the CD you received with your purchase. The GMS Tutorials are also included, as well as the available manuals for the models for which GMS has interfaces. All documentation is in the the \Gms\Docs directory in Adobe Acrobat (.pdf) format. If you do not have the Adode Acrobat Reader you can install it from the CD. The installation file is located in the Utils\Readpdf directory on the CD. If you would like hardcopies of any documentation related to GMS, please contact us here at EMS-I. Pricing for our documentation can be found on our website.

Subscribing to the GMS Mailing List

The GMS mailing list is an email forum for GMS users meant to encourage discussion about the software. Subscribers can post GMS related information or questions, and answer questions posted by other users. The mailing list is also used by the GMS Software Developers to post information such as updates, training courses, etc. Our tech support

staff and the software developers sometimes answer questions posted by users as well. You can subscribe to the mailing list via the GMS web pages at:

<http://www.ems-i.com/gms/list.html>

or send e-mail to "gms-moderator@byu.edu" with the word "SUBSCRIBE" in the subject heading. You will receive email back with more information on the mailing group, and how you can use the mailing group.

Technical Support

Technical support is available for all commercial GMS users from the EMS-I technical support staff. Our staff is available from 8:00 AM to 5:00 PM (Mountain Time). Contact technical support at:

Email: gms@ems-i.com

Phone: 801-375-0652

Web: <http://www.ems-i.com/gms/support.html>

All bug reports should specify:

- How to reproduce the problem
- The version and build date (found by selecting Help|About from the GMS menu) of GMS used
- System configuration (OS, CPU, RAM, disk space, network)
- Attach your files if possible

Non-commercial Government Users

Certain government agencies have participated in the development of GMS, and are entitled to free licenses of the software. Those eligible are any offices of the Department of Defense (DoD), Department of Energy (DoE) and Environmental Protection Agency (EPA). Certain on-contractors for these entities also are eligible.

To determine if your agency is eligible for a free license, and for technical support, contact GMS Support at the Waterways Experiment Station (WES) by phone or e-mail:

Email: gms@shazam.wes.army.mil

Phone: 601-634-4286

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If you qualify to use GMS under the DoD/EPA/DoE license, you can become a registered user. To register, select the File|Register command. This brings up the Register dialog, which has a "security string" listed at the top. Phone or email this security string to GMS support at WES, and you will be issued a password. Enter the password in the Register dialog and click the Register button. All modules will then become enabled and GMS will run in Normal Mode.

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