



**PUBLICATION GUIDELINES  
FOR  
MOUND AUTHORS**

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OSTI

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# **PUBLICATION GUIDELINES FOR MOUND AUTHORS**

is produced by

## **TECHNICAL MANUALS AND PUBLICATIONS**

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*Technical Manuals & Publications . . . making Mound look good in print.*

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"Writing is easy. All you have to do is cross out the wrong words."

— *Mark Twain*

## INTRODUCTION

These guidelines were written to help you prepare your rough draft for topical and progress reports, journal articles, conference papers, and Technology UPDATE articles. Other guidelines are available to help you prepare technical and systems manuals.

Technical Manuals and Publications is a group of professional editors and technical information clerks. Because most of the publications produced through our group will eventually be available to readers offsite, it is very important that we help you produce quality reports and articles that reflect the professionalism of your work. This means much more than simply checking spelling, punctuation, and grammar. We will also work toward clarity and consistency in your content and format, ensuring that all references are correctly cited, and all tables and figures are correct and appropriate. In addition, we will see that your work is submitted to the necessary classification and patent reviews, and that the finished product meets all DOE and Mound requirements for publication. After printing, we will internally distribute topical or progress reports in accordance with your distribution list.

We prefer draft materials in the following formats (in decreasing order of preference). Other word processing applications may also be usable, but we will need a hardcopy printout.

- MultiMate Advantage (any version)
- Word Perfect (version 5.1)
- ASCII
- Double spaced, printed (laser, typewriter, dot matrix) hardcopy

Word processed drafts should be supplied on disks. Order of preference:

- 5 1/4 in., 360 K
- 5 1/4 in., 1.2 Mb
- Bernoulli (20 or 44 Mb) cartridges
- 3 1/2 in., 720 K or 1.44 Mb

Submission through AOS (user library for MultiMate) or WPS/AOS E-Mail as documents or attachments is also acceptable. Arrangements can be made to accept Interleaf TPS documents (including illustrations) or DEC WPS/WPS plus document files via electronic transfer, or via TK-50 tape cartridges.

Computer (PC or MicroVax) generated graphics in PIC, TIFF, HPGL and EPS formats, produced from such applications as FreeLance, Interleaf, Windows, PC Paint, ChartMaster, Diagram-Master, ChartStar, Corel Draw, CAD, etc., will be accepted and incorporated into finished products.

## PREPARING YOUR MANUSCRIPT

Before you start to write, consider your audience. Who will be reading your article or report? If you want to present the results of your work to someone who does not have your education or experience, you will want to avoid jargon or extensive use of equations or acronyms. You will also want to include more definitions and examples. On the other hand, if you are writing for an audience of peers through a journal article, your language and style will probably be more professional and exact. (Remember that most topical and progress reports and Technology UPDATE articles will be available to people outside your field of expertise.)

The easiest way to begin writing is to organize your information and ideas into an outline. The outline need not be neat and clean or formal. It is simply a means of giving some logical arrangement to your material. The outline you use will be for your eyes only, not the reader's. So, use whatever form you feel comfortable with.

In general, all Mound reports are similarly organized:

- **Title:** The title should be specific and informative; for example, "Solubility of Lithium Salts in Water" instead of "Solubility Studies."
- **Abstract:** The abstract should be informative, not descriptive, stating what you did, why and how you did it, your results, and the significance of these results. (Although the abstract will *appear* at the beginning of the report, it is always easier to *write* it last. See the section on abstracts that follows.)
- **Introduction:** The introduction is not an echo of the abstract. It should give background information, state the purpose and scope of the research, define the problem, and explain the method of approach.
- **Body** The body of the report may have several sections denoted by headings and subheadings. Sample headings include Equipment and Materials, Test Procedure, Results, Data Analysis, and Discussion.
- **Conclusions:** The final section of text may discuss conclusions and recommendations.
- **Distribution:** The distribution is a list of report recipients both on and offsite.

In addition, a foreword, references, a bibliography, acknowledgments, and appendixes may be included.

## Manuscript Organization

### Prefatory Elements

Title page

Abstract

Foreword

Table of contents

### Introduction

Formulation of the problem

Scope

Importance

History

Underlying theories

Apparatus

Materials

Definitions

### Body

Experimental plan and test procedure

Test results and data analysis

Discussion

Summary

Conclusions

Recommendations

### Supplementary Information

References/bibliography

Appendixes

Detailed Calculations

Graphics and printouts

Specifications and directives

Legal documents

Indexes

## ABSTRACTS

### What is an abstract?

An abstract is a capsule summary of the text contained in a scientific report.

### Why prepare an abstract?

A well prepared abstract enables your readers to grasp the basic contents of your report quickly and accurately, to determine its relevance to their interests, and thus to decide whether they need to read the report in its entirety.

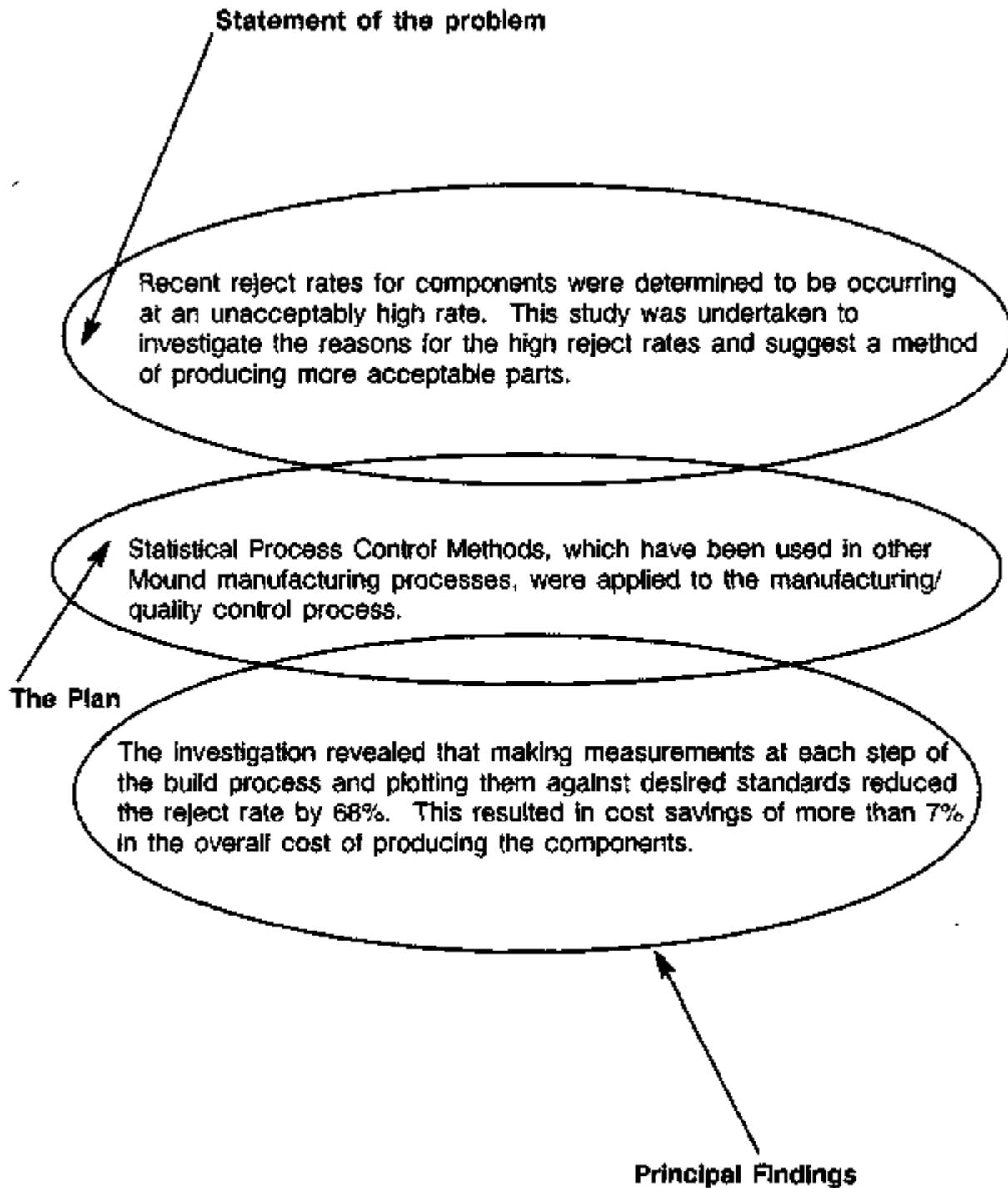
### What goes into an abstract?

You should briefly state the problem(s) addressed, or the purpose of the research performed. Explain the theoretical or experimental plan used. Accurately summarize the principal findings. Point out the major conclusions.

### Notes on abstracts

- It is generally much easier to write an abstract after you write the report.
- Select your words with care. Remember that abstracts should be brief; no more than 250 well-chosen words.
- Since abstracts are often published alone, leave out illustrations, bibliographic references, acronyms, and abbreviations.

## Constructing an Abstract



## TYPES OF PUBLICATIONS

Any scientific or technical investigation that leads to significant findings is worthy of reporting. Frequently, a report is the only permanent record of an investigation. It communicates the results to the funding agency and is a public record of the author's professional accomplishments.

The five types of publications covered by these guidelines are:

- Topical Reports
- Progress Reports (for example, "Weapons Quarterly")
- Journal Articles
- Conference Papers
- Technology UPDATE Articles

Typically you will be directed by these guidelines to submit a Publication Approval, ML-5774, with your manuscript. The approval form should be completed through step 2 for submission. (See Figure 1.)

