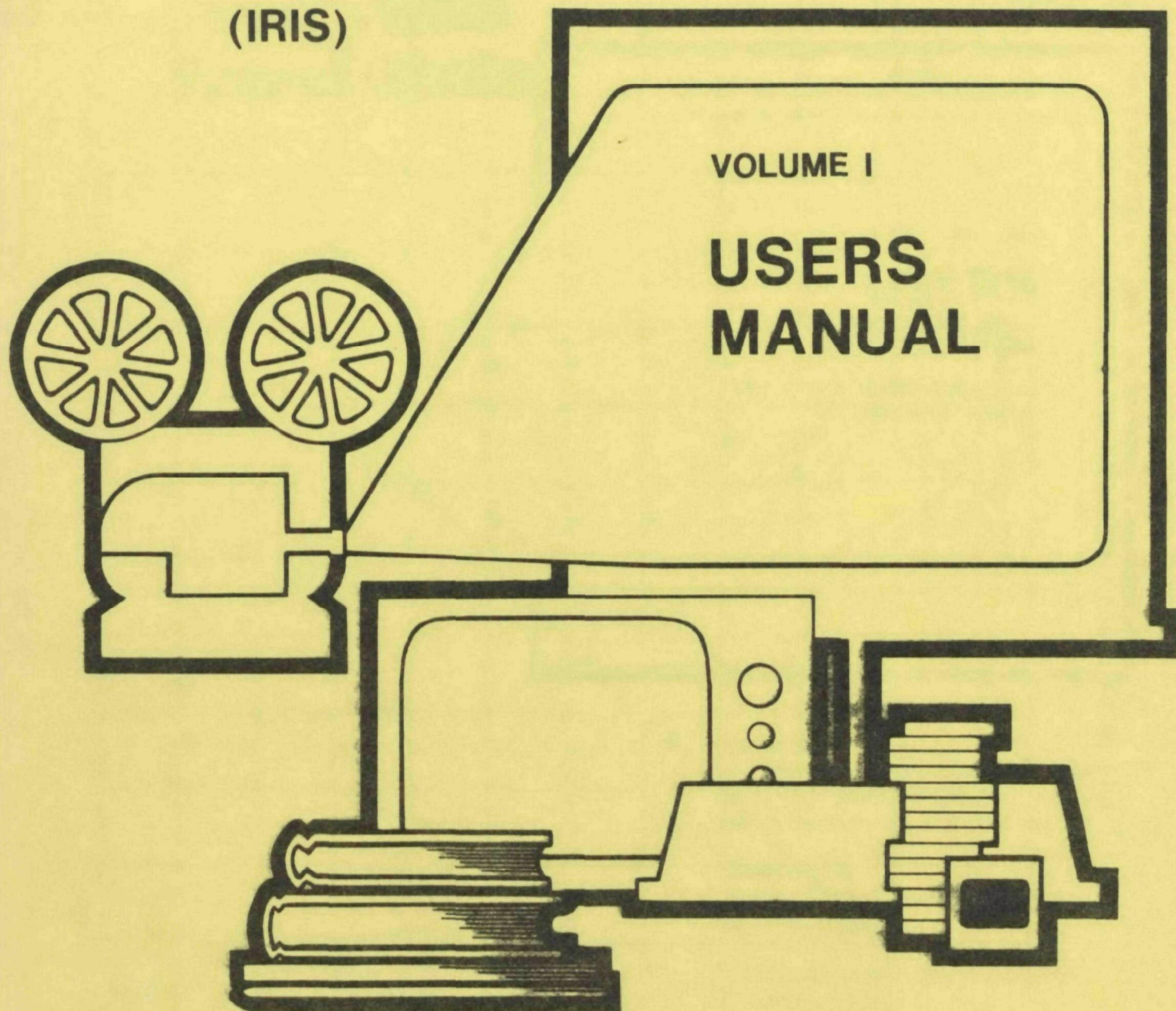


**WATER QUALITY
INSTRUCTIONAL RESOURCES
INFORMATION SYSTEM
(IRIS)**

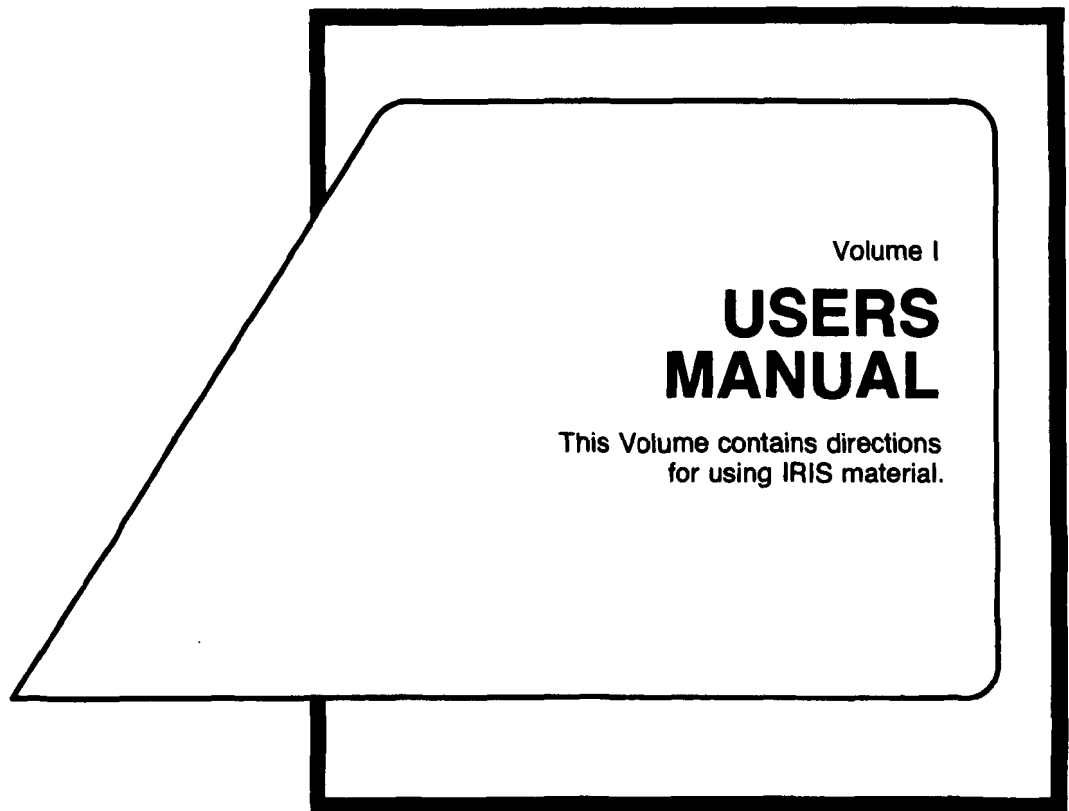


U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF WATER PROGRAM OPERATIONS
MUNICIPAL OPERATIONS AND TRAINING DIVISION

TYPE OF INFORMATION AVAILABLE AND LOCATION

[illegible]

WATER QUALITY INSTRUCTIONAL RESOURCES INFORMATION SYSTEM (IRIS)



Funded by
U. S. Environmental Protection Agency
Municipal Operations and Training Division
Manpower Planning and Training Branch

Developed by
Charles County Community College
La Plata, Maryland

Environmental Systems Engineering
Clemson University
Clemson, South Carolina

Sigma Data Computing Corp.
Rockville, Maryland

SEPTEMBER 1976

The mention of trade names or commercial products in this manual is for illustration purposes, and does not constitute endorsement or recommendation for use by the Environmental Protection Agency.

For Information

ON MANPOWER PLANNING AND TRAINING-
INSTRUCTIONAL RESOURCES

JOSEPH BAHNICK, Chief
Manpower, Planning and Training Branch
MOTD/OWPO
U S Environmental Protection Agency
Washington, DC 20460
202-426-7887

ON SPECIAL SEARCHES

HAROLD L. JETER, Director
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268
513-684-7501

ON APPLICATION OF INSTRUCTIONAL RESOURCES

CARL SCHWING, Executive Director
Middle Atlantic Applied Technology
Institute
Charles County Community College
La Plata, MD 20646
301-934-2251

ON COMPUTER SOFTWARE AND HARDWARE

LES NEEDLE
Sigma Data Computing Corporation
12730 Twinbrook Parkway
Rockville, MD 20852
301-881-4451

ON INPUT OF INSTRUCTIONAL MATERIALS
INTO SYSTEM

JOHN H. AUSTIN, Professor and Head
Environmental Systems Engineering
Clemson University
Clemson, SC 29631
803-656-3276

Table of Contents

	Page
PREFACE	vi
ACKNOWLEDGMENTS	vii
OBJECTIVES OF IRIS.	1
POTENTIAL USERS OF MANUAL	2
OVERVIEW.	4
History.	4
Design Philosophy.	5
Product Summary.	6
IRIS PRODUCTS	7
Categories and Their Relationships	7
Product Definition and Samples	12
<i>Title Master Report Description</i>	12
<i>Identification Number Master Report</i>	14
<i>Author Index</i>	16
<i>Source Index</i>	18
<i>Type Index</i>	20
<i>Category Index</i>	22
<i>Subject Index</i>	24
<i>Thesaurus</i>	26
<i>Source Code Table</i>	28
<i>Source Name Table</i>	30
USING IRIS PRODUCTS	32
Representative Use of <i>Source Index</i>	32
Representative Use of <i>Category Index</i>	37
Representative Use of <i>Type Index</i>	41
Representative Use of <i>Author Index</i>	44
Representative Use of <i>Subject Index</i>	47
SELECTIVE BIBLIOGRAPHIES.	53
Definitions and Conditions	53
Completing a Selective Bibliography Search Request Form. . .	54
Search Request Form for Selective Bibliography	57
Sample Requests.	60
ENTERING INSTRUCTIONAL RESOURCES INTO IRIS.	70
Definitions.	70
Coding Instructions.	70
General Instructions	70
Instructions for Completion of Coding Sheet.	71
Master File Format	76
Correcting an Existing IRIS Record	79
COMPUTER ENVIRONMENT.	82
Computer Hardware and Software	82
Data Processing Approach	82
GLOSSARY.	84
MICROFICHE PACKET	back cover

Preface

For several decades members of the water quality control profession have been developing instructional materials to be used in training sequences, short courses, workshops, and degree granting programs. From time to time various professional or governmental organizations, educational institutions, and journals have developed listings of films, manuals, textbooks, etc. However, a comprehensive listing has not been available, much less a system where a person could search out a particular instructional resource by author, source, subject matter, or type of instructional material.

This manual describes a procedure where instructors in the water quality control field can locate instructional materials to meet very general or highly specific requirements in their programs.

Not only will the procedures described help instructors and students find instructional materials for their needs, but it will help developers decide what new materials should be developed for use in the profession.

This manual is one in a series of four volumes available from EPA's National Training Center in Cincinnati, Ohio. The volumes in this series are:

Volume I	<i>Users Manual</i>
Volume II	<i>IRIS Tables</i>
Volume III	<i>Identification Number Master Report</i>
Volume IV	<i>Subject Index</i>

Acknowledgments

This project was initiated in a grant to Charles County Community College under the direction of Carl M. Schwing. The first listing of available instructional materials was published in *Instructional Materials Available* and was compiled by John H. Austin and Jane Klosky. As the scope of the listing was expanded, computer information and systems support design were provided by Lester Needle and Barbara Taylor of Sigma Data Computing Corp. Aldora Keller provided support in reviewing materials to be entered into the system. EPA project control and support were provided by staff personnel under the direction of Joseph Bahnick and Harold L. Jeter.

Objectives of IRIS

The purpose of this manual is to assist you in learning the basic philosophy used in the development of the Instructional Resources Information System (IRIS) for Water Quality. You will be able to name and use the various products available from IRIS, to recover information from IRIS in a variety of formats for various purposes, and to enter *Instructional Resources** into IRIS. When you complete your study of this manual, you should be able to:

1. Define IRIS.
2. Obtain a complete reference for any item in IRIS, given its title or ID number.
3. Obtain references given any combination of the following:
 - a. subject
 - b. author
 - c. source
 - d. category
 - e. type of material
 - f. educational level
 - g. cost
 - h. date
4. Enter a reference into IRIS, given any item of instructional material with necessary information.
5. Determine if an instructional resource is in IRIS that is similar to a proposed instructional material development project.
6. Fill out a selective bibliography search request form.
7. Name the computer *Hardware* required to service the system.
8. Name the *Software* packages required to implement IRIS.

*Words in script are defined in the glossary on pages 84 to 89. You should consult the glossary to be sure you are using the word as defined for this *Users Manual*.

Potential Users of Manual

This manual has been developed with a number of different kinds of *Users* in mind, and your study and use of it should take this into consideration. Table 1 (page 3) suggests which sections you should read depending on your potential use of the manual. In other words, if your interest is restricted to any of the uses suggested in the table, then you need to study only the indicated sections.

Information for the following users is given:

1. Instructor desiring knowledge of instructional materials.
2. Instructor, author, or publisher desiring to enter new instructional material into system.
3. Developer, author, publisher, or funding agency desiring information on existence of material on a particular subject.
4. Instructor, educational institution, or governmental agency desiring *Selective Bibliography*.
5. Computer systems specialist desiring information on *System* for background information or installing in his organization.
6. Busy administrator who needs a quick review of manual and its significance to his organization.

This manual should acquaint you well enough with IRIS that you could carry out any of the above after study of the manual.

TABLE 1
SECTIONS TO BE READ BY DIFFERENT USERS

USER	SECTIONS TO READ	PAGES
1. Person wanting instructional materials.	IRIS Products	7-52
2. Person wanting to enter new item into system.	Entering items into IRIS	71-81
3. Person wanting to verify existence of item in system on particular subject area.	IRIS Products Selective Bibliographies	7-52 53-70
4. Person desiring a special search.	IRIS Products Selective Bibliographies	7-52 53-70
5. Person wanting information on computer software and hardware.	Overview Computer Environment	4-6 82-83
6. Person needing quick review of what IRIS is.	Overview	4-6

Overview

HISTORY

In the fall of 1973 Charles County Community College received a grant from EPA to review and tabulate audio-visual equipment and instructional materials in use in the water quality control field. This project, under the direction of Carl Schwing, Chairman of the Pollution Abatement Technology Program at Charles County (with the assistance of Walter J. Bojsza, Audio-Visual Coordinator), was carried out in cooperation with the following EPA representatives:

Joseph Bahnick, Acting Chief, Direct Technical Training,
Manpower Development Staff, OWPO/EPA

Kenneth M. Hay, Education Specialist, Direct Technical Training,
Manpower Development Staff, OWPO/EPA

Harold L. Jeter, Director, National Training Center,
Manpower Development Staff, EPA

Two volumes were published summarizing the findings:

<u>Volume</u>	<u>Title</u>
I	<i>Audio-Visual Equipment on Hand</i>
II	<i>Instructional Materials Available</i>

Additionally, the following people assisted:

John H. Austin, Professor and Head, Environmental Systems
Engineering, Clemson University, Clemson, SC

W. Harry Durham, Director, University Communications Center,
Clemson University, Clemson, SC

Robert A. Gearheart, Division of Environmental Engineering,
Utah State University, Logan, UT

George H. Ziener, formerly Chief, Instructional Development
Section, Air Pollution Training Institute, EPA

As an initial step, organizations authoring or sponsoring *Instructional Materials* were contacted to verify and identify each item correctly. Additional entries were added where appropriate. By the fall of 1974 sufficient information was available to implement a computer based *Information System*.

In conjunction with several members of EPA's National Training Center

in Cincinnati, an initial review of existing retrieval applications indicated the library systems developed under the direction of Sarah Thomas Kadec could be adapted to training requirements. As the library systems had been developed and supported by staff from Sigma Data Computing Corp., two consultants (Lester Needle, Vice President; and Barbara Taylor, Senior Library Systems Analyst) joined the team. Thus, the team assembled were either EPA employees or consultants having strong system and information experience in the environmental areas. This factor was important to ensure that the system would be designed properly to meet the special requirements of environmental programs.

A comprehensive information application has been developed to meet the requirements of the Office of Water Program Operations. A significant reason for the rapid advancement in the design of the application was the adaptability of software and design techniques already supporting EPA's library system.

DESIGN PHILOSOPHY

The *Design Philosophy* of an automated information system should reflect the program area's perception of how the information will be collected, disseminated, and used. In the Instructional Resources Information System (IRIS), the system emphasizes:

- User Independence - The system, through its *Information Products*, allows geographically dispersed users to have immediate and detailed access to instructional resources, independent of an *Information Center*. When necessary, professional support is available to the IRIS user.
- User Education - Through interactive workshops, selected key personnel are given a comprehensive orientation to IRIS and its capabilities. These trained specialists are then in a position to assist others in intelligently using IRIS products.
- Standardization of *Information System Approach* - Rather than attempting to develop an independent and different approach to information access, IRIS uses an existing, highly successful EPA-developed information system.
- Instructional Material Selection - All instructional resources included in IRIS meet specific water quality control requirements. To guarantee currency, all sources of instructional material are contacted regularly for information concerning new instructional resources.
- Instructional Material Categorization - Each instructional resource entering IRIS is categorized according to several highly specific information parameters (e.g., title, educational level, media type(s), subjects, etc.). Rigid control procedures are employed to ensure the accuracy of the information. As a result the information made available to the IRIS user represents an accurate, comprehensive, and consistent response to user needs.

Product Flexibility - IRIS provides the user with several avenues of information access (e.g., by title, author, source, subject, media type, application category, etc.). Likewise, IRIS uses two media types (hard copy and *Microfiche*) to assist its users. The central concept is to provide in a cost effective fashion the highest degree of Access to IRIS to the largest number of users.

SUMMARY OF INFORMATION PROVIDED BY IRIS

As each instructional resource must be defined and specifically categorized before inclusion in IRIS, the following information is gathered on each material:

- identification number
- title of the training material
- date of publication
- up to two authors
- up to two sources (i.e., locations where resource can be obtained)
- up to four type indicators (e.g., slides, cassettes, etc.)
- up to five categories (i.e., relevant application areas, such as design, operations, etc.)
- up to sixteen subjects
- educational level of material
- copyright indicator
- cost and indication of availability (e.g., free, purchased, rented)
- remarks
- abstract

Eleven basic products are provided. The first two, the *Identification Number Master Report* and the *Title Master Report* represent complete bibliographies providing all available information on each instructional resource. Five indexes support these master reports. Complete indexes by subject, author, *Source*, *Type*, and *Category* are provided. In each instance they contain sufficient information to allow for an initial selection of material satisfying a specific need without having to call a central information center for assistance. After selecting relevant material, the user can obtain the items from the designated source(s). To assist with the use of the indexes and reports, four tables are provided. These are the *Code Definition Table*, *Thesaurus*, *Source Code Table* and *Source Name Table*.

IRIS Products

CATEGORIES AND THEIR RELATIONSHIPS

One of the principal concepts of IRIS applications is supplying you with a set of information products that allow you to determine efficiently and directly the available training material that will satisfy a given need.

Table 2 (page 8) summarizes the IRIS products available to the user. The products fall under three major categories: *Reports*, *Indexes*, and *Tables*. These are discussed in detail below. Table 2 indicates the major features of each IRIS product, including the category of the material (i.e., report, index or table); the nature of the listing, or sort order (i.e., alphabetical by title); and the information available for each item (data elements).

The Categories

Reports. These products (*Title Master Report*, *Identification Number (ID) Master Report*) provide complete bibliographic information on each training material in IRIS. They will be examined by you in making a final judgment about whether the material meets your particular need.

Indexes. These products (*Subject*, *Type*, *Category*, *Author*, *Source*) do not provide complete bibliographic information on each training material. Rather, they provide key information (title, author, media type, date, category, and education level) to allow you to rapidly browse through training materials and make initial selections. To facilitate this browsing, each index is sorted differently. For example, the *Subject Index* allows you to determine what materials are available for a given subject, such as "Laboratory Skills."

Tables. These products (*Code Definition*, *Thesaurus*, *Source Name*, *Source Code*) assist you in using the Indexes and Reports by providing definition for special codes used in IRIS.

