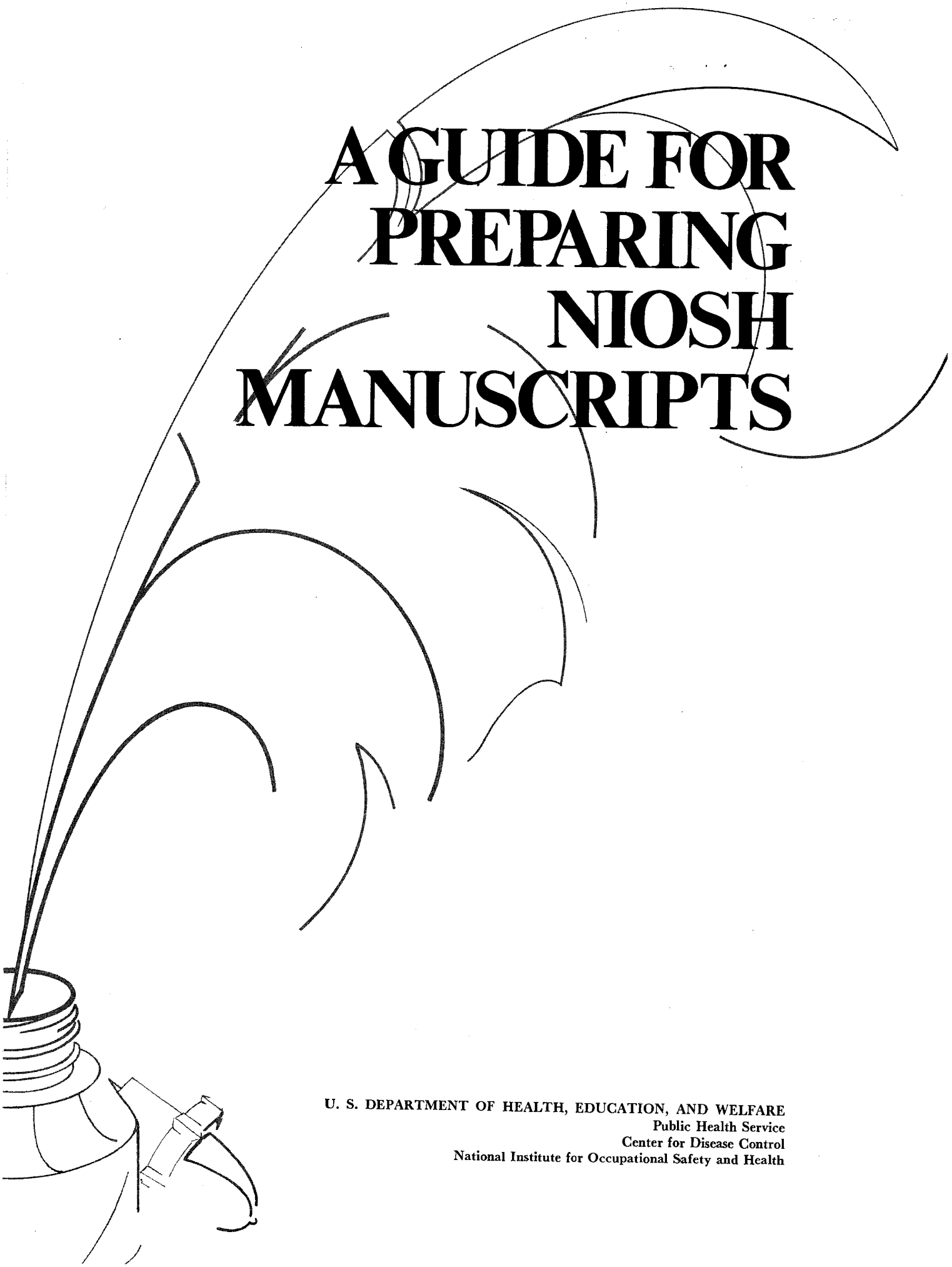
A GUIDE FOR PREPARING NIOSH MANUSCRIPTS



U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health

A GUIDE FOR PREPARING NIOSH MANUSCRIPTS

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Technical Services
Cincinnati, Ohio 45226

December 1976

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DHEW (NIOSH) Publication No. 77-133

ABSTRACT

This Guide details the standard for manuscripts prepared by National Institute for Occupational Safety and Health (NIOSH) personnel or prepared for NIOSH by contract or other agreement. The applicability of the instructions, the types of reports covered, the essential elements, and the image area are some of the details included. Descriptions of the different elements of a report and examples of each are included.

CONTENTS

ACKNOWLEDGMENTS

This Guide has been prepared with the help and contributions from many interested people. We specifically wish to acknowledge, with thanks, NIOSH Printing Officer Russell L. Hinton and the following members of the Division of Technical Services, NIOSH: Vivian Morgan, Naomi Masters, and Carolyn Browning.

INTRODUCTION

PURPOSE

The purpose of this publication is to help authors and typists prepare manuscripts for the National Institute for Occupational Safety and Health (NIOSH, the Institute) in an acceptable, uniform manner. The specifications apply to all Proceedings and to Administrative, Research, Technical, and Special Reports that have been authored by NIOSH personnel or written for NIOSH through contract or other agreement. These specifications are not totally applicable to catalogues, criteria documents, training manuals, or non-NIOSH published manuscripts such as journal articles.

MANUSCRIPTS PUBLISHED BY NIOSH

Responsibility

For inhouse authored manuscripts, the senior author is responsible for seeing that these instructions are followed. For manuscripts prepared as a product of a contract or interagency agreement and intended for review, approval, and subsequent publication by NIOSH, the project officer is responsible for seeing that the contractor complies with instructions in the Guide.

Review Manuscripts and Final Manuscripts

A manuscript intended for publication by NIOSH is to be prepared first as a double-spaced "review manuscript" according to these instructions. After approval of the review manuscript by the person designated under NIOSH Administrative Issuance No. 701 (clearance of manuscripts), a "final manuscript" is prepared according to these instructions either as camera-ready copy (single-spaced) or as copy for typesetting (double-spaced). (See the section on "Final Copy.")

NIOSH Series

To accommodate the full range of NIOSH activities, five types of publications have been established. On NIOSH Form 17-A (the clearance form, a copy of which is submitted with the review manuscript), the author or project officer will indicate the appropriate series for the manuscript.

ADMINISTRATIVE SERIES: Statements of NIOSH policies, procedures, or findings that govern administrative, management, or information activities.

PROCEEDINGS SERIES: Transcripts or assembled papers from symposiums, conferences, and seminars sponsored, cosponsored, or supported by the Institute.

RESEARCH SERIES: Reports of scientific investigations, including design and development of equipment (stating the hypotheses, experimental method, research data, interpretations, and conclusions), and reports of structured surveys (stating the protocol, questionnaires or sampling methods, survey data, interpretation, and conclusions).

TECHNICAL SERIES: Publications presenting compiled data (such as those from literature searches and field consultations) or reporting the testing of equipment, instruments, techniques, and methodology.

SPECIAL SERIES: Publications (such as required annual reports, health and safety guides, and employee good practice manuals) that do not fit any of the above categories, but serve some NIOSH function.

Depending on the intended audience, format, etc., these instructions or procedures may be altered following concurrence by the designated approving official and the Technical Information Development Branch (TIDB), Division of Technical Services.

MANUSCRIPTS NOT PUBLISHED BY NIOSH

NIOSH personnel preparing manuscripts for publication outside NIOSH should follow the publisher's instructions. Such manuscripts must, before release, be reviewed and approved by the Institute as specified in NIOSH Administrative Issuance No. 701. When the publisher does not provide instructions, or when publisher's instructions are incomplete, follow this Guide.

MANUSCRIPT ORGANIZATION AND SPECIFICATIONS

ORDER OF ELEMENTS

NIOSH manuscripts may contain all or some of the following elements; asterisked items are essential. The front and back cover elements are the responsibility of NIOSH's TIDB; all other elements are the responsibility of the author.

*Front cover

Preliminary pages

*1. Title page (counted as page i, but not indicated)
*2. Back of title page: disclaimer; name of NIOSH project officer and project director or principal investigator; and HEW publication number (page ii)
3. Foreword (next page)
4. Preface (next page)
*5. Abstract (next page)
6. Contents, Figures, Tables (next odd page)
7. Acknowledgment (next page)

Text

*1. Introduction (page 1)
*2. Body of report (if no specific first order headings are being used, use "Discussion")
3. Conclusions and recommendations (next page)
4. Summary (next page)

Back matter

1. References (next page)
2. Bibliography (next page)
3. Appendix(es) (next page)
4. Glossary (next page)
5. Index (next page)
*6. NTIS form (NTIS-35; last page)

*Back cover

IMAGE AREA

The image area should be 6½ by 8⅞ inches (excluding the page number). On an 8½- by 11-inch bond paper, the top and side margins will be 1 inch, and the bottom margin (including page number) will be 1⅛ inches (see Manuscript Typing Sheet on page 4).