**TECHNICAL INFORMATION PUBLICATION APPROVAL**  
(SEE OTHER SIDE FOR COMPLETE INSTRUCTIONS)

File No.	4444
Report No.	MLM-XXXX
Editor	MJP

**STEP 1 - FILL IN ALL APPLICABLE INFORMATION**

Title <i>Solubility of Lithium Salt in Water</i>		INFORMATION PRODUCT	
Author(s) <i>John Brown</i>		MLM Report	<input checked="" type="checkbox"/>
Date		Abstract	<input type="checkbox"/>
		Oral Presentation	<input type="checkbox"/>
Telephone No. <i>5555</i>	Cost Center <i>999</i>	Proceedings	<input type="checkbox"/>
		Journal Article	<input type="checkbox"/>
Date <i>11-1-90</i>		Other	_____
▶ If MLM Report, indicate source of funding: DOE Program Office: <i>Defense Programs</i> Other Agency: _____			
▶ If Presentation or Proceedings Paper, indicate exact conference title: Sponsor: _____			
Location: _____		Conference Date(s): _____	
Presentation material to be edited? <input type="checkbox"/> Yes <input type="checkbox"/> No If a proceedings publication, technical editing is advised.			
▶ If Journal Article, indicate preferred journal: Technical editing requested? <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If your work was drafted using MultiMate WordPerfect Interleaf TPS or DEC WPS, please arrange to transfer the files			

**STEP 3 - SUBMIT THIS FORM WITH YOUR MATERIAL FOR EDITING AND FINAL APPROVALS**

**STEP 2 - OBTAIN THESE APPROVALS**

Supervisor <i>George Johnson</i>	Date <i>10-15-90</i>
Manager of Function <i>Lue Douglas</i>	Date <i>10-16-90</i>
Authorized Derivative Classifier <i>Rae Ames</i>	Date <i>10-16-90</i>
<input checked="" type="checkbox"/> UNCLASSIFIED <input type="checkbox"/> UCNI <input type="checkbox"/> OLO <input type="checkbox"/> ECI <input type="checkbox"/> CLASSIFIED Level and Category _____	
FOR COMPUTER PROGRAM RELEASE:	
Manager Applied Computer & Systems Technology	Date

Publications Supervisor	Date
Patent Specialist	Date
Public Release: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Export Control Coordinator	Date
Public Release: <input type="checkbox"/> Yes <input type="checkbox"/> No	
Classification Officer/Analyst	Date
<input type="checkbox"/> UNCLASSIFIED - UNLIMITED DISTRIBUTION <input type="checkbox"/> UNCLASSIFIED - LIMITED DISTRIBUTION - TYPE _____ <input type="checkbox"/> CLASSIFIED - LEVEL AND CATEGORY _____	
Comments	

ML-5774 (6-90)

Figure 1 - ML-5774, Publication Approval, must be completed through step 2 before submission with manuscript.

## TOPICAL REPORTS

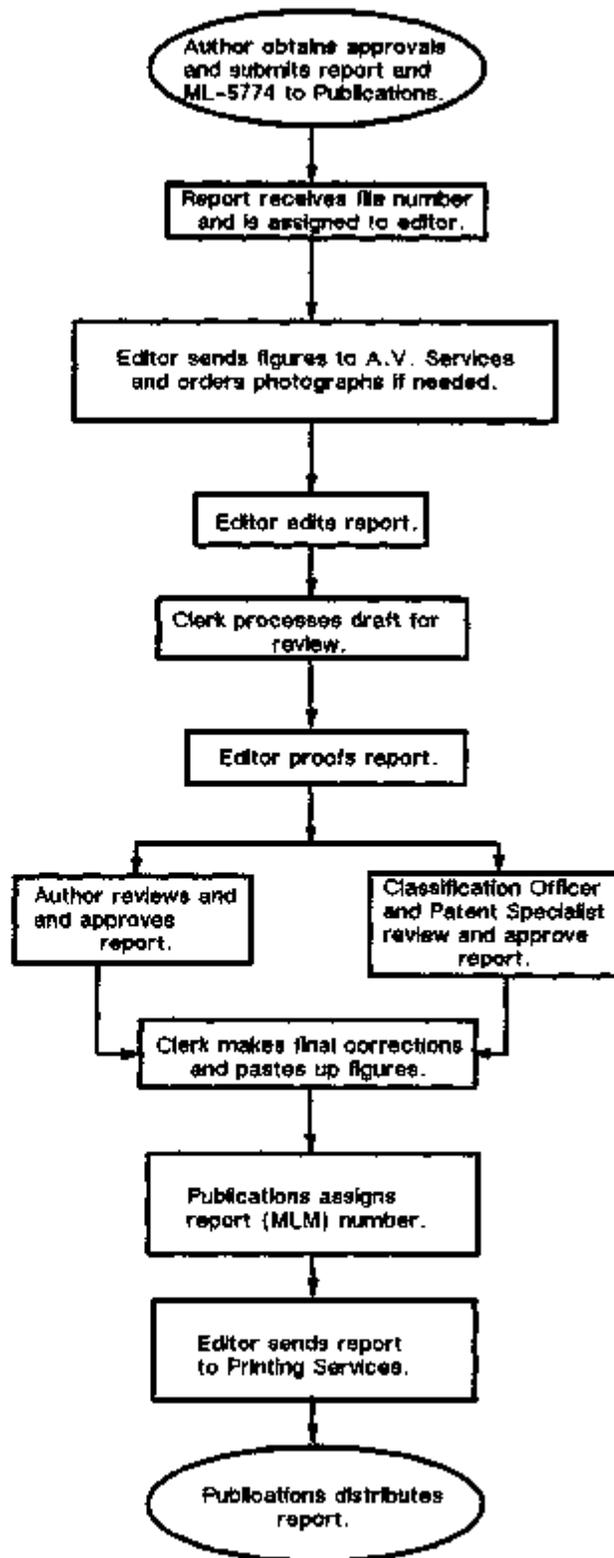
A topical report is the vehicle for publishing programmatic or project information (classified or unclassified) and information of general interest within the scientific and technical community.

To initiate the publication process for a topical report, you must submit a manuscript along with a Publication Approval, ML-5774, to the Technical Publications Supervisor, Building 40. Instructions for completion are on the back of the form. These forms are available from the Publications Office, Building 40, Room 200.

### WHAT WE NEED FROM YOU

Along with the Publication Approval, we will need:

- A double-spaced hard copy of the text and a PC disk.
- Photographs (black and white prints).
- Draft artwork.
- Distribution list.
- Informative abstract.



## WHAT YOU CAN EXPECT FROM US

When a report arrives in Technical Publications, it receives a file number and is assigned to an editor. Topical reports are processed on a first-in/first-out basis, unless a critical deadline must be met.

An editor reviews and edits your report. This includes sizing figures and sending them to Audiovisual Services if they need to be redrawn. If necessary, the editor also requests new photographs from Audiovisual Services using negative numbers you supply. A clerk then formats the edited draft of the report for your review. This draft will show the following:

- Edited version of the text
- Location and size of figures
- Location of tables

While you are reviewing the draft, a copy is also sent for the necessary classification and patent approvals. The Publication Approval is signed by three persons:

- Publications Supervisor
- Patent Specialist/Export Control Coordinator
- Classification Officer

After both classification and patent approval signatures are on the Publication Approval and you have made your final corrections, the report is dated, assigned a control number, and sent for printing. Printing Services notifies the editor when the report is completed.

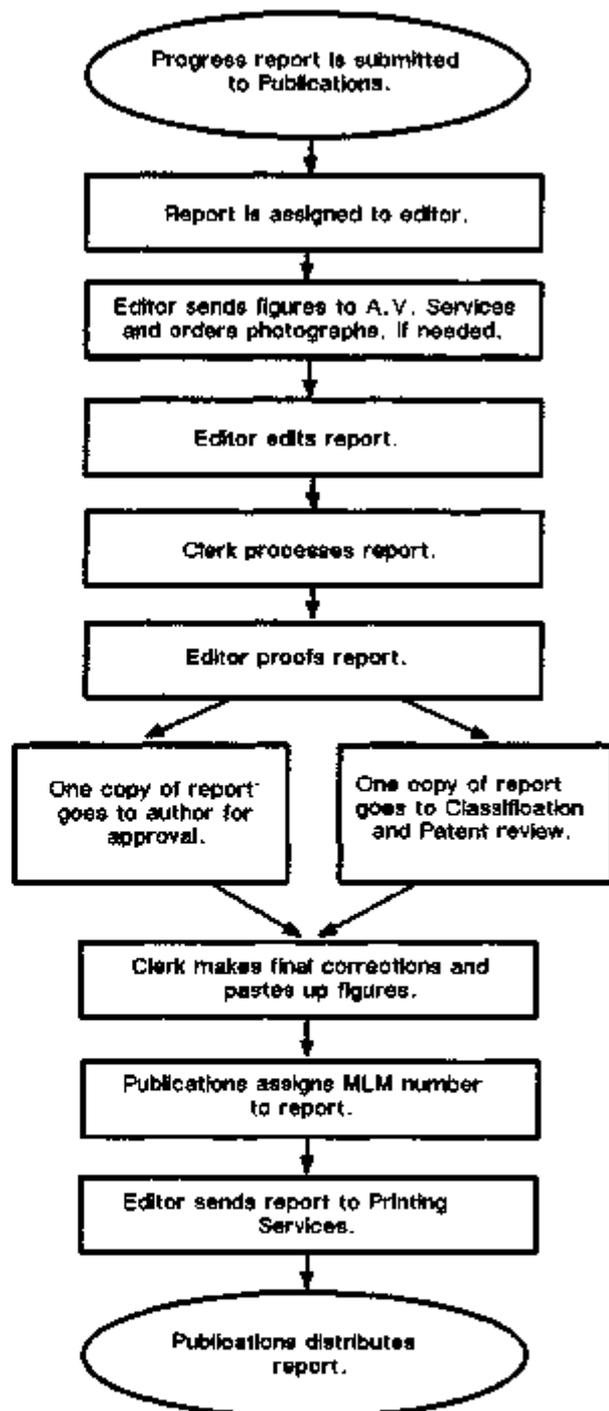
Distribution is determined by final classification. Publications performs all internal and standard (OSTI and DAO) external distribution. You are responsible for completing any additional external distribution.