The Relationship

Each product category provides the user with a vital link to IRIS. To properly interpret the information in the indexes and reports, you must use the tables. To quickly review materials, you must use the Indexes. To make a final materials selection, you must use the Reports.

Example - If you wanted to know what materials the American Water Works Association has entered into IRIS, you would

1. Use the *Source Name Table*, look up American Water Works Association and note that their code is AWWA.

TABLE 2
IRIS INFORMATION PRODUCT SPECIFICATIONS

∞

PRODUCT NAME	CATEGORY	SORT ORDER	DATA ELEMENTS	LOCATION
Title Master Report	report	title (primary)	Title, author(s), source(s), type(s), categories, date, cost, purchase/rent code, copyright, educational level, ID, subject(s), remarks, abstract.	Microfiche
Identification Number Master Report	report	ID (primary)	ID, title, author(s), source(s), type(s), category(s), date, cost purchase/rent code, copyright, educational level, subject(s), remarks abstract.	Volume 3 and Microfiche
Author Index	index	author (primary) ID (secondary)	Author, ID, title, category(s), type(s), date, level.	Microfiche
Source Index	index	source (primary) ID (secondary)	Source, ID, title, category(s), type(s), date, level, author.	Microfiche
Type Index	index	type (primary) ID (secondary)	Type, ID, Title, category(s), date, level, author.	Microfiche
Category Index	index	category (primary) ID (secondary)	Category, ID, title, type(s), date, level, author.	Microfiche
*Subject Index	index	subject (primary) ID (secondary)	Subject, ID, title, category(s), type(s), date, level, author.	Volume 4 and Microfiche
Code Definition Table	table			Inside back cover of each volume
Thesaurus	table	subject (primary)	Subject, cross references, category definition.	Volume 2
Source Name Table	table	source name (primary)	Source name, source code, source address.	Volume 2
Source Code Table	table	source code (primary)	Source code, source name, source address.	Volume 2

*The Subject Index includes a cross reference facility (USE; SEE ALSO). Wherever possible, when a term is not a legitimate subject, a USE reference is given to direct the user to an appropriate term. Likewise, where other legitimate terms identify a similar concept, a SEE ALSO reference is given.

2. Use the *Source Index*, look up AWWA in its proper alphabetic position, and review all the materials listed for this source. If, perhaps the title "Disposal of Wastes from Water Treatment Plants" interested you, you would
3. Use the *Title Report* to review the complete bibliographic entry for this title, including a full abstract, cost information, a list of all pertinent subjects for this material, and so on. With this information, you could determine whether you wished to obtain the training material for your collection.

IRIS Bibliographic Record - What Does It Contain?

The most critical aspect of any information system, such as IRIS, is the determination of what information shall constitute the bibliographic record. This determination is highly dependent upon an understanding of the user population, in this case, instructors, developers of course material, and so on. How do they select training materials; how do they determine whether the material is adequate; are they concerned with education level; is an abstract required; will they be going directly to a publisher or distributing source to obtain the material? The result of this 'dissection process' is the construction of a bibliographic record, where each data element is exactly defined. For example, in IRIS as many as 16 subjects can be assigned to one training material, up to two authors can be assigned; only one educational level is permissible; and so on. The next two pages define the data element structure supporting IRIS, along with an example.

Exhibit 1 (page 10) contains the complete print-out of one item as it appears in the *Title Master Report*. Each *Data Element* is identified by underlining, and notes are given to explain the *Bibliographic* element. The numbers next to each item in Exhibit 1 are explained in Table 3, *Code Definition Table*. For each number, the name of the items is given, a description of what this item is, and codes used (where applicable) for this item. The *Code Definition Table* has been placed inside the back cover of each volume of the IRIS series.

3→PRACTICAL GUIDE TO WATER QUALITY STUDIES OF STREAMS

5→AUTHOR(S): KITTELL F W

9→SOURCE(S): GPO EPA2 10→COST: 0.70 P411

6→TYPE(S): PM 8→LEVEL: 2

7→CATEGORIES: M T P 1→ID NUMBER: EPAW00879 COPYRIGHT: ←2

4→DATE: 69-00

12 { SURVEYS STREAMS DATA EVALUATION PLANNING
 OPERATIONS WATER POLLUTION WATER QUALITY MANAGEMENT
 TECHNICAL WRITING SAMPLING FLOW MEASUREMENT

13→REMARKS AND SUMMARY:

14 { GPO NUMBER 167.8:ST8. PAPERBACK. WHILE SUPPLY LASTS, NO CHARGE FROM EPA-2. 136 PAGES, 10 FIGURES.
 INTENDED AS A BRIEF BUT COMPREHENSIVE TREATMENT OF THE SUBJECT FOR BEGINNERS AND TO ASSIST THOSE EXPERIENCED IN THE
 FIELD. COVERAGE INCLUDES SURVEY OBJECTIVES; PHYSICAL CHARACTERISTICS OF STREAMS; SAMPLING PROGRAMS INCLUDING SITE
 SELECTION, PROCEDURES, FREQUENCIES AND SCHEDULES, AND SAMPLE HANDLING PRIOR TO TESTING; SAMPLE EXAMINATION; STREAM
 FLOW MEASUREMENTS, FIELD LABORATORY PLANNING; SOURCES OF STREAM INFORMATION; DATA INTERPRETATION; REPORT PREPARATION.

Exhibit 1. Format Definition

TABLE 3. CODE DEFINITION TABLE

11

ITEM	DESCRIPTION	CODE DEFINITION
1 ID Number	unique 9-character field comprising a 4-digit agency/program identifier (EPAW) plus a 5-digit sequence number	
2 Copyright Code	indicates whether item is copyrighted	C copyright blank no copyright
3 Item Title	title of the material	
4 Publication Date	month and year	
5 Author	up to two	
6 Type	up to four	AC audio tape cassette AR audio tape reel FS 35mm filmstrip MP motion picture OT overhead transparency PM printed matter SL 35 mm slide VC video tape cassette VR video tape reel
7 Category	up to 5 one-character codes broadly identifying the application area of the material	D design E explanatory L legal & regulatory M monitoring & surveillance O operations P planning S supervision T theory
8 Educational Level	defines educational use level of material	0 remedial 1 basic 2 intermediate 3 advanced
9 Originating Source	up to two; identifies organization responsible for the material	Consult <i>Source Code Table</i>
10 Cost	approximate dollar amount if item is available for purchase	
11 Purchase/Rent Code	indicates whether material can be rented or is available for purchase	R loan/rent/free P purchase
12 Subject	up to 16	Consult <i>Thesaurus</i>
13 Remarks	identifies special characteristics of the media that cannot be easily quantified	
14 Abstract	up to 5-120 character lines representing a professional summary of the material	

PRODUCT DEFINITION AND SAMPLES

Title Master Report

This report is one of the two master reports provided through IRIS. As a *Master Report* it completely describes each training material in the system. Alphabetically arranged by the title of the material, all authors, sources, types, categories, and subjects assigned to a particular training material are defined here. It also indicates *Educational Level*, rent, or purchase requirements (*Cost*), publication date, and copyright. An objective and concise abstract describing the material and its use, and a "remarks field" describing special physical and bibliographic characteristics of the item complete the record entry.

You must know the title of a material before using this report. To facilitate this, several indexes (subject, author, source, type, category) are provided which allow you to browse the IRIS system to select potentially relevant training materials. During this browsing process, you should jot down titles of materials and then consult the *Title Master Report* to read the full bibliographic citation and abstract before making a final materials selection.

Exhibit 2 on page 13 is an example of a page from the *Title Master Report*. This report is available in microfiche in the back of this manual.

TITLE MASTER REPORT

SEWAGE WORKS OPERATION UNIT 1		DATE: 68-00	
AUTHOR(S): ROMHOVDE I N		TYPE(S): PM	CATEGORIES: M O
SOURCE(S): TEXAS AM	COST: 1.67 P	LEVEL: 1	ID NUMBER: EPAW00535 COPYRIGHT:
SUBJECT AREAS:			
CHLORINATION	ACTIVATED SLUDGE	COLLECTION SYSTEMS	PRIMARY TREATMENT
SLUDGE DIGESTION	TRICKLING FILTERS		
REMARKS AND ABSTRACT:			
63PP			
INTRODUCTORY TEXT DESIGNED TO COMPLEMENT CLASSROOM INSTRUCTION. CHARACTERISTICS AND METHODS OF COLLECTING WASTEWATERS ARE PRESENTED, FOLLOWED BY A DISCUSSION OF THE MORE COMMON UNIT PROCESSES EMPLOYED IN PRIMARY AND SECONDARY TREATMENT. ADDITIONALLY, SOME CONSIDERATIONS OF ROUTINE TESTING AND SAFETY ARE PRESENTED.			
SEWER CONSTRUCTION		DATE: 65-00	
AUTHOR(S): PCA		TYPE(S): MP	CATEGORIES: D
SOURCE(S): PCA	COST: 9.00 R	LEVEL: 3	ID NUMBER: EPAW00788 COPYRIGHT:
SUBJECT AREAS:			
SEWERS	CONCRETE PIPES	PLANT CONSTRUCTION	
REMARKS AND ABSTRACT:			
16MM, 18 MIN., COLOR; PURCHASE PRICE \$110.			
ILLUSTRATES PROPER PROCEDURES THROUGH EVERY PHASE OF A SEWER PROJECT, FROM STAKING OUT BY THE ENGINEER THROUGH FINAL COMPACTION OF BACKFILL. MANY ALTERNATE METHODS OF CONSTRUCTION ARE SHOWN WITH CONCRETE PIPE AND SEVERAL TYPES OF CONCRETE UNITS FOR MANHOLES. INCLUDES BOTH NEW AND CLASSICAL BEDDING METHODS, AND THE USE OF CONCRETE PIPE IN SIZES FROM 8-TO 72 INCH DIAMETER.			
SEWER MAINTENANCE		DATE: 66-00	
AUTHOR(S): WPCF		TYPE(S): PM	CATEGORIES: O S
SOURCE(S): WPCF	COST: 3.00 P	LEVEL: 2	ID NUMBER: EPAW00121 COPYRIGHT: C
SUBJECT AREAS:			
COLLECTION SYSTEMS	CORRECTIVE MAINTENANCE	EMERGENCY OPERATIONS	EQUIPMENT (PLANT)
MAINTENANCE	OPERATIONS	SANITARY SEWERS	
REMARKS AND ABSTRACT:			
MOP RPT. NO. 7			
GUIDE TO MAINTAINING A COLLECTION SYSTEM IN SERVICEABLE CONDITION. OUTLINES THE NEED FOR MAINTENANCE, DESIGN CONSIDERATIONS, SETTING UP A MAINTENANCE ORGANIZATION AND EQUIPMENT NEEDS.			
SEWERAGE AND SEWAGE TREATMENT		DATE: 58-00	
AUTHOR(S): BABBITT H E	BAUMAN E R	TYPE(S): PM	CATEGORIES: O P T
SOURCE(S): WILEY	COST: 23.95 P	LEVEL: 1	ID NUMBER: EPAW01043 COPYRIGHT: C
SUBJECT AREAS:			
WASTEWATER TREATMENT	COLLECTION SYSTEMS		
REMARKS AND ABSTRACT:			
790PP., 8TH ED.			
AN INTRODUCTORY TEXT TO WASTEWATER COLLECTION AND TREATMENT FOR THE ENGINEERING STUDENT.			

Identification Number Master Report

This report is the second master report provided through IRIS. As a master report it completely describes each training material in the system. Sorted into ID number sequence, the title, all authors, sources, media types, application categories, and subjects assigned to a particular training material are defined here. It also indicates educational level, rent or purchase requirements, publication date, and copyright. An objective and concise abstract describing the material and its use, and a remarks field describing special physical and bibliographic characteristics of the item complete the record entry.

You must know the ID of a material before using this report. Because the ID number is short and easily remembered, it provides a valuable link between the five IRIS indexes and this master report. Indexes by subject, author, source, media type, and application category are provided which allow you to browse the IRIS system to select potentially relevant training materials. During this browsing process, you should jot down the ID's of materials and then consult the *Identification Number Master Report* to read the full bibliographic citation and abstract before making a final materials selection.

Exhibit 3 on the following page is a sample page from the *ID Master Report*. This report is available in microfiche in the back of this manual, as well as in Volume III. (See pages 32, 37, 41, 44 and 47 for examples on how to use the *ID Report*).

ID MASTER REPORT

EPAW00027

ANIMALS ASSOCIATED WITH POTABLE WATER SUPPLIES OPERATORS IDENTIFICATION GUIDE
 AUTHOR(S): AWWA
 SOURCE(S): AWWA COST: 6.00 P
 SUBJECT AREAS:
 AQUATIC ANIMALS BIOLOGICAL ANALYSIS
 REMARKS AND ABSTRACT:
 RPT. NO. 3007 MANUAL M7
 IDENTIFICATION AND CLASSIFICATION OF AQUATIC ANIMALS

TYPE(S): PM
 LEVEL: 3

CATEGORIES: M
 COPYRIGHT: C

DATE: 60-00

EPAW00028

WATER DISTRIBUTION TRAINING COURSE
 AUTHOR(S): AWWA
 SOURCE(S): AWWA COST: 9.50 P
 SUBJECT AREAS:
 DISTRIBUTION SYSTEMS FLOWMETERS
 RECORD KEEPING HYDRAULICS
 WATER STORAGE PREVENTIVE MAINTENANCE

TYPE(S): PM
 LEVEL: 3

CATEGORIES: P P S
 COPYRIGHT: C

DATE: 61-00

REMARKS AND ABSTRACT:
 RPT: AWWA M8, 165PP.

DISTRIBUTION SYSTEM ANALYZED FROM CONSTRUCTION (INCLUDING CUSTOMER SERVICE LINES), EQUIPMENT, ADMINISTRATION, AND MAINTENANCE ASPECTS. ALSO EMPHASIZES HYDRAULICS INCLUDING DISCUSSION OF EQUATIONS USED (HAZEN WILLIAM, TORRICELLI, BERNAULI); AND LEAK DETECTION. INDEX.

PIPES
 PUMPS

WATER METERS
 MATHEMATICS

EPAW00029

INSTALLATION OF CONCRETE PIPE
 AUTHOR(S): AWWA
 SOURCE(S): AWWA COST: 5.00 P
 SUBJECT AREAS:
 CONCRETE PIPES

TYPE(S): PM
 LEVEL: 2

CATEGORIES: D
 COPYRIGHT: C

DATE: 61-00

REMARKS AND ABSTRACT:
 RPT. NO. 30309, 32 PP.

THIS MANUAL PROVIDES A DESCRIPTION OF AVAILABLE CONCRETE PRESSURE PIPES AND SUGGESTIONS FOR INSTALLATION BASED ON EXPERIENCE IN VARIOUS PARTS OF THE UNITED STATES.

EPAW00030

SIMPLIFIED SYSTEM OF ACCOUNTS FOR MUNICIPALLY OWNED WATER UTILITIES
 AUTHOR(S): AWWA
 SOURCE(S): AWWA NEWSOM R COST: 5.00 P
 SUBJECT AREAS:

TYPE(S): PM
 LEVEL: 3

CATEGORIES: E S T
 COPYRIGHT: C

DATE: 63-00

BUDGET AND ACCOUNTING RECORD KEEPING

UTILITIES

REMARKS AND ABSTRACT:

RPT. NO 30010, PAPER BOUND

SIMPLIFIED ACCOUNTING SYSTEM AS USED IN SCARSDALE, N.Y.

Author Index

IRIS allows up to two authors to be entered and indexed for each training material. The author may be corporate (i.e., a company, organization, association, etc.), or may be an individual. If a training material has more than two authors, the additional authors are listed in the remarks portion of the record, but they are not indexed and will not appear in the *Author Index*.

To use the *Author Index*, you should look for the author in the appropriate alphabetic position in the *Index*. There is no control list for authors (as there is for sources and subjects); therefore, you may find the author entered and indexed in more than one location. As an example, the Environmental Protection Agency, as an author, may have citations under both EPA and under ENVIRONMENTAL PROTECTION AGENCY. Each training material entry in the *Author Index* provides you with the ID, title, category(s), level, type(s), and publication date. When using the *Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 4 on the following page is a sample page from the *Author Index*. This index is available in microfiche in the back of this manual. (See page 44 on how to use the *Author Index*).

AUTHOR INDEX

MESHENBERG M J ID NUMBER: EPAW02713 CATEGCRIES: P T	ENVIRONMENTAL PLANNING A GUIDE TO INFORMATION SOURCES TYPE: PM DATE: 76-00 LEVEL: 2
META ID NUMBER: EPAW02036 CATEGCRIES: T	SYSTEMS ANALYSIS IN WATER RESOURCES PLANNING TYPE: PM DATE: 75-00 LEVEL: 3
METCALF AND EDDY ID NUMBER: FPAW00396 CATEGCRIES: D M T	WASTEWATER ENGINEERING TYPE: PM DATE: 72-00 LEVEL: 3
METCALF R ID NUMBER: EPAW02714 CATEGCRIES: M O T	BASIC MATHEMATICS AND WASTEWATER PROCESSING CALCULATIONS WORKBOOK TYPE: PM DATE: 75-00 LEVEL: 0
METCALF R L ID NUMBER: EPAW02040 CATEGCRIES: T	ADVANCES IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY VOLUME 5 TYPE: PM DATE: 75-00 LEVEL: 3
MFOA ID NUMBER: EPAW00007 CATEGCRIES: E S T	WATER UTILITY ACCOUNTING TYPE: PM DATE: 70-00 LEVEL: 3
MI BEH ID NUMBER: EPAW00441 CATEGCRIES: O	BASIC LABORATORY PROCEDURES FOR WASTEWATER ANALYSIS (CUT OF PRINT) TYPE: PM DATE: 76-99 LEVEL: 2
MIDDLEBROOKS E F ID NUMBER: EPAW01942 CATEGCRIES: T	BIOSTIMULATION AND NUTRIENT ASSESSMENT TYPE: PM DATE: 75-03 LEVEL: 3
ID NUMBER: EPAW01944 CATEGCRIES: T	STATISTICAL CALCULATIONS APPLICATIONS AND SOLUTIONS TYPE: PM DATE: 76-01 LEVEL: 2
MIDDLEBROOKS E J ID NUMBER: EPAW01909 CATEGCRIES: M O P S	MODELING THE EUTROPHICATION PROCESS TYPE: PM DATE: 74-00 LEVEL: 3
MILLER S S ID NUMBER: EPAW02067 CATEGCRIES: L T M	WATER POLLUTION TYPE: PM DATE: 74-00 LEVEL: 3

Exhibit 4. Page from *Author Index*

Source Index

The *Source Index* provides controlled access to training materials by the originating source. This information is valuable to you in determining where and how to obtain a particular item. Up to two originating sources can be entered and indexed for any training material. Each source is entered as a controlled code. For example, any material originating within the Geological Survey of the U.S. Government is coded and entered as USGS. You need refer to only one location in the *Source Index* and be assured that all training materials captured in the IRIS system and originating from that source are listed together.

The *Source Index* is alphabetically arranged by source code. Each training material entry provides you with ID, title, author, category(s), level, type(s), and publication date. If you know the valid source code, you can immediately access the report by that code. In all other instances, you must refer first to the *Source Name Table* (Volume II), which lists all sources by their full name and gives the code equivalent.

When browsing the *Source Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 5 on the following page is a sample page from the *Source Index*. This index is available in microfiche in the back of this manual. (See page 32 for use of the *Source Index*).