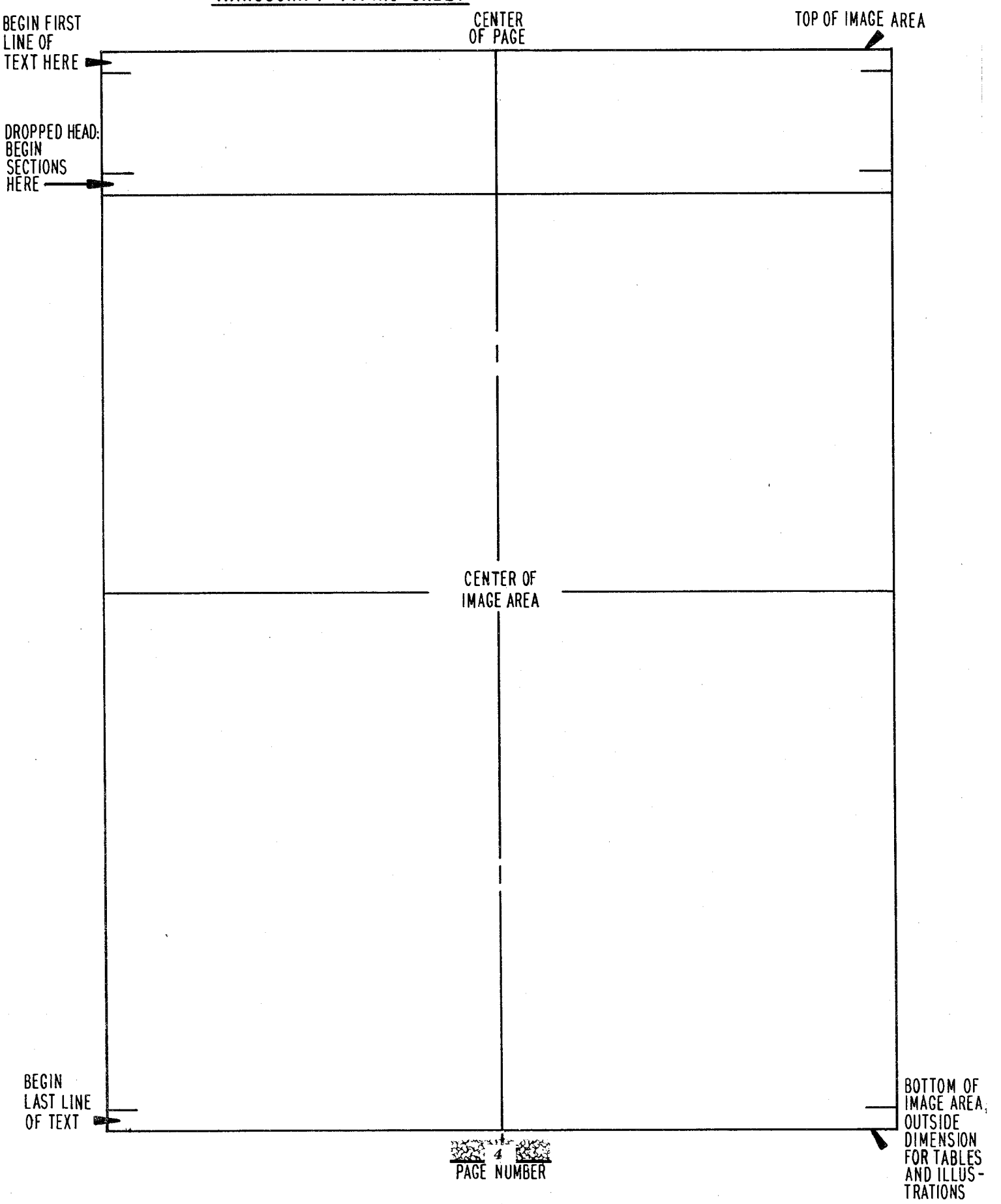
The *review manuscript* is typed *double-spaced* on one side of the page and the type face and size (pica or elite) should be consistent throughout. The space between paragraphs should be double the spacing between lines. Paragraphs, as such, are not indented and are not numbered. The *final manuscript* (camera-ready copy) is similarly prepared except it is typed *single-spaced.*

This image area may vary for certain special publications.

PAGE NUMBERING

Preliminary Pages (Front Matter): Except for the title page (which is counted as page i, but not indicated as such), number the front matter consecutively with lower case Roman numerals (ii, iii, iv, etc.)

MANUSCRIPT TYPING SHEET



Text and Back Matter: Only the first page of the text of the report (normally, the Introduction) begins on a new right-hand page (page 1); thereafter, each new section begins on the next available page. Number the text and the back matter consecutively with Arabic numbers. Allow no blank pages. When making reference to other parts of the manuscript, use subject headings; do not reference by page number.

FOLD-INS AND DIVIDER PAGES

The use of divider pages—those that merely serve to separate the report into sections—and the use of fold-ins are strongly discouraged. The paper, printing, binding efforts, and the cost normally incurred when using fold-ins can usually be saved by proper preliminary planning.

COLOR PRINTING

The use of more than one color must be justified to and approved by the Printing Officer. The project officer or author should submit the justification to the Printing Officer before preparing art work and the final manuscript.

SAVING PAPER

Because of the rising costs of paper, shipping, mailing, reproduction, book storage, and shelving, each individual responsible for preparing a NIOSH report is strongly encouraged to consider appropriate techniques for saving paper, thus reducing the size and weight of publications. Suggestions include reducing and cropping tables, figures, and photographs to their smallest usable size; combining tables and figures with text on one page; and, where practical, placing lists of items in double columns. Contact TIDB for assistance in planning suitable art work.

METRIC UNITS OF MEASUREMENT

The modernized metric system utilizing the International System of Units (Systems International d'Unites, SI) should be used. When used, equivalent units may be expressed parenthetically.

FINAL COPY

After the review manuscript has been cleared, the final manuscript can be prepared either as camera-ready copy or copy for typesetting. To prepare the final manuscript:

- use good quality bond paper and a clean, new ribbon to obtain good black and white contrast;
- observe the image area margins shown on the Manuscript Typing Sheet;
- align the page numbers in the same position on each page, i.e., centered two spaces below the bottom of the image area.

Copying machine reproductions are not acceptable as camera copy. The final single-spaced manuscript becomes the "camera-ready copy" the printer uses to make the master plates for the printing process. Camera copy must be carefully corrected. For best results, use correction tape or white correction paint (apply a very thin coat and let it dry thoroughly before retyping). Use correcting typewriters only for minor corrections, and do not erase or use type-over correction paper.

When a manuscript is to be typeset, the double-spaced review copy (with but a minimum number of neatly made corrections) can be used. If changes are extensive, retype only that portion of the manuscript so changed.

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Copyrighted material, including figures and tables, may not be incorporated in a report unless written permission of the copyright owner has been obtained.

Prior use of copyrighted material in another government publication does not necessarily constitute permission to use it in a NIOSH publication.

When permission has been obtained for material to be used in a report, the material shall be identified by a statement substantially as follows:

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DRAFT DOCUMENT NOTICE

As a result of provisions contained in the Freedom of Information Act and the Privacy Act and for programmatic reasons, draft copies of reports distributed within or outside NIOSH must carry the following notice in the top half of the first page of the general text.

> Notice
>
> This document is a preliminary draft. It has not been formally released by the National Institute for Occupational Safety and Health (NIOSH) and should not be construed to represent NIOSH policy. It is being circulated for comments on its technical merit and policy implications and is not intended to be referenced or released for general distribution.

DISCLAIMER

Select the appropriate disclaimer statement indicated in section on "Back of Title Page" of this document. The statement will always appear on the reverse side of the title page.

SUPPLEMENTARY GUIDES

The following references are cited as supplemental sources for necessary and helpful information that can be used to prepare NIOSH scientific and technical reports. Other guides from engineering and scientific societies and journals may be used to the extent that they do not conflict with NIOSH specifications.

> *CBE Style Manual,* Third Edition, prepared by Committee on Form and Style of the Council of Biology Editors, 1972. This manual is a guide for the author preparing manuscripts for biological journals. Planning and writing the manuscripts, mechanical conventions such as abbreviations, and preparing the copy and the final draft are some of the details included. It is available from the American Institute of Biological Sciences, 3900 Wisconsin Avenue, NW, Washington, D.C. 20016.
>
> *Style Manual,* U.S. Government Printing Office, Washington, D.C., 1973. This manual contains general editorial advice and the Federal govern-

ment's recommended style for capitalization, punctuation, use of numerals, hyphenation, etc. It is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

A Manual of Style, 12th Edition, revised, University of Chicago Press, 1969. The Chicago Manual of Style details what goes into a book, the matters of style that most confuse the author and editor, and the printing of a book. The current practices of most American publishers are reflected here. It is available from bookstores or from the University of Chicago Press, Chicago, Illinois 60673.

Handbook for Authors, American Chemical Society Publications, 1967. This guide for authors of papers submitted to journals of the American Chemical Society contains not only information needed to submit a manuscript to Society journals, but general information applicable to any technical report, e.g., handling words, abbreviations and symbols, structural formulas, marking proof, etc. It is available from Special Issue Sales Department, American Chemical Society, 1155 Sixteenth Street, Washington, D.C. 20036.

Metric Practice Guide, ASTM E 380-76. This deals with conversion of quantities in various measurement systems to the International System of Units (official universal abbreviation, SI). It is available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

Units of Weight and Measure: International (Metric) and U.S. Customary, L. J. Chisholm, U.S. Department of Commerce, National Bureau of Standards, NBS Misc. Pub. 286, revised Oct. 1972. This document provides definitions and conversion factors from various systems of measurement to the international system. It is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Thesaurus of Engineering and Scientific Terms, Department of Defense/ Engineers Joint Council, 1967. This is a compilation of key words from which the identifiers required to complete Block 17a of the Bibliographic Data Sheet, NTIS-35, must be selected. It is available from the Engineers Joint Council, 345 E. 47th Street, New York, New York 10017.

COSATI Subject Category List, Office of Science and Technology, 1964. The Committee on Scientific and Technical Information's (COSATI) outline for uniformly arranging all subject matter is used to complete Block 17c of the Bibliographic Data Sheet, NTIS-35. It is available from NTIS as order number AD 612 200, NTIS, Springfield, Virginia, 22161.

Government Printing and Binding Regulations, Joint Committee on Printing, Congress of the United States, No. 23, Oct. 1974. This pamphlet provides background information on Government Printing Office requirements concerning the use of color printing, self-mailers, printing requirements resulting from grants or contracts, etc. It is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The primary sources for supplementing the instructions in this Guide are The Council of Biology Editors' CBE Style Manual and the GPO Style Manual. Where differences occur, the instructions in this Guide supersede those in the

CBE Style Manual. Authors should familiarize themselves with the following portions of the CBE Style Manual.

Authors and project officers encountering problems not covered in the CBE Style Manual may use the GPO Style Manual, Chicago Manual of Style, or other professional-technical style guides. The preferred spelling of a word is the first spelling given for the word in Webster's Third New International Dictionary.

SAMPLES

On the pages that follow are explanations and one or more samples of the different elements of a NIOSH report. They are included in the order that they would appear in a report.

Title page
Back of title page (disclaimer page)
Foreword
Preface
Abstract
Contents, figures, tables
Acknowledgment
Introduction
Body of report
Conclusions and recommendations
Summary
References
Bibliography*
Appendix(es)
Glossary*
Index*
NTIS-35 form

*Sample not included.

The title page, disclaimer page, abstract, introduction to and body of report, and NTIS-35 form are essential. The format, as shown in the samples, for each of these must be followed.

The other elements may or may not be included depending on the nature of the report. These explanations and samples are intended as guides.

TITLE PAGE

The title page is the first page of the manuscript.

Title/Subtitle

The title should be 10 words or less, concise, descriptive, and specific as to the manuscript's contents. A subtitle should be used when it is necessary to elaborate or limit the title of the manuscript.

Byline/Contract number

The byline should identify the author(s). Only persons directly and substantially involved in writing the manuscript or in performing the research upon which the report is based are listed in the byline. Significant assistance by others may be acknowledged (see Acknowledgments).