## PROGRESS REPORTS

Technical progress in Mound programs is reported to various DOE offices, design agencies, contractors, and subcontractors on a quarterly, semiannual, or annual basis. For some of these reports, a publication date has been previously established; for others, the publication date is somewhat flexible. Previous progress reports in a series should be examined for format and method of presentation.

### WHAT WE NEED FROM YOU

- Title (consistent from reporting period to reporting period).
- Abstract.
- Body:
  - Background statement.
  - Theoretical basis of the inquiry or experimental plan.
- Significant accomplishments.
- Summary/conclusion.
- Plans for next reporting period.
- Photographs (or negative numbers, if they need to be ordered from Audiovisual Services).
- Any changes to distribution.



## WHAT YOU CAN EXPECT FROM US

When a progress report arrives in Technical Publications, it is assigned to an editor. If the progress report has an externally imposed deadline date, it is usually given priority in editing and composition; however, the Publications Supervisor should be consulted as soon as possible to arrange a schedule.

As part of our editorial service to you, we will:

- Perform a complete copyedit.
- Edit and size illustrations, having them redrawn, if necessary.
- Order needed photos from Audiovisual Services.
- Provide an edited, formatted draft for your review.
- Obtain final approvals.
- Send corrected and approved copy to Printing Services.
- Make internal and standard external distribution.

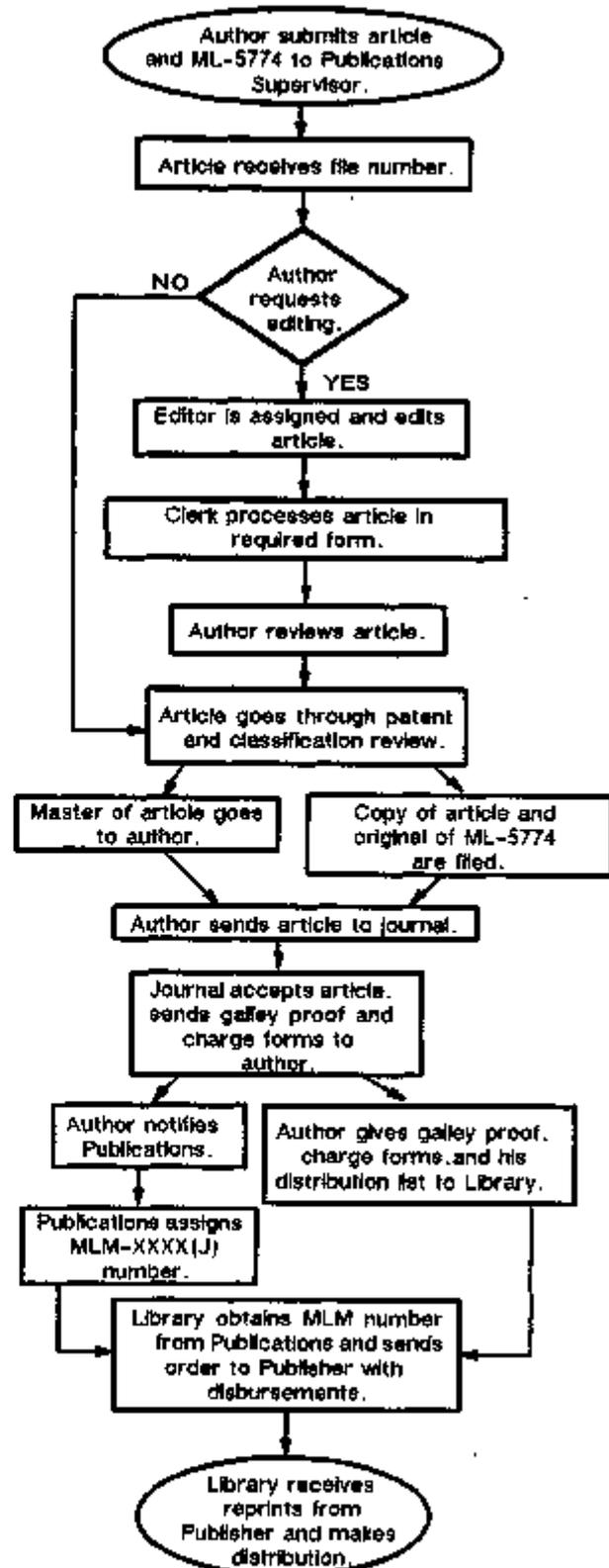
The author is responsible for mailing copies for any additional external distribution.

## JOURNAL ARTICLES

Publication in professional journals is greatly encouraged. Journal articles reach a much wider audience than Mound topical reports and, because they receive an independent technical review, are generally held in greater esteem.

Whether or not editing is requested:

- Select the journal based on the appropriate audience for your article.
- Follow the journal's guidelines for drafting your article.
- Unless the journal specifies otherwise, organize your manuscript as follows:
  1. Title page with author names address, and contractual statement.
  2. Informative abstract, double-spaced on a separate page.
  3. Text, double-spaced.
  4. Acknowledgments (separate page).
  5. References (separate page).
  6. Tables and figures (one to a page).
  7. List of figure numbers and captions.
- Use figures drawn specifically for the journal, using abbreviations approved by the journal. Keep extra copy for yourself.
- Keep photographs simple and uncluttered. Keep extra copy for yourself.



## WHAT YOU CAN EXPECT FROM US

Technical editing, while recommended, is the option of the author. However, even if you have not requested editorial assistance, you will need to submit your manuscript to Publications. As with any other manuscript, it must be accompanied by a Publication Approval (ML-5774). If no editing is requested, Publications will log in the manuscript for future reporting and send the manuscript immediately through the approval chain. The author will be notified within a few days whether the article may be submitted to a journal.

If editing is requested, we will:

- Perform a complete copyedit.
- Process illustrations through Audiovisual Services.
- Ensure that the article meets the journal's guidelines.
- Ensure that clerical support produces the article in the required format.

### **Copyright**

One detail that must not be overlooked is the copyright statement, which must be included in the letter of submittal:

"The submitted manuscript has been authored by a contractor of the U. S. Government under Contract No. DE-AC04-88DP43495. Accordingly, the U. S. Government retains a non-exclusive, royalty-free license to publish or reproduce the published form of this contribution, or allow others to do so, for U. S. Government purposes."

If the journal sends a form requesting permission to establish copyright, the author must again indicate his position as an employee of a U. S. Government contractor. Usually, such forms provide boxes that may be checked to indicate the author's status. If not, the same statement (above) should be used on the form as in the submittal letter.

### **Paperwork and charges**

After a manuscript has been accepted, the publisher will send galley proofs and a form for payment of page and reprint charges. The author should take these to the Library for processing, along with his distribution list. After the article is published, the Library will make distribution to those people on the list.

## CONFERENCE PAPERS

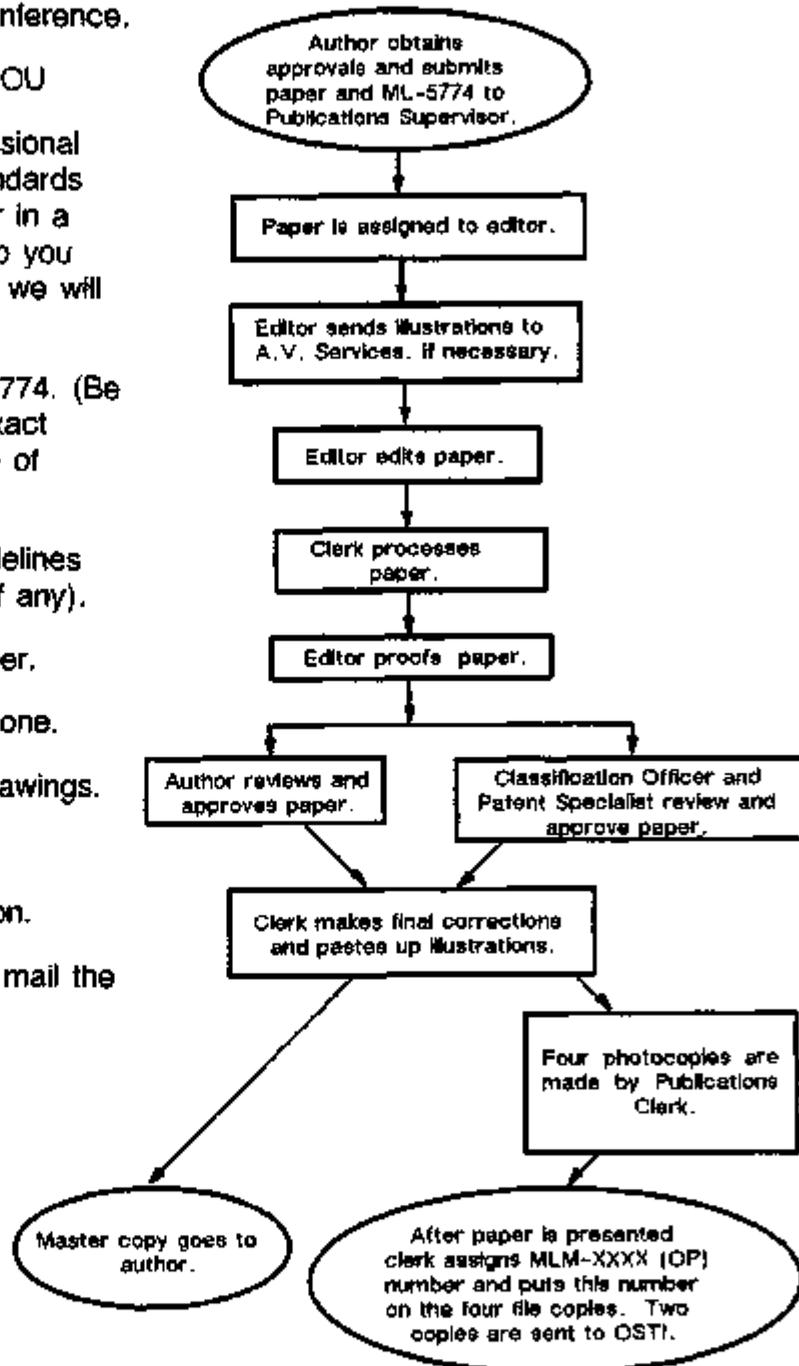
Just like other Mound publications, conference papers must receive the approvals specified in Section 2 of your Publication Approval (ML-5774). This also applies to any abstracts that are sent offsite in advance of the conference.