SOURCE INDEX

FOXBORO

ID NUMBER: EPAW02553
CATEGORIES: T D O

PH CONTROL
TYPE: SL VC

DATE: 75-04

LEVEL: 3

AUTHOR: FOXBORO

ID NUMBER: EPAW02554
CATEGORIES: D O T S

FUNDAMENTALS OF AUTOMATIC CONTROL
TYPE: VR VC MP

DATE: 75-01

LEVEL: 3

AUTHOR: FOXBORO

FRANKLIN

ID NUMBER: EPAW02439
CATEGORIES: E O T

OZONE CHEMISTRY AND TECHNOLOGY A REVIEW OF THE LITERATURE
TYPE: PM

DATE: 75-00

LEVEL: 2

AUTHOR: MURPHY J S

FREE PRESS

ID NUMBER: EPAW02033
CATEGORIES: P

UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY
TYPE: PM

DATE: 74-00

LEVEL: 3

AUTHOR: ACKERMAN S R

FUTURE

ID NUMBER: EPAW02432
CATEGORIES: P T D

INTERBASIN WATER TRANSFERS A CASE IN MEXICO
TYPE: PM

DATE: 74-00

LEVEL: 3

AUTHOR: CUMMINGS R G

GA EPD

ID NUMBER: EPAW00454
CATEGORIES: O

BASIC WORKBOOK FOR WATER POLLUTION CONTROL PLANT OPERATORS
TYPE: PM

DATE: 74-00

LEVEL: 1

AUTHOR: GA STATE

GALE

ID NUMBER: EPAW01404
CATEGORIES: E

WASTEWATER MANAGEMENT A GUIDE TO INFORMATION SOURCES
TYPE: PM

DATE: 76-00

LEVEL: 1

AUTHOR: TCHOBANOGLOUS G

ID NUMBER: EPAW02394
CATEGORIES: E

ENVIRONMENTAL EDUCATION A GUIDE TO INFORMATION SOURCES
TYPE: PM

DATE: 75-00

LEVEL: 1

AUTHOR: STAPP W B

ID NUMBER: EPAW02713
CATEGORIES: P T

ENVIRONMENTAL PLANNING A GUIDE TO INFORMATION SOURCES
TYPE: PM

DATE: 74-00

LEVEL: 2

AUTHOR: MESHENBERG M J

GOVT INST

ID NUMBER: EPAW02422
CATEGORIES: L

ENVIRONMENTAL LAW HANDBOOK
TYPE: PM

DATE: 75-00

LEVEL: 3

AUTHOR: ARBUCKLE

ID NUMBER: EPAW02423
CATEGORIES:

ENVIRONMENTAL LAW FOR NON LAWYERS (OUT OF PRINT)
TYPE: PM

DATE: 74-00

LEVEL:

AUTHOR: ARBUCKLE J G

ID NUMBER: EPAW02727
CATEGORIES: L P

POLLUTION CONTROL IN THE MARINE INDUSTRIES
TYPE: PM

DATE: 74-00

LEVEL: 3

AUTHOR: GOVT INST

Exhibit 5. Page from *Source Index*

Type Index

The *Type Index* categorizes training materials by media type (e.g., audio cassette, slides, video tape, printed matter, etc.). Many training materials are multimedia; therefore, IRIS allows up to four media types to be coded and indexed for each material. If an item has more than four media types, the additional types are entered in the remarks field of the record but are not indexed and will not appear in the *Type Index*.

The *Type Index* is alphabetically arranged by type code. Each training material entry provides you with ID, title, author, category(s), level and publication date. If you know the valid media type code, you can immediately access the report by that code and review all materials which are supported by that medium. In all other instances, you should refer first to the *Code Definition Table* (inside back cover), determine which code describes the desired media type, and access the *Type Index* by that code.

When browsing the *Type Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 6 on the following page is a sample page from the *Type Index*. This index is available in microfiche in the back of this manual. (See page 41 for an example on how to use the *Type Index*).

TYPE INDEX

TYPE:

AC

ID NUMBER: EPAW00556 CATEGORY: M	RESIDUAL CHLORINE AND CHLORINE DEMAND DATE: 74-03 LEVEL: 1 AUTHOR: EPA
ID NUMBER: EPAW00557 CATEGORY: M	DETERMINATION OF CHEMICAL OXYGEN DEMAND DATE: 71-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00694 CATEGORY:	POLLUTION DISPLAY (OUT OF PRINT) DATE: 75-99 LEVEL: AUTHOR: NEIWPCC
ID NUMBER: EPAW00709 CATEGORY: M	MEASUREMENT OF DISSOLVED OXYGEN AZIDE WINKLER PROCEDURE DATE: 72-00 LEVEL: 2 AUTHOR: LAMB
ID NUMBER: EPAW00771 CATEGORY: M	DETERMINATION OF TOTAL ORGANIC CARBON DATE: 73-00 LEVEL: 3 AUTHOR: EPA
ID NUMBER: EPAW00850 CATEGORY: M	USE OF SPECTROMIC 20 SPECTROPHOTOMETER DATE: 72-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00852 CATEGORY: M	DETERMINATION OF BIOCHEMICAL OXYGEN DEMAND DATE: 72-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00899 CATEGORY: M O S	BASIC STATISTICS PART I DATE: 72-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00900 CATEGORY: M O S	BASIC STATISTICS PART II DATE: 72-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00901 CATEGORY: M	DETERMINATION OF GREASE AND OIL DATE: 74-03 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00902 CATEGORY: M	DETERMINATION OF SUSPENDED SOLIDS DATE: 73-00 LEVEL: 1 AUTHOR: EPA
ID NUMBER: EPAW00903 CATEGORY: O S	PROCESS CONTROL DEMANDS PART A DATE: 72-00 LEVEL: 2 AUTHOR: EPA
ID NUMBER: EPAW00904 CATEGORY: O S	PROCESS CONTROL DEMANDS PART B DATE: 72-00 LEVEL: 2 AUTHOR: EPA

Category Index

The *Category Index* categorizes training materials by their application area, or broad subject interest (e.g., legal and regulatory, operations, supervision, etc.). Up to five application codes may be entered and indexed for each training material.

The *Category Index* is alphabetically arranged by category code. Each training material entry provides you with ID, title, author, media type(s), level and publication date. If you know the valid category code, you can immediately access the report by that code and review all materials in that broad subject area. In all other instances, you should refer first to the *Code Definition Table* (inside the back cover), determine which code describes the application area, and access the index by that code.

When browsing the *Category Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 7 on the following page is a sample page from the *Category Index*. This report is available in microfiche in the back of this manual. (See page 37 for an example on how to use the *Category Index*).

CATEGORY INDEX

CATEGORY:

D			
ID NUMBER: EPAW00073 TYPE: PM	AWWA STANDARD FOR CHLORINATED RUBBER/ALKYD PAINT SYSTEM FOR THE EXTERIOR OF ABOVE GROUND STEEL WATER PIPE	DATE: 75-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00074 TYPE: PM	AWWA STANDARD FOR COAL TAR ENAMEL PROTECTIVE COATINGS FOR STEEL WATER PIPE	DATE: 73-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00075 TYPE: PM	AWWA STANDARD FOR CEMENT MORTAR PROTECTIVE LINING AND COATING FOR STEEL WATER PIPE 4 INCH OR LARGER	DATE: 71-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00076 TYPE: PM	AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE JOINTS	DATE: 62-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00077 TYPE: PM	AWWA STANDARD FOR STEEL PIPE FLANGES	DATE: 55-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00078 TYPE: PM	AWWA STANDARD FOR DIMENSIONS FOR STEEL WATER PIPE FITTINGS	DATE: 59-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00079 TYPE: PM	AWWA STANDARD FOR REINFORCED CONCRETE PRESSURE PIPE STEEL CYLINDER TYPE FOR WATER AND OTHER LIQUIDS	DATE: 74-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00080 TYPE: PM	AWWA STANDARD FOR PRESTRESSED CONCRETE PRESSURE PIPE STEEL CYLINDER TYPE FOR WATER AND OTHER LIQUIDS	DATE: 72-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00081 TYPE: PM	AWWA STANDARD FOR REINFORCED CONCRETE WATER PIPE NONCYLINDER TYPE NOT PRESTRESSED	DATE: 74-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00082 TYPE: PM	AWWA STANDARD FOR REINFORCED CONCRETE WATER PIPE STEEL CYLINDER TYPE PRETENSIONED	DATE: 70-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00083 TYPE: PM	AWWA STANDARD FOR ASBESTOS CEMENT PRESSURE PIPE FOR WATER AND OTHER LIQUIDS	DATE: 75-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00084 TYPE: PM	AWWA STANDARD PRACTICE FOR THE SELECTION OF ASBESTOS CEMENT WATER PIPE	DATE: 64-00	LEVEL: 2
		AUTHOR: AWWA	
ID NUMBER: EPAW00095 TYPE: PM	AWWA STANDARD FOR GATE VALVES 3 INCH THROUGH 48 INCH FOR WATER AND OTHER LIQUIDS	DATE: 71-00	LEVEL: 2
		AUTHOR: AWWA	

Subject Index

This index provides controlled subject access to training materials retained in IRIS. Each training material is categorized by up to 16 subjects, all of which are selected from a controlled *Thesaurus* supporting the system. Subject terms used in the system are only terms found in the *Thesaurus*. Because of the "multiple indexing" feature of the system, the abridged citation (containing title, author, ID, type(s), category(s), level and publication date) for a training material will appear under every subject term assigned. As an example, a material is assigned two subject terms, SLUDGE TREATMENT and ULTIMATE DISPOSAL. The same bibliographic citation describing that training material will appear under the term SLUDGE TREATMENT and also under the term ULTIMATE DISPOSAL.

To assist you in accessing the *Subject Index*, a "cross reference" network of valid subject terms is provided. If you initially search under a subject term not used in the system, where possible, you are directed to a valid subject term through the USE reference. When you search under a valid term and other valid terms also apply to the same concept, you are notified through the SEE ALSO reference, which lists these related valid terms.

This index is alphabetically arranged by subject term. All training materials in the system which have been categorized by this term appear directly underneath the term sorted by ID number order. To use the index, search under several subject terms which appear to meet your informational requirement and jot down the ID number or the title of training material citations which appear to meet your information need. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, locate the selected citations to make the final selection of material.

Exhibit 8 on the following page is a sample page from the *Subject Index*. This index is available in microfiche in the back of this manual as well as in Volume IV. (See page 47 for an example on how to use the *Subject Index*.)

SUBJECT INDEX

CARBON DIOXIDE		PLANT SAFETY PROGRAMMED INSTRUCTION MANUAL		DATE: 74-09
ID NUMBER: EPAW01958	TYPE: PM	LEV: 1	AUTH: TECH PUBL	
CATEGORIES: O				
CARBONACEOUS OXYGEN DEMAND				
	USE: BIOCHEMICAL OXYGEN DEMAND			
CARBONATES				
	SEE ALSO: BICARBONATES			
ID NUMBER: EPAW00466	ALKALINITY	LEV: 2	AUTH: EPA	DATE: 73-00
CATEGORIES: M	TYPE: PM SL AC			
ID NUMBER: EPAW01076	WATER PH UNIT	LEV: 2	AUTH: LAMOTTE	DATE: 76-99
CATEGORIES: E T	TYPE: OT			
CASE STUDIES				
ID NUMBER: EPAW01936	SCIENCE AND ENGINEERING FOR POLLUTION FREE SYSTEMS	LEV: 3	AUTH: KROFCHAK D	DATE: 75-02
CATEGORIES: D T P	TYPE: PM			
ID NUMBER: EPAW01952	INDUSTRIAL PROCESS DESIGN FOR POLLUTION CONTROL VOLUME 4	LEV: 3	AUTH: ATCHE	DATE: 72-00
CATEGORIES: D M L	TYPE: PM			
ID NUMBER: EPAW02032	WATER MANAGEMENT AND AGRICULTURAL DEVELOPMENT	LEV: 3	AUTH: FREDERICK K D	DATE: 75-00
CATEGORIES: P	TYPE: PM			
ID NUMBER: EPAW02033	UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY	LEV: 3	AUTH: ACKERMAN S R	DATE: 74-00
CATEGORIES: P	TYPE: PM			
ID NUMBER: EPAW02056	SANTA BARBARA OIL SPILL	LEV: 1	AUTH: RUMLE J L	DATE: 74-00
CATEGORIES: E	TYPE: SL FS PM VC			
ID NUMBER: EPAW02184	WITHIN OUR REACH	LEV: 2	AUTH: EPA	DATE: 76-00
CATEGORIES: E P	TYPE: MP			
ID NUMBER: EPAW02623	DECISION MAKING IN WATER RESOURCE ALLOCATION	LEV: 3	AUTH: PARK J R	DATE: 73-00
CATEGORIES: P	TYPE: PM			
CAST IRON PIPES				
ID NUMBER: EPAW00063	AMERICAN NATIONAL STANDARD FOR THICKNESS DESIGN OF CAST IRON PIPE	LEV: 2	AUTH: AWWA	DATE: 67-00
CATEGORIES: D T	TYPE: PM			

Exhibit 8. Page from *Subject Index*

Thesaurus

The *Thesaurus* is valuable as a preliminary step to using the *Subject Index*. This table allows you to rapidly browse the entire vocabulary structure used to support the training materials system, select all terms of interest to you, and thus access the *Subject Index* with an assurance that all pertinent terms will be accessed and all potentially relevant training materials reviewed.

To use this table, determine the most appropriate term(s) to describe your subject interest, and locate these terms in their alphabetic position within the table. If the term has been designated as a valid subject term, associated valid subject terms will be referenced (if applicable) through a SEE ALSO indicator. This allows you to immediately review all terms which are closely associated with the original term. If the term has been designated as a nonvalid subject term, the nonvalid term appears, followed by a USE reference which directs you to the appropriate valid term(s). Because the *Thesaurus* is designed to encompass all valid terms in the water quality control field, a term may appear in the *Thesaurus* but not in the *Subject Index*. This means that no document has been entered into IRIS to date which required the use of that subject descriptor.

Exhibit 9 on the following page is a sample page from the *Thesaurus*. This table is available in microfiche in the back of this manual, as well as in Volume II. (See page 48 for an example on how to use the *Thesaurus*.)

RESERVOIRS

RESIDUAL CHLORINE

USE: CHLORINE RESIDUAL

RESIDUES

RESOURCE MANAGEMENT

RESOURCE RECOVERY

REVERSE OSMOSIS

SEE ALSO: OSMOSIS

RIVERS

SEE ALSO: SPECIFIC RIVERS, EG. MISSISSIPPI RIVER, POTOMAC

RODENT CONTROL

ROTARY PUMPS

RURAL IMPACT

SEE ALSO: EROSION, AGRICULTURE

SAFETY

SEE ALSO: FIRST AID

SAFETY (CHEMICAL)

SAFETY (ELECTRICAL)

SAFETY (FIRES)

SEE ALSO: FIRES

SAFETY (MECHANICAL)

Source Code Table

The *Source Code Table* is an IRIS product designed to provide you with information about the publishing source for the various instructional materials. This table is valuable if you wish to purchase, rent, or otherwise obtain specific training materials.

The *Source Code Table* alphabetically lists all sources by their code. Each entry gives the full source name and address. If you have selected particular training materials by using the *Title Master Report* or *Identification Number Master Report*, and wish to obtain this material, you would use the *Source Code Table* to obtain the full address.

Exhibit 10 on the following page is a sample page from the *Source Code Table*. The *Source Code Table* is found in Volume II. (See page 33 for an example on how to use the *Source Code Table*.)

CAN AUDIO -- AUDIO ARCHIVES OF CANADA
250 MERTON ST
TORONTO ONTARIO
M4E 1B1 CANADA

CAN GE -- CANADIAN GENERAL ELECTRIC
FILM LIBRARY
214 KING STREET WEST
TORONTO, ONTARIO, CANADA

CAN IND -- CANADIAN INDUSTRIES LTD
FILM LIBRARY
P.O. BOX 10
MONTREAL, QUEBEC, CANH3C2R3

CAN NFBC -- NATL FILM BOARD OF CAN
1251 AVENUE OF THE AMEP.
NEW YORK, NY 10020

CAN TEX -- CAN TEX INDUSTRIES INC
FILM LIBRARY
P.O. BOX 340
MINERAL WELLS, TX 76057

CAP CGN -- CAPITOL CONTROLS CO INC
ADVANCE LANE
COLMAR, PA 19915

CAPITOL -- CAPITOL FILM LIBRARY
470 EAST ST., SW
WASHINGTON, DC 20024

CCCC -- MIDDLE ATLANTIC APPLIED
TECHNICAL INSTITUTE
CHARLES CD COMM COLLEGE
LA PLATA, MD 20645

CFLANESF -- CFLANESF PIPING SYSTEMS
4300 CEMETERY RD
HILLIARD, OH 43206

CENTRON -- CENTRON EDUCATIONAL FILMS
1621 WEST NINTH STREET
LAWRENCE, KS 66044

CERT TEED -- CERTAIN TEED PRODUCTS CORP
PIPE DIVISION
LEA BUILDING
AMBLER, PA 19002

CHEM PUBL -- CHEMICAL PUBL CO INC
200 PARK AVENUE SOUTH
NEW YORK, NY 10003

CHEVRON -- CHEVRON CHEMICAL CO INC
P O BOX 3744
SAN FRANCISCO, CA 94119

CHILTON -- CHILTON BOOK CO
401 WALNUT STREET
PHILADELPHIA, PA 19105

Source Name Table

The *Source Name Table* provides an alphabetic listing by source name. If you wish to locate all material produced by a specific source, you would first reference this report by locating the source name and determining the proper source code. Using this code, you can then access the *Source Index*, which lists all training materials produced by that source.

Exhibit 11 on the following page is a sample page from the *Source Name Table*. The *Source Name Table* is found in Volume 11. (See page 33 for an example of how to use the *Source Name Table*.)

INTEXT EDUCATIONAL PUBLISHERS SUBSID OF INTERN TEXTBOOK CO	--INTEXT	LANSFORD PUBL CO DEPT 8	--LANSFORD
IZAACK WALTON LEAGUE OF AMERICA, INC.	--IZAACK WALT	LEAGUE OF WOMEN VOTERS EDUCATION FUND	--LWV
JOHNS HOPKINS UNIV PRESS KENNETH C FREDERICK	--JOHNS HOPK	LEARNING CORP OF AMERICA	--LCA
JOHNS MANVILLE	--J MANVILLE	LEUPOLD AND STEVENS INC	--LEUPOLD
JOHNSON DIVISION UNIVERSAL OIL PRODUCTS CO.	--UNIV OIL	LINK BELT COMPANY FREE FILM LIBRARY	--LINK BELT
JOHNSTON WELL DRILLING	--JOHNSTON	LITTLE INC LEARNING SYSTEMS NEW BOSTON HOUSE	--LITTLE INC
JOSAM MANUFACTURING COMPANY	--JOSAM	LONGMAN INC	--LONGMAN
JOURNAL FILMS INC	--JNL FILMS	MAD RIVER PRESS	--MAD RIVER
KALMIA COMPANY	--KALMIA	MANAGEMENT SOURCE BOOKS INC	--MGT SOURCE
KRIEGER (ROBERT F) PUBL CO	--KRIEGER	MANUFACTURING CHEMISTS ASSOC	--MCA
LAMOTTE CHEMICAL PRODUCTS EDUCATIONAL PRODUCTS DIV	--LAMOTTE	MARCEL DEKKER INC	--MARCEL

Using IRIS Products

REPRESENTATIVE USE OF *SOURCE INDEX*

Question:

I have obtained excellent material from the Water Pollution Control Federation. How can I review what they have published since 1970?

Search Strategy:

- Step 1. Using the *Source Name Table*, locate Water Pollution Control Federation to determine the proper source code. (See Exhibit 12, page 33).
- Step 2. Using the *Source Index*, look up that source code and review all entries listed which have publication dates of 1970 or later, noting the ID's and (for this example only) the titles of all materials meeting this criterion. (See Exhibit 13, page 34).
- Step 3. Using the *Identification Number Master Report*, look up each ID to review the complete record for each material to make final selection. (See Exhibit 14, page 35).
- Step 4. To illustrate the similar usefulness of the *Master Title Report*, look up each title to review the complete record for each material. You will note that the record is identical to that of the *ID Report*. Accordingly, with any information request you may have, you have the option of using the ID's or the title(s) of the materials which initially meet your selection criteria. (See Exhibit 15, page 36).