For NIOSH-authored publications, include each author's name (full first name, initial of the second name, last name). The first-level organizational unit may be included.

For contract or interagency agreement reports, the byline includes the name(s) of the author(s) and the name and location (city, state, ZIP) of the organization where the work was performed and the contract or agreement number. If the report has been substantially changed, the following statement should be included to reflect the Institute's contribution:

John J. Smith
Silver Springs Corporation
Silver Springs, Maryland 20207

Contract No. CDC 99-75-999

as modified by

John J. O'Doe
Organizational Name, NIOSH

If the contractor's report is to be used only as a source for a NIOSH publication, no reference to the contractor need be made and the resulting publication is treated as a NIOSH-authored publication. Appropriate reference to the contractor should be made in the Acknowledgment.

Imprint/Date

The HEW imprint must appear at the bottom of the title page; it includes HEW, PHS, CDC, NIOSH, first-level organizational unit, city, state, ZIP code, and the month and year submitted for review (Review Manuscript) or the month and year the copy receives its final approval and is closed to any changes (Final Manuscript).

Title:
Use large character typing element if available; center between right and left margins; main title, all caps; subtitle, caps and lower case.

TITLE IN TEN WORDS OR LESS

Subtitle if necessary

Byline:
For NIOSH-authored report, use name(s) and unit; caps and lower case; centered; single-spaced.

Ann J. Author
Samuel D. Scribe
William W. Writer
First-level Organizational Unit

For contract or interagency reports, use caps and lower case; single-spaced.

Author(s)
Organizational Name
City, State, ZIP

Contract or interagency agreement number.

Number

HEW imprint:
USDHEW in all caps; other information, caps and lower case.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
First-level Organizational Unit
Cincinnati, Ohio 45226

Date:
Use submitted date for review manuscript; approval date for final manuscript.

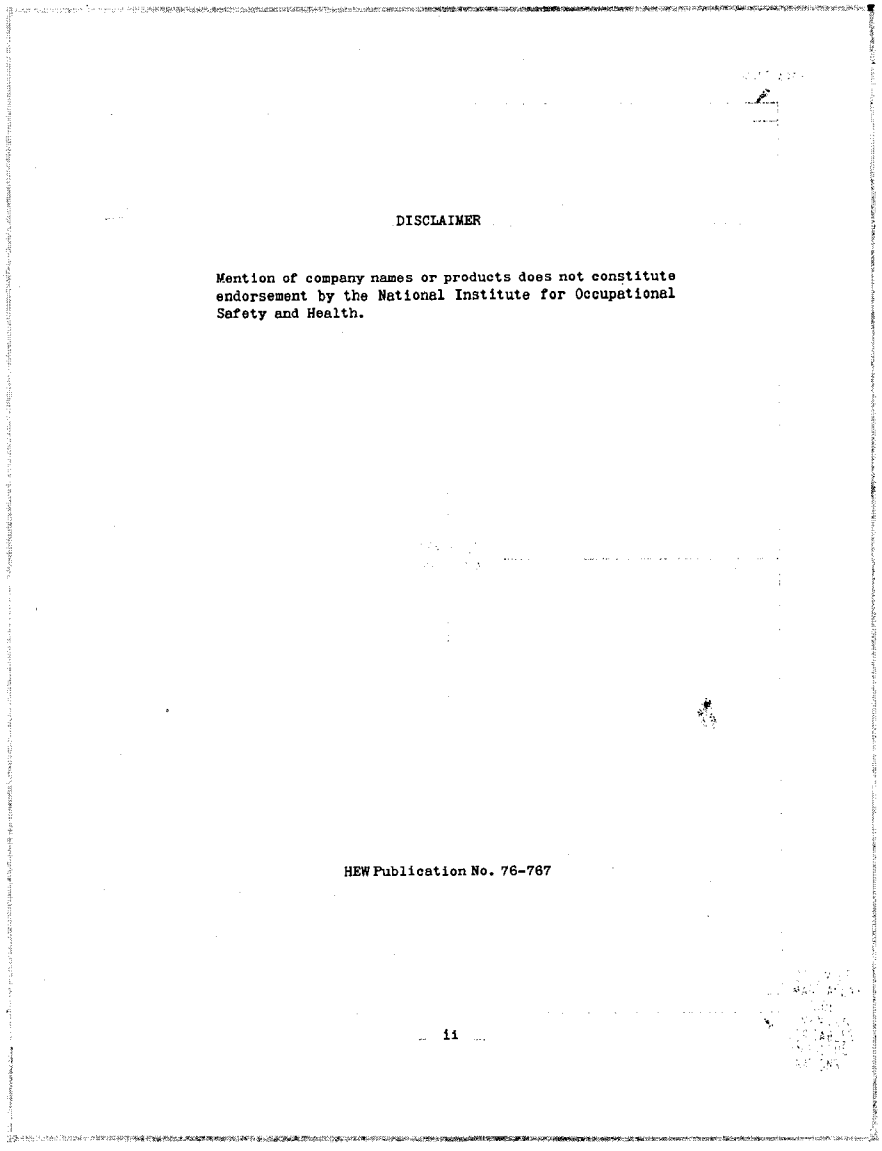
Month Year

BACK OF TITLE PAGE

Back of title page (ii) contains a disclaimer statement; the name of the NIOSH project officer and the name of the project director (if contract) or the principal investigator (if agreement), as applicable; and the HEW publication number (provided by the TIDB).

For NIOSH-authored publications, use disclaimer statement A. For non-NIOSH-authored publications, use the disclaimer statements on B, as appropriate.

Substitute "performing agency" for "contractor" in Disclaimer B statements when the report is prepared through an interagency agreement. TIDB will insert the HEW publication number.



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HEW Publication No. 76-767

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Disclaimer A

DISCLAIMER

The contents of this report are reproduced herein as received from the contractor.
The opinions, findings, and conclusions expressed herein are not necessarily those of the National Institute for Occupational Safety and Health, nor does mention of company names or products constitute endorsement by the National Institute for Occupational Safety and Health.

NIOSH Project Officer: Able N. Willing
Principal Investigator: Stead D. Stable
(or) Principal Director: Ima Alert

HEW Publication No. 76-767

Disclaimer B

FOREWORD

The foreword, when used, is a statement pointing out the publication's value, significance, or impact. A foreword is brief and is signed only by the Institute Director.

FOREWORD

The National Institute for Occupational Safety and Health (NIOSH) is responsible for helping ensure that every person in the Nation has safe and healthful working conditions. To accomplish this end, the Institute engages in research on occupational safety and health problems including evaluation of hazards and toxicity determinations.

One of the many hazards considered for investigation by the Institute is barotrauma, a stress induced in workers subject to large changes is atmospheric pressure, such as those encountered in deep-sea diving. Thus, we were pleased to sponsor the Symposium on Dysbaric Osteonecrosis, which brought together individuals interested in this bone disease, including its medical, legal, and economic aspects.

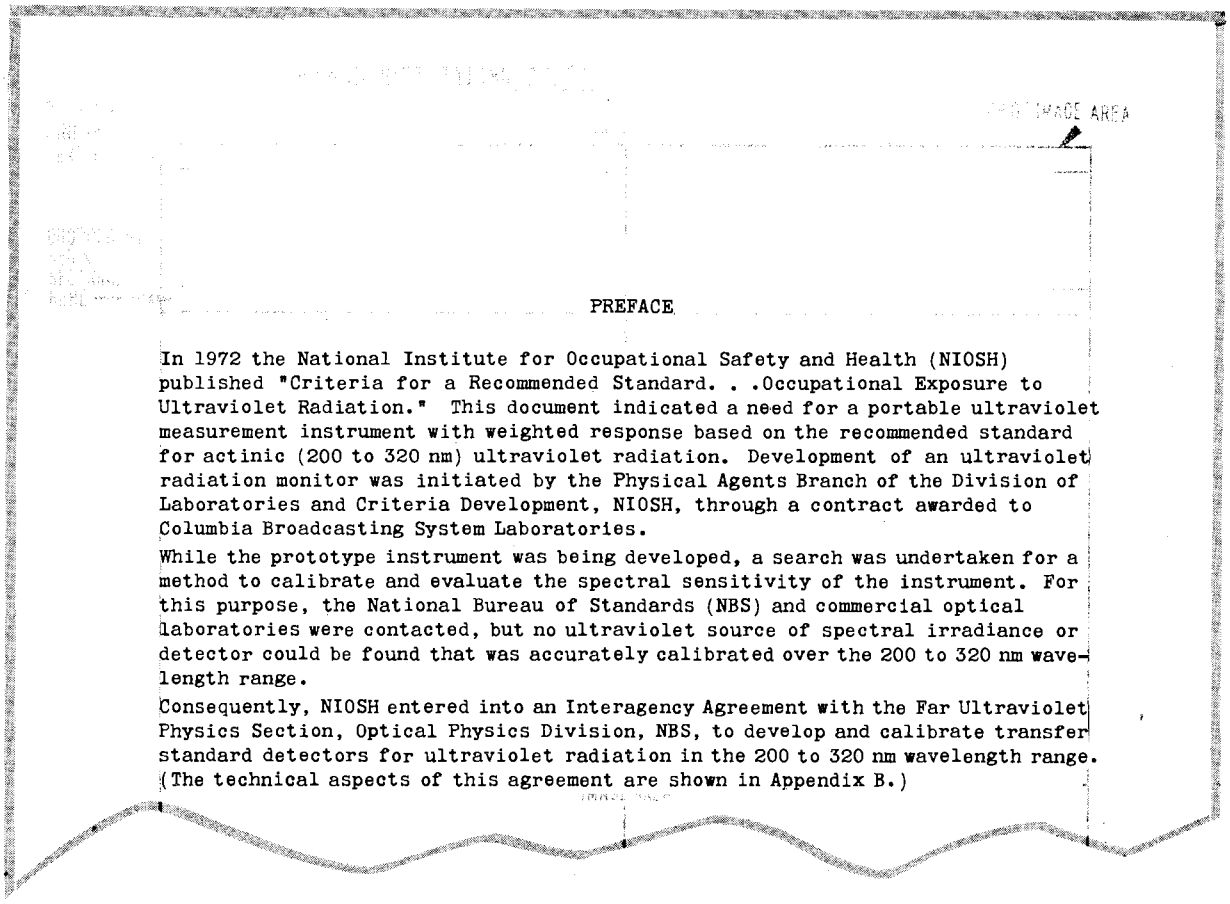
This volume contains the edited proceedings of the Symposium and is the only known source book on the subject of osteonecrosis. We hope that it will provide the basis for further research.