### WHAT WE NEED FROM YOU

Conference sponsors and professional societies often set their own standards regarding papers that will appear in a proceedings publication. To help you produce the best possible paper we will need:

- Publication Approval, ML-5774. (Be sure to include sponsor, exact conference name and date of conference.)
- The conference paper guidelines (if any) and printmasters (if any).
- The hard copy of your paper.
- The floppy disk, if there is one.
- All photographs and line drawings.
- All tables.
- Your deadline for submission.

It is the author's responsibility to mail the finished paper.



## WHAT YOU CAN EXPECT FROM US

We will provide the level of editorial assistance that you request or require. This may include helping to rewrite your paper, if necessary. In all cases, we will:

- Check for clarity and organization.
- Perform a full copyedit, checking and correcting grammar, spelling, and punctuation.
- Verify references to tables and figures.
- Check for agreement between data in the text and those in the figures and tables.
- Process figures through Audiovisual services, if necessary.
- Follow the conference guidelines.
- Process paper through final approvals (Publications Supervisor, Classification Officer, Patent Specialist).
- Deliver the completed paper to you before your deadline.
- Ensure that the following contract statement appears at the bottom of the first page of the proceedings paper:

"Mound is operated by EG&G Mound Applied Technologies for the U.S. Department of Energy under Contract No. DE-AC04-88DP43495."

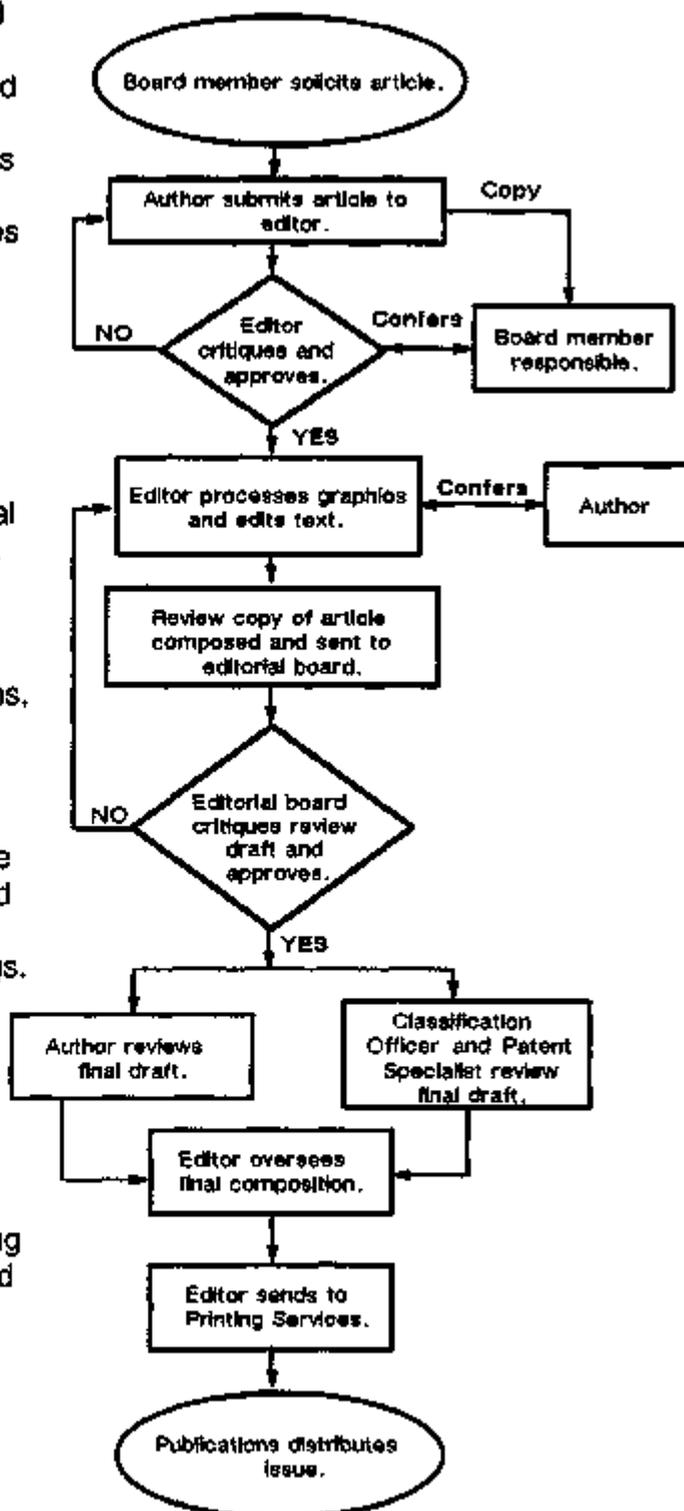
## TECHNOLOGY UPDATE ARTICLES

Technology UPDATE communicates Mound's contributions in technology and its technical capabilities in areas of interest to DOE, federal laboratories, and the greater scientific community. It is distributed through normal DOE channels and to special lists that represent the Federal Laboratory Consortium, agencies of the state and local government, the Dayton Area Technical Network, and regional universities.

Papers for UPDATE present Mound's progress and results in a variety of topical areas chosen by the Editorial Board for each issue. Because the goal of the publication is technology transfer, and because at least part of the readership would be unfamiliar with Mound topics, it is best to use a clear, informal style devoid of jargon, acronyms, and references to DOE programs.

### WHAT WE NEED FROM YOU

- A double-spaced hard copy of the paper and a PC disk. Text should be brief (about 1200 words) and should use only first-level headings. No abstract is necessary.
- Illustrations (black and white). Graphs and tables will be less complex than those in a topical report.
- Bibliography, if applicable, including recent and relevant work published by the author.
- Name and telephone number of a Mound contact (normally the author).



## WHAT YOU CAN EXPECT FROM US

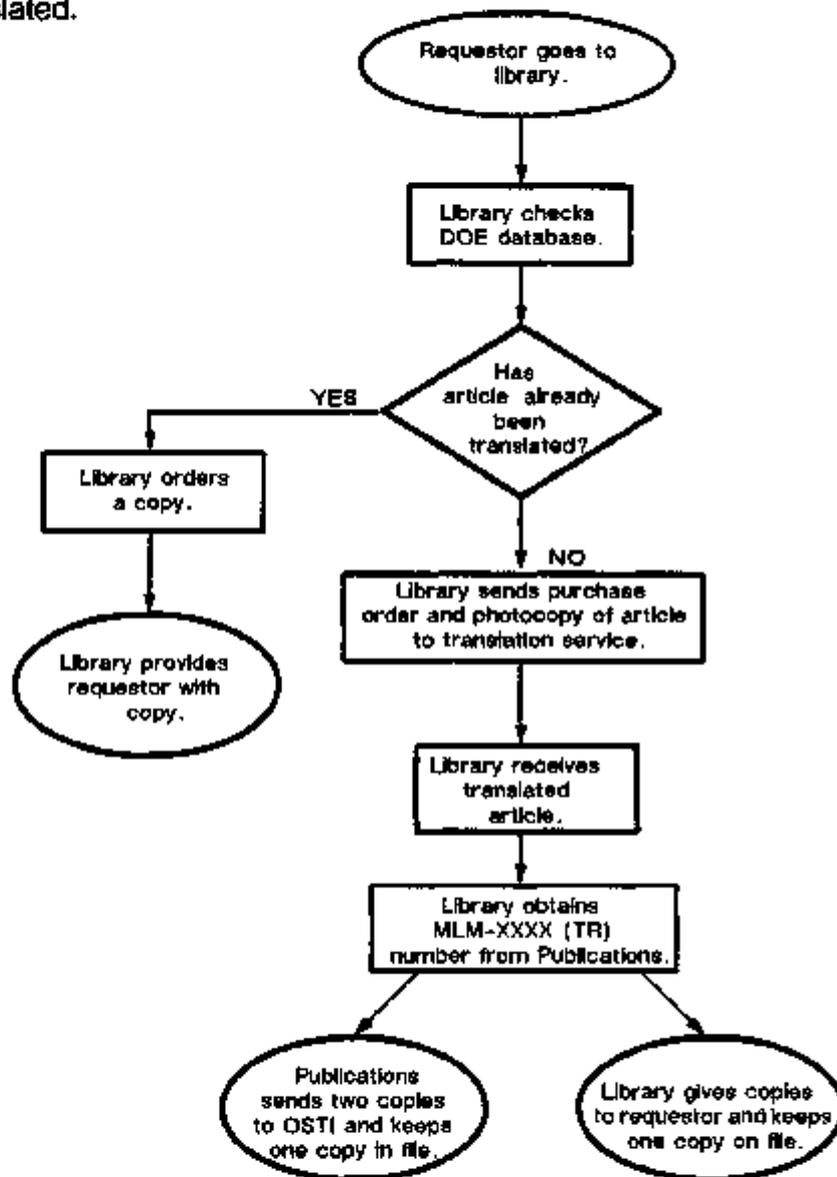
When you have drafted your article, you should submit it to the editor of Technology UPDATE and provide a courtesy copy to the member of the Editorial Board who solicited your paper. As a first step, the editor will critique your paper. This may result in a recommendation for more or fewer photographs or other graphics, some clarifying text, or other changes in the overall make-up of your paper.