USA COMMANDING GENERAL FIRST U.S. ARMY	--ARMY	→ WATER POLLUTION CONTROL FED PUBLICATIONS DEPT	--WPCF
VAN NOSTRAND REINHOLD CO	--VAN NOSTRA	WATER RESOURCES PUBLICATIONS	--CO WRP
VANTAGE PRESS INC	--VANTAGE	WATER WASTEWATER TRAINING K RAUCH, GREEN RIV COMM COLL	--GREEN RIV
VIBRA SCREW INC	--VIRBA	WATTS REGULATOR CO	--WATTS
VISCOUNT PRESS LTD 470 COLLIER MACMILLAN DR	--VISCOUNT	WESTERN MICHIGAN UNIV	--WESTER MI
VWR SCIENTIFIC	--VWR	WESTVACO CHEMICAL DIV	--WESTVACO
WADSWORTH PUBLISHING CO	--WADSWORTH	WILEY AND SONS INC	--WILEY
WATER & WASTEWATER EQUIP MANUF ASSO INC SUITE 304	--WWEMA	WOLFF PRODUCTIONS	--WOLFF
WATER AND SEWAGE WORKS SCRANTON PUBL. COMPANY, INC.	--SCRANTON	WORLD HEALTH ORGANIZATION DISTRIBUTION & SALES SERV	--WHO
WATER AND WASTES ENGINEERING BOOK DEPT	--WWE	WY DEPT OF ENVIRONMENTAL QUALITY	--WY DEQ
WATER INFORMATION CTR INC DEPT 25	--WIC	ZIMPRO INC	--ZIMPRO

SOURCE INDEX

WPCF

ID NUMBER: EPAW00115 CATEGORIES: M O P S T	WATER POLLUTION CONTROL FEDERATION JOURNAL FIVE YEAR INDEX 1964-1968 TYPE: PM DATE: 69-00 LEVEL: 3 AUTHOR: WPCF
ID NUMBER: EPAW00116 CATEGORIES: O S	SAFETY IN WASTEWATER WORKS TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00117 CATEGORIES: D O P	UTILIZATION OF MUNICIPAL WASTEWATER SLUDGE TYPE: PM DATE: 71-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00118 CATEGORIES: L M O P	REGULATION OF SEWER USE TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00119 CATEGORIES: D O	AERATION IN WASTEWATER TREATMENT TYPE: PM DATE: 71-00 LEVEL: 3 AUTHOR: WPCF
ID NUMBER: EPAW00120 CATEGORIES: D M O T	UNITS OF EXPRESSION FOR WASTES AND WASTE TREATMENT TYPE: PM DATE: 76-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00121 CATEGORIES: O S	SEWER MAINTENANCE TYPE: PM DATE: 66-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00122 CATEGORIES: O	SEWAGE TREATMENT PLANT DESIGN TYPE: PM DATE: 59-00 LEVEL: 3 AUTHOR: WPCF
ID NUMBER: EPAW00124 CATEGORIES: O S	UNIFORM SYSTEM OF ACCOUNTS FOR WASTEWATER UTILITIES TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: WPCF
→ ID NUMBER: EPAW00125 CATEGORIES: M O S	OPERATION OF WASTEWATER TREATMENT PLANTS TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00126 CATEGORIES: O	ANAEROBIC SLUDGE DIGESTION TYPE: PM DATE: 68-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00127 CATEGORIES: D O	PAINTS AND PROTECTIVE COATINGS FOR WASTEWATER TREATMENT FACILITIES TYPE: PM DATE: 69-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00128 CATEGORIES: D O	SLUDGE DEWATERING TYPE: PM DATE: 59-00 LEVEL: 2 AUTHOR: WPCF
ID NUMBER: EPAW00129 CATEGORIES: O S	SIMPLIFIED LABORATORY PROCEDURES FOR WASTEWATER EXAMINATION TYPE: PM DATE: 69-00 LEVEL: 2 AUTHOR: WPCF

ID MASTER REPORT

EPAW00125

OPERATION OF WASTEWATER TREATMENT PLANTS

AUTHOR(S): WPCF

SOURCE(S): WPCF

SUBJECT AREAS:

OPERATIONS (WASTEWATER)

GRIT REMOVAL

SLUDGE DEWATERING

DISINFECTION

COST: 4.00 P

SAMPLING

SEDIMENTATION

SLUDGE DISPOSAL

GLOSSARIES

TYPE(S): PM

LEVEL: 2

CATEGORIES: M O S

COPYRIGHT: C

DATE: 70-00

REMARKS AND ABSTRACT:

RPT: MCP-11, 195PP.

EACH PROCESS SUCCINCTLY IDENTIFIED BY FUNDAMENTALS, PROCESS DESCRIPTION AND MANAGEMENT. EMERGENCY OPERATIONS DESCRIBED WHERE PERTINENT; EQUIPMENT DESCRIPTIONS (EG. IMHOFF TANKS, ENGINES, PUMPS, ETC), AND ADMINISTRATIVE CONSIDERATIONS COVERED. SOURCE OF BRIEF DEFINITIONS FOR ALL TREATMENT PROCESSES. DETAILED TABLE OF CONTENTS.

EPAW00126

ANAEROBIC SLUDGE DIGESTION

AUTHOR(S): WPCF

SOURCE(S): WPCF

SUBJECT AREAS:

ANAEROBIC DIGESTION

SLUDGE DIGESTION

TYPE(S): PM

LEVEL: 2

CATEGORIES: D

COPYRIGHT: C

DATE: 68-00

REMARKS AND ABSTRACT:

MCP RPT. NO. 16

DESIGNED TO PROVIDE TREATMENT PLANT OPERATORS WITH THE FUNDAMENTAL THEORY OF ANAEROBIC SLUDGE DIGESTION AS IT CAN BE APPLIED TO SOLVING PLANT OPERATION PROCEDURES AND PROBLEMS.

EPAW00127

PAINTS AND PROTECTIVE COATINGS FOR WASTEWATER TREATMENT FACILITIES

AUTHOR(S): WPCF

SOURCE(S): WPCF

SUBJECT AREAS:

PROTECTIVE COATINGS

MAINTENANCE

TYPE(S): PM

LEVEL: 2

CATEGORIES: D O

COPYRIGHT: C

DATE: 69-00

REMARKS AND ABSTRACT:

MCP RPT. NO. 17

INTENDED TO PROVIDE DESIGNERS, OPERATORS, AND MAINTENANCE PERSONNEL OF WASTEWATER COLLECTION AND TREATMENT FACILITIES WITH THE FUNDAMENTAL THEORY AND PRACTICAL ASPECTS OF THE NEED FOR, CHOICE OF, APPLICATION OF, AND MAINTENANCE OF PAINTS AND PROTECTIVE COATINGS.

EPAW00128

SLUDGE DEWATERING

AUTHOR(S): WPCF

SOURCE(S): WPCF

SUBJECT AREAS:

SLUDGE DEWATERING

COST: 6.00 P

TYPE(S): PM

LEVEL: 2

CATEGORIES: D O

COPYRIGHT: C

DATE: 69-00

REMARKS AND ABSTRACT:

MCP RPT. NO. 20

PROVIDES A SUMMARY OF CURRENT PRACTICE IN SLUDGE CONDITIONING METHODS AND PROCEDURES USED FOR DEWATERING SETTLED SLUDGE FROM WASTEWATER TREATMENT PLANTS.

TITLE MASTER REPORT

36

OPERATION OF CHLORINE VAPORIZING EQUIPMENT

AUTHOR(S): CHLOR INST
SOURCE(S): CHLOR INST
SUBJECT AREAS:

COST: 1.75 P

TYPE(S): PM
LEVEL: 2

DATE: 70-06
CATEGORIES: O D
ID NUMBER: EPAW00965 COPYRIGHT:

CHLORINE
REMARKS AND ABSTRACT:

(NO. 9), 16PP.
CONTAINS INFORMATION INTENDED TO ASSIST IN THE SELECTION, DESIGN AND SAFE OPERATION OF VAPORIZERS.

OPERATION OF THERMAL SLUDGE CONDITIONING UNIT

AUTHOR(S): ZIMPRO
SOURCE(S): ZIMPRO
SUBJECT AREAS:

COST: 0.00 R

TYPE(S): SL AC
LEVEL: 1

DATE: 76-99
CATEGORIES: E O
ID NUMBER: EPAW01402 COPYRIGHT:

SLUDGE CONDITIONING
REMARKS AND ABSTRACT:

15 MIN.
DESCRIBES OPERATION OF TYPICAL SLUDGE CONDITIONING UNIT, WHICH EMPLOYS WET AIR OXIDATION.

OPERATION OF WASTEWATER TREATMENT PLANTS

AUTHOR(S): KFRI K
SOURCE(S): SACRAMENTO
SUBJECT AREAS:

COST: 25.00 P

TYPE(S): PM
LEVEL: 2

DATE: 70-00
CATEGORIES: M O S T
ID NUMBER: EPAW00141 COPYRIGHT:

PRIMARY TREATMENT
ACTIVATED SLUDGE
CHLORINATION
SAMPLING

SEDIMENTATION
DIGESTION
SAFETY
ARITHMETIC

PUMPS
SLUDGE TREATMENT
MAINTENANCE
OPERATIONS (WASTEWATER)

TRICKLING FILTERS
STABILIZATION LAGOONS
CHEMICAL ANALYSIS

REMARKS AND ABSTRACT:

APPRX. 1000 PP. INSTRUCTOR'S MANUAL, \$10.00
WRITTEN BY EXPERIENCED OPERATORS WITH THE INTENT OF PROVIDING OPERATORS WITH THE INFORMATION THEY NEED TO KNOW TO OPERATE THEIR PLANTS AS EFFICIENTLY AS POSSIBLE. OPERATORS, PERSONS INTERESTED IN BECOMING OPERATORS, AND PERSONS INTERESTED IN THE OPERATION OF TREATMENT PLANTS WILL FIND VALUABLE INFO IN THE MANUAL. TOPICS COVERED INCLUDE DESCRIPTION OF PLANTS, RACKS, SCREENS, COMMUNICATORS, GRIT REMOVAL, SEDIMENTATION, TRICKLING FILTERS, ACTIVATED SLUDGE, SLUDGE DIGESTION AND HANDLING, PONDS, CHLORINATION, MAINT, SAFETY, MATH, LAB, RECORD.

OPERATION OF WASTEWATER TREATMENT PLANTS

AUTHOR(S): WPCF
SOURCE(S): WPCF
SUBJECT AREAS:

COST: 4.00 P

TYPE(S): PM
LEVEL: 2

DATE: 70-00
CATEGORIES: M O S
ID NUMBER: EPAW00125 COPYRIGHT: C

OPERATIONS (WASTEWATER)
GRIT REMOVAL
SLUDGE DEWATERING
DISINFECTION

SAMPLING
SEDIMENTATION
SLUDGE DISPOSAL
GLOSSARIES

PUMPS
SLUDGE DIGESTION
DEGASIFICATION
FLOW MEASUREMENT

SCREENING AND GRINDING
SLUDGE CONDITIONING
TRICKLING FILTERS

REMARKS AND ABSTRACT:

RPT: MCP-11, 195PP.
EACH PROCESS SUCCINCTLY IDENTIFIED BY FUNDAMENTALS, PROCESS DESCRIPTION AND MANAGEMENT. EMERGENCY OPERATIONS DESCRIBED WHERE PERTINENT; EQUIPMENT DESCRIPTIONS (EG. IMHOFF TANKS, ENGINES, PUMPS, ETC), AND ADMINISTRATIVE CONSIDERATIONS COVERED. SOURCE OF BRIEF DEFINITIONS FOR ALL TREATMENT PROCESSES. DETAILED TABLE OF CONTENTS.

REPRESENTATIVE USE OF CATEGORY INDEX

Question:

I need additional training materials in the plant operations area but am limited to a slide format. How do I locate these materials?

Search Strategy:

- Step 1. Refer to the *Code Definition Table* to determine the proper category code for operations. (See Exhibit 16, page 38). Also note code for 35 mm slide material.
- Step 2. Use the *Category Index*, searching under the proper code, to review all training materials supporting a slide format and note the ID's for all training materials meeting selection criteria. (See Exhibit 17, page 39).
- Step 3. Use the *Identification Number Master Report* to review the complete record for each training material for final selection. (See Exhibit 18, page 40).

TABLE 3. CODE DEFINITION TABLE

ITEM	DESCRIPTION	CODE DEFINITION
1 ID Number	unique 9-character field comprising a 4-digit agency/program identifier (EPAW) plus a 5-digit sequence number	
2 Copyright Code	indicates whether item is copyrighted	C copyright blank no copyright
3 Item Title	title of the material	
4 Publication Date	month and year	
5 Author	up to two	
6 Type	up to four	AC audio tape cassetts AR audio tape reel FS 35mm filmstrip MP motion picture OT overhead transparency PM printed matter → SL 35mm slide VC video tape cassette VR video tape reel
7 Category	up to 5 one-character codes broadly identifying the application area of the material	D design E explanatory L legal & regulatory M monitoring & surveillance → O operations P planning S supervision T theory
8 Educational Level	defines educational use level of material	0 remedial 1 basic 2 intermediate 3 advanced
9 Originating Source	up to two; identifies organization responsible for the material	Consult <i>Source Code Table</i>
10 Cost	approximate dollar amount if item is available for purchase	
11 Purchase/Rent Code	indicates whether material can be rented or is available for purchase	R loan/rent/free P purchase
12 Subject	up to 16	Consult <i>Thesaurus</i>
13 Remarks	identifies special characteristics of the media that cannot be easily quantified	
14 Abstract	up to 5-120 character lines representing a professional summary of the material	

CATEGORY INDEX

CATEGORY:

0

ID NUMBER: EPAW00133 TYPE: PM SL	WASTEWATER TREATMENT PLANT OPERATOR TRAINING COURSE 2 DATE: 67-00 LEVEL: 2 AUTHOR: WPCF	←
ID NUMBER: EPAW00134 TYPE: PM SL	SAFETY PROGRAM PROMOTION DATE: 69-00 LEVEL: 2 AUTHOR: WPCF	
ID NUMBER: EPAW00135 TYPE: PM	PICTORIAL REVIEW OF WASTEWATER TREATMENT FACILITIES AND EQUIPMENT DATE: 75-99 LEVEL: 2 AUTHOR: NE NERWI	
ID NUMBER: EPAW00138 TYPE: PM SL	MARGIN FOR SAFETY DATE: 70-00 LEVEL: 1 AUTHOR: WPCF	
ID NUMBER: EPAW00139 TYPE: PM	MANUAL OF INSTRUCTION FOR WATER TREATMENT PLANT OPERATORS DATE: 70-00 LEVEL: 2 AUTHOR: NY HES	
ID NUMBER: EPAW00140 TYPE: PM	MANUAL OF INSTRUCTION FOR SEWAGE TREATMENT PLANT OPERATORS DATE: 65-00 LEVEL: 3 AUTHOR: NY HES	
ID NUMBER: EPAW00141 TYPE: PM	OPERATION OF WASTEWATER TREATMENT PLANTS DATE: 70-00 LEVEL: 2 AUTHOR: KERRI K	
ID NUMBER: EPAW00143 TYPE: PM	PROCEDURES FOR EVALUATING PERFORMANCE OF WASTEWATER TREATMENT PLANTS A MANUAL DATE: 72-00 LEVEL: 3 AUTHOR: URS RESEARCH CO	
ID NUMBER: EPAW00160 TYPE: PM	OIL AND GAS ENGINES DATE: 76-99 LEVEL: 2 AUTHOR: POWER MAG	
ID NUMBER: EPAW00175 TYPE: MP	OIL ON THE RIVER DATE: 61-00 LEVEL: 2 AUTHOR: ORSANCO	

ID MASTER REPORT

40

EPAW00133

WASTEWATER TREATMENT PLANT OPERATOR TRAINING COURSE 2

DATE: 67-00

AUTHOR(S): WPCF

TYPE(S): PM SL

CATEGORIES: O S

SOURCE(S): WPCF

COST: 50.00 P

LEVEL: 2

COPYRIGHT: C

SUBJECT AREAS:

INSTRUCTION

OPERATIONS (WASTEWATER)

ANALYTICAL TECHNIQUES

HYDRAULICS

PREVENTIVE MAINTENANCE

RECORD KEEPING

SLUDGE TREATMENT

STABILIZATION LAGOONS

DISINFECTION

SAMPLING

SAFETY

DATA EVALUATION

REMARKS AND ABSTRACT:

RPT: PUB.NO. 14, 154PP.

AUGMENTED BY 166 COLOR SLIDES, TRAINING GUIDE PROVIDES INSTRUCTOR WITH DETAILED COURSE OUTLINES FOR ALL WASTEWATER TREATMENT PROCESSES (EG. ANAEROBIC DIGESTION, TRICKLING FILTERS, ETC) AS WELL AS GENERAL INFORMATION ON HYDRAULICS, EQUIPMENT AND ADMINISTRATIVE ASPECTS OF PLANT OPERATION. APPENDIX CONTAINS DESCRIPTION OF EACH COLOR SLIDE USED FOR COURSE.

EPAW00134

SAFETY PROGRAM PROMOTION

DATE: 69-00

AUTHOR(S): WPCF

TYPE(S): PM SL

CATEGORIES: O S

SOURCE(S): WPCF

COST: 16.50

LEVEL: 2

COPYRIGHT: C

SUBJECT AREAS:

SAFETY

REMARKS AND ABSTRACT:

OUTLINES AND SLIDES WERE DEVELOPED TO PROMOTE EFFECTIVE SAFETY PROGRAMS IN ALL WATER POLLUTION CONTROL AGENCIES. TWO SEPARATE MANUALS WITH 35 MM SLIDE ILLUSTRATIONS ARE INCLUDED: "WHY A SAFETY PROGRAM IN EVERY WATER POLLUTION CONTROL WORKS", AND "SAFETY PROGRAM GUIDE FOR WATER POLLUTION CONTROL SYSTEMS".

EPAW00135

PICTORIAL REVIEW OF WASTEWATER TREATMENT FACILITIES AND EQUIPMENT

DATE: 76-99

AUTHOR(S): NE NERWI

TYPE(S): PM

CATEGORIES: O S

SOURCE(S): NE NERWI

COST: 0.00 P

LEVEL: 2

COPYRIGHT:

SUBJECT AREAS:

EQUIPMENT (PLANT)

OPERATIONS (WASTEWATER)

REMARKS AND ABSTRACT:

(NO. 1)

PICTURES OF EQUIPMENT USED IN THE WASTEWATER TREATMENT FIELD.

EPAW00136

ENVIRONMENTAL GUIDEBOOK FOR CONSTRUCTION

DATE: 76-99

AUTHOR(S): CO BOR

TYPE(S): PM

CATEGORIES: E P S

SOURCE(S): CO BOR

GPC

COST: 1.00 P

LEVEL: 2

COPYRIGHT:

SUBJECT AREAS:

WATER QUALITY

PLANT CONSTRUCTION

REMARKS AND ABSTRACT:

(STOCK NO. 2403 00090) 61PP.

GIVES IDEAS AND SUGGESTIONS TO INDIVIDUAL WORKERS AND SUPERVISORS ABOUT ENVIRONMENTAL PRACTICES THEY CAN APPLY WHILE PERFORMING EVERYDAY DUTIES. CHAPTER ON WATER QUALITY CONTROL.

REPRESENTATIVE USE OF *TYPE INDEX*

Question:

I need 35mm slide material on plant operations which can be purchased for under \$100.00. How do I find it?

Search Strategy:

- Step 1. Refer to the *Code Definition Table* to determine the proper type code for 35mm slides. (See Exhibit 16, page 38).
- Step 2. Use the *Type Index*, searching under the proper media code, to review all training materials with a slide format which relate to plant operations. Note the ID's for all training materials meeting these selection criteria. (See Exhibit 19, page 42).
- Step 3. Use the *Identification Number Master Report* to review the complete record for each training material for final selection, selecting those with a purchase price under \$100.00. (See Exhibit 20, page 43).