John F. Finklea, M.D.
Director

PREFACE

In addition to (or instead of) a foreword, a publication may have a preface. When used, a preface presents the author's statements about the publication, or the field to which it relates, that cannot be incorporated appropriately or easily in an introduction. The author is able to address the reader more personally in a preface than in an introduction. The preface can include broad acknowledgments of substantial assistance received from a number of different organizations or individuals; comments on changes that have been made between one edition and the next; reasons for undertaking the research; an explanation of the methodology used, if this would aid the reader's understanding of the text; or the limitations within which the subject was studied.

A preface is brief, and because the reader assumes it was written by the author, the preface is not signed.



PREFACE

In 1972 the National Institute for Occupational Safety and Health (NIOSH) published "Criteria for a Recommended Standard. . .Occupational Exposure to Ultraviolet Radiation." This document indicated a need for a portable ultraviolet measurement instrument with weighted response based on the recommended standard for actinic (200 to 320 nm) ultraviolet radiation. Development of an ultraviolet radiation monitor was initiated by the Physical Agents Branch of the Division of Laboratories and Criteria Development, NIOSH, through a contract awarded to Columbia Broadcasting System Laboratories.

While the prototype instrument was being developed, a search was undertaken for a method to calibrate and evaluate the spectral sensitivity of the instrument. For this purpose, the National Bureau of Standards (NBS) and commercial optical laboratories were contacted, but no ultraviolet source of spectral irradiance or detector could be found that was accurately calibrated over the 200 to 320 nm wavelength range.

Consequently, NIOSH entered into an Interagency Agreement with the Far Ultraviolet Physics Section, Optical Physics Division, NBS, to develop and calibrate transfer standard detectors for ultraviolet radiation in the 200 to 320 nm wavelength range. (The technical aspects of this agreement are shown in Appendix B.)

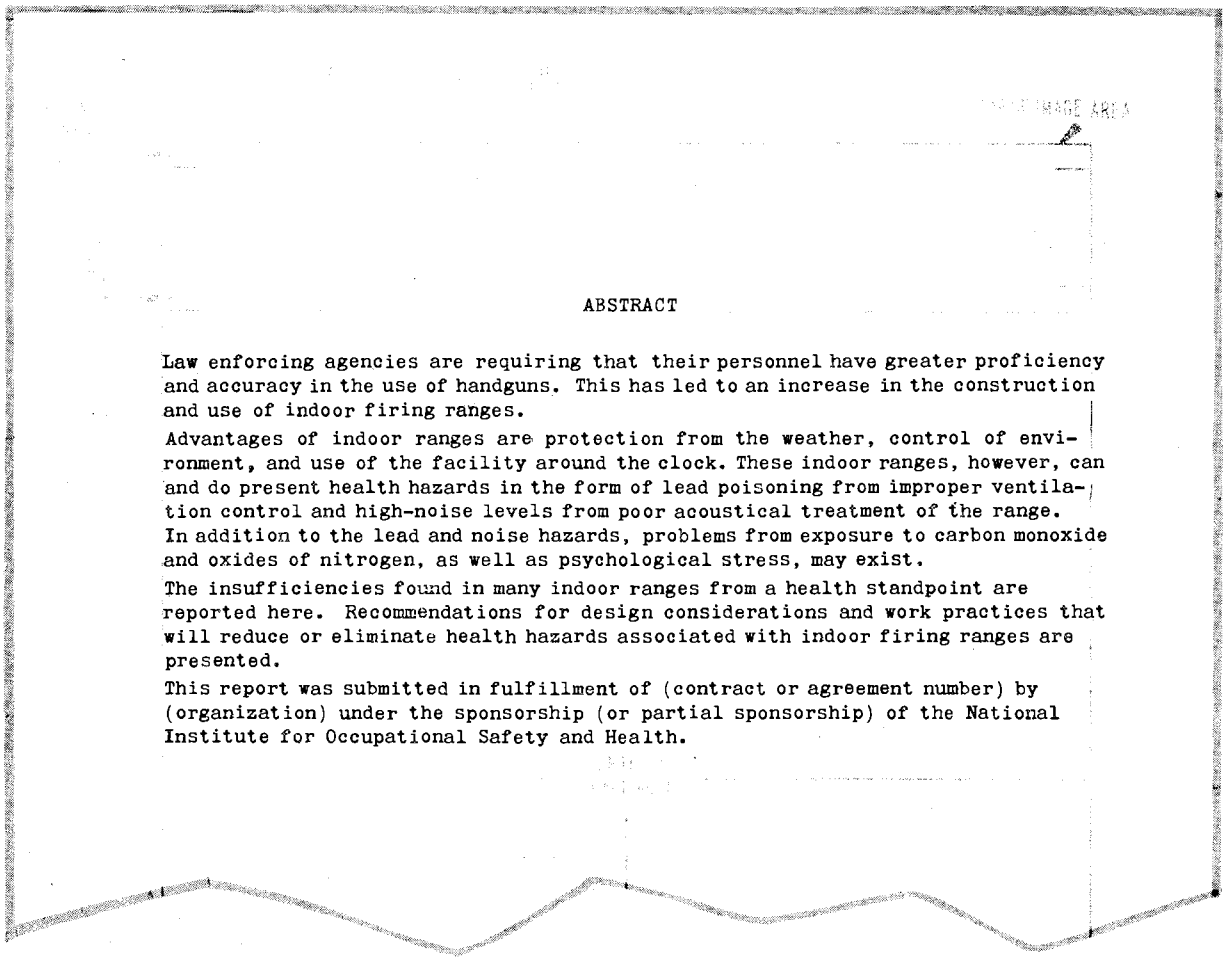
ABSTRACT

An abstract is required for each proceedings, research report, and technical report, and for most special reports. Because the prospective readers determine their interest in the report after reading the abstract, it is essential to accurately reflect the "why," "how," and "what" of the report. In 100 to 200 words, present the following:

- Specific objectives, purpose, and scope (why)
- Techniques, equipment, and materials employed (how)
- Outcome, significant results, or conclusions (what)

Achieve brevity by omitting most negative results, projected work, general background information (which more suitably belongs in the Introduction), and evaluation of the results (which belongs in the Body of Report). For contract or interagency agreement reports, the abstract must conclude with the following statement:

> This report was submitted in fulfillment of (contract or agreement number) by (organization) under the sponsorship of the National Institute for Occupational Safety and Health.



ABSTRACT

Law enforcing agencies are requiring that their personnel have greater proficiency and accuracy in the use of handguns. This has led to an increase in the construction and use of indoor firing ranges.

Advantages of indoor ranges are protection from the weather, control of environment, and use of the facility around the clock. These indoor ranges, however, can and do present health hazards in the form of lead poisoning from improper ventilation control and high-noise levels from poor acoustical treatment of the range. In addition to the lead and noise hazards, problems from exposure to carbon monoxide and oxides of nitrogen, as well as psychological stress, may exist.

The insufficiencies found in many indoor ranges from a health standpoint are reported here. Recommendations for design considerations and work practices that will reduce or eliminate health hazards associated with indoor firing ranges are presented.

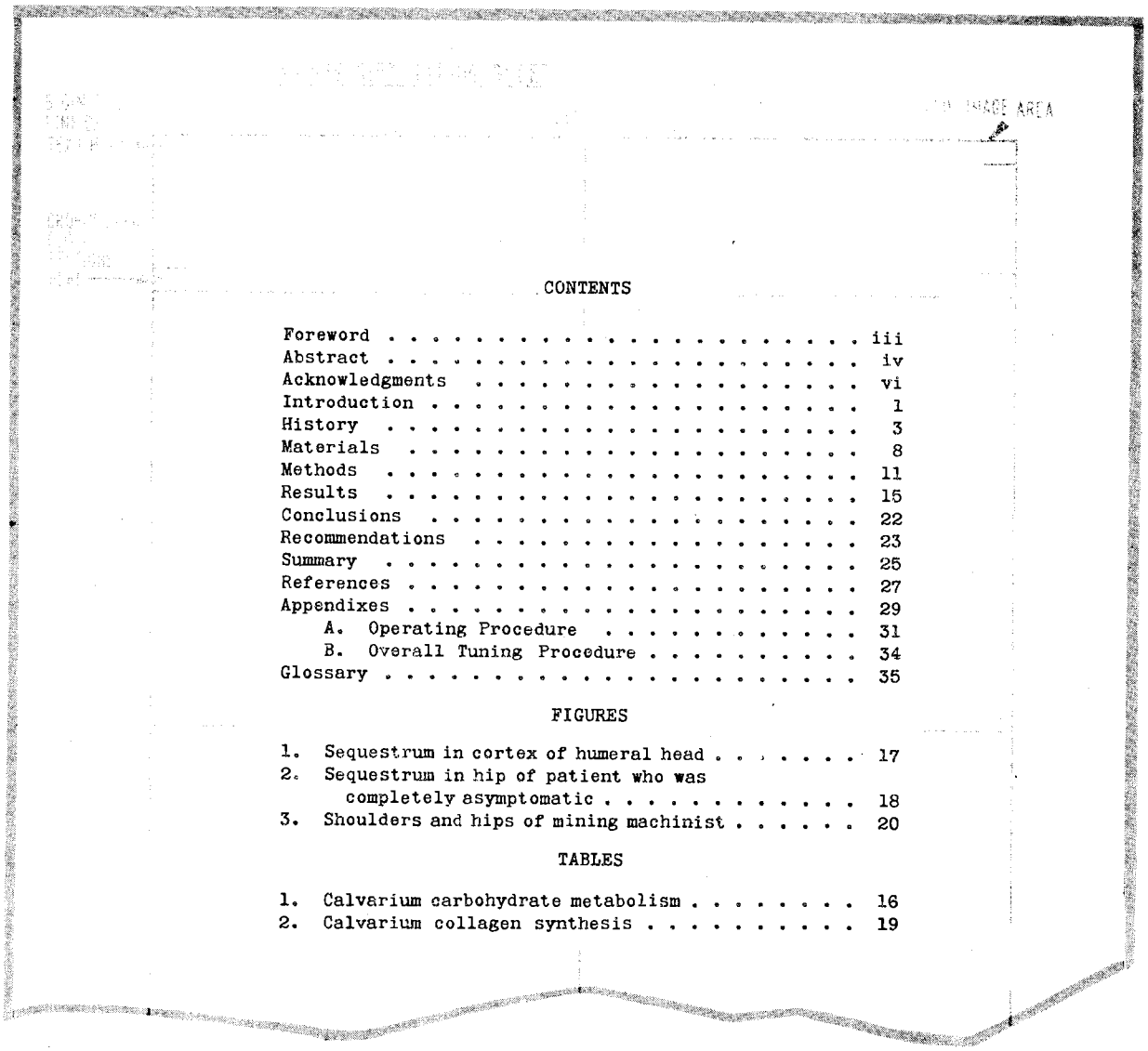
This report was submitted in fulfillment of (contract or agreement number) by (organization) under the sponsorship (or partial sponsorship) of the National Institute for Occupational Safety and Health.