After your draft has been accepted, we will, as part of the editorial process:

- Edit the text of your paper, conferring with you on the changes.
- Edit illustrations and have the final artwork produced.
- Size and label photographs, if necessary.
- Present your paper to the Editorial Board for their review.
- Make changes recommended during the above review, with your approval.
- Process the article through classification and patent reviews.
- Perform all proofing during the layout and composition stage.
- Have the publication printed.
- Perform internal and external distribution.

## ABOUT TRANSLATIONS...

If you want to have an article translated from a foreign language into English, your first step is to go to the Mound Library. The Library will check to see whether the article has already been translated. If not, they will make the necessary arrangements to have it translated.



APPENDIX A: Preferred Spelling and Hyphenation

These are our preferred spellings. Our principal source is the Random House Dictionary (Second Edition, unabridged, 1987). For some cases, Webster's Ninth New Collegiate Dictionary is the source used.

<u>Noun/Adjective</u>	<u>Verb</u>	<u>Noun/Adjective</u>	<u>Verb</u>
acknowledgment		follow-up	follow up
aging	aging	full-time	
backup	backup	fumehood	
bandwidth			
bell jar		gauge	
bioassay		glovebox	
blowout	blow out	gloveport	
boilover	boil over	groundwater	
boxline		half-life	
bridgewire		high-potential (breakdown testing)	
buildup	build up	holdup	hold up
built-in	built in	hoodline	
burnup	burn up	hookup	hook up
bypass	bypass	igniter	
by-product		in-line	
carry-over	carry over	in situ	in situ (adverb)
changeroom		large-scale	
changeover		mainstream	
checklist		makeup	make up
checkout	check out	man-day	
cleanout		man-hour	
cleanup	clean up	man-year	
closeup	close up	MC1987	
coworker		nondestructive	
cutoff	cut off	nonweapons	
database		offgas	
downstream		offsite	
downtime		off-center	
feed stream		on-line	
feedwater		on-stream	
drybox		ongoing	
feed rate		onsite	
firing set		output	
flow rate		overall	
flow-through	flow through	overfill	overfill
		paperwork	

APPENDIX A: Preferred Spelling and Hyphenation

<u>Noun/Adjective</u>	<u>Verb</u>	<u>Noun/Adjective</u>	<u>Verb</u>
shutoff		shutdown	shut down
passbox		side stream	
payback		small-scale	
piecepart		springback	
pickup	pick up	stand-in	stand in
plantwide		standoff	
plug-in	plug in	start-up	start up
plutonium-238		tie-down	
printout	print out	tie-up	
readout	read out	throughput	
real time		trade-off	
real-time (adjective)		turnaround	
reentry		underway	under way (adverb)
reevaluation		usable	
runoff	run off	videotape	
runout		walk-in	walk in
safeing		warmup	
scaleup		wastewater	
semiannual		weigh-in	weigh in
semiautomatic		wraparound	
setup	set up	write-up	write up
shoe cover		x-ray	x-ray
short-term			

## APPENDIX B: Recommended Abbreviations

Mound uses SI abbreviations for metric units.

An abbreviation is both singular and plural. *Do not* add an "s."

Abbreviations of units and the symbol for percent are used only when prescribed by a numeral (for example, 5 min, 5%).

rad	absorbed dose of radiation	diam	diameter
ac	alternating current	dc	direct current
A	ampere	dis/min	disintegrations per minute
Å	angstrom	dis/s	disintegrations per second
atm	atmosphere	emf	electromotive force
Z	atomic number	eV	electron volt
at. %	atom percent	esu	electrostatic unit
at. wt	atomic weight	exp	exponential
avg	average	fcc	face-centered cubic
Bq	becquerel	F	farad
BeV	billion electron volts	ft	feet or foot
bcc	body-centered cubic	FY	fiscal year (FY 1991)
bp	boiling point	ft-lb	foot-pound
Btu	British thermal unit	F	formal (concentration)
CY	calendar year (CY 1991)	gal	gallon
cal	calorie	G	gauss
c	cent- ( $10^{-2}$ )	g	gram
cm	centimeter	Gy	gray
cm/s	centimeter per second	H	Henry
cP	centipoise	Hz	hertz
C	coulomb	h	hour
counts/min	counts per minute	in.	inch
counts/s	counts per second	IR	infrared
cm <sup>3</sup>	cubic centimeter	i.d.	inside diameter
Cl	curl	J	joule
day	day	k	kilo- ( $10^3$ )
days	days	K	kelvin
D	debye	ke	kinetic energy
d	deci- ( $10^{-1}$ )	λ	lambda (microliter)
°B	degrees baume	L	liter
°C	degrees Celsius		
°F	degrees Fahrenheit		

APPENDIX B: Recommended Abbreviations (continued)

log	logarithm	p.	page
ln	logarithm (natural)	pp.	pages
lm	lumen	ppb	parts per billion
lx	lux	ppm	parts per million
Z+N	mass number	Pa	pascal
Mx	maxwell	%	percent
M	mega- (million, $10^6$ )	p	pico- ( $10^{-12}$ )
MΩ	megohm	PE	potential energy
mp	melting point	lb	pound
m	meter	psi	pounds per square inch
μ	micro- ( $10^{-6}$ )	psia	pounds per square inch absolute
MeV	million electron volts	psid	pounds per square inch differential
mV	millivolt	psig	pounds per square inch gauge
min	minute	radian	radian
m	molar	rf	radio-frequency
<u>M</u>	molar	rpm	revolutions per minute
mole	mole	R	roentgen
mol wt	molecular weight	rem	roentgen equivalent man
μm	micrometer	s	second
μμF	micromicrofarad	S	siemens
m	milli- ( $10^{-3}$ )	sp gr	specific gravity
mA	milliampere	cm <sup>2</sup>	square centimeter
mL	milliliter	ft <sup>2</sup>	square foot
mm	millimeter	in <sup>2</sup>	square inch
meq	milliequivalent	T	Tesla
n	nano- ( $10^{-9}$ )	torr	torr
ns	nanosecond	UV	ultraviolet
n	neutron	V	volt
N	neutron number	vol %	volume percent
N	Newton	W	watt
<u>N</u>	normal (concentration)	cm <sup>-1</sup>	wave number
No.	number	Wb	weber
Oe	oersted	wt%	weight percent
Ω	ohm	yr	year
o.d.	outside diameter		
oz	ounce		

## APPENDIX C: Acronyms and Initialisms

AAU	Accelerated aging unit
ACL	Accidental loss
ADSC	Alarm display and communications system
ADP	Automatic data processing
AEC	Atomic Energy Commission
AER	Advance engineering release
AES	Authorization of engineering services
AES	Auger electron spectroscopy
AL	Albuquerque Operations Office
ALARA	As low as reasonably achievable
AMMO	Automated maintenance management operator's system
ANSI	American National Standards Institute
AOC	Administrative order on consent
AOS	Automated office system
APAS	Automatic plutonium assay system
APEP	Advanced production evaluation program
ARAC	Atmospheric release advisory capability
ARAR	Applicable or relevant and appropriate requirements
ARC	Atlantic Research Corporation
ASTM	American Society for Testing and Materials
ASCII	American Standard for Computer Information and Interchange
ASW/SOW	Antisubmarine warfare/standoff weapon
ATSDR	Agency for Toxic Substances Disease Registry
BAK	Booster assembly kit
BET	Brunauer, Emmet, and Teller
BOD	Biochemical oxygen demand
BW	Bridgewire
CAA	Controlled access area
CAD	Computer-aided design
CAI	Computer assisted instruction
CAM	Computer-aided manufacturing
CCI	Central core initiator
CD	Consent decree
CDU	Capacitor discharge unit
CEARP	Comprehensive environmental assessment response program
CEDS	Chemical explosive delay system

APPENDIX C: Acronyms and Initialisms (continued)

CEDARS	Component evaluation data storage and reporting system
CELS	Coded explosive logic system
CEMTRICS	Component evaluation operations and material control testing requirements and inventory control systems
CEO	Component evaluation operations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CEV	Constant explosive volume
CFR	Code of Federal Regulations
CIM	Computer integrated manufacturing
CIP	Cold isostatic pressing
CMF	Compressed magnetic field
CNC	Computer numerical control
CNWDI	Critical nuclear weapon design information
COD	Chemical oxygen demand
COE	(U. S. Army) Corps of Engineers
COMDAC	Computerized data acquisition and control system
CPM	Critical path method
CPU	Central processing unit
CR	Community relations
CRD	Confidential restricted data
CRP	Community relations plan
CRT	Cathode-ray tube
CUA	Controllable unit accountability
CVR	Current viewing resistor
CVS	Clad vent set
CVT	Current viewing transformer
D&D	Decontamination and decommissioning
DAP	Diallyl phthalate
DAP-FG	Fiberglass-filled DAP
DASD	Direct access storage device
DBES	Department of Basic Energy Science
DELS	Direct electrical lighting system
DIPS	Dynamic isotopic power systems
DMSO	Dimethylsulfoxide
DO	Dissolved oxygen