TYPE INDEX

TYPE:

SL

ID NUMBER: EPAW00538 CATEGORY: M	ATOMIC ABSORPTION DATE: 69-00 LEVEL: 3	AUTHOR: EPA WPD
ID NUMBER: EPAW00539 CATEGORY: M S	CHEMICAL OXYGEN DEMAND DATE: 71-00 LEVEL: 3	AUTHOR: EPA
ID NUMBER: EPAW00540 CATEGORY: M	DISSOLVED OXYGEN DETERMINATION DATE: 71-00 LEVEL: 1	AUTHOR: EPA
ID NUMBER: EPAW00541 CATEGORY: M	DETERMINATION OF PHENOLICS DATE: 71-00 LEVEL: 3	AUTHOR: EPA
ID NUMBER: EPAW00542 CATEGORY: M	DETERMINATION OF PHOSPHORUS DATE: 71-00 LEVEL: 2	AUTHOR: EPA
ID NUMBER: EPAW00543 CATEGORY: O S	LETS INVENTORY YOUR CHLORINE HANDLING PRACTICES DATE: 70-00 LEVEL: 1	AUTHOR: EPA ←
ID NUMBER: EPAW00544 CATEGORY: M O S	DISSOLVED OXYGEN ANALYSIS ACTIVATED SLUDGE CONTROL TESTING DATE: 71-00 LEVEL: 3 AUTHOR: EPA	←
ID NUMBER: EPAW00545 CATEGORY: M O S	OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 1 DATE: 71-00 LEVEL: 3 AUTHOR: EPA	
ID NUMBER: EPAW00546 CATEGORY: M O S	OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 2 DATE: 71-00 LEVEL: 3 AUTHOR: EPA	
ID NUMBER: EPAW00547 CATEGORY: M	OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 3 DATE: 71-00 LEVEL: 3 AUTHOR: EPA	
ID NUMBER: EPAW00548 CATEGORY: C O S	UPGRADING BIOLOGICAL TREATMENT DATE: 69-00 LEVEL: 3	AUTHOR: EPA WPD
ID NUMBER: EPAW00549 CATEGORY: D S	ULTIMATE DISPOSAL TO THE ENVIRONMENT DATE: 71-00 LEVEL: 3	AUTHOR: EPA
ID NUMBER: EPAW00550 CATEGORY: M O S T	GRAPHICAL ANALYSIS VIS NORMAL PROBABILITY PAPER DATE: 71-00 LEVEL: 3	AUTHOR: EPA

ID MASTER REPORT

EPAW00542

DETERMINATION OF PHOSPHORUS

AUTHOR(S): EPA

SOURCE(S): EPA2

SUBJECT AREAS:

PHOSPHATES

REMARKS AND ABSTRACT:

UNIT: XT-44, 15 MIN TAPE, 65 SL, SCRIPT, QUIZ, KEY.

PRESENTS THE REASONS FOR DETERMINING PHOSPHORUS, AN EXPLANATION OF PHOSPHORUS TERMINOLOGY, AND THE OFFICE OF WATER PROGRAMS ANALYTICAL PROCEDURES. DISCUSSION OF PROCEDURE INCLUDES BASIC CHEMISTRY INVOLVED, SENSITIVITY RANGE, SAMPLE COLLECTION AND PRESERVATION, FILTRATION AND DIGESTION, PH, REAGENT PREPARATION, COLOR DEVELOPMENT AND SPECTROPHOTOMETRIC DETERMINATION, CARE OF GLASSWARE AND POSSIBLE INTERFERENCES.

TYPE(S): PM SL AC

LEVEL: 2

CATEGORIES: M

COPYRIGHT:

DATE: 71-00

COST: 0.00 R

EPAW00543

LETS INVENTORY YOUR CHLORINE HANDLING PRACTICES

AUTHOR(S): EPA

SOURCE(S): EPA2

SUBJECT AREAS:

CHLORINE

REMARKS AND ABSTRACT:

UNIT: XT-35, 32 MIN TAPE, 80 SL, SCRIPT.

DISCUSSION ON HANDLING ELEMENTAL CHLORINE. PRINCIPLE DIVISIONS OF INFORMATION ARE: PHYSICAL AND CHEMICAL CHARACTERISTICS OF CHLORINE, SAFETY REQUIREMENTS FOR SIX SEGMENTS OF TYPICAL CHLORINE FEED SYSTEMS, CHLORINE EMERGENCY PROCEDURES, IN-PLANT OPERATING PROCEDURES FOR SAFE HANDLING OF CHLORINE (15 ITEMS), AND SOURCES OF ADDITIONAL INFORMATION.

TYPE(S): PM SL AC

LEVEL: 1

CATEGORIES: M S

COPYRIGHT:

DATE: 70-00

COST: 0.00 R

EPAW00544

DISSOLVED OXYGEN ANALYSIS ACTIVATED SLUDGE CONTROL TESTING

AUTHOR(S): EPA

SOURCE(S): EPA2

SUBJECT AREAS:

ACTIVATED SLUDGE

DISSOLVED OXYGEN

TYPE(S): PM SL AC

LEVEL: 3

CATEGORIES: M O S

COPYRIGHT:

DATE: 71-00

COST: 0.00 R

SLUDGE CONDITIONING

REMARKS AND ABSTRACT:

UNIT: XT-43, 34 MIN TAPE, 73 SL, SCRIPT, SUPPL: LUDZACK, "DISSOLVED OXYGEN TESTING PROCEDURE," LESSON PLAN.

RAPID AND VALID TECHNIQUES ARE DESCRIBED FOR CONTROL OF THE ACTIVATED SLUDGE TREATMENT PROCESS USING ELECTRONIC MEASUREMENT OF DO AND DO CHANGES. SAMPLE DATA ARE DISCUSSED FOR INTERPRETATION OF SLUDGE CONDITION IN RESPONSE TO STABILIZATION, FEED, LOAD RATIO OR CONDITIONS. INFORMATION OBTAINABLE WITHIN 20 MINUTES PROVIDES SUGGESTED CORRECTIVE ACTION IN TIME TO UPGRADE EFFLUENT QUALITY.

EPAW00545

OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 1

AUTHOR(S): EPA

SOURCE(S): EPA2

SUBJECT AREAS:

ACTIVATED SLUDGE

PHYSICAL ANALYSIS

TYPE(S): PM SL AC

LEVEL: 3

CATEGORIES: M O S

COPYRIGHT:

DATE: 71-00

COST: 0.00 R

PROCESS CONTROL

REMARKS AND ABSTRACT:

UNIT: XT-40, 16 MIN TAPE, 50 SL, SCRIPT.

PART ONE OF A THREE-PART LESSON SERIES ON OPERATIONAL CONTROL TESTS FOR THE ACTIVATED SLUDGE PROCESS. ENTITLED "OBSERVATIONS," THIS FIRST PART IS CONCERNED WITH THE ACCURATE READING OF METERS AND WITH THE VISUAL OBSERVATIONS TO BE MADE BOTH AT THE AERATOR (FCAM CHARACTERISTICS, SLUDGE COLOR AND ODOR) AND AT THE FINAL CLARIFIERS (CLARITY, EVIDENCES OF BULKING AND OF SEPTIC SOLIDS). PROVISIONAL INTERPRETATIONS TO BE MADE OF THESE VISUAL OBSERVATIONS ARE PRESENTED, AND ALSO A DETAILED DISCUSSION OF THE EFFECTIVE USE OF A SLUDGE BLANKET FINDER.

REPRESENTATIVE USE OF *AUTHOR INDEX*

Question:

I understand that H. Jones has written something about chemical recovery in paper mills. How can I review his material?

Search Strategy:

- Step 1. Use the *Author Index*, searching under Jones, H. to review training materials meeting this selection criterion and note the ID's. (See Exhibit 21, page 45).
- Step 2. Use the *Identification Number Master Report* to review the complete record for each training material for final selection. (See Exhibit 22, page 46).

AUTHOR INDEX

JOHNSTON K L ID NUMBER: EPAW00439 CATEGORIES:	LAGOON FOR DOMESTIC SEWAGE (OUT OF PRINT) TYPE: PM DATE: 76-99 LEVEL:
JOLLY C ID NUMBER: EPAW01813 CATEGORIES: L E	ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN THE OCEAN TYPE: PM DATE: 75-04 LEVEL: 1
ID NUMBER: EPAW01835 CATEGORIES: L E	ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN INLAND WATERS TYPE: PM DATE: 75-06 LEVEL: 1
JONES H R ID NUMBER: EPAW01633 CATEGORIES: D M O	POLLUTION CONTROL IN THE DAIRY INDUSTRY TYPE: PM DATE: 74-00 LEVEL: 3
ID NUMBER: EPAW01634 CATEGORIES: D M O	POLLUTION CONTROL IN MEAT POULTRY AND SEAFOOD PROCESSING TYPE: PM DATE: 74-00 LEVEL: 3
ID NUMBER: EPAW01637 CATEGORIES: D O M	POLLUTION CONTROL IN THE PETROLEUM INDUSTRY TYPE: PM DATE: 73-00 LEVEL: 3
ID NUMBER: EPAW01639 CATEGORIES: D O M	POLLUTION CONTROL AND CHEMICAL RECOVERY IN THE PULP AND PAPER INDUSTRY ←
ID NUMBER: EPAW01640 CATEGORIES: D O M	POLLUTION CONTROL IN THE TEXTILE INDUSTRY TYPE: PM DATE: 73-00 LEVEL: 3
ID NUMBER: EPAW01641 CATEGORIES: D O M	WASTE DISPOSAL CONTROL IN THE FRUIT AND VEGETABLE INDUSTRY TYPE: PM DATE: 73-00 LEVEL: 3
JORGENSEN S E ID NUMBER: EPAW00428 CATEGORIES: T	ECOLOGICAL MODELLING TYPE: PM DATE: 76-00 LEVEL: 3
JOSEPHS P J ID NUMBER: EPAW00716 CATEGORIES: T	CHEMISTRY AND THE ENVIRONMENT TYPE: PM DATE: 67-00 LEVEL: 3
JUVET R S ID NUMBER: EPAW02134 CATEGORIES: M T	BASIC RELATIONSHIPS AND INSTRUMENTATION BASIC GAS CHROMATOGRAPHY TYPE: PM FS SL AC DATE: 76-99 LEVEL: 3
ID NUMBER: EPAW02135 CATEGORIES: M T	COLUMN ITS MAKE UP AND USE TYPE: PM FS SL AC DATE: 76-99 LEVEL: 3

Exhibit 21. Page from *Author Index*

ID MASTER REPORT

49

EPAW01638

WASTEWATER CLEANUP EQUIPMENT

AUTHOR(S): NOYES

SOURCE(S): NOYES

SUBJECT AREAS:

EQUIPMENT (PLANT)

REMARKS AND ABSTRACT:

2ND EDITION; 372PP.

THIS BOOK GIVES BASIC TECHNICAL INFORMATION AND SPECIFICATIONS PERTAINING TO COMMERCIAL EQUIPMENT CURRENTLY AVAILABLE FROM EQUIPMENT MANUFACTURERS. ALTOGETHER THE PRODUCTS OF 94 COMPANIES ARE REPRESENTED. SUPPLIES TECHNICAL DATA, DIAGRAMS, PICTURES, SPECIFICATIONS AND OTHER INFORMATION ON COMMERCIAL EQUIPMENT USEFUL IN WATER POLLUTION CONTROL AND SEWAGE TREATMENT.

INDUSTRIAL WASTES

COST: 36.00 P

TYPE(S): PM

LEVEL: 3

CATEGORIES: D O M

COPYRIGHT:

DATE: 73-00

EPAW01639

POLLUTION CONTROL AND CHEMICAL RECOVERY IN THE PULP AND PAPER INDUSTRY

AUTHOR(S): JONES H R

SOURCE(S): NOYES

SUBJECT AREAS:

COSTS

REMARKS AND ABSTRACT:

337PP.

MANY EFFLUENT WASTES FROM PAPER MILLS ARE BIODEGRADABLE, BUT TREATMENT COSTS ARE INCREASING, EFFLUENT DISCHARGE REQUIREMENTS ARE BECOMING MORE STRINGENT, AND URBANIZATION INCREASINGLY LIMITS THE AVAILABILITY OF LAND. ECONOMIC CONTROL PROCEDURES APPLIED BY THE INDUSTRY, THEREFORE, FORM AN ESSENTIAL PART OF THE POLLUTION CONTROL PROCEDURES. VITAL DATA FROM GOVERNMENT SOURCES IS GIVEN. IMPORTANT PROCESSES ARE INTERPRETED AND EXPLAINED BY 54 U.S. PATENTS.

ENVIRONMENTAL CONTROL

TYPE(S): PM

LEVEL: 3

CATEGORIES: D O M

COPYRIGHT:

DATE: 73-00

EPAW01640

POLLUTION CONTROL IN THE TEXTILE INDUSTRY

AUTHOR(S): JONES H R

SOURCE(S): NOYES

SUBJECT AREAS:

INDUSTRIAL WASTES

REMARKS AND ABSTRACT:

324PP.

THE MAJOR POLLUTION PROBLEMS CONFRONTED BY THE TEXTILE INDUSTRY ARE WATER POLLUTION PROBLEMS. SOLUTIONS TO THESE PROBLEMS ARE BASED ON VARIOUS GOVERNMENT SURVEYS AND REPORTS WITH PRACTICAL EXAMPLES DETAILED FROM LATE U.S. PATENTS.

COST: 36.00 P

TYPE(S): PM

LEVEL: 3

CATEGORIES: D O M

COPYRIGHT:

DATE: 73-00

EPAW01641

WASTE DISPOSAL CONTROL IN THE FRUIT AND VEGETABLE INDUSTRY

AUTHOR(S): JONES H R

SOURCE(S): NOYES

SUBJECT AREAS:

WASTEWATER DISPOSAL

REMARKS AND ABSTRACT:

261PP.

BASED ON AUTHORITATIVE GOVERNMENT REPORTS AND SURVEYS. ATTEMPTS TO CLARIFY THE WAYS AND MEANS OPEN TO THE FOOD PROCESSOR WHO MUST KEEP HIS POLLUTING WASTES DOWN TO A MINIMUM.

INDUSTRIAL WASTES

COST: 36.00 P

TYPE(S): PM

LEVEL: 3

CATEGORIES: D O M

COPYRIGHT:

DATE: 73-00

REPRESENTATIVE USE OF *SUBJECT INDEX*

Question:

How can I review all training materials which discuss maintenance procedures for centrifugal pumps?

Search Strategy:

- Step 1. Review the *Thesaurus* to determine which subject terms to use. (See Exhibit 23, page 48).
- Step 2. Using the term "centrifugal pumps," review the training materials found in the *Subject Index*, noting the ID's. (See Exhibit 24, page 49).
- Step 3. Using the *Identification Number Master Report*, review the total record for final selection. Pay particular attention to other subjects assigned, which may direct you to other materials. (See Exhibit 25, page 50).
- Step 4. For this example, note that the subject terms "maintenance" and "lubrication" appear as additional subjects in the records reviewed using the *ID Report*. Therefore, return to the *Subject Index* using these two new terms and note the ID's of pertinent training materials. (See Exhibit 26, page 51).
- Step 5. Return to the *ID Report* to review the additional records and make final selections. (See Exhibit 27, page 52).

CASE STUDIES

CAST IRON PIPES

CATHODIC PROTECTION
SEE ALSO: CORROSION

CATION ADSORPTION
SEE ALSO: ION EXCHANGE

CATION EXCHANGE
USE: ION EXCHANGE

CENTRIFUGAL PUMPS ←

CENTRIFUGATION

CERTIFICATION PROGRAMS
SEE ALSO: CURRICULUM DEVELOPMENT

CHEMICAL ANALYSIS
SEE ALSO: ANALYTICAL TECHNIQUES, LABORATORY SKILLS

CHEMICAL OXYGEN DEMAND
SEE ALSO: BIOCHEMICAL OXYGEN DEMAND

CHEMICAL PRECIPITATION

CHEMICAL PROPERTIES

CHEMICAL REACTIONS

CHEMICAL SPILLS
USE: SPILLS (CHEMICAL)

SUBJECT INDEX

CAST IRON PIPES
ID NUMBER: EPAW02093 AMERICAN NATIONAL STANDARD FOR FLANGED CAST IRON AND DUCTILE IRON PIPE WITH
CATEGORIES: D TYPE: PM LEV: 2 AUTH: AWWA DATE: 75-00

CATHODIC PROTECTION

SEE ALSO: CORROSION

ID NUMBER: EPAW00050 AWWA STANDARD FOR LIQUID SODIUM SILICATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 58-00

ID NUMBER: EPAW00053 AWWA STANDARD FOR TRISODIUM PHOSPHATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 55-00

ID NUMBER: EPAW00054 AWWA STANDARD FOR CAUSTIC SODA
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 75-00

ID NUMBER: EPAW00055 AWWA STANDARD FOR SODIUM HEXAMETAPHOSPHATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 67-00

ID NUMBER: EPAW00875 MANUAL ON WATER
CATEGORIES: M TYPE: PM LEV: 3 AUTH: ASTM DATE: 69-05

ID NUMBER: EPAW01790 WATER SUPPLY AND WASTE DISPOSAL
CATEGORIES: D M T TYPE: PM LEV: 3 AUTH: HARDENBERGH W A DATE: 50-00

ID NUMBER: EPAW01862 METAL MATERIALS PROGRAMMED INSTRUCTION MANUAL
CATEGORIES: D TYPE: PM LEV: 1 AUTH: TECH PUBL DATE: 73-12

ID NUMBER: EPAW01975 CENTRILINE PROCESS
CATEGORIES: D O TYPE: MP LEV: 2 AUTH: RAYMOND INTERNATIONAL DATE: 76-99

CATION ADSORPTION

SEE ALSO: ION EXCHANGE

CATION EXCHANGE

USE: ION EXCHANGE

CENTRIFUGAL PUMPS

ID NUMBER: EPAW00271 PUMPS CENTRIFUGAL PUMPS
CATEGORIES: C TYPE: PM LEV: 1 AUTH: DUPONT DATE: 67-00

ID NUMBER: EPAW00491 STUDY GUIDE FOR WATER PLANT OPERATORS
CATEGORIES: E O TYPE: PM LEV: 1 AUTH: FL WPCOA DATE: 60-00

Exhibit 24. Page from *Subject Index*

ID MASTER REPORT

50

EPAW00271

PUMPS CENTRIFUGAL PUMPS

AUTHOR(S): DUPONT

SOURCE(S): DUPONT

SUBJECT AREAS:

MAINTENANCE

COST: 14.50 P

TYPE(S): PM

LEVEL: 1

CATEGORIES: 0

COPYRIGHT: C

DATE: 67-00

CENTRIFUGAL PUMPS

LUBRICATION

REMARKS AND ABSTRACT:

COURSE NO. 119, VCL. I THRU VI, APPROX 200PP COMPLETE STE. 9 HRS. AVERAGE INSTRUCTION TIME.

INCLUDES: FLOW THROUGH PUMP; MECHANICAL AND PACKING SEALS; SEAL FLUSH; PARTS OF AND TYPES OF IMPELLERS; DISCHARGE PRESSURE VERSUS FLOW; POWER REQUIREMENTS VERSUS FLOW; EFFECT OF SPECIFIC GRAVITY ON POWER REQUIREMENTS; MULTI-STAGE OPERATION; METHODS OF PRIMING CENTRIFUGAL PUMPS; OPERATING CHARACTERISTICS OF SELF-PRIMING CENTRIFUGAL PUMPS; TYPES OF OIL LUBRICATION; GREASE LUBRICATED BEARING; BEARING HOUSING TEMPERATURES; AND CAVITATION AND GASSING OF CENTRIFUGAL PUMPS.

EPAW00272

PUMPS POSITIVE DISPLACEMENT PUMPS

AUTHOR(S): DUPONT

SOURCE(S): DUPONT

SUBJECT AREAS:

POSITIVE DISPLACEMENT PUMPS ROTARY PUMPS

REMARKS AND ABSTRACT:

NO. 12; 5 1/2 HRS. AVERAGE INSTRUCTION TIME.