CONTENTS

The table of contents lists major (first order) headings with their beginning page number; meaningful subheads, appropriately indented, may be included for long complex reports. Contents may be omitted on short documents or if unnecessary.

Although preliminary front matter is not part of the text, it is part of the document and is included in the contents. The use of leaders may aid readability. Note that the correct heading is "Contents," not "Table of Contents."

Include lists of illustrations (figures, maps, charts, plates) and lists of tables only when essential to the use of the report. For each illustration or table, give the figure or table number, the legend or caption as it appears in the report (shortened, if lengthy), and the page number in a manner similar to that used for the contents. When possible, combine these lists or combine both with the contents.



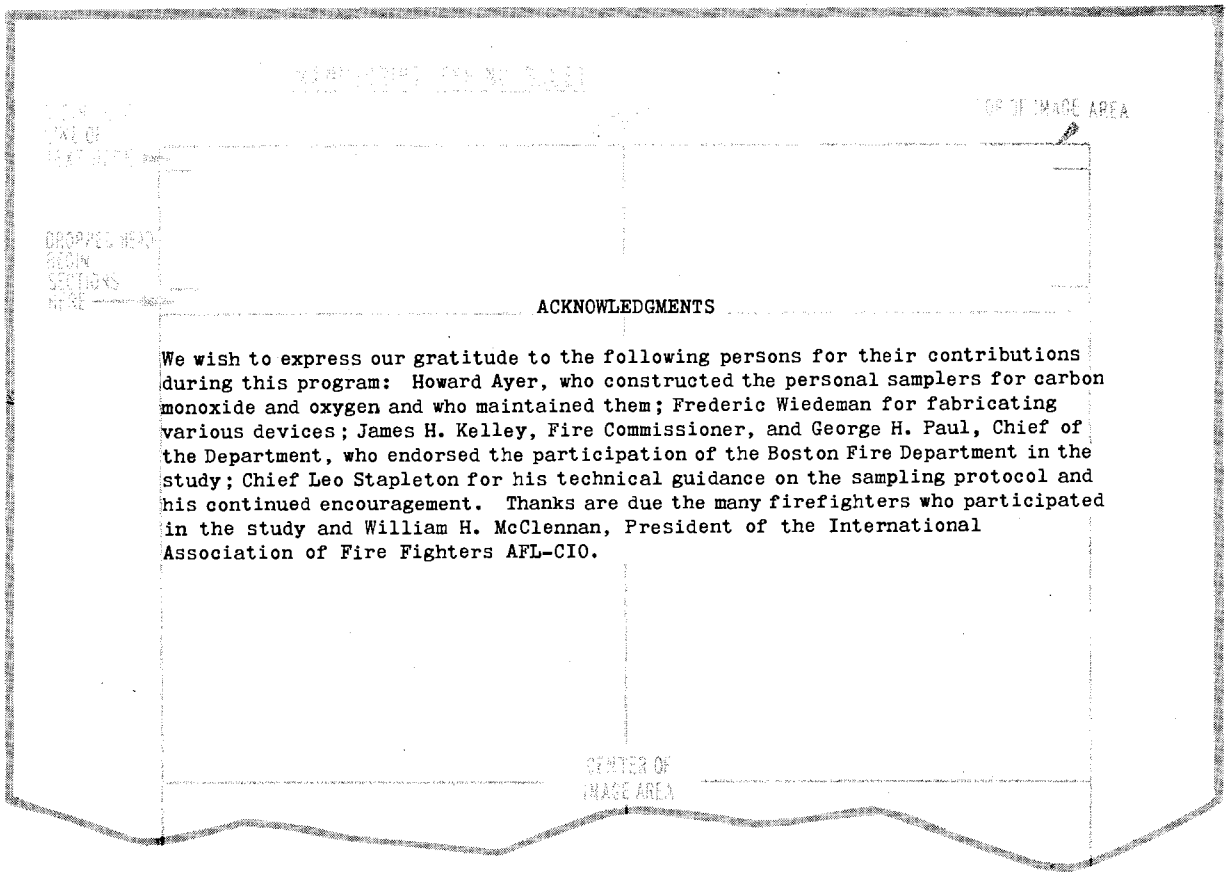
CONTENTS

FIGURES

TABLES

ACKNOWLEDGMENT

An acknowledgment, when used, generally recognizes key personnel and organizations contributing significantly to the manuscript, e.g., by supplying material or equipment, doing special studies, doing statistical analyses. Only significant staff work should be acknowledged; ordinarily, supporting staff work is not included in an acknowledgment.

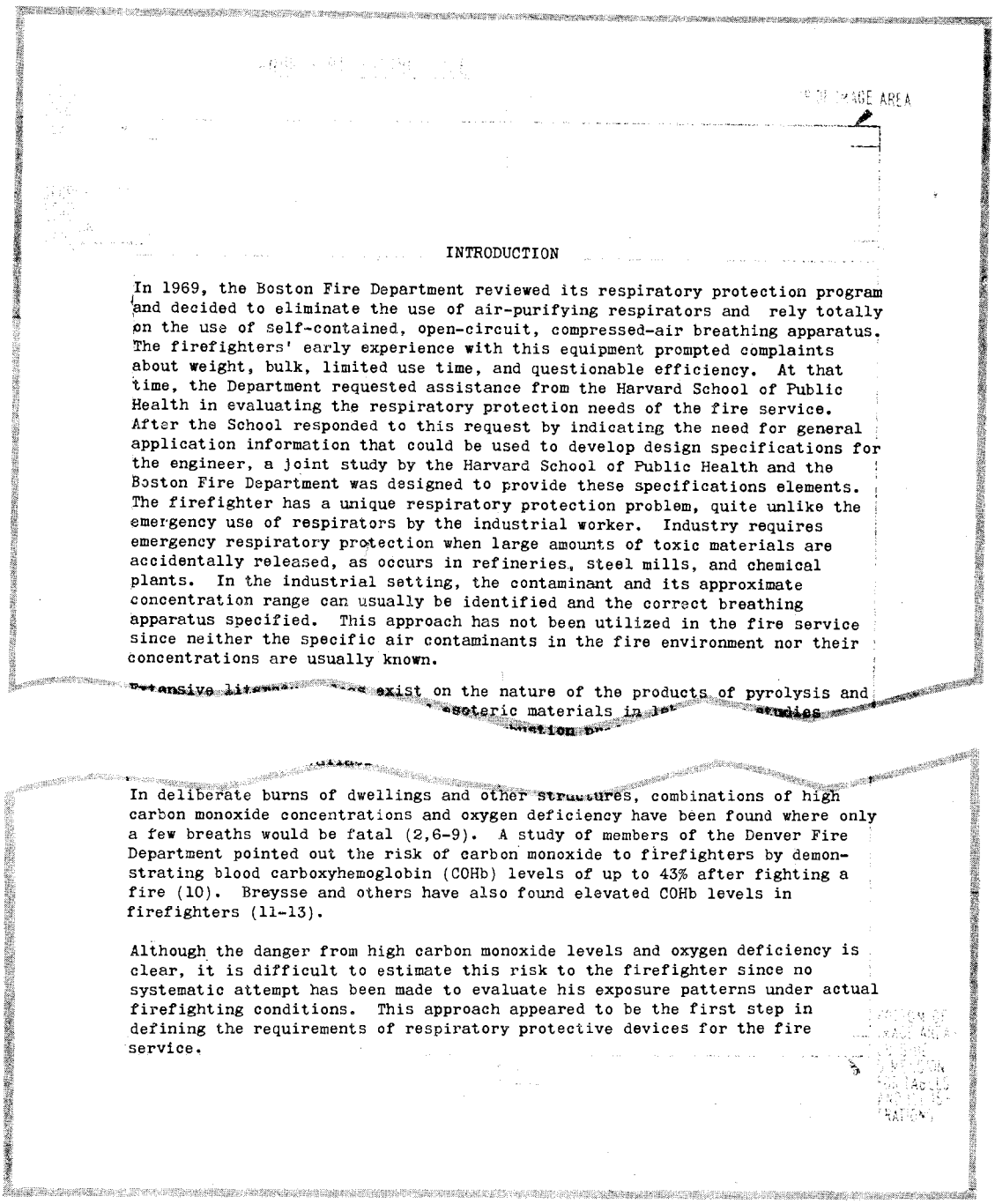


ACKNOWLEDGMENTS

We wish to express our gratitude to the following persons for their contributions during this program: Howard Ayer, who constructed the personal samplers for carbon monoxide and oxygen and who maintained them; Frederic Wiedeman for fabricating various devices; James H. Kelley, Fire Commissioner, and George H. Paul, Chief of the Department, who endorsed the participation of the Boston Fire Department in the study; Chief Leo Stapleton for his technical guidance on the sampling protocol and his continued encouragement. Thanks are due the many firefighters who participated in the study and William H. McClennan, President of the International Association of Fire Fighters AFL-CIO.

INTRODUCTION

The introduction contains a statement of the problem and a brief review of the purpose(s) of the work. The work undertaken is related to the overall field of activity: the conditions under which the work was done are described; previous work in the same field (including published literature) is summarized and appraised; the theoretical approach to problem solutions is presented. The first page of text (the introduction) marks the formal beginning of the narrative portion of the manuscript. This page is numbered with Arabic 1.



INTRODUCTION

In 1969, the Boston Fire Department reviewed its respiratory protection program and decided to eliminate the use of air-purifying respirators and rely totally on the use of self-contained, open-circuit, compressed-air breathing apparatus. The firefighters' early experience with this equipment prompted complaints about weight, bulk, limited use time, and questionable efficiency. At that time, the Department requested assistance from the Harvard School of Public Health in evaluating the respiratory protection needs of the fire service. After the School responded to this request by indicating the need for general application information that could be used to develop design specifications for the engineer, a joint study by the Harvard School of Public Health and the Boston Fire Department was designed to provide these specifications elements. The firefighter has a unique respiratory protection problem, quite unlike the emergency use of respirators by the industrial worker. Industry requires emergency respiratory protection when large amounts of toxic materials are accidentally released, as occurs in refineries, steel mills, and chemical plants. In the industrial setting, the contaminant and its approximate concentration range can usually be identified and the correct breathing apparatus specified. This approach has not been utilized in the fire service since neither the specific air contaminants in the fire environment nor their concentrations are usually known.