APPENDIX C: Acronyms and Initialisms (continued)

DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DOS	Disk operating system
DOT	Department of Transportation
DPH	Diamond pyramid hardness
DSSL	Detonator safing strong link
DSC	Differential scanning calorimetry
DTA	Differential thermal analysis
DXT	Density x thickness
EBW	Exploding bridgewire
ECI	Export control information
EDM	Electric discharge machining
EDS	Energy dispersive spectroscopy
EDX	Energy dispersive x-ray (analysis)
EIA	Environmental impact assessment
EIS	Environmental impact statement
ELS	Electrical lighting system
EMF	Electromotive force
EML	Environmental Measurements Laboratory (DOE)
EMSOC	Energetic Materials Safety Overview Committee
EOM	End of month
EPA	Environmental Protection Agency
ERA	Expedited removal actions
ERDA	Energy Research and Development Administration
ERT	Environmental response team
ES	Emission spectroscopy
FFA	Federal Facility Agreement
FMC	Flexible machining cell
FPC-461	Firestone Plastic Company copolymer
FPU	First production unit
FRD	Formerly restricted data
FS	Feasibility study
FT	Fourier transform (spectroscopy)
FT-IR	Fourier transform infrared spectroscopy
FWHM	Full width at half-maximum
GC/MS	Gas chromatography/mass spectroscopy

APPENDIX C: Acronyms and Initialisms (continued)

GEND	General Electric Neutron Devices
GHS	Gas handling system
GMA	Gas-metal arc (welding)
GPHS	General purpose heat source
GPO	Government Printing Office
GTA	Gas-tungsten arc (welding)
HD	Heat distortion
HDPE	High-density polyethylene
HE	High explosive
HECPAF	High Explosive Component Production Assembly Facility
HEDL	Hanford Engineering Development Laboratory
HEPA	High efficiency particulate absorber
HHS	Department of Health and Human Services
HIP	Hot isostatic pressing
HISS	Hydrogen isotope separation system
HMX	Cyclotetramethylenetetranitramine
HNAB	Hexanitroazobenzene
HNS	Hexanitrostilbene
HPLC	High-pressure liquid chromatography
HRS	Hazard ranking system
IAC	Inert atmosphere chamber
IAEA	International Atomic Energy Agency
IAG	Interagency agreement
ICAP	Inductively coupled argon plasma (emission spectroscopy)
ICP	Inductively coupled plasma
ID	Inventory difference
IDMS	Internal diameter measurement system
IGS	Interactive graphics system
IHE	insensitive high explosive
IMOG	Interagency Manufacturing Operations Group
IP	Initial pressing
ISHTE	In situ heat transfer experiment
K	Kilobyte (1024 characters)
KCP	Kansas City Plant (Allied, Bendix Kansas City Div.)
LAN	Local area network
LANL	Los Alamos National Laboratory
LAS	Lithia-alumina-silica glass ceramic

APPENDIX C: Acronyms and Initialisms (continued)

LBW	Laser beam weld
LC <sub>50</sub>	Lethal concentration for 50% of test population
LCD	Liquid crystal display
LCO	Least credible occurrence
LCTU	Laboratory component test unit
LD <sub>50</sub>	Lethal dosage for 50% of test population
LDL	Lower detection limit
LED	Light emitting diode
LIS	Laser isotope separation
LLC	Limited life component
LLNL	Lawrence Livermore National Laboratory
LSA	Low specific activity
LSC	Liquid scintillation counting (counter)
LVDT	Linear voltage displacement transducer
LWRHU	Lightweight radioisotopic heater unit
LZT	Lead zirconate titanate
MAA	Material access area
MBA	Material balance area
MCL	Maximum contaminant level (drinking water)
MDA	Minimum detectable activity
MDC	Mild detonating cord
MDF	Mild detonating fuse
MHW	Mutihundred-watt (generator)
MIG	see GMA
MIL	Military
Mk	Mark (series)
MOD	Modification
MOLAN	Mound local area network
MPC	Maximum permissible concentration
MPD	Maximum permissible dose
MRB	Material review board
MRI	Magnetic resonance imaging (see NMR)
MSAD	Mechanical safe and arm detonator
MTR	Material transfer receipt
NAA	Neutron activation analysis
NBL	New Brunswick Laboratory
NC	Numerical control
NCP	National Oil and Hazardous Substances Contingency Plan

APPENDIX C: Acronyms and Initialisms (continued)

NDA	Nondestructive assay
NDT	Nondestructive testing
NESC	National Energy Software Center
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute for Standards and Technology
NMLT	New material laboratory test
NMM	Nuclear materials management
NMR	Nuclear magnetic resonance (see MRI)
NOAA	National Oceanic and Atmospheric Administration
NOFORN	No foreign release
NOL	Normal operational loss
NPDES	National Pollutant Discharge Elimination System
NPL	National priorities list
NRC	Nuclear Regulatory Commission
NRT	National response team
NSF	National Science Foundation
NSI	National security information
NTS	Nevada Test Site (DOE)
NWC	Nuclear Weapons Complex
OIEA	Office of Intergovernmental and External Affairs
ORNL	Oak Ridge National Laboratory
ORR	Operational Readiness Review
OSC	On-scene coordinator
OSHA	Occupational Safety and Health Administration
OSR	Operational safety requirements
OSTI	Office of Scientific and Technical Information
O&M	Operation and Maintenance
PA	Preliminary assessment
PAL	Permissive action link
PAS	Photoacoustic spectroscopy
PBB	Polybrominated biphenyl
PBX	Plastic bonded explosive
PC	Personal computer
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzo-p-dioxin
PCDF	Polychlorinated dibenzofurans
PCF	Production Computer Facility
PCS	Production computer system,

## APPENDIX C: Acronyms and Initialisms (continued)

PCT	Pressure/composition/temperature
PEEK	Polyetheretherketone
PEST	Prebuilt evaluation shelf test
PERT	Program evaluation and review technique
PETN	Pentaerythritol tetranitrate
PMT	Photomultiplier tube
PPI	Process prove-In
PPPL	Princeton Plasma Physics Laboratory
PRP	Potentially responsible party
PSL	Primary Standards Laboratory (DOE)
PVD	Physical vapor deposition
PVT	Pressure/volume/temperature
PXD	Pressure transducer
QA	Quality assurance
QAA	Quality assurance agency
QAD	Quality Assurance Division, AL
QAER	Qualification acceptance equipment release
QAIP	Quality assurance inspection procedure
QAP	Quality assurance program (procedure)
QAS	Quality assurance survey
QC	Quality control
QER	Qualification evaluation release
RA	Remedial action
RAM	Random access memory
RAT	Radiological assistance team
RBE	Relative biological effectiveness
RCG	Radioactivity concentration guide
RCRA	Resource Conservation and Recovery Act
RD	Remedial design
RDX	Cyclotrimethylenetrinitramine
RFP	Rocky Flats Plant
RFQ	Request for quotation
RI	Remedial investigation
RIM	Reaction injection molding
ROD	Record of design
ROM	Read-only memory

APPENDIX C: Acronyms and Initialisms (continued)

RRT	Regional response team
RPM	Remedial project manager
RTG	Radioisotopic thermoelectric generator
RTV	Room-temperature vulcanization
SCB	Semiconductor bridge
S-glass	Sandia glass ceramic
S/N	Serial number
SACNET	Secure automatic communications network (DOE)
SALE	Safeguards analytical laboratory evaluation
SAP	Standard analytical procedure
SARA	SuperFund Amendments and Reauthorization Act of 1986
SAS	Statistical analysis system
SASF	Space Application Support Facility
SEI	Secondary electron imaging
SEM	Scanning electron microscopy
SFT	Stockpile flight test
SI	Site inspection
SI	International system of units
SIER	Special instruction engineering release
SIMS	Secondary ion mass spectrometry
SLT	Stockpile laboratory test
SMOA	State Memorandum of Agreements
SNLA	Sandia National Laboratories, Albuquerque
SNLL	Sandia National Laboratories, Livermore
SNM	Special nuclear materials
SOP	Standard operating procedure
SPE	Solid polymer electrolyte
SRAM	Short-range attack missile
SRD	Secret restricted data
SROC	Savannah River Operations Contingency
SRT	Special response team
STM	Scanning tunneling microscopy
STP	Standard temperature and pressure
SYNUMA	System for Nuclear Material Accountability
TADS	Technical applications development system
TAM	Tritium analysis meter
TATB	Triaminotrinitrobenzene

APPENDIX C: Acronyms and Initialisms (continued)

TAWRS	Tritium aqueous waste recovery system (see CECE)
TBA	Through bulkhead actuator
TBI	Through bulkhead initiator
TEDL	Tritium Engineering Development Laboratory
TEM	Transmission electron microscopy
TERF	Tritium emissions reduction facility
TES	Teledyne energy systems
TESOC	Tritium Environmental and Safety Overview Committee
TFTR	Tokamak Fusion Test Reactor
TGA	Thermogravimetric analysis
TIG	see GTA
TIMP	Technical information Management Program
TIMS	Thermal ionization mass spectrometry
TLC	Thin-layer chromatography
TLD	Thermoluminescent dosimetry
TLV	Threshold limit value
TMA	Thermomechanical analysis
TMS	Tool-made sample
TOAD	Time-of-arrive device
TOC	Total organic carbon
TOD	Total oxygen demand
TOPO	Trioctylphosphine oxide
TPV	Test program verification
TRAC	Tracking, reporting, and control system
TRU	Transuranic
TRUESOC	Transuranic Environmental and Safety Overview Committee
TSD	Treatment, storage, and disposal facility
TSDS	Tritium storage and delivery system
TSO	Time sharing option
TSP	Tritium sublimation pump
TTR	Time/temperature/reaction (medium)
UCF	User Computer Facility
UCG	Underground coal gasification
UCNI	Unclassified controlled nuclear information
UCS	User Computer System
UMTRA	Uranium mill tailings remedial action project
USCG	United States Coast Guard