THE IDENTIFICATION OF RECIPROCATING POSITIVE DISPLACEMENT PUMPS BY TYPE OF POWER END, DISPLACING SOLID, NUMBER OF PUMPING UNITS, TYPE OF PUMPING UNIT, AND VALVE GEAR; AND THE IDENTIFICATION OF THE COMMON TYPES OF ROTARY POSITIVE DISPLACEMENT PUMPS BY TYPE OF DISPLACING SOLID. THE OPERATING PRINCIPLES OF BOTH TYPES OF PUMPS ARE APPLIED TO ELEMENTARY TROUBLESHOOTING.

TYPE(S): PM

LEVEL: 1

CATEGORIES: 0

COPYRIGHT:

DATE: 76-99

EPAW00273

SCAFFOLDS

AUTHOR(S): DUPONT

SOURCE(S): DUPONT

SUBJECT AREAS:

EQUIPMENT (PLANT)

SAFETY (MECHANICAL)

TYPE(S): PM

LEVEL: 1

CATEGORIES: 0

COPYRIGHT:

DATE: 76-99

REMARKS AND ABSTRACT:

NO. 57; 1 HRS. AVERAGE INSTRUCTION TIME.

MINIMUM REQUIREMENTS FOR A STANDARD SCAFFOLD: HAND RAILS, KNEE RAILS, TOE BOARDS, DECK PLANKS, PLANK CLEATS, PLANK OVERHAND, PLANKS TIED DOWN, DIAGONAL BRACING, HORIZONTAL MEMBERS, BASES, LADDERS, HEIGHT OF HAND RAIL, LOOSE COUPLINGS, AND RIGHTSIDE-UP COUPLINGS.

EPAW00274

SKETCHING FIELD

AUTHOR(S): DUPONT

SOURCE(S): DUPONT

SUBJECT AREAS:

DRAFTING

EQUIPMENT (PLANT)

TYPE(S): PM

LEVEL: 2

CATEGORIES: 0 0

COPYRIGHT:

DATE: 76-99

REMARKS AND ABSTRACT:

NO. 27; 15 HRS. AVERAGE INSTRUCTION TIME.

MAKING FREEHAND SKETCHES, ORTHOGRAPHIC AND PICTORIAL, OF MACHINERY AND EQUIPMENT. HIGHLIGHTS INCLUDE TECHNIQUES FOR DRAWING STRAIGHT LINES, CURVED LINES, AND CIRCLES; SKETCHING TWO- AND THREE-VIEW ORTHOGRAPHIC PROJECTIONS; FREEHAND LETTERING AND DIMENSIONING PRACTICES; AND FREEHAND SKETCHES IN ISOMETRIC AND OBLIQUE PROJECTION.

SUBJECT INDEX

LOGISTICS

USE: MATERIAL HANDLING

LUBRICATION

SEE ALSO: PREVENTIVE MAINTENANCE

ID NUMBER: EPAW00207 CATEGORIES: 0	COMPRESSED AIR SYSTEMS CENTRIFUGAL COMPRESSORS TYPE: PM LEV: 2 AUTH: DUPONT	DATE: 76-99
ID NUMBER: EPAW00208 CATEGORIES: 0	COMPRESSED AIR SYSTEMS RECIPROCATING COMPRESSORS TYPE: PM LEV: 1 AUTH: DUPONT	DATE: 75-99
ID NUMBER: EPAW00228 CATEGORIES: 0	KNOX YOUR MOTOR OIL TYPE: PM LEV: 1 AUTH: DUPONT	DATE: 76-99
ID NUMBER: EPAW00271 CATEGORIES: 0	PUMPS CENTRIFUGAL PUMPS TYPE: PM LEV: 1 AUTH: DUPONT	DATE: 67-00
ID NUMBER: EPAW00528 CATEGORIES: 0	MECHANICAL PACKING TYPE: PM LEV: 2 AUTH: POWER MAG	DATE: 76-99
ID NUMBER: EPAW00531 CATEGORIES: 0	LUBRICANTS TYPE: PM LEV: 2 AUTH: POWER MAG	DATE: 76-99
ID NUMBER: EPAW00911 CATEGORIES: 0	ELECTRIC MOTORS SELECTION PROTECTION DRIVES TYPE: OT PM SL LEV: 1 AUTH: AAVIM	DATE: 72-00
ID NUMBER: EPAW00918 CATEGORIES: 0	SMALL ENGINES CARE OPERATION MAINTENANCE AND REPAIR VOLUME I TYPE: PM OT SL LEV: 2 AUTH: AAVIM	DATE: 75-00
ID NUMBER: EPAW00919 CATEGORIES: 0	SMALL ENGINES CARE OPERATION MAINTENANCE AND REPAIR VOLUME II TYPE: OT PM LEV: 2 AUTH: AAVIM	DATE: 74-00
ID NUMBER: EPAW00922 CATEGORIES: 0	FUELS AND LUBRICANTS SELECTING AND STORING TYPE: OT PM SL LEV: 2 AUTH: AAVIM	DATE: 73-00
ID NUMBER: EPAW01941 CATEGORIES: 0	LUBRICATION PROGRAMMED INSTRUCTION MANUAL TYPE: PM LEV: 1 AUTH: TECH PUBL	DATE: 75-02
ID NUMBER: EPAW01949 CATEGORIES: 0	BEARINGS PROGRAMMED INSTRUCTION MANUAL TYPE: PM LEV: 1 AUTH: TECH PUBL	DATE: 74-09

Exhibit 26. Page from Subject Index

ID MASTER REPORT

52

EPAW01841

LUBRICATION PROGRAMMED INSTRUCTION MANUAL

DATE: 75-02

AUTHOR(S): TECH PUBL

TYPE(S): PM

CATEGORIES: 7

SOURCE(S): TECH PUBL

COST: 20.50 P

LEVEL: 1

COPYRIGHT: C

SUBJECT AREAS:

EQUIPMENT (PLANT)

LUBRICATION

SELF PACED INSTRUCTION

MAINTENANCE

REMARKS AND ABSTRACT:

NO. 302-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01842

ELEMENTS OF MECHANICS PROGRAMMED INSTRUCTION MANUAL

DATE: 74-04

AUTHOR(S): TECH PUBL

TYPE(S): PM

CATEGORIES: 7

SOURCE(S): TECH PUBL

COST: 20.50 P

LEVEL: 1

COPYRIGHT: C

SUBJECT AREAS:

EQUIPMENT (PLANT)

MAINTENANCE

POWER LOSS

SELF PACED INSTRUCTION

REMARKS AND ABSTRACT:

NO. 301-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01843

ELECTRICAL TROUBLESHOOTING PROGRAMMED INSTRUCTION MANUAL

DATE: 74-06

AUTHOR(S): TECH PUBL

TYPE(S): PM

CATEGORIES: 7

SOURCE(S): TECH PUBL

COST: 20.50 P

LEVEL: 1

COPYRIGHT: C

SUBJECT AREAS:

EQUIPMENT (PLANT)

AUTOMATIC CONTROL

ELECTRIC POWER

MAINTENANCE

SELF PACED INSTRUCTION

TROUBLESHOOTING

REMARKS AND ABSTRACT:

NO. 210-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01844

A C CONTROL EQUIPMENT PROGRAMMED INSTRUCTION MANUAL

DATE: 74-12

AUTHOR(S): TECH PUBL

TYPE(S): PM

CATEGORIES: 7

SOURCE(S): TECH PUBL

COST: 20.50 P

LEVEL: 1

COPYRIGHT: C

SUBJECT AREAS:

EQUIPMENT (PLANT)

ELECTRIC POWER

AUTOMATIC CONTROL

MAINTENANCE

SELF PACED INSTRUCTION

REMARKS AND ABSTRACT:

NO. 209-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

Selective Bibliographies

DEFINITION AND CONDITIONS

The primary design approach of IRIS is centered on supplying a package of information products that allows you to independently determine what instructional resources are available to meet a particular need. However, there are certain instances when the standard information products will not meet the total need and a selective bibliography is necessary. There are three general areas where a selective bibliography may be useful:

1. Widespread Dissemination of a Select Group of Resources

If a user, having determined that a certain number of references is valid, needs to make this list of references widely available, a selective bibliography can be generated, duplicated, and easily disseminated.

2. Recurring Information Request

In the event that the same information inquiry is required every time IRIS is updated, the characteristics of the inquiry or "search" can be established and a selective bibliography can be generated after each update.

3. The Characteristics of the Inquiry are Too Complex to be Easily Satisfied by the Standard Information Products

In certain unusual circumstances, the user will determine that the inquiry is so comprehensive that the information products are inadequate. In this event the user can request that a selective bibliography be generated meeting the specified criteria.

COMPLETING A SELECTIVE BIBLIOGRAPHY SEARCH REQUEST FORM

Search Definition

To obtain a meaningful selective bibliography from IRIS, it is imperative that the user clearly understand and state his objective. Therefore, describe exactly what training materials you are seeking, and the purpose for which they will be used. Specifically include any subjects, authors, or sources to be included in the search (but do not worry about using the same terminology as IRIS as this is not important).

Example - "I need to instruct beginning operators on basic laboratory skills. Emphasis will be on introductory analytical techniques (chemical, biological, physical). Students of varying abilities will take the course, so I prefer self-paced instruction. Students, upon completing the course, should be knowledgeable in basic laboratory equipment and procedures, laboratory safety, sampling and record keeping. The course will last 2 weeks, or 60 hours."

Analysis - Requestor does not concentrate on how the search should be conducted but rather, what the objectives of the search should be. This is the correct procedure.

Example - "I need materials on laboratory techniques. Please include laboratory skills, instrumentation (laboratory), operations, water quality, and analytical techniques."

Analysis - By concentrating on the search strategy rather than the search objective, the user failed to define the purpose, course length, audience, orientation, or application. Accordingly, potentially valuable material will be missed (e.g., laboratory safety, record keeping, chemical and biological analysis), and meaningless material selected.

Search Restrictions

If you only have access to certain AV equipment, if students are all at a specific education level, if your course is to be applications oriented, if the topic is meaningful only within a particular date range, you may wish to enter specific search restrictions. To do so, simply enter the selection specifications in the appropriate box. Under media type(s), for example, if you are interested only in printed material, and slides, enter PM SL. Examples follow:

Example -

(X) Media Type(s) SL AC

Only slide/tape materials will be selected.

(X) Categories 0

Only materials dealing with operations will be selected.

(X) Education Level 1

Only materials dealing with Level 1 will be selected.

(X) Years: Beginning Year 1971 Through Ending Year To Present
Opt-Include undated**material Yes X No

**Materials for 1971, 1972, 1973, 1974, 1975,
and 1976 will be selected. Moreover, "undated"
materials entered into IRIS during those years
will also be selected.

NOTE: All Search Restrictions are simply that. They refine the search strategy specified in Step I, not overlay it. All the subjects listed in Step I and all the authors and sources will be selected; however, the final materials printed on the bibliography will be only those which also meet the search restrictions.

Bibliography Format

The training materials selected from IRIS for your selective bibliography can be arranged several ways -- by ID, by title, by author, and so on. Depending on your objective, one arrangement may be preferable to another. If, for example, you had a selective bibliography on the source AWWA, it would be meaningless to format the report by source. An arrangement by date, or by title would be preferable. If you have developed a training material and reference IRIS materials throughout that material by IRIS ID, then your selective bibliography supporting that course material should be arranged by ID order to facilitate access. Only one format is permissible for a search.

Name and Address

To ensure the highest quality possible, each requestor is contacted by telephone prior to the execution of the search. Every aspect of the search is discussed and refined; therefore, it is important that Section IV be legibly completed.

Pre-Selected Set of ID's

The most successful IRIS search is normally the one you do yourself, using the IRIS products. The reason for this is that you can set up your

selection criteria, search the system, and browse before selecting some materials and rejecting others. If this approach is used, and you need a 'prepared' bibliography for distribution, a simple approach is to list all the ID's for the materials selected and submit this list as your search request. This approach ensures a successful selective bibliography formatted in the manner most suitable for your needs. The request forms are found on pages 58 and 59. Sample requests are found on pages 60, 62, 64, 66 and 68, along with the resultant selective IRIS bibliography.

SEARCH REQUEST FORM FOR SELECTIVE BIBLIOGRAPHY

Procedure for Obtaining a Selective IRIS Bibliography

Fill out the attached request form using the attached tables:

- Thesaurus*
- Source Index*
- Code Definition Chart*

Mail to:

IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268

Any questions concerning the form and its completion should be directed to:

Ms. Phyllis Branson
IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268
Telephone: 513-684-7501

Please allow a minimum of five working days from receipt of request.

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

II. Search Restrictions (Optional)

Restrict this search to the following:

() Type(s):

() Categories:

() Educational Level:

() Years: Beginning Year _____ Through Ending Year _____

Opt: Include undated** material: Yes _____ No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

() ID (no secondary sort)

() Title (no secondary sort)

() 1st Author (secondary sort by date)

() 1st Source (secondary sort by date)

() Date (secondary sort by title)

IV. Please Complete the Following:

Your Name: _____ Telephone: _____

Mailing Address: _____

*If you want a selective bibliography based on a pre-selected group of ID's, complete Sections III, IV and V.

v. Selective Bibliography based on Pre-Selected Set of ID's

If you wish to supply the specific identification numbers for the training material records to be inclusively selected for this bibliography, type the ID(s) below. Do not complete Sections I and II of page 1.

Identification numbers:

[illegible]

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

*Preparing a one week short course for operators on filtration.
Operators need background of process, various filters, how they
work, theoretical discussion of process.*

Subject: Filtration

II. Search Restrictions (Optional)

Restrict this search to the following:

() Type(s):

(X) Categories: M,0

(X) Educational Level: 2

() Years: Beginning Year _____ Through Ending Year _____

Opt: Include undated** material: Yes _____ No _____

****Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.**

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

() ID (no secondary sort)

(X) Title (no secondary sort)

() 1st Author (secondary sort by date)

() 1st Source (secondary sort by date)

() Date (secondary sort by title)

SEARCH STRATEGY:
SUBJECT-FILTRATION LEVEL-2 CATEGORY-M/O

SPECIAL BIBLIOGRAPHIC REPORT

AWWA STANDARD FOR FILTERING MATERIAL

AUTHOR(S): AWWA

SOURCE(S): AWWA

SUBJECT AREAS:

STANDARDS

REMARKS AND ABSTRACT:

RPT. NO. 42100 (B100-72) 20 PP.

COVERS GRAVEL, SAND, ANTHRACITE AND ACTIVATED CARBON FILTER MATERIALS AND PLACEMENT OF THE MATERIALS.

COST: 4.00 P

ACTIVATED CARBON

TYPE(S): PM

LEVEL: 2

FILTRATION

DATE: 72-00

CATEGORIES: D M O

ID NUMBER: EPAW00040 COPYRIGHT: C

READING ASSIGNMENTS AND EXERCISES FOR WATER SYSTEM OPERATORS

AUTHOR(S): MT BCWMO

SOURCE(S): MT BCWMO

SUBJECT AREAS:

MATHEMATICS

OPERATIONS (WATER)

AERATION

SEDIMENTATION

REMARKS AND ABSTRACT:

GUIDE USED WITH NEW YORK MANUAL FOR WATER PLANT OPERATORS.

COST: 2.00 P

CHEMISTRY

COAGULATION

CORROSION

HYDROLOGY

TYPE(S): PM

LEVEL: 2

BACTERIA

FILTRATION

MAINTENANCE

FLUORIDATION

DATE: 76-99

CATEGORIES: E O S

ID NUMBER: EPAW00493 COPYRIGHT:

ELECTRIC POWER

CHLORINATION

LABORATORY TESTS

SAFETY

WASTEWATER TREATMENT SERIES C

AUTHOR(S): NETWPC

SOURCE(S): NETWPC

SUBJECT AREAS:

PRIMARY TREATMENT

SLUDGE DEWATERING

FILTRATION

STABILIZATION LAGGERS

REMARKS AND ABSTRACT:

ORDER SERIES C WITH ACCOMPANYING NARRATIVE, 100 SLIDES.

FOCUSING ON THE TECHNICAL ASPECTS OF WASTEWATER TREATMENT. IT FEATURES PRIMARY AND SECONDARY FACILITIES AND INCLUDES SEGMENTS ON THE TRAINING OF PLANT OPERATORS AND ON SAFETY.

COST: 0.00 R

SEDIMENTATION

ANALYTICAL TECHNIQUES

ACTIVATED SLUDGE

TERTIARY TREATMENT

TYPE(S): SL PM

LEVEL: 1

PUMPS

SECONDARY TREATMENT

CHLORINATION

SAFETY

DATE: 76-99

CATEGORIES: O T

ID NUMBER: EPAW00592 COPYRIGHT:

SCREENING AND GRINDING

CHEMICAL TREATMENT

FLOW MEASUREMENT

WATER MANAGEMENT

AUTHOR(S): POWER MAG

SOURCE(S): POWER MAG

SUBJECT AREAS:

ANALYTICAL TECHNIQUES

WATER QUALITY

REMARKS AND ABSTRACT:

129PP., AUTHOR: R. MARKS.

PART 1, "WATER", COVERS ALL PHASES OF WATER-SUPPLY PROBLEMS. PART 2, "WATER TREATMENT", COVERS BASIC TREATMENT OF CHEMISTRY, CHEMICALS, EQUIPMENT AND SYSTEMS FOR REMOVAL OF WATER IMPURITIES, WITH APPLICATION TO BOILER FEEDWATER REQUIREMENT OVER ENTIRE PRESSURE SPECTRUM OF STEAM GENERATION. PART 3, "WASTEWATER TREATMENT", TAKES A PRACTICAL LOOK AT POLLUTED INDUSTRIAL WASTE, MICROBIOLOGY AND ANALYSIS; PRESENTS OVERVIEW OF METHODS FOR CORRECTION BEFORE DISCHARGE.

STRAUSS S D

COST: 7.25 P

WATER SUPPLY

SLUDGE CHARACTERISTICS

TYPE(S): PM

LEVEL: 2

STEAM

INDUSTRIAL WASTES

DATE: 75-03

CATEGORIES: D E M P T

ID NUMBER: EPAW00525 COPYRIGHT: C

FILTRATION

BACTERIA

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

What is new in the area of disinfection training materials? Our state is updating training courses and materials in this area. My last list was through 1973.

Subject: Disinfection

II. Search Restrictions (Optional)

Restrict this search to the following:

() Type(s):

() Categories:

() Educational Level:

(X) Years: Beginning Year 1974 Through Ending Year 1976
Opt: Include undated** material: Yes X No

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

() ID (no secondary sort)

() Title (no secondary sort)

() 1st Author (secondary sort by date)

() 1st Source (secondary sort by date)

(X) Date (secondary sort by title)

SEARCH STRATEGY:
DATE-1974/1975/UNDATED SUBJECT-DISINFECTION

SPECIAL BIBLIOGRAPHIC REPORT

74-00

VIRUS SURVIVAL IN WATER AND WASTEWATER SYSTEMS VOL VII WATER RESOURCES SYMPOSIA SERIES EPAW02031
AUTHOR(S): MALINA J F SAGIK B P TYPE(S): PM CATEGORIES: M T
SOURCE(S): UNIV TEX COST: 17.50 P LEVEL: 3 COPYRIGHT:
SUBJECT AREAS:
VIRUS ANALYTICAL TECHNIQUES TERTIARY TREATMENT DISINFECTION
REMARKS AND ABSTRACT:
254 PP.
FIVE SECTIONS DEAL, RESPECTIVELY, WITH VIRUS CONCENTRATION AND ENUMERATION TECHNIQUES, SURVIVAL OF VIRUSES IN
AQUATIC AND SOIL SYSTEMS, EFFICIENCY OF VIRUS INACTIVATION, VIRUS INACTIVATION DURING ADVANCED TREATMENT AND
BY DISINFECTION, AND VIRUS SURVIVAL IN TERRESTRIAL SYSTEMS.