Extensive literature exist on the nature of the products of pyrolysis and esoteric materials in [illegible] studies

In deliberate burns of dwellings and other structures, combinations of high carbon monoxide concentrations and oxygen deficiency have been found where only a few breaths would be fatal (2,6-9). A study of members of the Denver Fire Department pointed out the risk of carbon monoxide to firefighters by demonstrating blood carboxyhemoglobin (COHb) levels of up to 43% after fighting a fire (10). Breysse and others have also found elevated COHb levels in firefighters (11-13).

Although the danger from high carbon monoxide levels and oxygen deficiency is clear, it is difficult to estimate this risk to the firefighter since no systematic attempt has been made to evaluate his exposure patterns under actual firefighting conditions. This approach appeared to be the first step in defining the requirements of respiratory protective devices for the fire service.

BODY OF REPORT

Headings

The text or narrative portion of a manuscript is usually divided into several titled sections; these are then frequently subdivided. The sequence and style of section headings and subheadings are (see next page for example):

First order—This is the main heading for sections (chapters) of the report. All capital letters, centered on the page. Double space the heading if more than one line is needed. Begin all first-order heads on a new page. Allow six spaces below the upper limit of the image area (dropped head); double space between heading and the text that follows.

Second order—All capital letters, flush with left margin. Double space above and below the heading.

Third order—Capital and lower case (capitalize the first letter of each important word), flush with left margin. Double space above and below heading.

Fourth order—Capital and lower case (capitalize the first letter of each important word), flush with left margin. End with a double hyphen. Double space between the previous line of text and the heading; allow no space between the heading and the line that follows.

Fifth order—Initial capital only (capitalize the first letter of the first word and any proper nouns), flush with left margin. End with a double hyphen. Double space between previous line of text and the heading; because this is a run-in heading, begin the text immediately following double hyphen.

When a heading falls on a new page, type the heading (except first-order heading, which is dropped, see example) at the upper limit of the image area. If there is insufficient space at the bottom of a page to type a heading AND two lines of text, put the heading at the top of the next page.

Footnotes

Avoid using footnotes. When needed, identify them with *, †, ‡, §, #, as available, at the bottom of the page on which the referenced text appears. If necessary, double the symbols. Type footnotes flush with left margin, within the image area, at the bottom of the page. Separate the footnotes from the text with a 2-inch-long horizontal divider line starting at the left margin. Allow one space above and below this line.

First order → TESTING PROGRAM

The requirements and tests discussed in this report are those of the American National Standards Institute (ANSI) Z87.1. The standard itself contains a detailed description of these requirements. Some of the requirements, however, are subject to a variety of interpretations. The purpose of this section is to state the National Institute for Occupational Safety and Health's (NIOSH) interpretation of these areas and to present the details of the overall testing program. For those not familiar with the ANSI tests, a brief description of the nature of each test is given.

Second order → PERFORMANCE TESTS

Third order → Transmittance

The ANSI standard specifies that the face shield window shall transmit not less than 85% of the incident visible light. To determine this so-called luminous transmittance, a Coleman EPS-3T spectrophotometer was used to measure the spectral transmittance. The luminous transmittance, T, was then calculated from the following weighted average:

Equation →

$$T_I = \frac{S\ T(y)\ E(y)\ P(y)}{S\ E(y)\ P(y)}$$

where

T_I = spectral transmittance of window

E(y) = relative spectral irradiance of standard CIE source A, and

P(y) = relative spectral sensitivity of photopic observer.

The value of T(y) was measured from 40 to 276 nm in steps of 10 nm. The coefficients of E(y) and P(y) were taken from a National Bureau of Standards (NBS) Monograph (8).

Fourth order → Test Design--

For use in the spectrophotometer, a 2- by 2-inch section was cut from the center portion of two windows. Care was taken to ensure that sections chosen were clean and unscratched. The results of this test were judged by considering the average of these two samples.

Fifth order → Results when using an XYZ*--The XYZ machine described by Jones and Smith (9) developed a drone after 48 hours of continuous testing. Because of the incomplete results, the partial data were not used.

Footnote → *The XYZ used in this test was equipped with a giant unilateral waddle.

Illustrations

Except for simple unnumbered illustrations that are closely integrated and run in with the text, all illustrations are numbered and carry a legend.

Because good illustrations enhance the value of technical reports, use them to emphasize, demonstrate, and summarize. Treat illustrations consistently throughout the document.

Place illustrations closely following their first reference in the text; combine with text when possible (e.g., see Figure 3*). When a report contains only a few pages of text and many illustrations, however, place the illustrations in numerical sequence after the text.

When necessary, place illustrations broadwise (e.g., see Figure 14*) on a page so that the head of the illustration is to the left, i.e., will be readable when the page is turned clockwise 90° for normal viewing. Center less-than-full-width illustrations between left and right image area margins. Both the illustration and the legend must fit within the image area.

In preparing illustrations, exercise care to ensure that details and lettering within the illustration will be clearly legible after final reproduction. Crop or mask photographs to eliminate insignificant portions. Unnecessary border frames should be eliminated.

As far as practical, place callout (also, lettering or label) on an illustration horizontally, unboxed, and near the item identified. There should be high contrast and easy readability (sans serif type is preferred).

Illustrations within the text are numbered with consecutive Arabic numerals preceded by the word "Figure" (e.g., Figure 2, Figure 13). Illustrations within appendixes are numbered consecutively within each appendix with Arabic numerals preceded by the appendix letter (e.g., Figure A-1, Figure B-9).

Each illustration must have a descriptive legend. Center the legend beneath the illustration following the figure number. Style the legend as a sentence: use initial capital for the first word and for any proper nouns or chemical or mathematical symbols and close with a period.

If photographs are used, submit glossy black and white photo prints. Do not prepare art work for color reproduction when government printing is involved unless specifically authorized by the Printing Officer. Instead of color printing, consider using screens, crosshatching, or similar techniques to provide the desired effect.

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*See samples on next page.

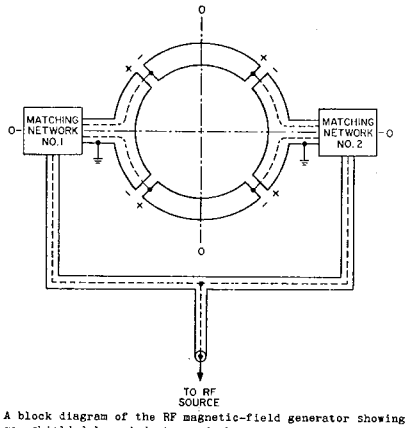


Figure 3. A block diagram of the RF magnetic-field generator showing the four-gap shielded-loop inductor and the associated tunable matching networks for use from 10 to 40 MHz. The two orthogonal image planes are shown intersecting at the center of the loop.

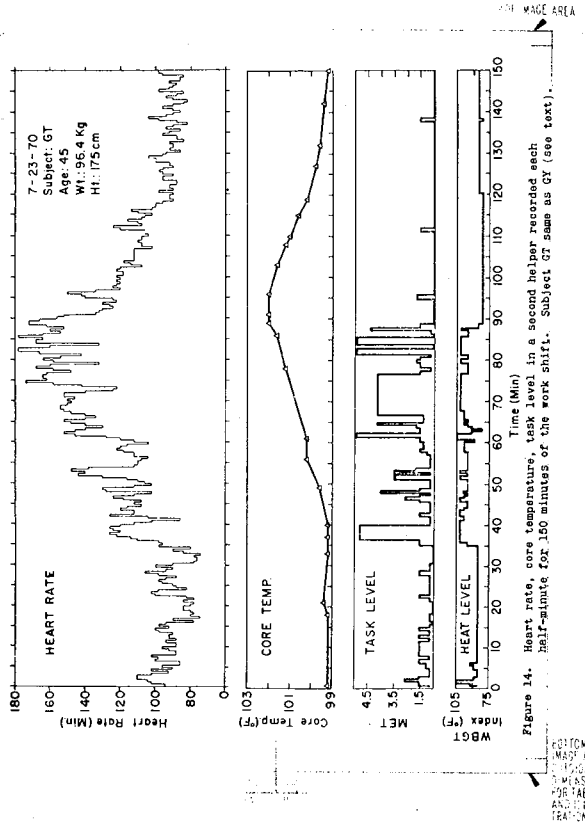


Figure 14. Heart rate, core temperature, task level in a second helper recorded each half-minute for 150 minutes of the work shift. Subject GT same as GY (see text).

Tables

When preparing tables, organize the tables as simply as possible for the reader. Use letters and numbers that will be easily readable and will reproduce well; prepare printout sheets from electrically tabulated data so that letters and numbers are sharp and unbroken; if necessary, reduce printout sheets photographically to fit within the image area.

Tables within the text are numbered with consecutive Arabic numerals, preceded by the word "Table." Tables within appendixes are numbered consecutively within each appendix with Arabic numerals preceded by the appendix letter (e.g., Table A-3).

Except for short, simple tabular data, which are run-in with the text and are unnumbered, center a descriptive caption above each table after the table number. Style the caption as a sentence: use initial capital for the first word and any proper nouns or chemical or mathematical symbols and close with a period. (See Figure 2, page 139, CBE Style Manual.)

When necessary, place a table broadwise on a page so that the head of the table is to the left, i.e., will be readable when the page is turned clockwise 90° for normal viewing. Combine short tables with text; center narrow tables between left and right image-area margins. Insert tables into the report as close as reasonably possible after their first reference in the text. When a report contains only a few pages of text and many tables, however, place the tables in numerical sequence after the text.

Use symbols for table footnotes, e.g., *, †, ‡, §, #, as available. Double their use, if needed (**, ††, etc.). Assign the symbols consecutively, in normal reading order (across the table and from top to bottom). Superscript, lowercase letters may be substituted if their use will not confuse the reader or if the manuscript is not computer-generated.

To reduce the size of tables, eliminate columns of unnecessary data or columns of data that can be easily determined from data in other columns; reverse the stubhead column with the boxhead to see if the table will occupy less horizontal space; divide into two tables. If table cannot be reduced, continue on more than one page. When a long table is continued on two or more pages, note this continuation at the bottom of all but the last page, e.g., (continued). Repeat the boxhead column headings, with rules, on each page. For tables placed *broadwise* on facing pages, it is not necessary to repeat column headings on second page.

An estimate, supported in part by quantitative data, can be made of blood flow to various bodily tissues of a hypothetical lean (70-kg) man relative to N_2 content (Table 6). About 50% of the N_2 content of this man (10% fat in adipose tissue) is in aqueous tissues with a large blood supply. The other 50% is in fatty tissues with a meager blood supply.