APPENDIX C: Acronyms and Initialisms (continued)

USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UU	Ultimate user
VDT	Video display terminal
VEC	Variable explosive chamber
VISAR	Velocity Interferometry system for any reflector
VLPP	Very low pressure pyrolysis
VOC	Volatile organic compounds
VOD	Velocity of detonation
WAS	Work Authorization System
WBCN	Wide Band Communications Network
WDCR	Weapon Design and Cost Report
WIP	Work in progress
WIPP	Waste Isolation Pilot Plant
WPAS	Work Package Authorization System (activity schedule)
WR	War reserve
XPS	X-ray photoelectron spectroscopy
XRD	X-ray diffraction
XRF	X-ray fluorescence
YAG	Yttrium aluminum garnet

## APPENDIX D: Taking Care of Details

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## HANDLING NUMBERS IN THE TEXT

With items other than units of time or measure, spell the ordinals "first" through "ninth," numbers "one" through "nine," and rounded-off large numbers:

six cars and nine horses	25 elephants
the first time	the 21st time
about four million	4,360,892.38

### Special Case:

about \$4 million	\$4,360,892.38
-------------------	----------------

Except for numerals representing a calendar year, spell numbers beginning a sentence or rewrite the sentence:

Seventy-five acres were flooded.  
or  
The flood covered 75 acres.  
*not*  
75 acres were flooded.

When two or more related numbers appear in the same sentence and one of them is 10 or more, use numerals for every number:

The report involved 23 companies, 6 consumer interest groups, and 2 government agencies.

Use numerals with units of time or measure and use a space between the number and the unit (except °C, °F, and %). Where possible, use decimals rather than fractions with units of time or measure:

3.5 h  
*not*  
3 1/2 h

In descriptive language, spell out and hyphenate fractions:

two-thirds of the results

For two numbered items, use "and" between the numbers. For more than two consecutive items, use an "en" dash (typed as a hyphen):

Figures 2 and 3	Figures 2-7
-----------------	-------------

Use an initial zero before a decimal:

0.25

## NUMBERING SYSTEM

Figures, tables, and equations within the text of the report should be numbered consecutively with Arabic numerals, and should be referred to in the text as Figure 1, Table 2, Equation 1.

References are numbered consecutively throughout the entire report in full-size Arabic numerals within brackets ({}), and inside closing punctuation. If one statement cites several consecutive references, do not list them [3,4,5]; use a hyphen [3-5]. If several nonconsecutive references are cited at once, after earlier consecutive citations, list them this way: [4, 6, 8-11].

Each appendix is designated alphabetically (Appendix A, Appendix B, etc.) and given a title. All figures, tables, and equations in appendixes are numbered in a manner consistent with the corresponding appendix letter (such as Figure A-1, Equation B-2).

## TABLES

Tables should be concise and should directly support the text. They should be placed after and as close as possible to their first reference in the text. Tables should be numbered consecutively in the same order as they appear in the text.

Number tables with Arabic numerals;  
title is all caps, centered.

Use abbreviations.

**Table 2 - COLUMN DIMENSIONS AND FLOW RATES**

Column Diameter (cm)	Column Material	Cross-Sectional Area (cm <sup>2</sup> )	Bed Length (cm)	Volumetric Flow Rate <sup>a</sup> (cm <sup>3</sup> /min)			
				A	B	C	D
0.66	Glass	0.342	21.5	1.0	3.0	-	5.0
1.0	Glass	0.785	21.5	2.3	6.9	-	11.5
2.54	Glass	5.067	21.5	14.4	-	-	-
2.54 <sup>b</sup>	Stainless Steel	5.067	30.0	14.4	-	-	-
2.54 <sup>c</sup>	Stainless Steel	5.067	30.0	14.4	44.4	60.0	-

<sup>a</sup>Data under headings A, B, C, and D were obtained with  $U_s = 0.0487, 0.1460, 0.1937, \text{ and } 0.2436 \text{ cm/s}$ , respectively.

<sup>b</sup>One-pump configuration.

<sup>c</sup>Two-pump configuration.

Second line of footnote is indented flush with first line.

Use raised lower-case letters to indicate footnotes.

One return between footnotes.

Use zero before decimal fraction.

## FIGURES

Charts, graphs, drawings, and photographs are all examples of figures. Figures should be clearly and concisely labeled, neat, and uncluttered. The ordinate and abscissa of all graphs should have labels, and all symbols should be consistent throughout your report. For example, if an open circle represents an acid in one figure, a solid square should not be used to represent the same solution in a later figure.

If you use a plotter to draw a figure, avoid the use of colors (especially blue). The figure will be printed in black and white.

Slides, viewgraphs, and negatives are not acceptable submissions.

Photographs should be black and white prints and should be submitted with your rough draft. If specific items need to be pointed out on your photograph, make a photo copy of it and mark the copy rather than the photograph, itself.

When planning graphs, drawings, and photographs, keep in mind that all figures larger than 6½ X 8 are likely to be reduced for print. If this is going to eliminate some small, but necessary, detail, you may wish to redesign your figure. Remember, too, that your report will be filed on microfiche at the Office of Scientific and Technical Information. When the report is "blown back" from microfiche to normal size, figures that were marginally clear in the original report will probably be illegible. Therefore, every effort should be made to keep your figures crisp and clear.

DRAWINGS

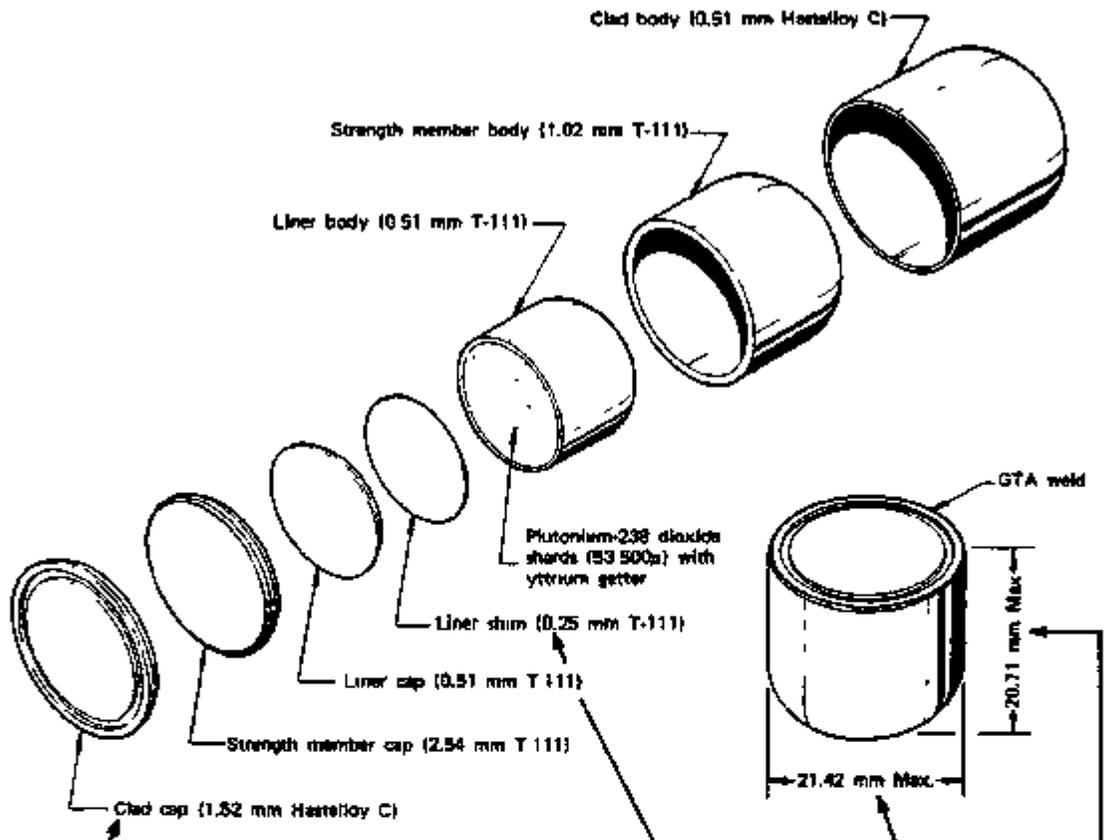


Figure 1 – Milliwatt generator heat source.