75-00

AWWA STANDARD FOR HYPOCHLORITES EPAW00044
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT CHLORINATION DISINFECTION
REMARKS AND ABSTRACT:
B300-75 (NO. 42300) 9 PP.
THIS STANDARD COVERS CHLORINATED LIME, AND CALCIUM AND SODIUM HYPOCHLORITES FOR USE IN THE TREATMENT OF
MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

75-09

DISINFECTION OF WATER AND WASTEWATER EPAW01432
AUTHOR(S): JOHNSON J D ANN ARBOR TYPE(S): PM CATEGORIES: M D P S T
SOURCE(S): ANN ARBOR COST: 27.50 P LEVEL: 3 COPYRIGHT: C
SUBJECT AREAS:
DISINFECTION
REMARKS AND ABSTRACT:
419 PP, 102 FIGURES, 75 TABLES.
COVERS ANALYTICAL, PHYSICAL AND CHEMICAL BASIS OF WATER AND WASTEWATER DISINFECTION.
SHOWS HOW COMPETITION BETWEEN THE CHEMICAL, PHYSICAL AND MICROBIOLOGICAL PROCESSES RESULT IN DISINFECTION EFFICIENCY.
FOR SANITARY ENGINEERS, ENVIRONMENTAL BIOLOGISTS, AND WATER AND WASTEWATER TREATMENT OPERATORS.

76-00

CHLORINATION OF WASTEWATER EPAW01373
AUTHOR(S): WPCF TYPE(S): PM CATEGORIES: D O S T
SOURCE(S): WPCF COST: LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
CHLORINATION DISINFECTION MANUALS BACTERIA
CHLORINE RESIDUAL VIRUS TASTE AND ODOR CORROSION
REMARKS AND ABSTRACT:
MOP RPT. NO.4; COST: TO BE DETERMINED.
THIS NEW EDITION WILL BE AVAILABLE IN 1976 AND DISCUSSES HISTORY AND CHEMISTRY OF CHLORINATION FOR BACTERIA AND VIRUS
CONTROL; ODOR CONTROL; CORROSION CONTROL; AND CHEMICAL OXIDATION. SAFETY AND MAINTENANCE CONSIDERATIONS ARE INCLUDED.
PRICE OF THE MANUAL WILL BE ANNOUNCED LATER.

Exhibit 29. Special Bibliographic Report on Subject-Disinfection

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

Is R. S. Juvet still writing materials on chromatography. I am updating my graduate course on this topic.

Author: Juvet, R. S.

Subject: Chromatography

II. Search Restrictions (Optional)

Restrict this search to the following:

() Type(s):

() Categories:

() Educational Level:

(X) Years: Beginning Year 1974 Through Ending Year 1976

Opt: Include undated** material: Yes X No

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

() ID (no secondary sort)

() Title (no secondary sort)

(X) 1st Author (secondary sort by date)

() 1st Source (secondary sort by date)

() Date (secondary sort by title)

SEARCH STRATEGY:

AUTHOR-JUVET R S SUBJECT-CHROMATOGRAPHY

SPECIAL BIBLIOGRAPHIC REPORT

MCNAIR H M

JUVET R S

BASIC RELATIONSHIPS AND INSTRUMENTATION BASIC GAS CHROMATOGRAPHY

SOURCE(S): COMM SKILL

TYPE(S): PM FS SL AC

CATEGORIES: M T

DATE: 76-99

EPAW02134

COST: 90.00 P

LEVEL: 3

COPYRIGHT:

SUBJECT AREAS:

CHROMATOGRAPHY

REMARKS AND ABSTRACT:

(NO. 2001); AUTHOR: S. P. CRAM; 43 FRAMES, 23 MIN.

INTRODUCES THE STUDENT TO THE MANY USES AND ADVANTAGES OF GAS CHROMATOGRAPHY. BASIC TERMS AND RELATIONSHIPS ARE ESTABLISHED. FUNDAMENTALS ARE TAUGHT WITH SIMPLE EXAMPLES. INSTRUMENT REQUIREMENTS ARE CAREFULLY CONSIDERED. A VARIETY OF APPLICATIONS ARE ILLUSTRATED WITH CHROMATOGRAMS.

MCNAIR H M

JUVET R S

DETECTORS DESIGN AND USE

SOURCE(S): COMM SKILL

TYPE(S): PM FS SL AC

CATEGORIES: M

DATE: 76-99

EPAW02136

COST: 85.00 P

LEVEL: 3

COPYRIGHT:

SUBJECT AREAS:

CHROMATOGRAPHY

REMARKS AND ABSTRACT:

(NO. 2003); AUTHOR: S. P. CRAM; 49 FRAMES, 29 MIN.

DEALS WITH SYSTEMS TO MEASURE AND DETECT THE PASSAGE OF SAMPLE COMPONENTS. IT DESCRIBES IN DETAIL THREE BASIC DETECTORS, THERMAL CONDUCTIVITY, FLAME IONIZATION, AND ELECTRON CAPTURE COMPARING THEIR PERFORMANCE WITH CHROMATOGRAMS. SEVERAL SPECIALIZED DETECTOR SYSTEMS ARE DISCUSSED. A DETAILED SUMMARY GIVES THE STUDENT SIMPLE GUIDELINES FOR MAKING THE CORRECT CHOICE FOR HIS ANALYSIS.

MCNAIR H M

JUVET R S

COLUMN ITS MAKE UP AND USE

SOURCE(S): COMM SKILL

TYPE(S): PM FS SL AC

CATEGORIES: M T

DATE: 76-99

EPAW02135

COST: 105.00 P

LEVEL: 3

COPYRIGHT:

SUBJECT AREAS:

CHROMATOGRAPHY

REMARKS AND ABSTRACT:

(NO. 2002); AUTHOR: S. P. CRAM; 48 FRAMES, 25 MIN.

THE PROPER CHOICE OF THE GAS CHROMATOGRAPHIC COLUMN IS THE SUBJECT OF THIS PROGRAM. IT CLEARLY DESCRIBES HOW THE COLUMN WORKS, OUTLINES CRITERIA FOR SELECTING THE PROPER COLUMN TYPE, LIQUID PHASE, AND SUPPORT, AND DEMONSTRATES WITH A SERIES OF CHROMATOGRAMS THE RELATIONSHIPS BETWEEN THE CHEMICAL NATURE OF THE SAMPLE AND THE COLUMN PACKING MATERIALS.

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

I understand the League of Women Voters has educational materials available for many levels of people on various aspects of water quality control. What came out in 1975 on the topic of hazardous pollutants? I am preparing for a boy scout environmental project.

Subject: Hazardous Pollutants
Source: LWV

II. Search Restrictions (Optional)

Restrict this search to the following:

() Type(s):

(X) Categories: E

() Educational Level:

(X) Years: Beginning Year 1975 Through Ending Year 1975

Opt: Include undated** material: Yes X No

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

() ID (no secondary sort)

() Title (no secondary sort)

() 1st Author (secondary sort by date)

(X) 1st Source (secondary sort by date)

() Date (secondary sort by title)

SEARCH STRATEGY: SPECIAL BIBLIOGRAPHIC REPORT
 SOURCE-LWV DATE-1975 SUBJECT-HAZARDOUS POLLUTANTS

LWV

ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN THE OCEAN DATE: 75-04
 AUTHOR(S): LWV JOLLY C TYPE(S): PM CATEGORIES: L E
 EPAW01813 COST: 0.25 P LEVEL: 1 COPYRIGHT:
 SUBJECT AREAS:
 INDUSTRIAL WASTES HAZARDOUS POLLUTANTS LAWS AND REGULATIONS SLUDGE DISPOSAL
 REMARKS AND ABSTRACT:
 PUB. NO. 571, 4PP.
 EXPLAINS MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972 AND ITS ROLE IN LIMITING DUMPING OF TOXIC POLLUTANTS IN THE OCEAN. DESCRIBES PROBLEMS OF INDUSTRIAL WASTE AND MUNICIPAL SLUDGE DUMPING.

LWV

ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN INLAND WATERS DATE: 75-06
 AUTHOR(S): LWV JOLLY C TYPE(S): PM CATEGORIES: L E
 EPAW01835 COST: 0.25 P LEVEL: 1 COPYRIGHT: C
 SUBJECT AREAS:
 WATER QUALITY HAZARDOUS POLLUTANTS LAWS AND REGULATIONS INDUSTRIAL WASTES
 DEEP WELLS
 REMARKS AND ABSTRACT:
 PUB. NO. 591, 4PP.
 EXPLAINS SECTIONS 307 AND 311 OF FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 AND THEIR INTENDED ROLE IN CONTROLLING DISPOSAL OF TOXIC POLLUTANTS AND LIMITING HAZARDOUS SPILLS. DESCRIBES POTENTIAL ROLE OF 1974 SAFE DRINKING WATER ACT IN REGULATING DEEP WELL INJECTION OF WASTES.

Exhibit 31. Special Bibliographic Report on Source: LWV

Your Name: Barbara Taylor Telephone: 801-928-4368

Mailing Address: 1287 Piton Lane
Aspen, MT 82693

*If you want a selective bibliography based on a pre-selected group of ID's, complete Sections III, IV and V.

V. Selective Bibliography based on Pre-Selected Set of ID's

If you wish to supply the specific identification numbers for the training material records to be inclusively selected for this bibliography, type the ID(s) below. Do not complete Sections I and II of page 1.

Identification numbers:

[illegible]

EPAW00048

AWWA STANDARD FOR FERROUS SULFATE

AUTHOR(S): AWWA

SOURCE(S): AWWA

SUBJECT AREAS:

STANDARDS

REMARKS AND ABSTRACT:

B402-69 (NO. 42402) 12 PP.

THIS STANDARD COVERS FERROUS SULFATE, EITHER IN GRANULAR (DRY) OR IN SOLUTION (LIQUID) FORM FOR USE IN THE TREATMENT OF POTABLE AND INDUSTRIAL WATER SUPPLIES.

COST: 3.00 P

CHEMICAL TREATMENT

TYPE(S): PM

LEVEL: 2

COAGULATION

CATEGORIES: D M S

COPYRIGHT: C

DATE: 68-00

EPAW00049

AWWA STANDARD FOR ALUMINUM SULFATE LUMP GROUND OR LIQUID

AUTHOR(S): AWWA

SOURCE(S): AWWA

SUBJECT AREAS:

STANDARDS

REMARKS AND ABSTRACT:

B403-70 (NO. 42403) 12 PP.

THIS STANDARD COVERS ALUMINUM SULFATE, EITHER PURIFIED OR UNPURIFIED, AND IN LUMP, GROUND, OR LIQUID FORM FOR USE IN THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

COST: 3.00 P

CHEMICAL TREATMENT

TYPE(S): PM

LEVEL: 2

COAGULATION

CATEGORIES: D M S

COPYRIGHT: C

DATE: 70-00

EPAW00050

AWWA STANDARD FOR LIQUID SODIUM SILICATE

AUTHOR(S): AWWA

SOURCE(S): AWWA

SUBJECT AREAS:

STANDARDS

REMARKS AND ABSTRACT:

B404-59 (NO. 42404) 8 PP.

THESE SPECIFICATIONS COVER SODIUM SILICATE WHICH IS USED IN THE PREPARATION OF ACTIVATED SILICA FOR THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES AND FOR THE CONTROL OF CORROSION IN WATER SYSTEMS.

COST: 3.00 P

CHEMICAL TREATMENT

TYPE(S): PM

LEVEL: 2

CATHODIC PROTECTION

COAGULATION

CATEGORIES: D M S

COPYRIGHT: C

DATE: 58-00

EPAW00051

AWWA STANDARD FOR SODIUM ALUMINATE

AUTHOR(S): AWWA

SOURCE(S): AWWA

SUBJECT AREAS:

STANDARDS

REMARKS AND ABSTRACT:

B405-60 (NO. 42405) 8 PP.

THIS STANDARD COVERS SODIUM ALUMINATE FOR USE IN THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

COST: 3.00 P

CHEMICAL TREATMENT

TYPE(S): PM

LEVEL: 2

COAGULATION

CATEGORIES: D M S

COPYRIGHT: C

DATE: 60-00

Entering Instructional Resources Into IRIS

DEFINITIONS

IRIS contains both the bibliographic citation and abstract data elements associated with each training material in the system. A complete definition of each data element is given in Table 3 on page 11. On page 10 is a sample IRIS record with data elements explained (Exhibit 1).

CODING INSTRUCTIONS

The following pages (70 through 75) provide step-by-step instructions for completing the *Master File Data Input Form*. General rules for completing the input form are:

- punctuation is not permitted (except in remarks and abstract)
- no lower case alphabetic characters
- abbreviations must conform to an approved standard
- symbols must conform to an approved standard.

The coding instructions support:

- ease of *Data Capture*
- correctness of data
- efficiency in use of the computer
- highly usable information reports
- efficient file access for selective bibliographic reports.

GENERAL INSTRUCTIONS

If you are a publishing source and wish to contribute information about your materials to the IRIS system, establish an unused code to represent your organization which is 10 digits or less and register this code with:

IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268

When completing the data input forms, be sure to enter this code in the source block.

If you are a nonpublishing user and have found a training material you feel should be added to IRIS, first use the indexes and reports to ensure that the training material has not already been entered in IRIS. If the item is not in IRIS, use the *Source Name Table* to determine the

proper source code. If no code exists, write the full source name on the data caption form in the source block, and write the full address for the source on the back of the form.

After completing a data input form, forward it to the National Training Center (address on page 57). Be sure to enclose your name, address, and full telephone number so you can be contacted if questions arise.

INSTRUCTIONS FOR COMPLETION OF CODING SHEET

ID Number

A maximum of nine characters is allowed (e.g., EPAW00000).

EPA - Identifier for EPA
 W - Water Quality Control Material
 00000 - Number to be assigned by EPA to each item.

The ID number is assigned by EPA.

Copyright

Place a "C" in this block if the material is copyrighted.

Item Title

A maximum of 104 characters is allowed for the training material title. Do not abbreviate. End title, if necessary, with last significant word which meets the 104 character limit. Begin title with first significant word -- ignore "a," "an," and "the." Do not enter report number(s) as part of the title. Enter all such numbers in the remarks line. Do not punctuate; substitute a space where punctuation would appear.

Examples:

Enter *Water Quality; A Handbook* as:
 Water Quality A Handbook

Enter *Water Fluoridation: Applications and Techniques* as:
 Water Fluoridation Applications and Techniques

Enter *Sewage Treatment - Plant Design* as:
 Sewage Treatment Plant Design

Date

Four characters (2 numeric characters for year and 2 numeric characters for month). If only year is known, enter year, then month as "00." If date is unknown, enter current year, the month as "99" (although approximate, this indicates a date range, and the "99" indicates that the date has been arbitrarily assigned). Examples follow.

Examples:

7401 = January 1974

7411 = November 1974

7400 = 1974 (month unknown)

7599 = Entered into IRIS in 1975, date unknown.

Author

Not more than two authors' names of 24 characters each are allowed. Enter last name (full name), followed by a space; followed by first initial, followed by a space; followed by middle initial, if applicable (otherwise leave middle initial blank). No punctuation.

Type

A maximum of four 2-character type descriptors with one space between each. Use the following code for type of material.

AC Audio tape cassetts
 AR Audio tape reel
 FS 35mm filmstrip
 MP Motion picture (8mm, 16mm, 35mm)
 OT Overhead transparency
 PM Printed matter
 SL 35mm slide
 VC Video tape cassette
 VR Video tape reel (1/2", 1", 2")

Examples:

PM SL AC Printed matter, 35mm slide, audio tape cassette
 PM SL AC OT Printed matter, 35mm slide, audio tape cassette,
 overhead transparency
 SL 35mm slide
 SL AC 35mm slide, tape

NOTE: Specific characteristics for motion pictures and video tape reels (e.g., width) should be noted in the remarks field.

Category

A maximum of five 1-character category descriptors with one space between each. Use the following code for category:

- D Design - The material is suitable for a person involved in design of water quality control facilities. It is not related to the operation of the facility.
- E Explanatory - The material is of a general nature and serves to orient a person to water quality control activities. It is not technical.

- L Legal and Regulatory - The material is related to laws, standards, regulations, and criteria for water quality control activities.
- M Monitoring and Surveillance - The material is related to designing and implementing water quality monitoring, surveillance, and laboratory control programs.
- O Operations - The material is related to the operations of water quality control facilities. The material related to one or more of the following:
 - a. Normal operating procedures
 - b. Abnormal operating procedures
 - c. Preventive maintenance procedures
 - d. Corrective maintenance procedures
- P Planning - The material is related to planning aspects of water quality control programs.
- S Supervision - The material is related to supervision and management aspects of water quality control facilities, including personnel, budgets, report preparation, and plant process control decisions.
- T Theory - The material is related to the scientific principles applicable to the subject matter in the water quality control field or a basic science area.

Examples:

- E - explanatory
- M O - monitoring and surveillance; operations
- D L M O T - design; legal and regulatory; monitoring and surveillance; operations; theory

Level

Select a one 1-character descriptor from the following list:

- 0 Remedial - This material is written for adults. It is normally material covered in primary and secondary education programs.
- 1 Basic - This material is written for new entry personnel into the subject area.
- 2 Intermediate - This material is for personnel with some knowledge or experience in the subject area.
- 3 Advanced - This material is for personnel with considerable knowledge and practical experience in the subject area.

Source

A maximum of two 10-character sources is allowed. If the coding sheets received do not have this field already filled, write in the originating source (where material can be obtained) using as many characters as necessary.

Cost

First 6 characters constitute the dollar-and-cents cost, if applicable (if not, place 6 zeros here). Following this cost, leave one space and enter the appropriate 1-character indicator determining whether item is purchase (P) or rental (R).

Examples:

000150 P = \$1.50, to purchase
 010000 R = \$100.00, for rental
 185444 P = \$1,854.44, to purchase
 000000 P = no cost, retain material
 000000 R = no cost, but must return material

Subject Area

The object of assigning subject terms to a document is to connect the user to the document. The user's point of view should be considered in the selection of each term; i.e.:

- how would the user ask for the document?
- would the user ask for the document in this fashion?
- if I were trying to find this particular document, could I find it using these terms?

The user population must be definable to the reviewer. Is the audience technically oriented, management oriented, or applications oriented? Subject term selection should be directly related to this assessment.

As a cross reference network exists for IRIS, no relational terms (synonyms) should be assigned to the same document.

Unless the audience base contains users requiring general material, as well as users requiring specific material, the more specific term is to be preferred to the broader term where relevant, and both should not be assigned to the same document. For example:

A book on personnel relations should not be given the terms "personnel relations," as well as "management." Only the more specific term should be entered.

EXCEPTION: In the event that both audiences have equal need for a document. A handbook on chemistry may be devoted to biochemistry, organic chemistry, and so on. It is of equal value to the biochemist, as well as the general audience requiring a chemistry reference book.

The descriptor chosen should describe the informational material contained within the document, not the purpose of the document. For example, an item used solely for instructional purposes should not be given the term "instruction."

The reviewer should not attempt to choose the audience; e.g., a book about energy should not be given the term "management" because the reviewer feels that management should be aware of this document.

The number of terms assigned to a document should be directly proportional to the size of the document and the level of specificity of that document. The user does not want to be burdened with documents of marginal interest. A 5-page pamphlet should not be given 16 descriptors; a 546-page, highly technical, highly specific document should not receive 16 descriptors; a handbook, manual, symposium, or basic reference book might require all 16 descriptors.

- the older a document, unless a classic, the fewer the number of descriptors.
- for very new subject areas of high interest where little information exists, more detailed subject descriptors are acceptable.

A certain category of terms fall into a "form" term specification -- words such as "dictionaries," "handbooks," "codes," "standards," "bibliographies," and so on. These terms are handled as follows:

- documents, in addition to the normal subject descriptors, are given an additional descriptor to define the form. The user benefits by having all "dictionaries" together, all "bibliographies" together, etc.

The key is to connect the user to the document. Every decision concerning term selection should revolve around this fundamental concept.

You may select up to 16 subjects from the *Thesaurus*. When selecting subjects, consider the following:

- a. Select as few subjects as possible which specifically and fully describe the document.
- b. While a maximum of 16 subjects is allowed, do not attempt to use all 16 unless clearly justified.
- c. Select each term by considering how the user would ask for this material.
- d. If no subject term adequately describes the document, suggest one for our consideration, and place an asterisk (*) after the word to alert us that this is a new term.