Table 6. Estimated weight, fluid, and lipid content of five tissue categories for 70-kg man, plus calculated N_2 content relative to blood perfusion.

Parameter	Tissue-organ group			
	Blood, organs, red marrow, GI tract	Muscles, skin, spinal cord, nerves	Bone matrix* (fat, mineral-free)	Adipose tissue (lean man)†
Weight, g	15,000	37,000	4,000	9,500
Fluid, g	12,000	28,000	2,500	2,000
Lipid, g	400	400	n.a.‡	7,000
N_2 content, ml§				
Fluid	108	252	23	18
Lipid	22	22	n.a.‡	378
Blood perfusion, ml/min	4,000	1,200	80	400

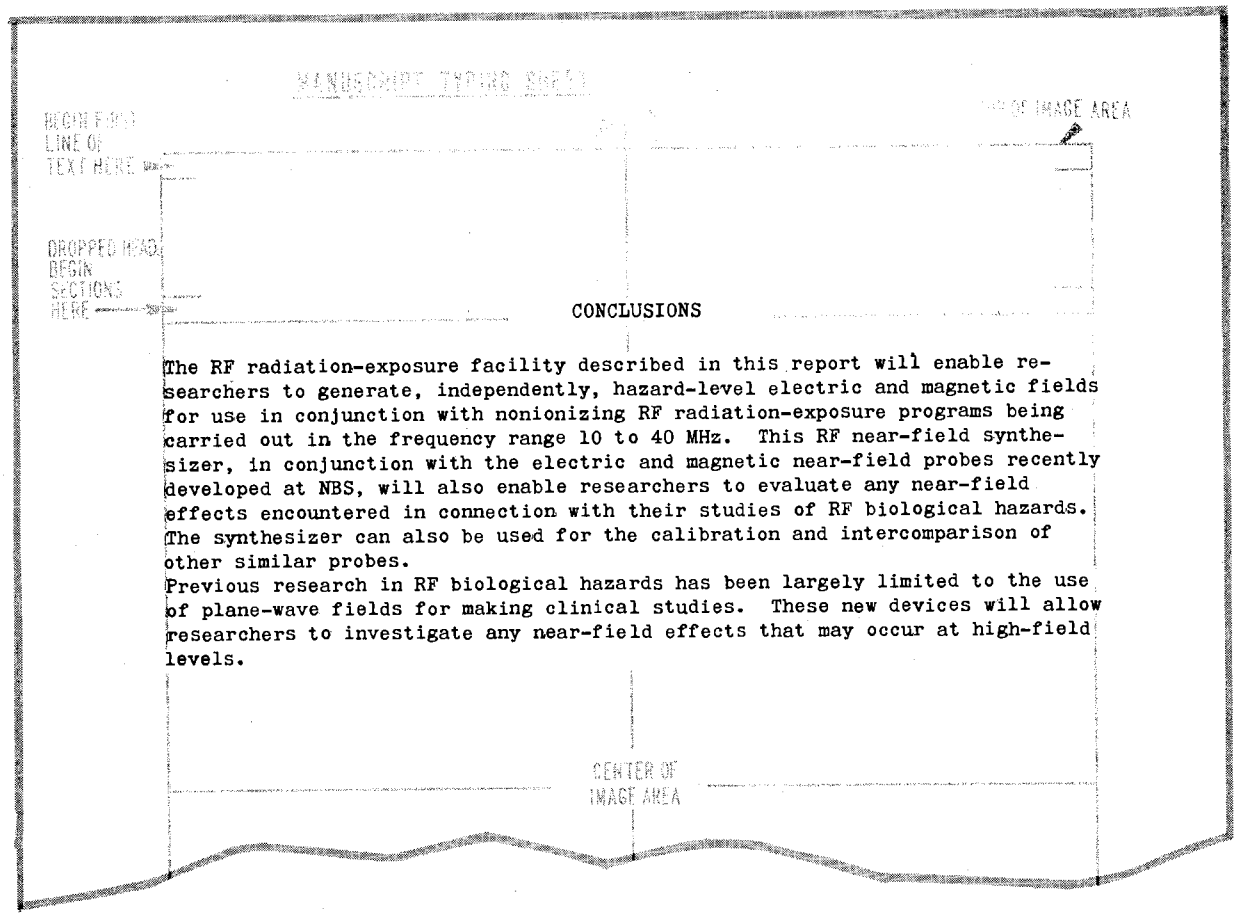
* Weight of mineral in bone: 3000 g.
† Lean man: 10% of body weight is lipid in adipose tissue.
‡ Not applicable.
§ N_2 solubility per kg fluid, 9 ml; per kg lipid, 54 ml (P_{N_2} = 570 mm Hg; temperature, 37°C).

Definite end points for N_2 elimination have not been determined. But from Lundin's data (1960), the association between body fat and prolongation of desaturation time can be clearly shown. Calculations indicate that about 54 ml of N_2 will be added to the body's N_2 store for every kg of fat gain. Moreover, the "heavy" men in Gray's analysis (1951) manifested progressive susceptibility to altitude decompression sickness in relation to weight.

CONCLUSIONS AND RECOMMENDATIONS

What problems did the research or survey solve? These are the conclusions. What further study, additional information, or action is needed? These are the recommendations.

Conclusions and recommendations are based specifically on the findings reported in the text and are presented in sections headed "Conclusions" or "Recommendations." Separate sections are preferred if both conclusions and recommendations are made, although they may be presented together in a "Conclusions and Recommendations" section if brevity and clarity are enhanced.



CONCLUSIONS AND RECOMMENDATIONS

The material presented herein has not been completely analyzed and only a fraction of the available data has been brought to your attention. The data, however, speak for themselves. Future publications will deal in more detail with the physiological observations. All of these data collected on workers in a number of aluminum reduction plants suggest that they were not heat stressed despite the disproportionate number of WBGT readings exceeding the 79 F standard. Physiological measurements of body temperature, heart rate, and body weight changes generally confirm the lack of a heat stress in this working situation. A number of still unexplored factors, such as degree of heat acclimatization, work practices, and self selection, may well account for the efficient performance of workers in adverse environments. To provide for a proper and fair heat standard, much more data must be obtained under actual industrial situations.

The basic data obtained in the practical work situation raise a number of questions regarding the proposed criteria standards. Strict adherence to the standard does not appear to be justified at the present time. A preliminary evaluation of the heat stress standards as suggested in the NIOSH document has been published.

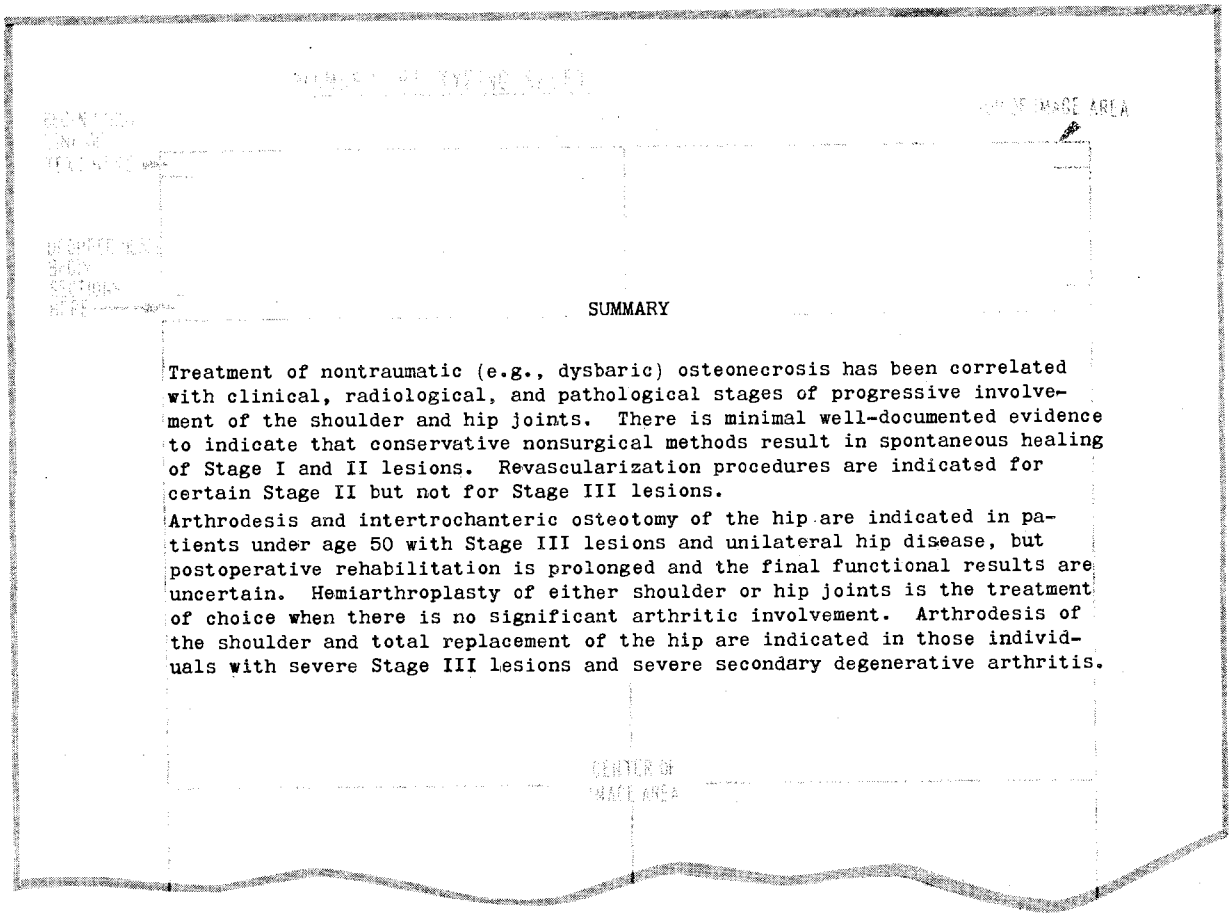
RECOMMENDATIONS

We recommend that future researchers:

- Consider ways to further reduce the tuning drift of the synthesizers including (a) water-cooling of the vacuum tuning capacitors; (b) using DC voltage feedback from the reflectometer to adjust the frequency of the crystal oscillator; and (c) using a purer form of copper in the construction of the loops to increase their electrical conductivity.
- Develop improved methods for accurately measuring the phase difference between the electric and magnetic fields generated by the synthesizer. Uncertainties introduced by the field-sampling probes and the associated transmission lines need to be resolved.
- Analyze various methods to determine the RF power absorbed by biological samples placed in the synthesizer. One method might be based on the change in reflected power produced by the sample; a second, on the temperature rise versus time of the test sample. Methods of tuning and adjusting will also probably be involved.