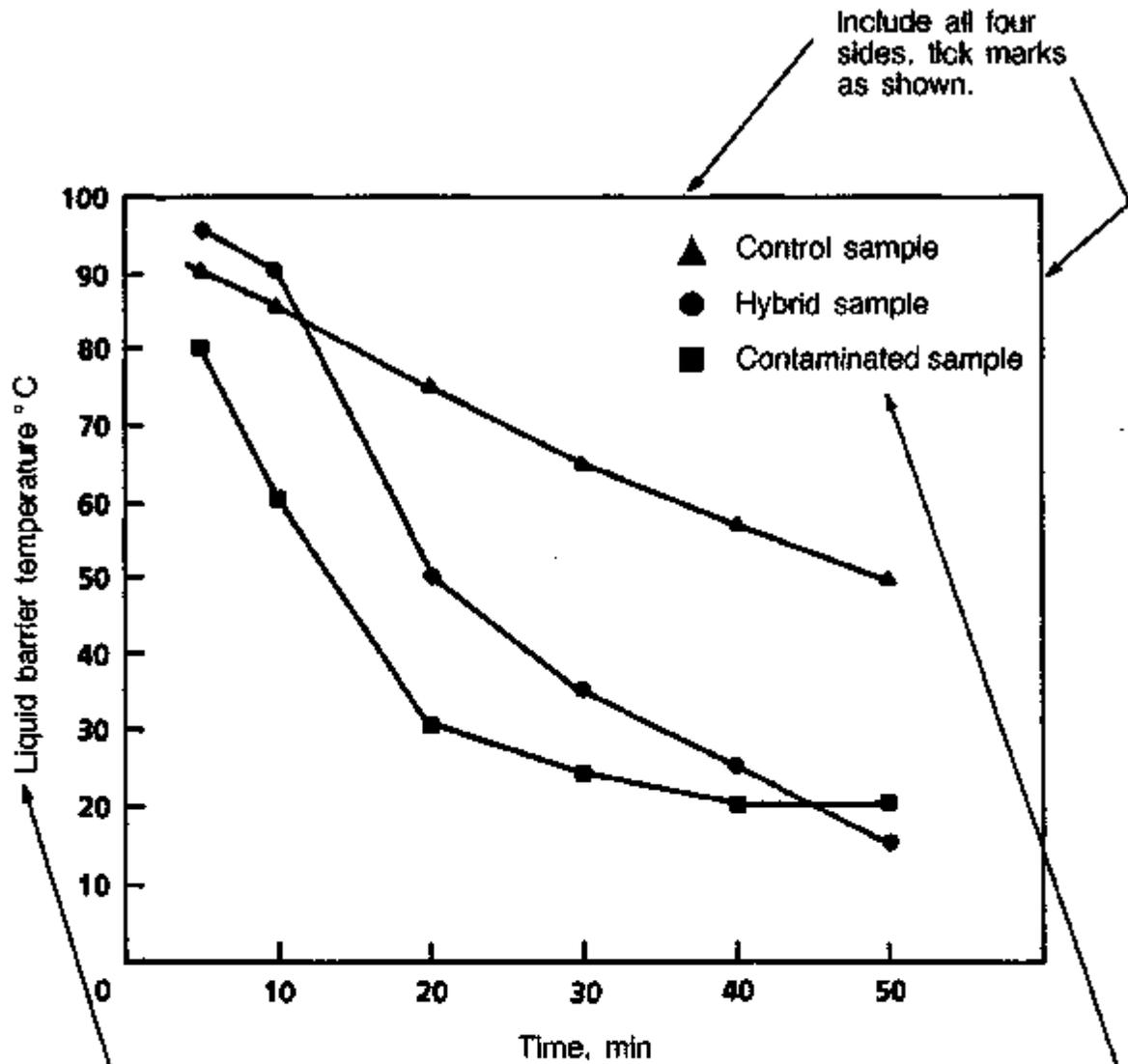
First letter of first word is capped in all legends.

Use standard punctuation in captions, caption is centered beneath figure. If caption is more than one line, subsequent lines are justified under the "F" in "Figure."

Use abbreviations.

Zero before decimal point.

GRAPHS



Include all four sides, tick marks as shown.

Figure 2 - Liquid barrier temperature as a function of time.

Cap first letter of first word, only. Legend is parallel to axis.

Unit of measurement set off with comma.

Use symbols to differentiate data, not colors. Explanatory legend goes inside graph.

## EQUATIONS

Because equations are often long and complex, they can be difficult to edit and typeset if they are not carefully written or typed in your rough draft. Please ensure subscripts and superscripts are clearly indicated, signs, symbols, and Greek letters are properly aligned, and spacing between characters is correct.

You should number equations in their order of appearance using Arabic numerals. When the material is properly formatted, the number will appear in parentheses to the right of the equation, flush with the right margin of the page and even with the baseline of the equation. The equation itself is centered in the line.

If an equation is too long to fit on one line, it should be broken just before an operation sign or a sign of relationship. This sign then begins the next line of the equation.

*Number positioned at the right margin on baseline of equation*

*Lower case and flush with left margin*

$$J = -\rho D_{12} \frac{\partial K}{\partial X} + \rho D_{12} a_T K(1-K) \frac{\partial \ln T}{\partial X}$$

(1)

*No punctuation following equation*

where

- $J$  = net flux of molecules per unit area per second
- $\rho$  = number density per unit volume
- $D_{12}$  = diffusion coefficient
- $K$  = mole fraction of observed species
- $a_T$  = thermal diffusion factor (assumed independent of concentration here).

*Each term defined in first use; no punctuation following entries*

*First letter following = sign is not capitalized*

*Last entry followed by period*

*Definitions are indented seven spaces*

## FOOTNOTES

Footnotes should be used to refer to unpublished reports (including entries to lab notebooks, course notes, and so forth) or private communications (includes all forms of correspondence: E-mail, memos, telephone conversations, and so forth). Primarily, footnotes provide the reader with ancillary explanatory material and should be placed at the bottom of the page. Footnotes should be written in sentence form using standard punctuation. Footnotes should be cited (in the order that they appear in the text) by an asterisk (\*), dagger (†), and double dagger (‡), in that order.

## REFERENCES

References are listed in a separate section after the body of the report, usually before the appendix, if there is one. References should be cited in the text of the report by number, with the number set between brackets. (See "Numbering System" in this appendix.) They will appear in the Reference section in numerical order, not alphabetically.

Remember:

- List only *significant* and *published* references. *Essential* information from telephone calls, letters, conversations, and unpublished sources should appear as footnotes or parenthetically within the report.
- *Never* use a classified report as a reference in an unclassified report.
- Be *accurate* and *complete*. More errors are likely to be made in the Reference section than anywhere else in the report.

---

### BOOKS:

Author, title of the book, edition, publisher, place (year), page numbers if applicable.

1. O. Levenspiel, Chemical Reaction Engineering, John Wiley & Sons, New York (1979).
2. C. F. Coombs, Printed Circuits Handbook, McGraw Hill, New York (1979), pp. 201-219.

### Chapters or Sections within an Edition:

3. H. A. Johnson. "Production and Isolation of Francium," Volume 1, Chapter 4, Inorganic Synthesis, T. C. Miller (ed.), 5th Ed., McGraw-Hill, New York (1983).

## JOURNAL ARTICLES:

(Note: Article titles need not be included in reference.)

Author, abbreviated journal title, volume:issue (year), page numbers if applicable.

1. L. Druet and M. Asselin, J. Energ. Mater., 6:7 (1988).
2. D. M. Ruthven, Chem. Eng. Prog., 84:2 (1988), pp. 467-469.

## PATENTS:

Author, "title in quotes," patent number, date.

1. E. D. Michaels, "Process for Preparing a Chemical Compound Enriched in Isotope Content," U. S. Patent 4,343,685, 10 August 1982.

## TOPICAL REPORTS:

(Note: For MLM reports attributed to EG&G Mound Applied Technologies, "Miamisburg, Ohio" need not be included.)

Author, report title, report number, company name (date), number of pages.

1. R. S. Bruns, Nickel Plating Connector Ends on Tape Processed Slapper Detonator Cables, MLM-3575, EG&G Mound Applied Technologies (February 1989), 20 pp.
2. G. D. Miller, L. D. Haws, and R. H. Dinegar, Kinetics of the Thermal Decomposition of Solid PETN, LA-UR-81-3416, Los Alamos National Laboratory (1982).

## CONFERENCE PAPERS:

Author, "title of paper," name of conference, place, conference date(s), report number if applicable.

1. W. R. Schurman and P. S. Miller, "Conductive Adhesives as an Alternate Interconnect Method for Flexible Circuits," presented at the Sixteenth DOE Capability, Aging, and Service Life Conference, Livermore, California, 24-26 April 1990, MLM-ML-90-44-0006(OP).

Paper within a compilation:

Author, "title of paper," title of publication, page numbers, report number.

2. R. W. Logan, "Incorporating Non-Quadratic and Crystallographic Yield Surfaces into Finite Element Codes," Minutes of the Meeting, Metal Forming Subgroup of IMOG, May 1989, pp. 147-192, MLM-ML-90-45-0003.

## PROGRESS REPORTS:

Author if applicable, name of report, report number, company name (date), number of pages.

1. J. R. Brinkman and D. A. Homan, Process Development Status Report for Advanced Manufacturing Projects, MLM-ML-89-43-0002, EG&G Mound Applied Technologies (March 1989), 46 pp.
2. Mound Activities in Chemical and Physical Research:  
January - December 1989, MLM-3654, EG&G Mound Applied Technologies (September 1990), 69pp.

## COMPUTER SOFTWARE:

Title, version or release number, place: company (date).

1. dBASE III Plus, Version 1.1, Torrance, California: Ashton-Tate (1987).

## APPENDIXES

Reference material of secondary importance that is not easily incorporated into the text of a report should be included in an appendix, particularly if this information interferes with text readability. Materials that may be incorporated as appendixes include the following:

- Tables and data too detailed to include in the text.
- Computer programs and printouts.
- Specifications and directives.
- Detailed calculations.
- Forms.
- Lists of terms or symbols.
- Support documents.

The contents of an appendix should be limited to supplementary materials not readily available elsewhere.

Appendixes follow the body of the report and are designated alphabetically (A, B, C, etc.) Each appendix must have a title and must be referenced within the body of the report. Appendixes are to appear in the order they are mentioned in the text. The title of the appendix should appear in the Table of Contents.

Figures, tables, equations, and references within an appendix are numbered using the corresponding appendix letter (Figure A-1, Table C-7, etc.).

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