Remarks

There are 120 characters allowed for special comments. Specific items appearing here would cover additional physical characteristics of the document, report or identification number(s), additional authors and/or sources, and other comments. List remarks in the following order:

- a. Report or other identification number.
- b. Physical characteristics (number of pages, number of slides, film running time, and so on).
- c. Additional authors and sources.

- d. If rental item is available for purchase and where.
- e. Other comments which describe bibliographic character of material.

Abstract

A maximum of five lines, 120 characters each is allowed. Do not exceed 120 characters for any given line. This should represent a concise objective description of the item. It should provide additional information not already captured via the subjects assigned. It should emphasize information not clearly specified in any other part of the record. This does not represent an area where professional evaluation is to be entered.

MASTER FILE FORMAT

As in all automated applications, IRIS has a specific *File Format* for capturing and maintaining data. In this system, up to 29 distinct bibliographic elements, plus a brief abstract, form a record on each training material of 1,440 characters.

A complete definition of each data element is given in Table 3 on page 11. On page 10 is a sample IRIS record with data elements explained (Exhibit 1).

Exhibit 33 (page 77) is the actual master file data input form with the field length followed by the start position in the record specified. For example, the data element AUTHOR ONE appears in the layout form as: AUTHOR ONE 1/24. The 1 refers to the start position in the record, and the 24 is the maximum field length.

An example of a completed Data Input Form is given in Exhibit 34 on page 78.

DATA INPUT FORM - IRIS

8/76

ID NUMBER 1/9	C 10/1	ITEM TITLE						11/104	Date 117/4
AUTHOR ONE 1/24	AUTHOR TWO 26/24	TYPE 52/11	CATEGORIES 64/9	LVL 85/1	SOURCE 1 87/10	SOURCE 2 98/10	COST 110/8		
SUBJECT ONE 1/29	SUBJECT TWO 31/29		SUBJECT THREE 61/29		SUBJECT FOUR 91/29				
SUBJECT FIVE 1/29	SUBJECT SIX 31/29		SUBJECT SEVEN 61/29		SUBJECT EIGHT 91/29				
SUBJECT NINE 1/29	SUBJECT TEN 31/29		SUBJECT ELEVEN 61/29		SUBJECT TWELVE 91/29				
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29		SUBJECT FIFTEEN 61/29		SUBJECT SIXTEEN 91/29				
REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.)									1/120
ABSTRACT LINE ONE									1/120
ABSTRACT LINE TWO									1/120
ABSTRACT LINE THREE									1/120
ABSTRACT LINE FOUR									1/120
ABSTRACT LINE FIVE									1/120

DATA INPUT FORM - IRIS

78
8/76

ID NUMBER 1/9	C 10/1	ITEM TITLE <i>Water Quality Instructional Resources Information System Users Manual</i>						11/104	Date 117/4 7600
AUTHOR ONE 1/24 CCCC	AUTHOR TWO 26/24 Clemson U	TYPE 52/11 PM	CATEGORIES 64/9 DELMO	LVL 85/1 2	SOURCE 1 87/10 EPA NTC	SOURCE 2 98/10	COST 110/8 000000 P		
SUBJECT ONE 1/29 <i>Information Systems</i>	SUBJECT TWO 31/29 <i>Instruction</i>		SUBJECT THREE 61/29 <i>Indexes and Bibliographies</i>		SUBJECT FOUR 91/29 <i>Water Treatment</i>				
SUBJECT FIVE 1/29 <i>Wastewater Treatment</i>	SUBJECT SIX 31/29		SUBJECT SEVEN 61/29		SUBJECT EIGHT 91/29				
SUBJECT NINE 1/29	SUBJECT TEN 31/29		SUBJECT ELEVEN 61/29		SUBJECT TWELVE 91/29				
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29		SUBJECT FIFTEEN 61/29		SUBJECT SIXTEEN 91/29				
REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.) 1/120 <i>EPA 430/1-76-003, 178pp, also categories P, S, T</i>									
ABSTRACT LINE ONE 1/120 <i>Designed to enable instructors, developers and authors of training materials in the water and wastewater,</i>									
ABSTRACT LINE TWO 1/120 <i>areas to learn how to locate instructional materials by subject,</i>									
ABSTRACT LINE THREE 1/120 <i>authors, publishing/distributing source, media type, application category,</i>									
ABSTRACT LINE FOUR 1/120 <i>or title retained in IRIS, contains study objectives, examples,</i>									
ABSTRACT LINE FIVE 1/120 <i>and appendices (glossary, code definitions, source directories, thesaurus).</i>									

Exhibit 34. Completed Data Input Form

CORRECTING AN EXISTING IRIS RECORD

In using the IRIS products, you may find a material incorrectly entered. Typical errors might be misspelled titles, incorrect subject assignment, wrong sources and so on. To make IRIS usable, it is important that all users contribute to the correction process. This can be easily and rapidly done. Simply use a blank IRIS Data Input Form (Exhibit 33 on page 77), write the ID number for the IRIS material requiring correction, and in the appropriate box, write the necessary correction. In the example on the following page:

1. The title was misspelled.
2. Laboratory Control was an incorrect subject (upon review, the user found nothing dealing with this topic); but Microorganisms were a significant part of the training material.
3. The user recommends adding a seventh subject, Bacterial Analysis, as this topic was covered in the material.

Exhibit 36 indicates how a data input form should be filled out to show the required changes for an incorrect listing (Exhibit 35, page 80).

ExecISes about Pollution

Date: 73-00

Author(s): Sohn B I

Type(s): PM

Categories: M

Source(s): Milli

Cost: 0.00 P

Level: 2

ID Number: EPAW01619 Copyright C

Subject Areas:

Biological Analysis

Total Coliforms

Fecal Coliforms

Fecal Strep

Algae

Laboratory Control

Remarks and Abstract:

9pp. Reprint from 'Pollution' Magazine.

Describes physical, chemical, and bacterial tests to determine water pollution levels from microorganixms. Equipment photos.

DATA INPUT FORM - IRIS

8/76

ID NUMBER 1/9 EPAW01619	C 10/1	ITEM TITLE <i>Exercises About Pollution</i>						11/104	Date 11/74
AUTHOR ONE 1/24	AUTHOR TWO 26/24	TYPE 52/11	CATEGORIES 64/9	LVL 85/1	SOURCE 1 87/10	SOURCE 2 98/10	COST 110/8		
SUBJECT ONE 1/29	SUBJECT TWO 31/29		SUBJECT THREE 61/29		SUBJECT FOUR 91/29				
SUBJECT FIVE 1/29	SUBJECT SIX 31/29 <i>Microorganisms</i>		SUBJECT SEVEN 61/29 <i>Bacterial Analysis</i>		SUBJECT EIGHT 91/29				
SUBJECT NINE 1/29	SUBJECT TEN 31/29		SUBJECT ELEVEN 61/29		SUBJECT TWELVE 91/29				
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29		SUBJECT FIFTEEN 61/29		SUBJECT SIXTEEN 91/29				
REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.)									1/120
ABSTRACT LINE ONE									1/120
ABSTRACT LINE TWO									1/120
ABSTRACT LINE THREE									1/120
ABSTRACT LINE FOUR									1/120
ABSTRACT LINE FIVE									1/120

Exhibit 36. Data Input Form Completed for Incorrect Entry

Computer Environment

COMPUTER HARDWARE AND SOFTWARE

IRIS has been developed on a computing facility (IBM 370/158) currently servicing a large portion of EPA *Data Processing* requirements. This facility provides a nationwide *Telecommunications Network*. WYLBUR, a *Text Editor*, and the Inquiry and Reporting System (IRS), a report generator, are the two computer software packages supporting this application.

In general, WYLBUR is used to build and maintain the master file, and IRS is used to manipulate the data files generating the required products. Originally developed at the Stanford University Computation Center, WYLBUR provides extensive text editing capabilities through the utilization of on-line low speed *Terminals*. Generally, as WYLBUR is an *On-Line* software, a fairly large scale IBM 360/370 system is required. WYLBUR is installed on a representative number of large scale computer centers using IBM equipment and is generally considered "public domain" software. The second software, IRS, is a commercially available *Data Retrieval and Report Generation Software Package*. It is owned and available through Sigma Data Computing Corp. The software provides a fast, efficient, and simple technique for extracting information from computer files, performing basic data processing functions, and producing the desired form of output. IRS can be installed on virtually any model of IBM 360/370 equipment. All the computer programs are written in this *Batch* report generator software.

DATA PROCESSING APPROACH

To support the development of IRIS, the following considerations ensured a cost effective flexible information system:

- Certain standards have been applied to IRIS which have been successfully used in the implementation of other EPA information programs. These encompass master file organization, computer programming techniques, data input control, computer-generated information products, and so forth. One favorable result is that development time and costs associated with this application were substantially less than those of similar systems developed before it. Another important result is the reduction of training costs associated with the understanding of this application.
- In developing IRIS the first technical procedure was the establishment of a working system based on a small test *Data Base*. As this test procedure developed, all parties worked closely together, ensuring that the final result would meet the information requirements. The critical consideration is that the test system was developed, analyzed, modified, and completed prior to the commitment of any large resources to the effort. Following this procedure ensured that no major modifications were necessary after the test phase.

- Another important aspect of the *System Philosophy* involves the planned and effective utilization of the powerful computer hardware/software environment supporting the application. The use of all on-line capabilities is well planned and essentially used to support the "Front End" or data input and control portion of the system. For the most part, all informational products are batch oriented and are generated under the control of trained information staff who have a complete knowledge of all aspects of the system. Further, the design of the file layouts is kept as straightforward and direct as possible. The file has *Fixed Length Data Elements* and *Fixed Length Records* allowing all levels of programmers to easily interact with the system. The simplified *Master File Format* also supports the high degree of flexibility necessary to meet the ever-changing needs of any information activity.
- As in any computer based system, an accurate and correct data base is essential if the application is to prove successful. In achieving such a data base, the proper use of *Data Capture Forms* is crucial to the system. Generally, the greater the number of decentralized sources of input (as is the case in this application), the more rigid and defined the data capture form and procedures must be. In the IRIS system the data capture form is well structured, and complete instructions to the participating sources are provided. In addition, the data capture form is designed to closely match the actual master file format. This ensures the ease of transition from the data capture sheet to machine readable form. Routine professional review of the essential data captured via the forms, along with the continual updating of the *Thesaurus* and the source file, is essential to the viability of the data base and resultant information products.
- As all concepts in the design of this application center on providing as many users as possible with cost effective information products, the medium of distribution represents a significant consideration. In this application, all information products are available on *Computer Output Microfiche (Com)*--42X reduction--with each microfiche representing over 200 pages of information. The use of COM as a *Distribution Medium* ideally supports the situation where many copies of a structured, computer-generated information report are required to be distributed nationally or internationally. One can mail 5 microfiches (over 1,000 pages of output) for the price of a first class postage stamp. COM reports take up little space, have a useful life of many years, bypass the substantial cost of paper, and with proper education, represent a significant means of information exchange.

Each of the considerations described above has contributed to the effective design and implementation of this application. The most critical requirement necessary for the success of any information system, however, is program personnel who truly understand their subject area and their users' needs. Without their active participation, it is unlikely that any system will succeed.

Glossary

Access:

Utilization of IRIS information products in meeting a particular training materials selection requirement.

Batch:

When the computer user submits a request to be processed under a scheduled priority that the computer center staff establishes. The generation of an IRIS information product via one of the IRIS computer programs is an example of a batch activity.

Bibliographic Element:

Those data elements which specifically describe a document according to its information characteristics; e.g., the title, author, source, date, type, category, level, and subject description of a training material.

Category:

Each training material is assigned relevant application areas; e.g., operations, design, explanatory, etc., to allow instructors greater browsing ability when selecting for a particular user group such as operators. Entered as a one-character code, all codes are specifically defined in the *Code Definition Table*.

COM:

See COMPUTER OUTPUT MICROFICHE

Computer File:

The inventory of all of the information on all of the training material in a form which is readable by the computer. Synonymous with the term DATA BASE in the IRIS application.

Computer Output Microfiche (COM):

A microfiche which is produced through the use of a computer.

Computer Terminal:

See TERMINAL (COMPUTER)

Cost:

Indicates the availability of the training material in terms of the purchase or rental price, or in terms of permanent or temporary loan. The codes are specifically defined in the *Code Definition Table*.

Data Base:

In terms of IRIS, the sum total of all the information gathered on all of the training resources processed through IRIS.

Data Capture:

The activities associated with the selection and analysis of information gathered on the training material to be entered into IRIS.

Data Capture Form:

See DATA INPUT FORM

Data Elements:

The specific items of information captured on each training material (e.g., title, author, source, etc.).

Data Input:

See INPUT

Data Input Form:

The document onto which all information describing a training material (e.g., title, date, source, subject, abstract, etc.) is entered prior to being entered as data into the computer as part of the IRIS master data base.

Data Processing:

All activities related to the automation (the application of a computer) of a particular activity. Key punching, computer programming, etc., are specific examples of data processing functions.

Data Retrieval Package:

See REPORT GENERATION PACKAGE

Design Philosophy:

In data processing, as in any field, there are several possible approaches which can be used to develop an automated activity. Within each approach there are certain fundamental steps which differentiate that approach from any other. The design philosophy represents the total fundamental steps selected from the various possible approaches to satisfy an automated requirement.

Distribution Medium:

The product form used for mass distribution of IRIS information products. For example, the *Title Master Report* is distributed as a hard copy document, while the various indexes (e.g., source, author, type, etc.) are available on microfiche.

Education Level:

See LEVEL (EDUCATION)

File Format:

See MASTER FILE FORMAT

File Layouts:

The specific format used to gather the information on each training material. This layout is acceptable to the computer for processing and is the basis on which all information products are produced.

Fixed Length Data Element:

A data element which has a specific number of maximum characters. In the event that a particular data element does not fit the maximum number of characters allotted, spaces or zeros complete the field. For example, in IRIS, 29 characters are allowed for each subject. If the subject term SLUDGE TREATMENT is used, only 16 characters are entered, and the remaining 13 are left blank.

Fixed Length Record:

The unit that defines to the computer one training material. Each record contains a specific set of fixed length data elements defining that training material. The total number of characters defining each training material is the same.

Front End:

Includes those activities necessary to gather, evaluate, and enter the information associated with each of the training materials.

Hardware (Computer):

The hardware is the physical components that make up a computer facility. Such components normally include a memory unit known as the central processing unit (cpu), where all processing takes place, and the peripheral devices to the cpu such as the card reader, tape devices, etc., which support data exchange and storage requirements.

ID Number:

Each training material receives a unique 9-character identification number. The alpha portion "EPAW" indicates that the number has been assigned through the Water Quality Program of EPA. The number is a unique 5-digit number. The purpose of the identification number is to allow the IRIS user to easily reference the *Identification Number Master Report* after consulting the various indexes.

Index:

The information products which act as pointers back to the master report products (i.e., the title and ID reports). The indexes are used when one does not know the specific title or identification number of a training material. For example, if material under the term SLUDGE TREATMENT is desired, the *Subject Index* would be reviewed to identify the ID's or titles of pertinent training materials. With this information the user can proceed to the *ID* or *Title Master Report* to review the more complete record describing the training material.

Information Center:

An organization (containing one or more persons) with a comprehensive knowledge of a particular body of information.

Information Products:

The master reports (e.g., *Title*), indexes (e.g., *Author*, *Subject*), and tables (e.g., *Thesaurus*) produced through IRIS.

Information System Approach:
See DESIGN PHILOSOPHY

Information System (Automated):
The use of a computer to support an information application.

Input:
In terms of IRIS, it is the information collected and entered into IRIS for each selected training material.

Instructional Material:
See INSTRUCTIONAL RESOURCES

Instructional Resources:
Those training materials which have been selected and evaluated for inclusion into IRIS.

IRIS:
Instructional Resources Information System, serving the Water Quality Training program through a series of information products. These products contain bibliographic information (author, title, date, subjects, etc.) along with a brief abstract for selected multi-media training material.

Level (Education):
Each training material is evaluated according to its usability by beginning through advanced operators. This judgment is coded as a number (0 through 3) to indicate remedial through advanced. For specific code definition, see *Code Definition Table*.

Master File Format:
See FILE LAYOUTS.

Master Report:
The *Identification Number Master Report* and the *Title Master Report* produced by IRIS, each of which contains all the information (i.e., bibliographic and abstract information) for each training material in IRIS.

Microfiche (42X):
A report medium composed of a 4 x 6" plastic film that contains an equivalent of up to 208 pages of hard copy.

On-Line:
When the computer user directly communicates through a typewriter-type terminal with the computer, and the computer immediately processes the search or any other activity specified by the computer user. As an example, the use of WYLBUR to build a textual file is an on-line activity.

Report:
See MASTER REPORT

Report Generation Software Package:

This is a computer programming language designed to provide the computer programmer with a shorthand method of producing normal reports. All IRIS products are produced through such a computer software.

Software (Computer):

The computer languages through which the computer programmer directs the computer to perform a specific task.

Source:

Each instructional material can be assigned up to two sources to indicate to the IRIS user where the material can be obtained. Those sources are entered in a code format, which is translated in the *Source Name Table*.

System:

The sum total of all activities supporting IRIS; i.e., identifying training material, evaluating the material, feeding the desired information to the computer, and generating the full range of information products.

System Philosophy:

See DESIGN PHILOSOPHY

Table:

A group of IRIS information products designed to facilitate use of IRIS. These products include a *Thesaurus*, a *Source Name Table*, a *Source Code Table*, and the *Code Definition Table*.

Telecommunications Network:

The facility through which a number of people, geographically remote from a computer site, can share the use of that computer by using typewriter-type terminals connected to the computer via telephone lines.

Terminal (Computer):

A piece of equipment; i.e., a typewriter terminal through which the computer user communicates with a computer. In all instances the terminal is connected to the computer via a telephone line.

Text Editor:

A type of computer program designed to allow the user to build, modify, and maintain text (e.g., business letters, computer programs, technical reports, etc.). For a specific example see WYLBUR.

Thesaurus:

A dictionary limited to those terms used in the water quality control training program. The terms entered and maintained in this special *Thesaurus* are the only terms which can be applied to any training material being entered into IRIS.

Type:

Each instructional resource is categorized according to the available media types; e.g., cassette, tape, film, etc. This information is entered as a 2-character code which is translated for the user in the *Code Definition Table*.

User:

Any individual accessing IRIS to satisfy a multi-media training material selection requirement.

WYLBUR:

Developed at Stanford Research Institute, WYLBUR is a computer program which allows the user to directly communicate with the computer and build, modify, and maintain text, whether it is a business letter, a manual, or a computer program.

CODE DEFINITION TABLE

ITEM	DESCRIPTION	CODE DEFINITION
ID Number	unique 9-character field comprising a 4-digit agency/program identifier (EPAW) plus a 5-digit sequence number	
Copyright Code	indicates whether item is copyrighted	C copyright blank no copyright
Item Title	title of the material	
Publication Date	month and year	
Author	up to two	
Type	up to four	AC audio tape cassette AR audio tape reel FS 35mm filmstrip MP motion picture OT overhead transparency PM printed matter SL 35mm slide VC video tape cassette VR video tape reel
Category	up to 5 one-character codes broadly identifying the application area of the material	D design E explanatory L legal & regulatory M monitoring & surveillance O operations P planning S supervision T theory
Educational Level	defines educational use level of material	0 remedial 1 basic 2 intermediate 3 advanced
Originating Source	up to two; identifies organization responsible for the material	Consult Source Code Table
Cost	approximate dollar amount if item is available for purchase	
Purchase/Rent Code	indicates whether material can be rented or is available for purchase	R loan/rent/free P purchase
Subject	up to 16	Consult Thesaurus
Remarks	identifies special characteristics of the media that cannot be easily quantified	
Abstract	up to 5-120 character lines representing a professional summary of the material	