SUMMARY

If the summary merely repeats the material in the Abstract, Introduction, Conclusions, or Recommendations, it may be omitted.



SUMMARY

Treatment of nontraumatic (e.g., dysbaric) osteonecrosis has been correlated with clinical, radiological, and pathological stages of progressive involvement of the shoulder and hip joints. There is minimal well-documented evidence to indicate that conservative nonsurgical methods result in spontaneous healing of Stage I and II lesions. Revascularization procedures are indicated for certain Stage II but not for Stage III lesions.

Arthrodesis and intertrochanteric osteotomy of the hip are indicated in patients under age 50 with Stage III lesions and unilateral hip disease, but postoperative rehabilitation is prolonged and the final functional results are uncertain. Hemiarthroplasty of either shoulder or hip joints is the treatment of choice when there is no significant arthritic involvement. Arthrodesis of the shoulder and total replacement of the hip are indicated in those individuals with severe Stage III lesions and severe secondary degenerative arthritis.

REFERENCES

References concern sources of the material cited in the document; they follow the main text and begin on a new page. Present this information in an accurate, uniform manner; the CBE Style Manual (pp. 9-11; 152-165) illustrates both the name-year system and the number system. Each system has its advantages and either is acceptable.

When there are but a few references, include them in the text or as footnotes on the text page. This aids in reading from microfilm. Where the publication is made up of more than one manuscript or consists of lengthy "chapters," list the references with each manuscript or chapter. The length and complexity of the report may well be the determining factor.

When using the number system, assign consecutive Arabic numbers, placed within parentheses, throughout the entire text. List them in this numerical order in the reference section.

When using the name-year system, insert mention of the reference into the text as "Fowler (1950) stated that . . ." or ". . . in work done at the University of Illinois (Fowler 1950)." For the name-year system, list entries alphabetically.

Personal communications are not considered references; if necessary, include them within parentheses within the text.

> NOTE: Bibliographic entries provide sources for supplementary information, not cited in the text, on the subject of the document. List the entries alphabetically in the "Bibliography" section; follow the name-year system described in CBE Style Manual, p. 153.

REFERENCES (number system)

1. Sobell, H. 1971. Effect of hyperbaric oxygen-nitrogen mixtures. ONR Program on Underwater Physiology. Report ACR-175. Department of the Navy, Arlington, Virginia.
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Charnley, J. 1970b. Total hip replacement by low-friction arthroplasty. Clin. Orthop. 72:7-21.

Johnson, L. C. 1964. Histogenesis of avascular necrosis. In: Proceedings of the Conference on Aseptic Necrosis of the Femoral Head, St. Louis. pp. 55-79. U.S. Public Health Service, Washington, D.C.

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Ocean Systems, Inc. 1966. Deep Sea Diving. Technical Memorandum B-41. Tonawanda Research Laboratory, Tonawanda, New York.

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Wagner, H. 1971. Treatment of idiopathic necrosis of the femoral head. pp. 202-204. In: W. M. Zinn, Ed. Idiopathic Ischemic Necrosis of the Femoral Head in Adults. Thieme, Stuttgart, Germany.

APPENDIX

Related, additional material too bulky or too detailed to include in the text is placed in one or more appendixes. If the appendix is too large to be included in the report, it may be bound as a separate document or otherwise made available. Use "Appendix" only for a single appendix; assign letters if there is more than one appendix (e.g., Appendix E). If there is only one appendix and the appendix contains figures or tables, preface the figure or table number with the capital letter A, e.g., Figure A-4; Table A-2.

TOP OF IMAGE AREA

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Appendix A. Public Law 91-596, the Occupational Safety and Health Act of 1970

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Public Law 91-596
91st Congress, S. 2193
December 29, 1970

An Act

84 STAT. 1590

To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Occupational Safety and Health Act of 1970".

Occupational Safety and Health Act of 1970.

CONGRESSIONAL FINDINGS AND PURPOSE

SEC. (2) The Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.

(b) The Congress declares it to be its purpose and policy, through the exercise of its powers to regulate commerce among the several States and with foreign nations and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources—

(1) by encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment, and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions;

(2) by providing that employers and employees have separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions;

(3) by authorizing the Secretary of Labor to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce, and by creating an Occupational Safety and Health Review Commission for carrying out adjudicatory functions under the Act;

(4) by building upon advances already made through employer and employee initiative for providing safe and healthful working conditions;

BEGIN LAST LINE OF TEXT

BOTTOM OF IMAGE AREA OUTSIDE DIMENSION FOR TABLES AND ILLUSTRATIONS

BIBLIOGRAPHIC DATA FORM

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7. Author(s) All authors			8. Performing Organization Rept. No. (Optional)
9. Performing Organization Name and Address Complete address of extramural organizations			10. Project/Task/Work Unit No. 11. Contract/Grant No. Supply, if appropriate
12. Sponsoring Organization Name and Address National Institute for Occupational Safety and Health 4676 Columbia Parkway Cincinnati, Ohio 45226			13. Type of Report & Period Covered Interim, Final, etc. 14. (blank)
15. Supplementary Notes Useful information not included elsewhere, such as: Prepared in cooperation with ...Translation of...Presented at...to be published in...Supersedes...Supplements			
16. Abstracts Abstract from report, condensed if necessary. (200 words or less)			
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GLOSSARY

BACK MATTER	The final pages of a report following the main text, e.g., references, appendixes, glossary.
BOXHEAD	The headings for the vertical columns in a table; see stubhead.
BROADWISE (broadside)	Positioning a table or illustration so that the report will be turned 90° clockwise to be read; usually done with material too wide to be placed in normal reading position.
BYLINE	The line on the title page giving the name(s) of the author(s).
CALLOUT	The identifying words placed within a figure; also called label or lettering.
CAMERA-READY COPY (camera copy)	The typewritten material, type proofs, artwork, etc., ready to be photographed for reproduction without further alteration.
CAP	Abbreviation for "capital letter."
CAP AND LOWER CASE (clc)	Notation used for capitalizing the first letter of each word (except articles and prepositions) in a phrase, sentence, title, etc.
COLD-TYPE COMPOSITION	Display and text matter composed on electric typewriters and proportional spacing machines, phototypesetting machines, photolettering machines, or through the use of pasteup type. It is so named because no hot metal (Linotype) slugs are used in the process.
COLOR PRINTING	The use of more than one color of ink in the printing process. Black is considered one color.
COMPOSITION (typesetting)	Setting the double-spaced manuscript into type. This can be cold-type composition, Linotype, typewriter composition, etc.
CONTRACT	An agreement other than a grant or interagency agreement entered into between NIOSH and, usually, a nongovernmental or noneducational organization concerning the obtaining of supplies or services.
CROPPING	Removing unnecessary areas or details from an illustration to improve its appearance and reduce its size.
DROPPED HEAD	A heading placed below the top of the image area; on typed manuscript, an inch of space is allowed.
ELEMENTS OF A REPORT	The divisions or parts of a report. The three major divisions are the front matter or preliminary pages (prelims); the text; and the back matter (end matter, reference matter). Within these major divisions, reports contain standard elements or parts; few reports would contain all of the possible elements.
END MATTER	See back matter.
FINAL MANUSCRIPT	See camera-ready copy.
FRONT MATTER	The opening pages of a report, including the title page and other pages used to identify and explain the text. The pages are numbered with lowercase Roman numerals.

HEAD (headings)	A word or phrase set apart from, and usually above, a section of text, serving as a title to or description of that section.
IMAGE AREA	The defined area within which all material to be reproduced must be placed.
IMPRINT	The name of the issuing agency with the place and date of publication; it is placed at the bottom of the title page.
INFERIOR (subscript)	Printing (typing) partly below the base line, e.g., the 2 in H_2O is in an inferior, or subscript, position.
INITIAL CAP	The notation used when only the first letter of the first word in a phrase, caption, sentence, etc., is to be capitalized.
INTERAGENCY AGREEMENT	An agreement between two or more government agencies concerning the obtaining of supplies or services.
LABEL	See callout.
LEADER	Rows of dots used to lead the eye horizontally; used in tables of contents and tabular work.
LETTERING	See callout.
NIOSH	National Institute for Occupational Safety and Health.
NTIS	National Technical Information Service.
ORDER OF HEADINGS	The placing and typing (capital letters, indentions, etc.) of heads in such a manner that their relative importance and the relative importance of the text that follows each head is readily apparent.
PRELIMINARY PAGES	See front matter.
PRINTING	Producing printed matter from camera-ready copy by various mechanical processes.
PUBLICATION	The act of making known; here, releasing a report (usually printed) to the public; also that which is published.
REVIEW MANUSCRIPT	A double-spaced manuscript prepared for technical and editorial review.
REPRODUCTION	The process of copying by mechanical photocopying machines or a printing process.
SAN SERIF	A style of type that is perfectly plain, with lines of uniform thickness and without serifs (the short, light lines projecting from the main stroke of a letter).
STUBHEAD	The caption that identifies the entries in the left column of a table.
SUBSCRIPT	See inferior.
SUPERSCRIPT	A letter, number, or symbol printed above the regular line of type, e.g., the 2 in cm^2 is in the superscript (or superior) position.
SUPERIOR	See superscript.
TITLE PAGE	The first page in a report; it must contain the title, name(s) of author(s), and issuing agency.
TYPESETTING	See composition.
TYPEWRITER COMPOSITION	Material specially typed (single-spaced) for reproduction.

BIBLIOGRAPHIC DATA SHEET	1. Report No. DHEW Publication No. (NIOSH) 77-133	2.	3. Recipient's Accession No.
4. Title and Subtitle GUIDE FOR PREPARING NIOSH MANUSCRIPTS			5. Report Date September 1976 6.
7. Author(s) Marion Curry and Lorice Ede			8. Performing Organization Rept. No.
9. Performing Organization Name and Address			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address National Institute for Occupational Safety and Health 4676 Columbia Parkway Cincinnati, Ohio 45226			13. Type of Report & Period Covered 14.
15. Supplementary Notes			

16. Abstracts

This guide details the standard for manuscripts prepared by the National Institute for Occupational Safety and Health (NIOSH) personnel or prepared for NIOSH by contract or other agreement. The applicability of the instructions, the types of reports covered, the essential elements, and the image area are some of the details included. Descriptions of the different elements of a report and examples of each are included.

17. Key Words and Document Analysis. 17a. Descriptors

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17c. COSATI Field/Group 5G

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